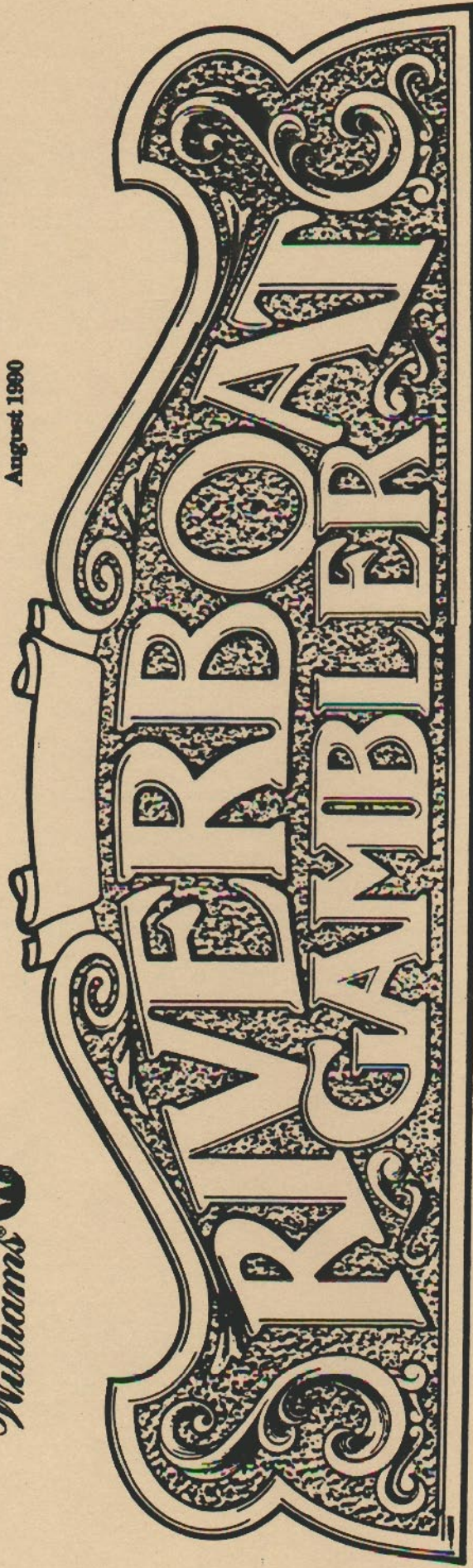




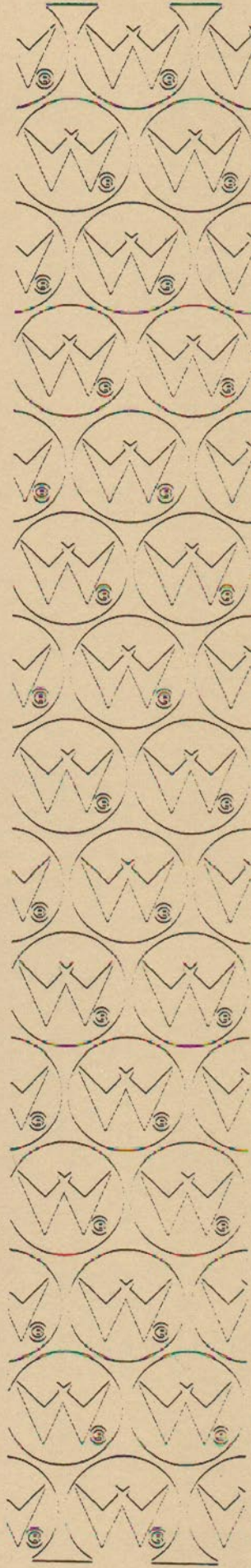
16-50007-101
August 1990



OPERATIONS MANUAL

Game Operations & Adjustments
Parts Information

Game Testing & Problem Diagnosis
Reference Diagrams & Schematics



RIVERBOAT GAMBLER ROM and Jumper Table

Game	CPU Rev	PN - U15 Game µP	PN - U27 G. ROM 1	PN - U28 G. ROM 2	Jumpers	Audio Bd	PN - U4 A. ROM 1	PN - U19 A. ROM 2	PN - U20 A. ROM 3
ROLLERGAMES	System 11C	5400-09150-00	A-5343- 576-2	A-5343- 576-1	W1, 2, 4, 5, 7, 8, 11, 14, 16, 17, and 19	System 11C	A-5343- 576-3	A-5343- 576-4	A-5343- 576-5
DINER	System 11C	5400-09150-00	A-5343- 571-2	A-5343- 571-1	W1, 2, 4, 5, 7, 8, 11, 14, 16, 17, and 19	System 11C	A-5343- 571-3	A-5343- 571-4	A-5343- 571-5
RIVERBOAT GAMBLER	System 11C	5400-09150-00	A-5343- 50007-2	A-5343- 50007-1	W1, 2, 4, 5, 7, 8, 11, 14, 16, 17, and 19	System 11C	A-5343- 50007-3	A-5343- 50007-4	A-5343- 50007-5

Riverboat Gambler Solenoid Table

Sol. No.	Function	Solenoid Type	Wire 1 Color	Connections		Driver Transr	Solenoid Part Number Flashlamp Type 1-Insert Panel, p-Playfield
				CPU Bd	Playfield/ Cabinet		
01A	Outhole	Switched	Vio-Brn	1P11-1	5J1-9: 5J4-8 (A)	Q33	AE-23-800
01C	Left Kicker (Sling) Flasher	Switched	Blk-Brn	(Gry-Brn)	5J5-9 (C)	Q33	#89/906 flashlamps 11.1p
02A	Ball Shooter Lane Feeder	Switched	Vio-Red	1P11-3	5J1-7: 5J4-8 (A)	Q25	AE-23-800
02C	Right Kicker (Sling) Flasher	Switched	Blk-Red	(Gry-Red)	5J5-8 (C)	Q25	#89/906 flashlamps 11.1p
03A	Left Drop Tgt Reset	Switched	Vio-Orn	1P11-4	5J1-6: 5J4-7 (A)	Q32	AE-24-900
03C	Left Drop Tgt Bank Flasher	Switched	Blk-Orn	(Gry-Orn)	5J5-7 (C)	Q32	#89/906 flashlamps 11.1p
04A	Right Drop Tgt Reset	Switched	Vio-Yel	1P11-5	5J1-5: 5J4-6 (A)	Q24	AE-24-900
04C	Right Drop Tgt Bank Flasher	Switched	Blk-Yel	(Gry-Yel)	5J5-5 (C)	Q24	#89/906 flashlamps 11.1p
05A	Ramp Up	Switched	Vio-Grn	1P11-6	5J1-4: 5J4-5 (A)	Q31	AE-23-800
05C	Standup Target Flasher	Switched	Blk-Grn	(Gry-Grn)	5J5-4 (C)	Q31	#89/906 flashlamps 11.1p
06A	Ball Kicker (Locker)	Switched	Vio-Blu	1P11-7	5J1-3: 5J4-4 (A)	Q23	AE-23-800
06C	Left Ramp Flasher	Switched	Blk-Blu	(Gry-Blu)	5J5-3 (C)	Q23	#89/906 flashlamps 11.1p
07A	Knocker	Switched	Vio-Blk	1P11-8	5J1-2: 5J4-2 (A)	Q30	AE-23-800
07C	Right Ramp Flasher	Switched	Blk-Vio	(Gry-Vio)	5J5-2 (C)	Q30	#89/906 flashlamps 11.1p
08A	Ramp Down	Switched	Vio-Gry	1P11-9	5J1-1: 5J4-1 (A)	Q22	SM1-26-800
08C	Left Back Flasher	Switched	Blk-Gry	(Gry-Blk)	5J5-1 (C)	Q22	#906 flashlamp 1p
09	Right Back Flasher	Controlled	Brn-Blk	1P12-1	5J2-9: 5J6-9: 2J4-11	Q17	#906 flashlamp 1p
10	Playfield/Insert GI Relay	Controlled	Brn-Red	1P12-2	5J2-8: 5J6-8: 2J4-12	Q9	5580-09555-01 4a
11	Wheel Flashers (TR + LR)	Controlled	Brn-Orn	1P12-4	5J2-6: 5J6-7: 2J4-13	Q16	#906 flashlamp 1p
12	A/C Select Relay	Controlled	Brn-Yel	1P12-5	5J2-5	Q8	5580-09555-01 5
13	Diverter	Controlled	Brn-Grn	1P12-6	5J2-4: 5J6-5: 2J4-14	Q15	AE-24-900
14	Roulette Wheel B	Controlled	Brn-Blu	1P12-7	5J2-4: 5J6-3: 2J4-15	Q7	p/o B-12088
15	Roulette Wheel A	Controlled	Brn-Vio	1P12-8	5J2-2: 5J6-2: 2J4-16	Q14	p/o B-12088
16	Wheel Flasher (LL + TR)	Controlled	Brn-Gry	1P12-9	5J2-1: 5J6-1: 2J4-10	Q6	#906 flashlamps 2i
17	Top Jet Bumper	Special #1	Blu-Brn	1P19-7	5J3-7: 5J7-7	Q75	AE-23-800
18	Left Kicker (Sling)	Special #2	Blu-Red	1P19-4	5J3-6: 5J7-6	Q71	AE-26-1500
19	Bottom Jet Bumper	Special #3	Blu-Orn	1P19-3	5J3-3: 5J7-3	Q73	AE-23-800
20	Right Kicker (Sling)	Special #4	Blu-Yel	1P19-6	5J3-4: 5J7-5	Q69	AE-26-1500
21	Right Jet Bumper	Special #5	Blu-Grn	1P19-8	5J3-2: 5J7-2	Q77	AE-23-800
22	Not Used	Special #6	Blu-Blk	1P19-9	5J3-1: 5J7-1	Q79	
-	Lower Right Flipper	-	Orn-Vio [Blu-Vio]	1P19-1	2J5-5: 2P10-7 [2J10-1: 2P8-15]	-	FL11630/50VDC
-	Lower Left Flipper	-	Orn-Gry [Blu-Gry]	1P19-2	2J5-4: 2P10-6 [2J10-2: 2P8-14]	-	FL11630/50VDC

1. Wire colors, except flipper Orn-Vio and Orn-Gry, are ground connections (to coil terminal with unbanded end of diode). Flipper Orn-Vio, Orn-Gry wires connect from CPU Board to flipper switch. 2. Flipper connections shown in braces are from flipper switch to flipper coil. 3. "A" circuits are pulsed, when Sol. 12 is de-energized. "C" circuits are pulsed, with Sol. 12 energized. Wire colors in brackets are those from respective A and C terminals corresponding to the J1-terminal connection listed for the Aux Power Driver Bd, which controls the device pulsing by Sol. 12. 4. Relay is mounted on Relay Bd, (4a) p/a C-11998-1; (4b) C-11992-1. 5. Relay is mounted on Aux Power Driver Bd, D-12247 to the backbox.

RIVERBOAT GAMBLER

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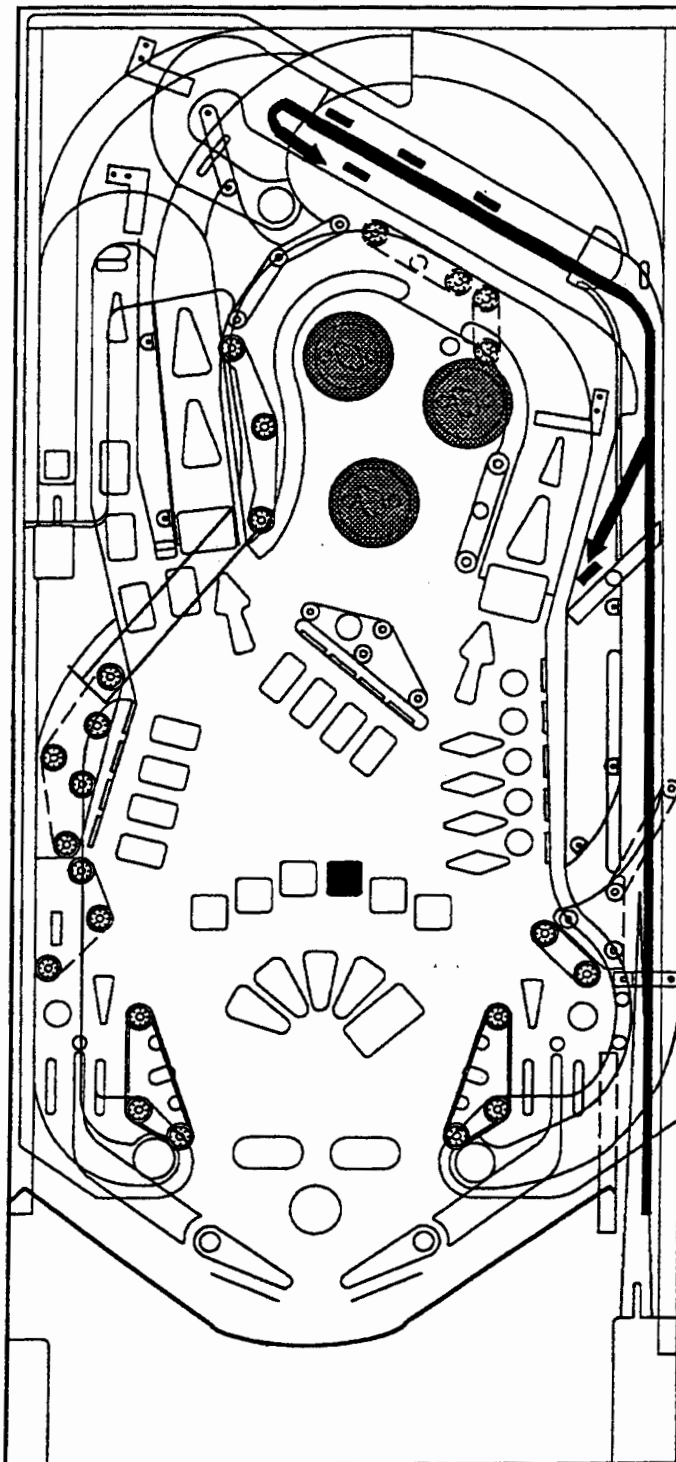
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RIVERBOAT GAMBLER

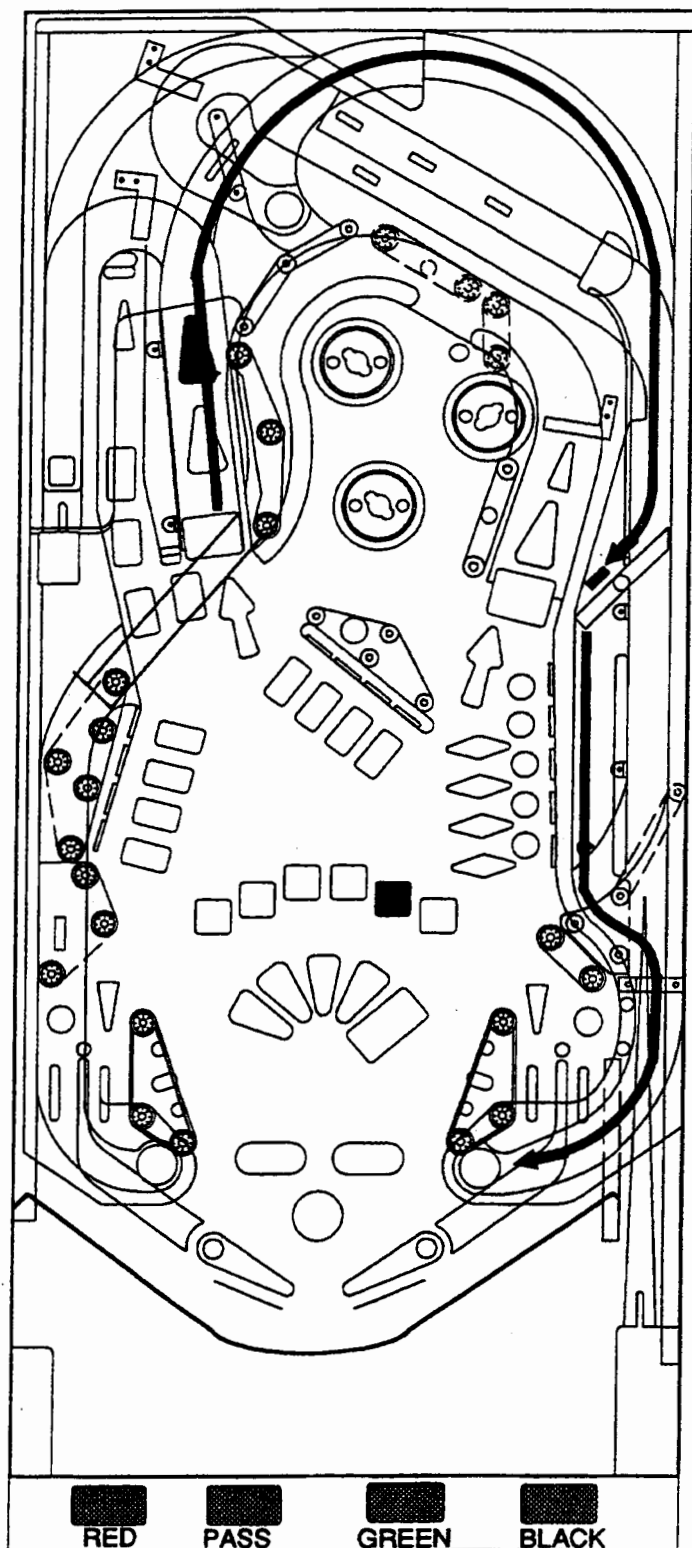


PLUNGER SKILL SHOT

Pulling the plunger just right sends the ball directly to the Roulette Table. This awards 100 Chips and a chance to play Roulette.

Skill Shot activates Jet Bumpers for increased Chip Value and raises WIN METER in backbox.

RIVERBOAT GAMBLER

**ROULETTE**

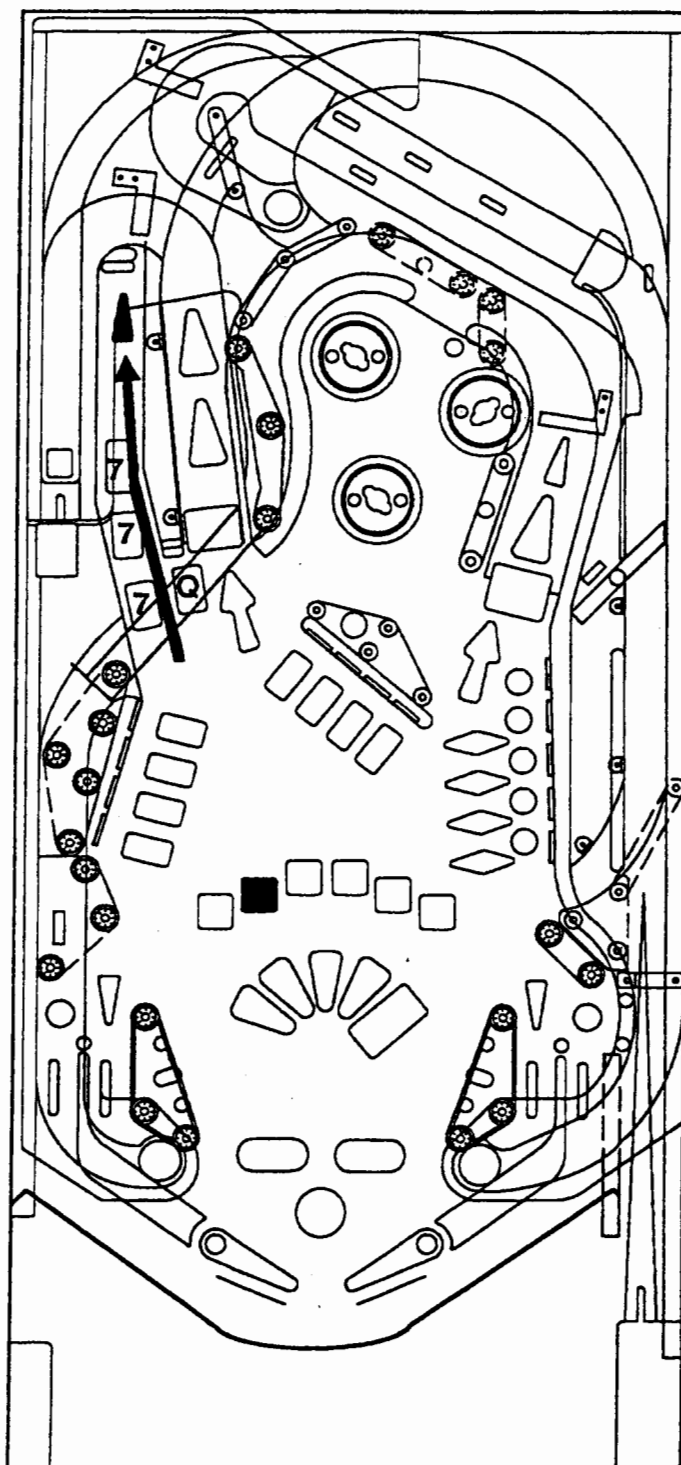
Roulette Table is open after the player earns 100 Chips. Play or pass, by pressing one of four buttons on the front molding. Select Red or Black correctly and turn 100 Chips into 200 Chips. Select Green correctly and turn 100 Chips into 800 Chips. Selecting an incorrect color loses 100 Chips and increases the Jackpot by 100, 000 points.

Player has 5 seconds to make a choice.

Choosing Red or Black correctly advances WIN METER.

Choosing Green correctly tops off WIN METER for potential Jackpot.

RIVERBOAT GAMBLER



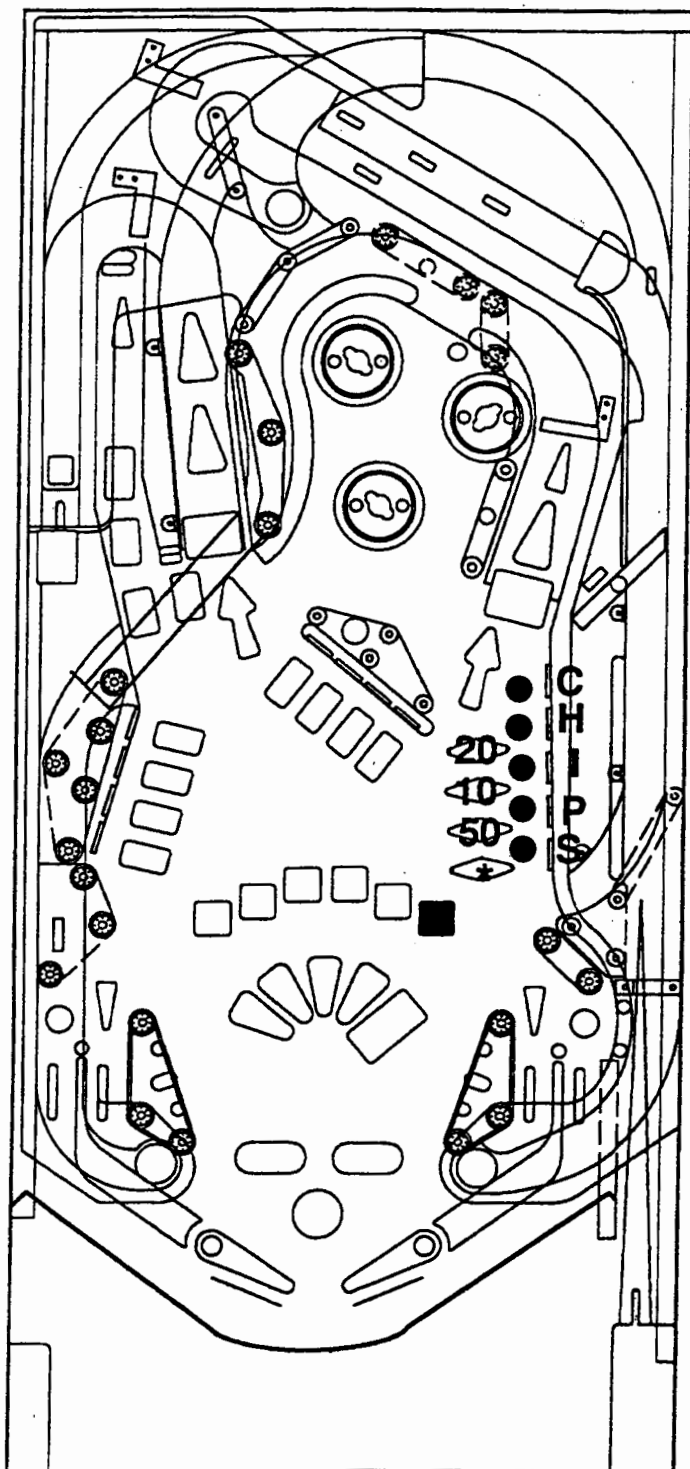
21 or BUST

Scoring 21 at the Blackjack Table collects: 75 Chips the first time; 150 Chips the second time; 300 Chips the third time; 600 Chips the fourth time; and finally 1200 Chips.

Warning: Bust Card lights after second 7 is dealt.

Every time 21 is scored WIN METER, in backbox, advances.

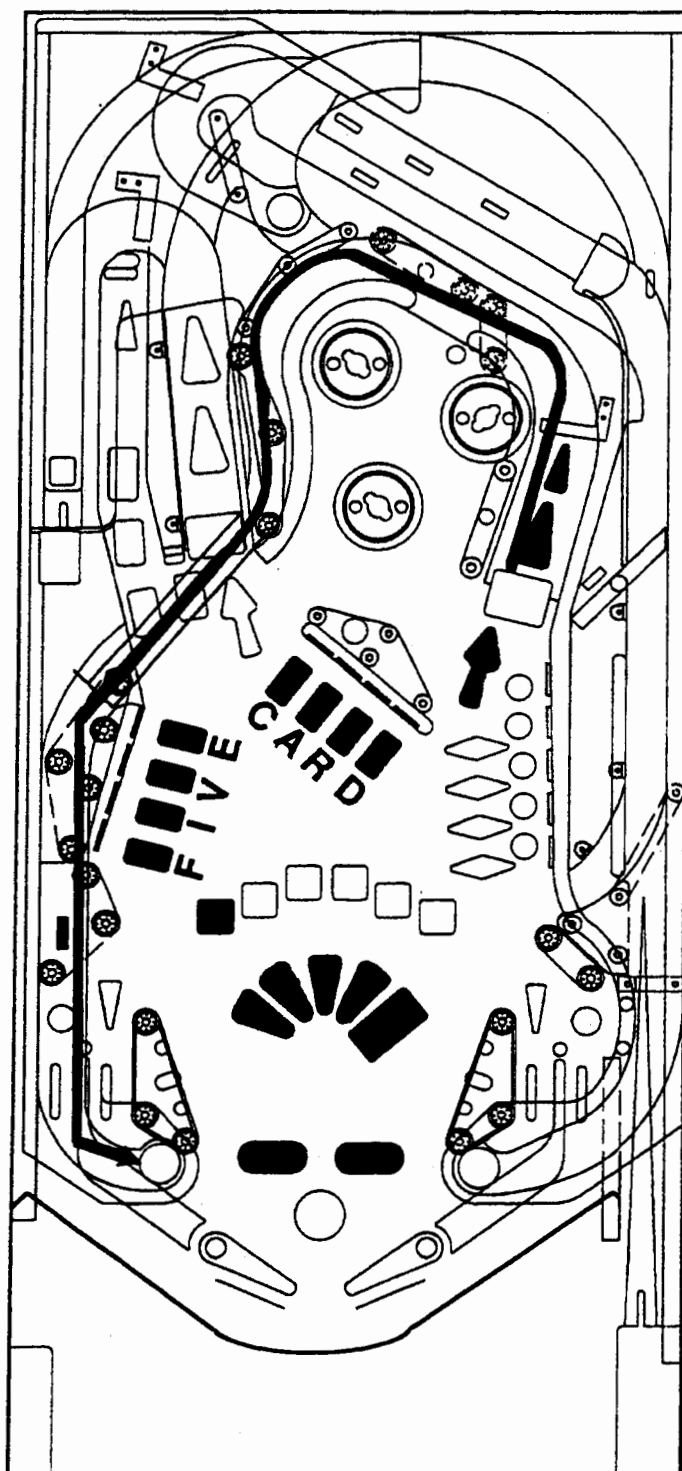
RIVERBOAT GAMBLER



CHIPS

Spelling C-H-I-P-S awards a Lit Value of either 10, 20, or 50 Chips, or 1 Gold Star. 3 Gold Stars equal a Second Chance (Extra Ball).

Spelling C-H-I-P-S also increases WIN METER in backbox.

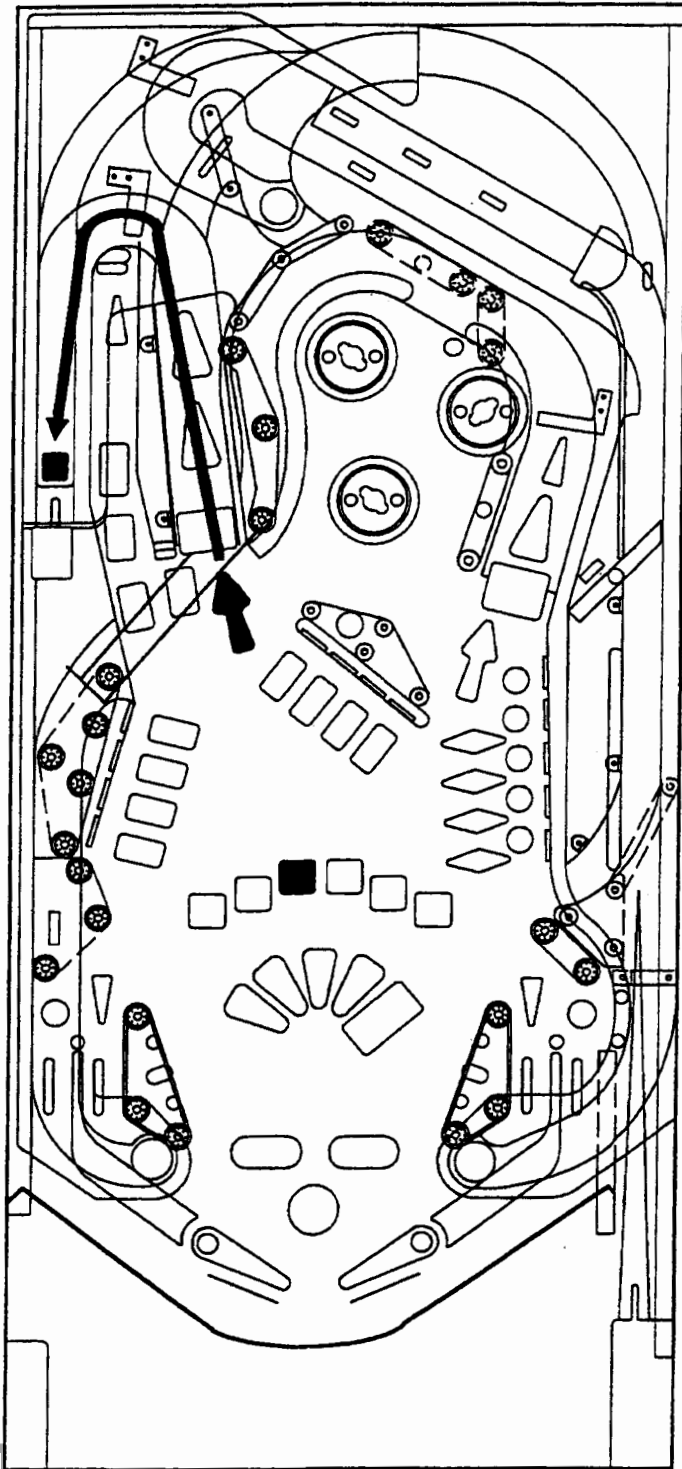


FIVE CARD POKER

Completing F-I-V-E or C-A-R-D Drop Targets deals a Flashing Royal Flush Card. Flashing means that the player loses a Card when the ball drains. To Hold a Card the player must make the Right Ramp shot. When all 5 Cards are dealt, collect the Royal Flush Value via the Right Ramp. Consecutive Ramp shots continue to award the Royal Flush Value (100 or 200 Chips).

WIN METER increases with every Royal Flush Collected.

RIVERBOAT GAMBLER



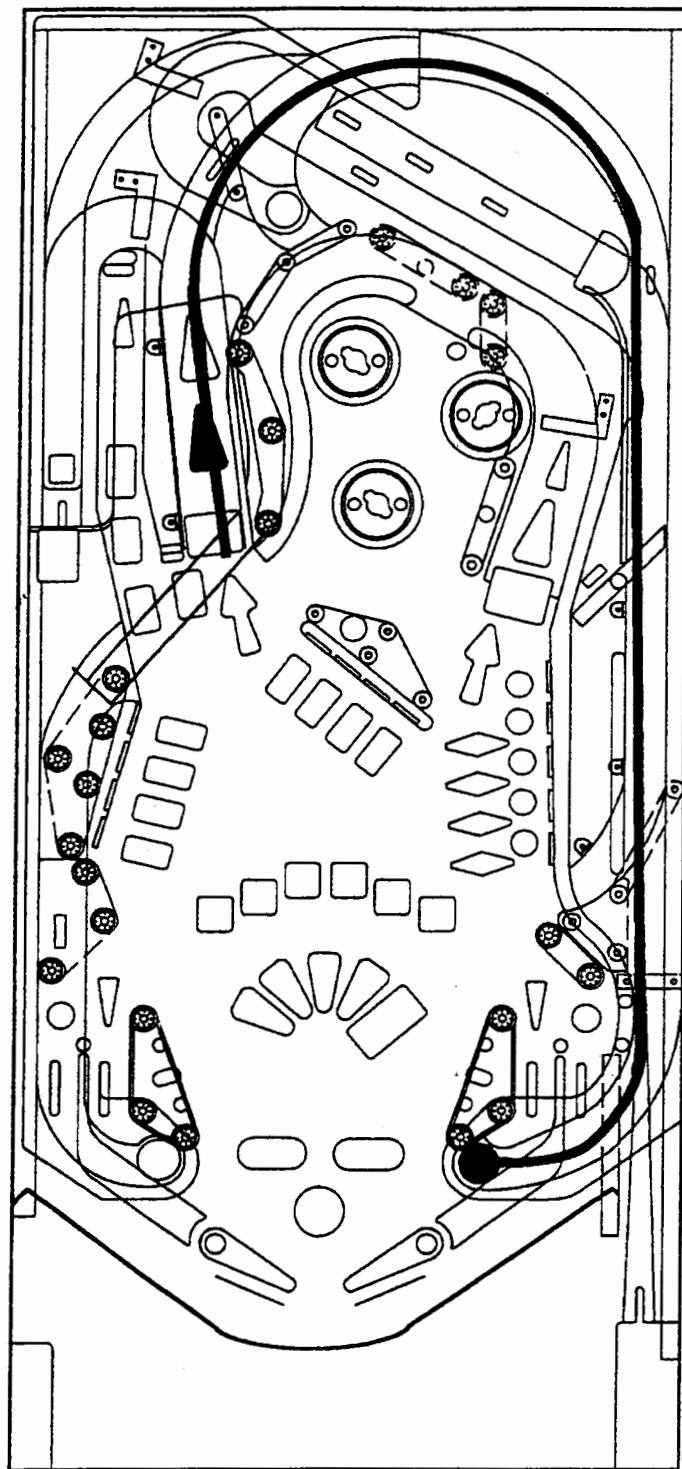
SLOT MACHINE

Consecutive shots under Left Ramp lowers Ramp to play Slot Machine.

Making Ramp Shot awards Slot Machine Value, locks ball for Multi-ball, and increases WIN METER.

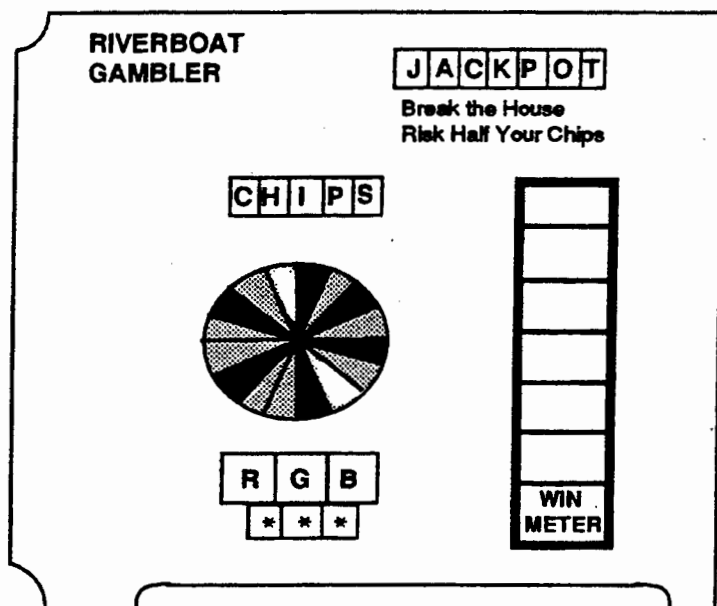
Right Return Lane, when Lit, lowers Left Ramp for Slot Machine Values.

RIVERBOAT GAMBLER

**WINNING STREAK**

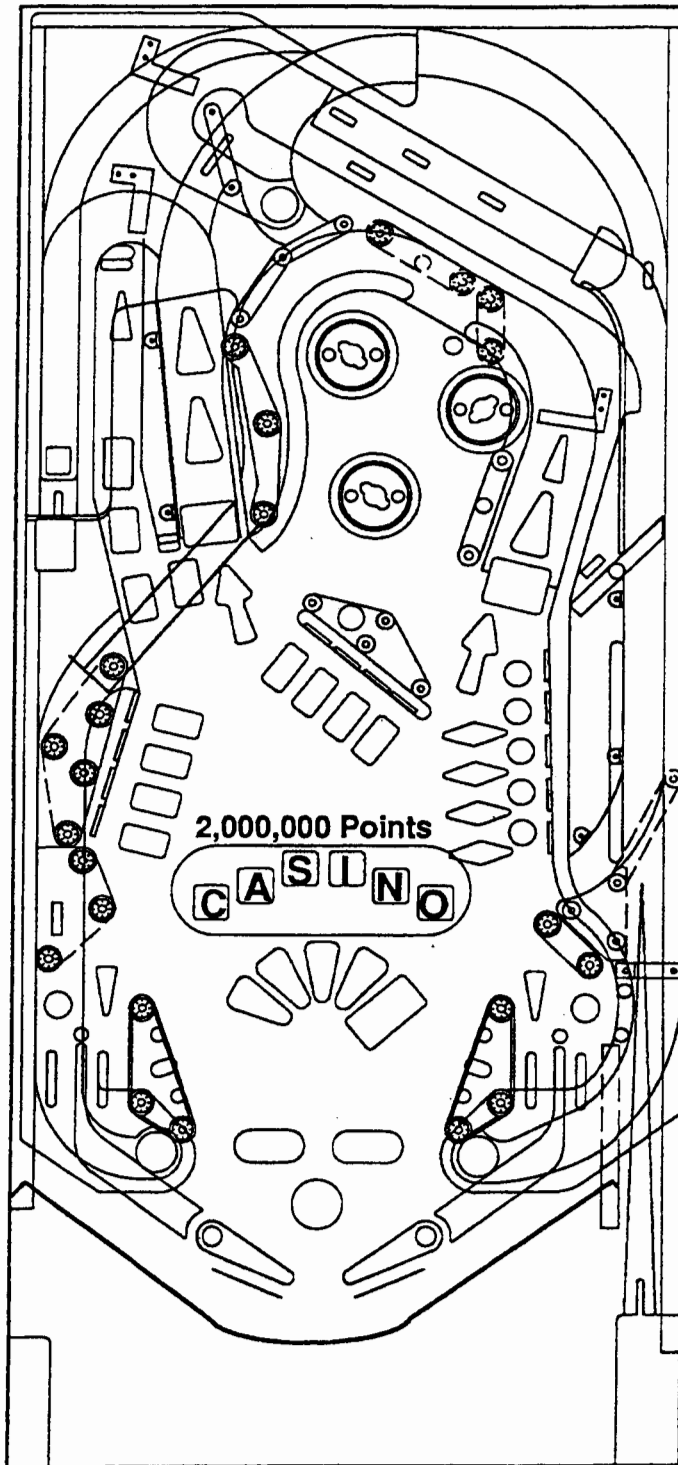
During Multi-ball
Winning Streak Loop
Shot advances WIN
METER. All Targets
and Ramps score
Chips.

RIVERBOAT GAMBLER

**WIN METER
(Jackpot)**

Win each RIVERBOAT GAMBLER game (Poker, Blackjack, Slots, etc.) to raise WIN METER one level. When top WIN METER level is lit, play Roulette to "Break the House", risking half your chips. Win at Roulette and collect the JACKPOT as often as you can. Lose (or drain the ball) and the JACKPOT value resets.

RIVERBOAT GAMBLER



CASINO

Spelling C-A-S-I-N-O
by winning every game
in the Casino scores
2,000,000 points.

C-5 Card Royal Flush
A-Making 21
S-Slot Shot
I-Skill Shot
N-Winning Roulette
O-Spelling C-H-I-P-S

RIVERBOAT GAMBLER HOUSE RULES

Plunger Skill Shot

A successful Plunger Shot sends the ball directly to the Roulette Table. This awards 100 Chips and allows you to play Roulette.

Roulette

Earning 100 Chips opens the Roulette Table. Selecting Red or Black correctly earns 200 Chips. Selecting Green correctly earns 800 chips. If the wheel does not stop on the color you have selected, you lose 100 Chips and build the Jackpot by 100,000 points. The Roulette Table remains open until you lose. Select a color, or Pass, by using the buttons on the front molding.

Jackpot

Completing a Game Feature within the preset time period raises the Win Meter one step. Complete the Win Meter and win at Roulette, to Break the House and collect the Jackpot. Hint: Correctly selecting Green at Roulette completes the Win Meter automatically. Once you Break the House, you can continue to collect the Jackpot until you lose. If you attempt to Break the House and fail, you lose half your Chips and the Win Meter resets.

21 or Bust

Scoring 21 at the Blackjack Table collects: 75 Chips the first time; 150 Chips the second time; 300 Chips the third time; 600 Chips the fourth time; and finally 1200 Chips. If you Bust, the value resets to 75 Chips. The Bust card lights after the second 7 is dealt.

C-H-I-P-S

Spelling C-H-I-P-S awards a lit value of 10, 20, or 50 Chips, or 1 Gold Star. Earning 3 Gold Stars gives you a Second Chance (Extra Ball).

Five Card Poker

Completing the F-I-V-E or C-A-R-D Drop Targets deals a Flashing Royal Flush Card. Since the Card is flashing, you lose it if the ball drains. Shooting a ball through the Right Ramp holds the Card for the next ball. After all five Royal Flush cards are dealt, completing the Right Ramp shot collects a Royal Flush. Achieving consecutive Right Ramp shots continues to collect the Royal Flush value.

Slot Machine

Consecutive shots under the Left Ramp lowers the ramp to play the Slot Machine. Completing the Ramp Shot starts Slot Machine and Locks a ball for a Winning Streak.

Winning Streak

During Multi-ball, Winning Streak Loop Shot advances WIN METER. All Targets and Ramps score Chips.

C-A-S-I-N-O

Spell C-A-S-I-N-O by winning every game in the Casino and making the Skill Shot for a value of 2, 000, 000 points.

C = 5 Card Poker

A = 21

S = Slot Machine

I = Skill Shot

N = Roulette Wheel

O = C-H-I-P-S

Section 1

Game Operation & Test Information

- RIVERBOAT GAMBLER (System 11C) ROM Summary
- Pinball Game Assembly Instructions
- Game Play
- Game Status Displays
- Game Adjustment Procedure
- Game Pricing
- Test/Diagnostic Procedures

RIVERBOAT GAMBLER (System 11C) ROM Summary

IC	DESCRIPTION	TYPE	IDENTIFIER	BOARD	PART NUMBER
Game ROM 1	32K x 8 ROM	27256	U27	CPU	A-5343-50007-2
Game ROM 2	32K x 8 ROM	27256	U26	CPU	A-5343-50007-1
Music/Speech ROM 1	64K x 8 ROM	27512	U4	Audio	A-5343-50007-3
Music/Speech ROM 2	64K x 8 ROM	27512	U19	Audio	A-5343-50007-4
Music/Speech ROM 3	64K x 8 ROM	27512	U20	Audio	A-5343-50007-5

NOTICE

To order a replacement ROM from your authorized WILLIAMS ELECTRONICS GAMES distributor, specify: (1) part number (if available); (2) ROM label color; (3) ROM level (number) on the label; (4) which game the ROM is used in.

CONNECTOR & COMPONENT IDENTIFICATION

WILLIAMS ELECTRONICS GAMES uses a special technique to identify connectors and other game components. Each plug or jack receives a prefix number (which identifies the circuit board), a letter, and a number. J-designations refer to the male part of a connector. P-designations refer to the female part of a connector. For example, 1J1 designates jack 1 of board 1 (a CPU Board Jack); 3P6 designates plug 6 of board 3 (a Power Supply Board plug). Identifying the specific pin number of a connector involves a hyphen, which separates the pin number from the plug or jack designation. For example, 1J1-3 refers to pin 3 of jack 1 on board 1.

Other game components may also have similar prefixes preceding their designator to clarify their locations or related circuit.

Prefix numbers for the System 11C circuit boards and other major assemblies are listed below. A prefix number may precede a component designator to identify its associated unit (e.g., Backbox fuse 6F1).

1 - CPU	5 - Aux Power Driver	9 - Insert Board
2 - Master Interconnect	6 - Backbox	10 - Audio
3 - Backbox Power Supply	7 - Cabinet	
4 - Alphanumeric Display	8 - Playfield	

RIVERBOAT GAMBLER CIRCUIT BOARDS

System 11C Circuit Boards for **RIVERBOAT GAMBLER** are in the backbox. They are accessible by unlocking the Backbox lock, removing the Backbox glass, unlatching the Insert Board, and swinging it open.

The Master Display Board is mounted on the interior side of the Speaker/Display Panel, below the Backbox glass in the Backbox. To access the Master Display Board, unlock the Backbox, remove the Backbox glass, lift the Speaker/Display Panel, and lay it on the game cabinet.

Lamp circuit boards are mounted on the Playfield.

CPU BOARD. The System 11C CPU Board (p/n D-11883-50007) must be equipped with the ROMs specified in the **RIVERBOAT GAMBLER** (System 11C) ROM Summary. CPU Board jumpers W1, W2, W4, W5, W7, W11, W14, and W16 must be connected.

AUDIO BOARD. The Audio Board is p/n D-11581-50007, including ROMs and microprocessor.

POWER SUPPLY BOARD. The Power Supply Board is p/n D-12246.

AUX POWER DRIVER BOARD. The Aux Power Driver Board is D-12247-566.

MASTER INTERCONNECT BOARD. The Master Interconnect Board is D-12313-50007.

DISPLAY BOARD. The Alphanumeric Display Unit Board is p/n D-12232-3.

SLAVE DISPLAY BOARDS. The Slave Display Boards are p/n C-8364-1.

Figure 1 shows the locations of these circuit boards, as well as other devices especially located to make **RIVERBOAT GAMBLER** a great game.

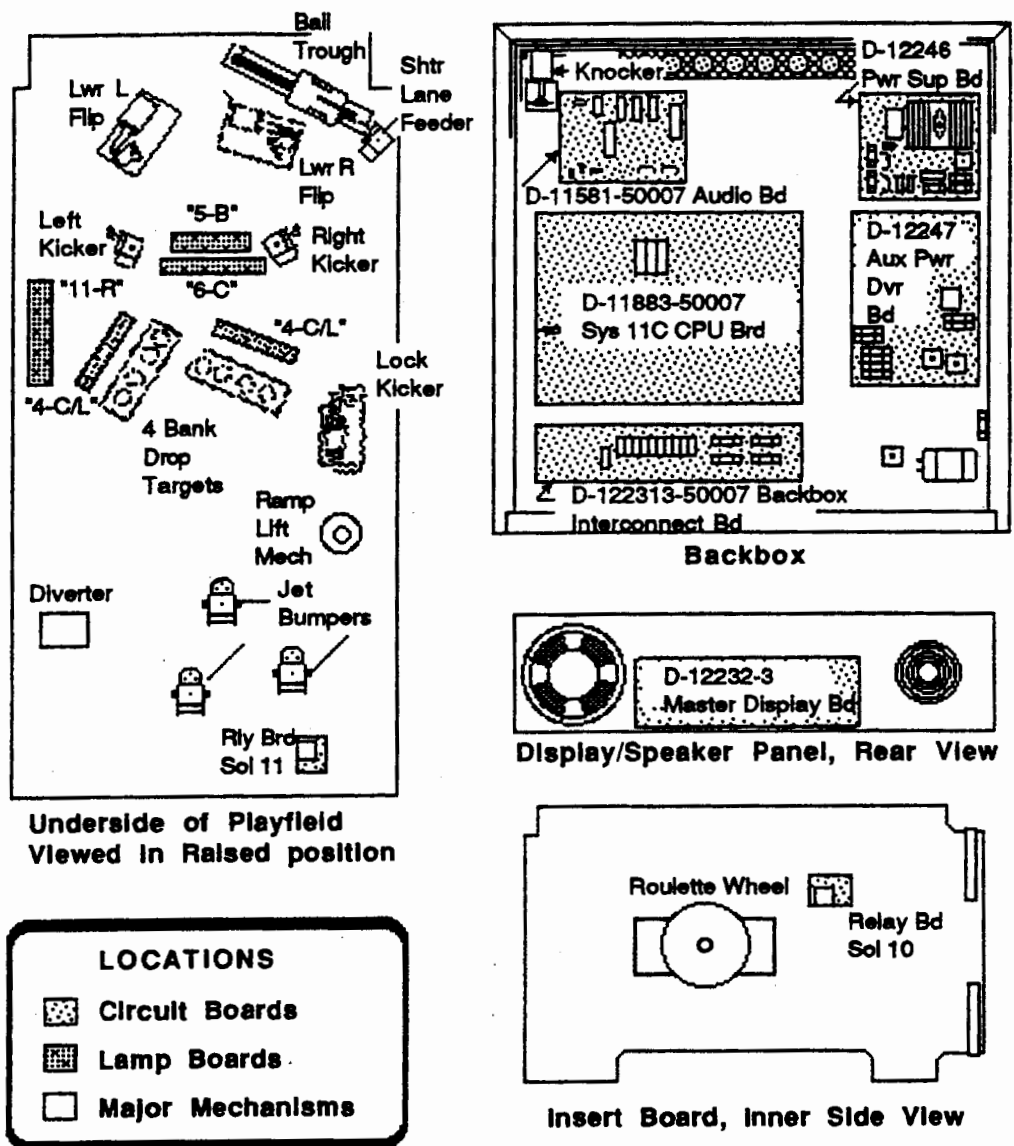


Figure 1. Locations Diagram - Game Circuit Boards and Major Mechanisms

RIVERBOAT GAMBLER GAME CONTROL LOCATIONS

Figure 2 shows the locations of the following switches, except for the last one (CPU Diagnostic switch, which is shown in the Backbox portion of Figure 1, along the left edge of the CPU Board).

The On-Off switch is on the bottom of the cabinet near the right front leg.

The Volume Control is on the left inner wall of the cabinet on the tilt mechanisms board. It is accessible by opening the coin box door.

The Credit switch (also called the START BUTTON) is a pushbutton to the left of the coin door on the cabinet exterior.

GAME ADJUSTMENT/DIAGNOSTIC SWITCHES. **RIVERBOAT GAMBLER** allows the operator to control all game adjustments, obtain bookkeeping information, and diagnose problems, using only three switches mounted on the inside of the coin door, along with the Start button beside the coin door.

ADVANCE, AUTO-UP/MANUAL-DOWN, and HIGH-SCORE RESET are the switches located on the inside of the coin door. Refer to the text discussing Game Status Displays and the Test/Diagnostic Procedures for details concerning button operation.

The Memory Protect switch is on the inside frame of the coin door. This interlock switch must be open to clear bookkeeping totals and to make game adjustments. It automatically opens, when the coin door opens.

Figure 1 shows the location of the CPU Board switch (left edge of CPU Board, Backbox View).

The CPU Diagnostic switch (SW 2) is mounted on the left edge of the CPU Board. This switch initiates the Memory Chip Test explained in the Test/Diagnostic Procedures.

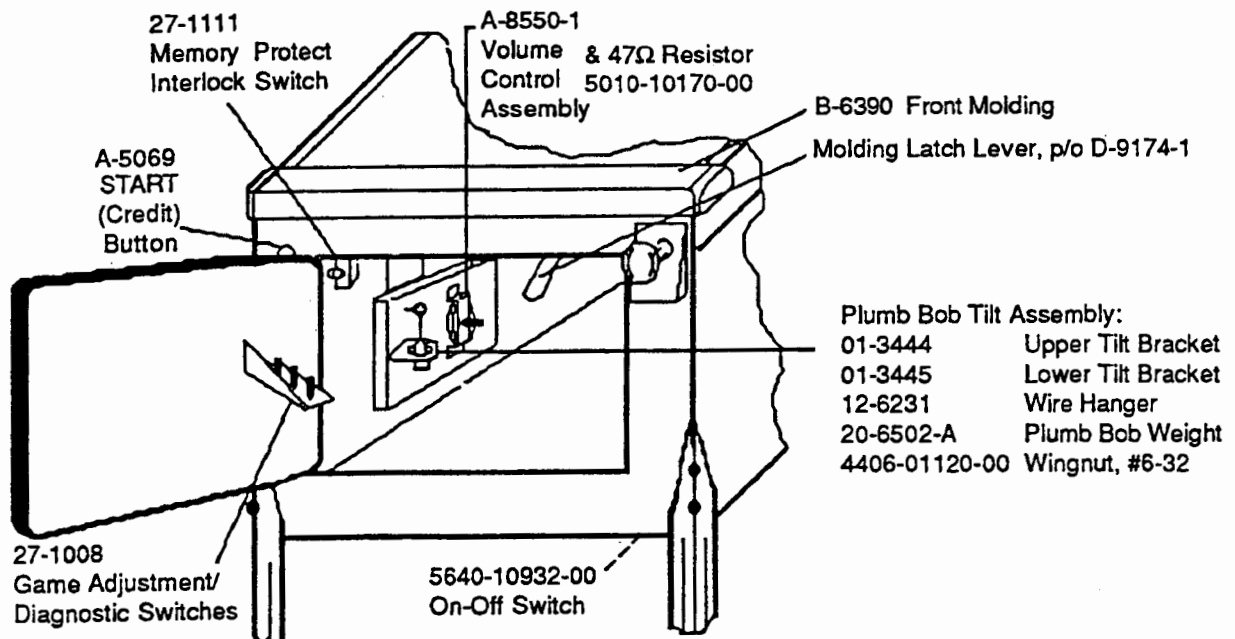


Figure 2. Pinball Game Controls Locations

PINBALL GAME ASSEMBLY INSTRUCTIONS

1. Open the shipping container; remove all cartons, parts, and other items, and set them aside.
2. Place the cabinet on a support and attach rear legs (after installing the rear leg spacers on the shaft of the leg levellers), using leg bolts. Leg levellers and leg bolts are provided among the parts in the cash box.
3. Attach the front legs (after installing leg levellers), using leg bolts. See Figure 3 for details.

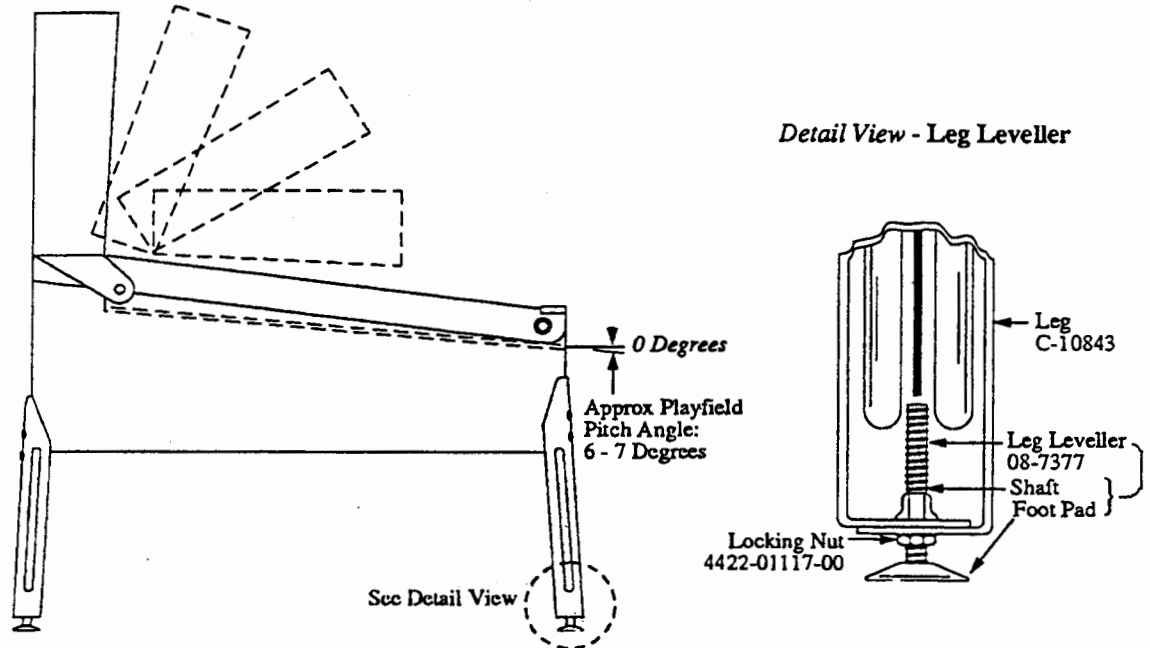


Figure 3. Pinball Assembly, Playfield Pitch Angle, and Leg Leveller Details.

4. Reach into the cabinet and backbox and ensure that the interconnecting cables are free to move (not kinked or pinched). Be careful to avoid damaging wires at any stage of the assembly process.
5. Raise the hinged backbox upright and stabilize it into position. Unlock the backbox, and remove the backbox glass, storing it carefully to avoid scratches. Remove the shipping block holding the Insert Board. Unlatch the Insert Board and open it; lift the Speaker/Display Panel and lay it on the playfield glass. This allows access to the bolt holes used for securing the backbox upright. Install the washer-head mounting bolts through the bottom holes of the backbox into the threaded fasteners in the cabinet to secure the backbox. Remount the Speaker/Display Panel; close the Insert Board and latch it in position. Reinstall the backbox glass, and lock the backbox.

WARNING

FAILURE TO INSTALL the backbox mounting hardware properly can cause personal injury. **NEVER TRANSPORT** a pinball game with the hinged backbox erect. **Always** lower the backbox forward onto the playfield cabinet on a layer of protective material to prevent marring or damage and possible personal injury.

6. Extend each leg leveller *slightly* below the leg bottom, so that all four foot pads are extended about the same distance. Remove the cabinet from its support and place it on the floor.

PINBALL GAME ASSEMBLY INSTRUCTIONS (Continued)

7. Unlock and open the coin door. Locate the Molding Latch Lever (shown in Figure 2), and move the lever toward the left side of the game, to release the Front Molding. Lift the Front Molding off the playfield cover glass (notice that for each pushbutton on the front molding, there is a corresponding membrane switch on the metal strip, under the front molding); return the Latch Lever toward the right, and close the coin door. *Carefully* slide the glass downward, until it clears the grooves of the Left and Right Side Moldings. Lift the glass up and away from the game, storing it carefully to avoid breakage.
8. Place a level or an inclinometer on the playfield surface. Adjust the leg levellers for proper playfield level (side-to-side) and playfield pitch angle (incline) of approximately 6-7 degrees. NOTE: It is recommended that these measurements be made ON the playfield, not the cabinet nor the playfield cover glass. Tighten the nut on each leg leveller shaft to maintain this setting, as shown in Figure 3.

CAUTION

Playfield pitch angle adjustments can affect the operation of the plumb bob tilt, inside the cabinet. The plumb bob weight is among the parts in the cash box; the operator should install the weight and adjust this tilt mechanism for proper operation, after completion of the desired playfield pitch angle setting.

9. Move the game into the desired location; recheck the level and pitch angle of the playfield.
10. Verify that the *required number* of balls are installed in the game. **RIVERBOAT GAMBLER** uses 3 balls.
11. Clean and reinstall the playfield cover glass, reversing the procedure of step 7. Prepare the game for player operation.

GAME OPERATION

WARNING

After assembly and installation at its site location, this game must be plugged into a properly grounded outlet to prevent shock hazard, and to assure proper game operation. DO NOT use a 'cheater' plug to defeat the ground pin on the line cord. DO NOT cut off the ground pin.

POWERING UP. Perform the following 'power up' routine upon completion of the assembly and installation procedure, as well as at the beginning of each period of game operation. Initially, it will confirm that the game is in proper operating condition; later, it will aid the operator via its messages (refer to later text entitled "Problem Analysis Messages").

Procedure. With the coin door closed, plug the game in, and switch it ON, using the On-Off switch. In normal operation, the player 1 score display initially shows 00. Then, the game goes into the Attract Mode (playfield and backbox lamps flashing, sounds being heard, etc., If the operator does not change the Factory Setting).

Open the coin door and press the AUTO-UP/MANUAL-DOWN switch to MANUAL-DOWN. Press the ADVANCE button to begin the game test routine. Return to AUTO-UP and perform the entire test routine to verify that the game is operating satisfactorily. Successful completion of the tests shows that the game is ready to begin earning your investment return.

GAME OPERATION (Continued)

After the game has been on location for a period of time, the test routine may be preceded by messages concerning game problems. The text entitled 'Problem Analysis Messages' at the end of the Text/Diagnostic Procedures contains more details concerning messages displayed at each game turn-on.

ATTRACT MODE*. Playfield and backbox lamps blink. The player score displays exhibit a series of messages informing the player concerning:

- A. Recent highest scores*;
- B. A "custom message"
("EARN THE RIGHT TO PLAY ROULETTE, COME RIDE THE RIVERBOAT ");
- C. The score to achieve to obtain a Replay award*;

These (or similar) displays reappear occasionally, accompanied by sounds and music, until a player initiates game play by inserting a coin or, when credits are available, pressing the Start button.

CREDIT POSTING. Insert coin(s). A sound is heard for each coin, and the player score displays show the number of credits purchased. So long as the number of maximum allowable credits* are *NOT* exceeded by coin purchase or high score, credits are posted correctly.

STARTING A GAME. Press the Start button once. A startup sound plays, and the Credit amount shown in the player score display decreases by one. The upper Player Score Display flashes 00 (until the first playfield switch is actuated), and the lower Player Score Display shows ball 1, except for 4-player games where the ball # shows in the individual player's display. Additional players may enter the game by pressing the Start button once for each player, before the end of play on the first ball.

TILT. Actuating the Slam Tilt switch on the coin door inside the cabinet ends the current game; **RIVERBOAT GAMBLER** then proceeds to the Game Over Mode. With the third closure* of the plumb bob tilt switch, the player loses the remaining play of that ball, but can complete the game.

END OF GAME. All earned scores and bonuses are awarded. If a player's final score exceeds the specified value, the player receives a designated award for achieving the current highest score. A random digit set* appears in the Match display. Credit* may be awarded, when the last two digits of any player's score display (1 through 4) match the random digits of the Match display. Match, high score, and game over sounds are made, as appropriate.

GAME OVER MODE. The GAME OVER display shows in the player score displays. Then, the high scores flash on the appropriate player score displays. The game proceeds to the Attract Mode.

* - operator-adjustable feature

RIVERBOAT GAMBLER GAME STATUS DISPLAYS

RIVERBOAT GAMBLER provides the game owner/operator with a display of information concerning the game's bookkeeping and game play feature adjustments. Basically, three classes of information now become available in this status display mode: Id (Identification); Au (Audit); Ad (Adjustment). Each of the underscored two-letter abbreviations for these classes appears in the Player Score Displays, while the system microprocessor for the **RIVERBOAT GAMBLER** game is displaying the items within each class.

Identification Information--Id

With the game turned on, the coin door open, and the AUTO-UP/MANUAL-DOWN switch in the AUTO-UP position, the operator can press the ADVANCE switch once, briefly. Player displays immediately change from the Attract Mode to the Game Status Display or Identification (Id) Mode. This is evident by the following display, shown in columnar form. The column headings refer to the two backbox displays.

Upper Player Score Display

Lower Player Score Display

RIVERBOAT GAMBLER

Id 00 50007 L-x*

* x - Indicates ROM revision level; e.g., 1 is initial issue; 2, 3, etc. for later revisions.

The game is named in the upper Player Score display. The game's identification number, the ROM revision level, and the Id Mode stage (Id 00) shows in the Lower Player Score display.

Pressing ADVANCE once more causes the Id 01 display to appear. This display describes the installed software more fully; that is, country; development stage; date of revision.

Pressing ADVANCE once more causes the Id 02 display to appear. This display describes which of the "Install" options is currently in effect. For example, if the YES option of the INSTALL FACTORY Adjustment Item (Ad 70) was last selected, FACTORY SETTING appears on the player score displays. Changing the setting of any other game adjustment item, after selecting the YES option for Ad 70 causes the display to change to FACTORY ALTERED. Similarly, if the operator selects the YES option for INSTALL HARD (Ad 65), the display indicates HARD SETTING. Changing a game adjustment item later then causes the display to show HARD ALTERED.

Audit Information--Au

While the AUTO-UP switch remains in the Up position, the operator can press the ADVANCE switch once, briefly, to begin the backbox displays of Audit (sometimes called "bookkeeping") information. Fifty-four audit entries are now available. Calculation of the various factors is no longer necessary because the System 11C game program now performs all the mathematical factor computations. This information is intended to aid the owner/operator in evaluating how the game is performing in each location, by providing knowledge about which game features are receiving the most play. With this information, the owner/operator can determine whether adjusting the game features to other settings will contribute to increased game earnings.

The operator can press the ADVANCE button once to view each Audit Information display item. To proceed more rapidly through this information, the operator only has to press and hold the ADVANCE button. If a desired item is passed, the operator can use the MANUAL-DOWN switch position with the ADVANCE button to back up to the desired item.

The **RIVERBOAT GAMBLER** Audit Table lists the 54 Audit items of the **RIVERBOAT GAMBLER** Game Status Displays. Presentation of these Audit items again utilizes the player score displays: The Audit item entry appears in the lower Player Score Display accompanied by the item's data, while the upper display shows the item description. A few example entries are shown in the table. Detection of erroneous data affecting any of the counters used in these audit items causes the message, ERROR, to be displayed during display of any audit item associated with that particular counter. (The program does not analyze the cause of the error; it merely alerts the operator of the error's existence by the message.)

RIVERBOAT GAMBLER Audit Table

Audit Item (Right)	Descriptive Phrases (Left Display)	Audit Factor 1 Value (Right)
AU 01	LEFT COINS (chute next to coin door hinge)	432
02	CENTER COINS	0
03	RIGHT COINS	398
04	PAID CREDITS	830
05	TOTAL PLAYS	
06	TOTAL FREE (Total Free Plays)	
07	PERCENT FREE (% Free Plays)	
08	REPLAY AWARDS	
09	PERCENT REPLAY (% Replay Awards)	
10	SPECIAL AWARDS	
11	PERCENT SPECIAL (% Special Awards)	
12	MATCH AWARDS	
13	HSTD (High Score to Date) CREDITS	
14	PERCENT HSTD (% HSTD Credits)	
15	EXTRA BALLS	
16	PERCENT EX. BALL (% Extra Balls)	
17	AV. BALL TIME (Average Time in Seconds)	
18	MINUTES OF PLAY (Minutes of Play)	
19	BALLS PLAYED	
20	REPLAY1 AWARDS	
21	REPLAY2 AWARDS	
22	REPLAY3 AWARDS	
23	REPLAY4 AWARDS	
24	1 PLAYER GAMES	
25	2 PLAYER GAMES	
26	3 PLAYER GAMES	
27	4 PLAYER GAMES	
28	BURN-IN CYCLES	
29	JACKPOT AWARDS (# of times Jackpot was awarded)	
30	ROULETTE WINS (# of times Roulette was won)	
31	ROULETTE PLAYED (# of times Roulette was played)	
32	WIN METER AT TOP (# of times Jackpot was qualified)	
33	CASINO AWARDS (# of times Casino was awarded)	
34	ROYAL FLUSH (# of times Royal Flush was earned)	
35	21 AWARDS (# of times 21 was awarded)	
36	SLOT SHOTS (# of times Slot Shot was played)	
37	SKILL SHOTS (# of times Skill Shot was made)	
38	CONSOLATION SECOND CHANCE (# of times Consol. 2nd Chance awarded)	
39	H.S.RESET COUNTER	
40	0.0-0.4 MIL. SCORE (# of games <500K)	
41	0.5-0.9 MIL. SCORE (# of games ≥500K, <1M)	
42	1.0-1.4 MIL. SCORE (# of games ≥1M, <1.5M)	
43	1.5-1.9 MIL. SCORE (# of games ≥1.5M, <2.0M)	
44	2.0-2.9 MIL. SCORE (# of games ≥2.0M, <2.9M)	
45	3.0-3.9 MIL. SCORE (# of games ≥3.0M, <3.9M)	
46	4.0-4.9 MIL. SCORE (# of games ≥4.0M, <4.9M)	
47	5.0-5.9 MIL. SCORE (# of games ≥5.0M, <5.9M)	
48	6.0-7.9 MIL SCORE (# of games ≥6.0M, <7.9M)	
49	8.0-9.9 MIL SCORE (# of games ≥8.0M, <9.9M)	
50	10-99 MIL. SCORE (# of games ≥10.0M, <99 M)	
51	AV. MIN. GAME TIME (Avg Game Time in minutes)	
52	LEFT OUTLANE (Total # of times ball hit Left Outlane)	
53	RIGHT OUTLANE (Total # of times ball hit Right Outlane)	
54	MINUTES ON (How long machine is turned on)	
NOTE: 1. The numbers shown in this column for items 1 through 4 are examples. Entries for all items depend on the amount of play; thus, they will vary from location to location.		

RIVERBOAT GAMBLER GAME STATUS DISPLAYS (Continued)

Adjustment Information--Ad

At end of the Audit Information presentation, with the AUTO-UP switch in the Up position, the operator can press the ADVANCE button to proceed to the Adjustment Information portion of the **RIVERBOAT GAMBLER** Game Status Displays, as shown in the Player Score Displays. A list of the Game Adjustments appears in the **RIVERBOAT GAMBLER** Game Adjustment Table.

The operator can press the ADVANCE button once to view each Adjustment information display item. To proceed more rapidly through this information, the operator only has to press and hold the ADVANCE button. If a desired item is passed, the operator can use the MANUAL-DOWN switch position with the ADVANCE button to back up to the desired item.

The **RIVERBOAT GAMBLER** Game Adjustment Table lists the 70 items of the Adjustment Information portion of the **RIVERBOAT GAMBLER** Game Status Displays. Presentation of the displays is similar to that for the Audit Information (that is, the upper display shows a descriptive phrase; the light type below the column headings names the respective backbox displays where the information appears, etc.).

The **RIVERBOAT GAMBLER** Game-specific Adjustments Table lists those game-specific Adjustment Items for which settings vary between the major models of pinball products. The Game Adjustment Table, along with the Game-specific Adjustments Table, provides the Factory Settings for the three major models of pinball products (defined by country/language designation).

NOTE

In these tables, each Adjustment Item's Factory Setting for each of the three major models of pinball products is that shown in the 'Domestic' (US / Can.) column, unless a superseding entry appears in the French or West German columns of these tables. A superseding entry takes precedence over the 'Domestic' entry for the only the particular model indicated.

RIVERBOAT GAMBLER Game-specific Adjustments Table

Adjustment Item (Lower)	Descriptive Phrase (Upper Display)	Factory Setting (Lower)		
		Domestic (US/Can.)	French	W Ger/ European
Ad 31	Attract Mode Sounds	On	On	On
32	Special %	3%	3%	3%
45	Jackpot %	Normal	Normal	Normal
46	No Buttons	Off	Off	Off
47	Redemption	Misc.	Misc.	Misc.
48	Jet Speech	Normal	Normal	Normal
51	Buy-in	Off	Off	Off
52	Replay Boost	3 Million	3 Million	3 Million

RIVERBOAT GAMBLER GAME STATUS DISPLAYS (Continued)

RIVERBOAT GAMBLER Game Adjustment Table

Adjustment Item (Player 3)	Descriptive Phrases (Player 1 and 2 Displays)	Factory Setting		
		Domestic (US/Can.)	W.Ger./ European	French
Ad 01	AUTO REPLAY ¹ or FIXED REPLAY ¹	10 (%)	ON	
02	REPLAY START (or REPLAY LEVEL 1) ¹	SCORES ¹ 7,000,000	9,000,000	7,000,000
03	REPLAY LEVELS (or REPLAY LEVEL 2) ¹	02		
04	(REPLAY LEVEL 3) ¹	(see text)		
05	(REPLAY LEVEL 4) ¹	(see text)		
06	REPLAY AWARD	Credit		
07	SPECIAL AWARD	Credit		
08	MATCH FEATURE [Off, 1-50%]	7 (%)		
09	BALLS/GAMES	03		
10	TILT WARNING	03		
11	MAXIMUM EXTRA BALL	02	02	
12	MAXIMUM CREDITS	10	30	
13	HIGHEST SCORES	On		
14	BACKUP HI. SCR.1	8,500,000	9,500,000	8,500,000
15	BACKUP HI. SCR. 2	8,000,000	9,000,000	8,000,000
16	BACKUP HI. SCR. 3	7,500,000	8,500,000	7,500,000
17	BACKUP HI. SCR. 4	7,000,000	8,000,000	7,000,000
18	HI. SCR.1 CREDITS	01	03	
19	HI. SCR.2 CREDITS	01	00	
20	HI. SCR.3 CREDITS	01	00	
21	HI. SCR.4 CREDITS	01	00	
22	H. S. RESET EVERY	3,000	1,000	
23	FREE PLAY	NO		
24	U.S.A. 1 COINAGE (1 COIN 1 PLAY) ^{2,3,6}	USA 2	GERMAN 2	
25	LEFT UNITS	01	08	
26	CENTER UNITS	04	12	
27	RIGHT UNITS	01	30	
28	UNITS/ CREDIT	01	05	
29	UNITS/ BONUS	00	00	
30	MINIMUM UNITS	00	00	
31 - 48	Game-specific Adjustments (detailed in text and the Game Adjustment Setting Comparison Table)			
49	CUSTOM MESSAGE	ON		
50	DISPLAY AU 01-04	YES		
51	BUY-IN			
52	REPLAY BOOST			
53 - 58 ^{5,6}	Special Adjustments- See text for 53-58 details.			
59 ⁵	INSTALL ADDABALL	NO		
60 ⁵	INSTALL 5-BALL	NO		
61 ⁵	INSTALL NOVELTY	NO		
62 ⁵	INSTALL EX. EASY	NO		
63 ⁵	INSTALL EASY	NO		
64 ⁵	INSTALL MEDIUM	NO		
65 ⁵	INSTALL HARD	NO		
66 ⁵	INSTALL EX. HARD	NO		
67	AUTO BURN-IN	NO		
68	INSTALL FACTORY	NO		
69 ⁷	CLEAR AUDITS	NO		
70	CLEAR COINS	NO		

- NOTES:
- 1 Automatic Replay percentage value range is adjustable from 5 to 50%, via the Start Button. Item 02 permits changing the factory setting value for Replay Start Level valid for the next 500 games played. Item 03 permits setting up four replay levels, values as detailed in text describing Item 03. For Fixed Replay Scores set Auto Replay value to 1 less than 5% via the Start Button. Go to Items 02, 03, 04, and 05; install their replay level scores. Turn off any replay level by setting 00 as its value.
 - 2 Phrase in parentheses is Factory Setting. Phrase appears in player 2 and 4 displays. Press Start button to change setting of the game pricing of Item 24.
 - 3 To change country OR coinage setting, press Start button to obtain 24 Standard settings, followed by a Custom Setting. The Custom Setting activates Items 25 through 30. When a Standard Setting is used Items 25 through 30 are set automatically, and cannot be changed.
 - 4 To install Custom Message, press flipper button for alphabet and special characters. Press Start Button for next message letter or character.
 - 5 Special Preset Adjustment, whose effects are noted in the Game Adjustment text.
 - 6 Refer to Pricing Table and text describing these items.
 - 7 Approximates Ad 64, yet includes all factors listed in Factory Setting column, not just Ad 31 through 47 provided by Ad 64.

RIVERBOAT GAMBLER GAME STATUS DISPLAYS (Continued)

One of the following **RIVERBOAT GAMBLER** Game Difficulty Setting Tables shows the five game 'difficulty' Adjustment Items (ranging from Ad 62 - Extra Easy through Ad 66 - Extra Hard) for the major models of pinball products (defined by country-language designations). Installing any one of these 'difficulty' Adjustments causes the values shown for each of the included game play Adjustment Items to be installed as a group, changing the level of play from one difficulty level to another. The owner/operator can use the information provided by the Audit Table items to determine whether the 'difficulty level' for this game in this location needs to change to obtain a higher level of earnings from the game or to provide a greater challenge to the location's players.

Once the 'difficulty level' is changed, a careful review of the Audit Items will reveal whether the change has achieved this higher-earnings goal. Sometimes, one (or more) of the Adjustment Items needs further change to keep the number of plays high, while still keeping the earnings level high. "Fine-tuning" of the game's Adjustment Items is a key feature of Williams Electronic Games products.

RIVERBOAT GAMBLER
Game Difficulty Setting Table for U.S. / Canadian / French Games

Adj #	Adj Description	Extra Easy Ad 62	Easy Ad 63	Medium Ad (Factory) 64	Hard Ad 65	Extra Hard Ad 66
33	Second Chance	30 %	25 %	15 %	10 %	10 %
34	5-Card Free Card	3	1	0	0	0
35	2nd 5-Card Timer	10 Sec	8 Sec	8 Sec	8 Sec	5 Sec
36	Spot Card Timer (Ramp)	20 Sec	15 Sec	15 Sec	10 Sec	10 Sec
37	Spot Card Timer (Lane)	10 Sec	10 Sec	8 Sec	8 Sec	5 Sec
38	No Bust 21's	Never	3	1	1	0
39	Con. Ramps for Lock	2	2	2	3	4
40	Win Streak Timer	15 Sec	15 Sec	15 Sec	10 Sec	5 Sec
41	Slot Timer	10 Sec	10 Sec	8 Sec	8 Sec	5 Sec
42	Win Meter Start	4	4	3	2	1
43	Win Meter Timer	Off	30 Sec	20 Sec	20 Sec	10 Sec
44	Hold Card Memory	On	On	On	Off	Off

RIVERBOAT GAMBLER GAME STATUS DISPLAYS (Continued)

NOTE

The 'difficulty' Factory Setting for French games is the equivalent of Ad 64 Medium, with 3 balls/game. German/European games also use the equivalent of Ad 64 Medium, with 3 balls/game.

RIVERBOAT GAMBLER

Game Difficulty Setting Table for German / European Games

Adj #	Adj Description	Extra Easy Ad 62	Easy Ad 63	Medium Ad (Factory) 64	Hard Ad 65	Extra Hard Ad 66
33	Second Chance	30%	20 %	10 %	10 %	10 %
34	5-Card Free Card	3	1	0	0	0
35	2nd 5-Card Timer	10 Sec	8 Sec	5 Sec	5 Sec	5 Sec
36	Spot Card Timer (Ramp)	20 Sec	15 Sec	10 Sec	10 sec	10 Sec
37	Spot Card Timer (Lane)	10 Sec	10 Sec	8 Sec	8 Sec	5 Sec
38	No Bust 21's	Never	2	1	1	0
39	Con. Ramps for Lock	2	2	3	4	5
40	Win Streak Timer	15 Sec	15 Sec	15 Sec	10 Sec	5 Sec
41	Slot Timer	10 Sec	8 Sec	5 Sec	5 Sec	5 Sec
42	Win Meter Start	4	3	2	1	1
43	Win Meter Timer	Off	20 Sec	15 Sec	15 Sec	10 Sec
44	Hold Card Memory	On	On	On	Off	Off

GAME ADJUSTMENT PROCEDURE

Adjustment Items 01 through 70

The coin door must be open to access the Game Adjustment/Diagnostic switches. All readings and setting changes require operation of these coin door switches. Some setting changes utilize the Start button; some also use the flipper button(s). *Additional text describing the game adjustment items follows this procedure; the value of the Factory Setting for each Game Adjustment Item is in the preceding RIVERBOAT GAMBLER Game Adjustment Table.*

1. Use AUTO-UP and press ADVANCE. The Id 00 display initially appears. Press ADVANCE until the Player 3 display indicates Ad 01. If the factory setting has not changed, the upper Player Score display indicates AUTO REPLAY, and the lower display shows 10%, indicating a 10% replay percentage. (The game program adjusts itself automatically, as discussed in the following text concerning the 'details' about Adjustment Item 01.)
2. To reach a higher item number (in the lower display), use AUTO-UP and press ADVANCE. To return to a previous item number, use MANUAL-DOWN and press ADVANCE.
3. With the desired Game Adjustment Item number showing in the lower display, increase the setting value (or select another option) shown in the lower display by using AUTO-UP and pressing the Start button. Repeat this step for each item, until all changes to the factory settings for the Game Adjustment Items have been made. The preceding Game Adjustment Table consolidates the Factory Settings into one grouping.

(The same procedure can be used for Audit Items. To zero Au 01 - 04 (concerning the coin chutes and the total coins), the operator can proceed to item 70, Clear Coins, and press the Start button to obtain the YES option. The operator then presses the ADVANCE button and notes the "DONE" display, which verifies that the entry values for items 01 through 04 of the Audit Items are now reset to zero.)

For example, the operator may desire to change the degree of game play difficulty from the Factory Setting (equivalent to the Install Medium [Ad 64] difficulty, along with a number of other automatically installed settings, as shown in the right column of the Game Adjustment Table) to another difficulty more suitable for the players at a particular game site. Four other 'automatic' play difficulty settings (Ad 62 - Ad 66) are available, each of which, if selected, installs all the adjustments listed for that difficulty in the Game Adjustment Setting Comparison Table, which precedes the 'details' text.

4. To proceed rapidly through the entire adjustments series, press *and hold* ADVANCE, until Ad 70 shows in the lower display. From item 70, you can return to the Game-Over Mode by using AUTO-UP and pressing ADVANCE once. **RIVERBOAT GAMBLER** now goes to the Game-Over Mode.
5. To restore the Factory Settings for Game Adjustment Items (as listed in the Game Adjustments Table), and zero all audit (bookkeeping) totals, use AUTO-UP or MANUAL-DOWN to display Ad 68 in the lower display. Press the Start button to display the YES option in the lower display. Using AUTO-UP, press ADVANCE once. **RIVERBOAT GAMBLER** now zeroes ALL Audit Item totals and changes ALL Game Adjustment Items back to those originally selected as Factory Settings. It then shows the operator a message ("FACTORY SETTING") that this has occurred. (A problem in the Memory Protection circuit or closing the coin door will cause the message "ADJUST FAILURE" to appear.) Press ADVANCE once more to return to the Game-Over Mode.

GAME ADJUSTMENT PROCEDURE (Continued)

Details of Adjustment Items 01 through 70

01 Auto Replay (or Fixed Replay)

Of the two options, AUTO REPLAY is the percentage of replays automatically awarded per game. The game program aids a pinball's initial installation by causing a comparison of the value of the Replay Level to the value of all players' scores every 50 games. At each comparison, the program Increases (or decreases) the Replay Level by an amount necessary to achieve the replay percentage specified either via the factory setting or later operator selection. Use the Start button to change the percentage within the range of 5 to 25 (%), with the value increasing using AUTO-UP (or decreasing using MANUAL-DOWN). The next Start button change below 5%, selects the FIXED REPLAY option.

For AUTO REPLAY, Ad 02 provides the Starting Replay Level (the upper display shows REPLAY START). Ad 03 provides the number of replay levels (01, 02, 03, or 04). **RIVERBOAT GAMBLER** then proceeds to Ad 06 automatically.

For FIXED REPLAY, Ad 02 is the first replay level (REPLAY LEVEL 1). Ad 03, 04, and 05 are the other replay levels.

02 Starting Replay Level (or Replay Level 1)

For AUTO REPLAY (refer to Ad 01), the initial Factory Setting is listed in the Game Adjustment Table. The range of settings is 2,000,000 through 19,600,000 (by increments of 200,000 with AUTO-UP or decrements of 200,000 with MANUAL- DOWN).

For FIXED REPLAY, the operator can enter the value to be used for the first fixed replay score level via the Start button. The range of settings is: OFF; 200,000 through 19,800,000 (by increments of 200,000 with AUTO-UP, or decrements of 200,000 with MANUAL-DOWN).

03 Replay Levels (or Replay Level 2)

For AUTO REPLAY (refer to Ad 01), this is the number of replay levels in a game. The option range is one, two, three, or four replay level(s). When the operator chooses two replay levels, **RIVERBOAT GAMBLER** automatically adjusts the second replay level to be twice the value selected for Ad 02, the starting replay level. Choosing three or four replay levels automatically adjusts their replay levels to three times or four times the Ad 02 value.

For FIXED REPLAY, the technique of value entry and the range of settings are identical to those of Ad 02.

04 (Replay Level 3)

For AUTO REPLAY, this Adjustment Item is not applicable. **RIVERBOAT GAMBLER** automatically bypasses this adjustment.

For FIXED REPLAY, the technique of value entry and the range of settings are identical to those of Ad 02.

05 (Replay Level 4)

For AUTO REPLAY, this Adjustment Item is not applicable. **RIVERBOAT GAMBLER** automatically bypasses this adjustment.

For FIXED REPLAY, the technique of value entry and the range of settings are identical to those of Ad 02.

GAME ADJUSTMENT PROCEDURE (Continued)

06 Replay Award

For either AUTO REPLAY or FIXED REPLAY (Ad 01), the operator can select the form of the award automatically provided when the player exceeds any Replay Level (Automatic or Fixed). The choices are:

- Credit - Reaching each replay level obtains a credit (free game).
- Ball - Reaching each replay level obtains an extra ball.
- Audit - Reaching each replay level obtains nothing to the player; it does increase the entry value of the Audit Item(s) maintaining a tally of these awards (Au 08, and Au 20 through 23, as applicable).
- Coil - Reaching each replay level causes the Kicker coil to activate once per free game. (Possibly dispensing a ticket) (SEE ADJUSTMENT 47)

07 Special Award

The operator can select the form of the award automatically provided when the player scores a Special. The choices are:

- Credit - Scoring each Special, when lit, obtains a credit (free game).
- Ball - Scoring each Special, when lit, obtains an extra ball.
- Score - Scoring each Special, when lit, obtains a score advance of 1,000,000 pts to the player.

08 Match Award

The operator can select (via the Start button) the desired percentage for the Match action occurring at the completion of each game. The choices are:

- 1%-50% - 1% is 'hard'; 50% is 'extremely easy'. During Match action, the game selects at random two-digit number at end of game and compares each player's score for an identical two digits in the rightmost two positions. A matching of the two digits results in the award of a credit.
- Off - The MATCH display does not operate at completion of the game; no award is given.

09 Balls / Game

The operator can define a "game" by specifying the number of balls to be played. The range of this setting is 1 through 9.

10 Tilt Warning

The operator can specify the number of total actuations of the plumb bob mechanism that can occur before the game is "tilted". The range of this setting is 1 through 5.

11 Maximum Second Chance (Extra Ball)

The operator can choose (via the Start button) the number of Second Chances (Extra Balls) to be awarded to a player. The range of this setting is:

- 00 - NO extra ball play; displays a message, NO SECOND CHANCE (EX. BALL)
- 1 -9 Extra Balls - 1 through 9 Second Chances (Extra Balls) per ball.

12 Maximum Credits

The operator can specify the maximum number of credits the game can accumulate, either through game play awards or coin purchases. The range of settings is 5 through 10. Reaching the specified setting prevents the award of any credits.

13 Highest Scores

The operator can specify (via the Start button) whether the game is to maintain a record of the four highest scores achieved to date. The choices are:

GAME ADJUSTMENT PROCEDURE (Continued)

14 Backup High Score 1

The operator can set the Backup High Score value in the upper display (for Player 1), using the Start button. The game automatically restores this value, when the operator presses, and holds, the HIGH SCORE RESET switch, or when an automatic High Score Reset event (Ad 22) occurs.

15 Backup High Score 2

This adjustment is similar to Ad 14, except that this applies to the Player 2 Score display. The adjustment technique is identical to Ad 14. It is also restored as described for Ad 14.

16 Backup High Score 3

This adjustment is similar to Ad 14, except that this applies to the Player 3 Score display. The adjustment technique is identical to Ad 14. It is also restored as described for Ad 14.

17 Backup High Score 4

This adjustment is similar to Ad 14, except that this applies to the Player 4 Score display. The adjustment technique is identical to Ad 14. It is also restored as described for Ad 14.

18 Credits for Highest Score 1

The operator can select the number of credits to be awarded, by using the Start button, whenever a player exceeds the previous Highest Score. The range of this setting is 00 through 10.

19 Credits for Highest Score 2

This adjustment is similar to Ad 18, except that this applies to the player's exceeding the second highest score. The Start button adjustment technique is the same as for Ad 18. The range of this setting is 00 through 03.

20 Credits for Highest Score 3

This adjustment is similar to Ad 18, except that this applies to the player's exceeding the third highest score. The Start button adjustment technique is the same as for Ad 18. The range of this setting is 00 through 03.

21 Credits for Highest Score 4

This adjustment is similar to Ad 18, except that this applies to the player's exceeding the fourth highest score. The Start button adjustment technique is the same as for Ad 18. The range of this setting is 00 through 03.

22 Automatic High Score Reset

The operator can specify (via Start button) that the game will provide an automatic reset of the displayed "Highest Scores", and the number of games to be played before the reset occurs. (Audit Item 39 displays the games remaining before the reset.) The values provided upon reset are those selected by the operator in Ad 14 through 17, the Backup High Scores. The range of this setting is Off (to disable this adjustment), and 250 to 24,750 games (in increments of 250).

23 Free Play

The operator can select (via the Start button) whether a player can operate the game without a coin (free play) or with a coin. The choices are:

- No - A coin is necessary for game play.
- Yes - Game play is free; no coin is required.

GAME ADJUSTMENT PROCEDURE (Continued)

2 4 Coinage Selections

The operator can specify (via the Start button) any of the 23 Standard Settings for game pricing, each of which exhibits a message identifying the country and the number of coins required and the number of games that the coin requirement purchases. Choosing a Standard Setting permits the game to omit items Ad 25 through 30, which are adjustments allowing for a special custom coinage setting.

Following the last Standard Setting is a Custom Coinage Setting, which allows the operator to utilize Ad 25 through 30 in establishing a special coinage setting. A message, CUSTOM COINAGE, indicates that the operator can enter the appropriate values into the Ad 25 through 30 adjustment items.

The values for Ad 25 through 30 of each Standard Setting, as well as other possible values for the Custom Coinage Setting are shown in the Pricing Table.

2 5 Left Chute Coin Units

The operator can specify (via the Start button) the number of coin units purchased by a coin passing through the left coin chute.

2 6 Center Chute Coin Units

The operator can specify (via the Start button) the number of coin units purchased by a coin passing through the center coin chute.

2 7 Right Chute Coin Units

The operator can specify (via the Start button) the number of coin units purchased by a coin passing through the right coin chute.

2 8 Units Required for Credit

The operator can define (via the Start button) the number of coin units required to obtain 1 Credit. A coin unit counter in the game program totals the number of coin units purchased through all coin chutes prior to each game. If the total of these coin units matches, or exceeds, the Units per Credit value by a multiple (or more, coin units) of the specified Units per Credit value, the Credits display shows the proper number of Credits. The coin unit counter retains any remaining coin units, until the start of a game; then, the coin unit counter is cleared (its contents are zeroed).

2 9 Units Required for Bonus

The operator can specify (via the Start button) that 1 additional Credit is to be indicated in the Credits display, when a certain number of coin units are accumulated.

3 0 Minimum Units Required for any Credits Posted

The operator can specify that NO Credits are to be posted (indicated in the Credits display), until the credit units counter reaches a particular value, by setting this value to 02 (or more). A setting of 01 allows the Credits display to show fractional coin units.

The System 11C game program defines the following 28 Adjustment Items as "game-specific"; that is, they are unique for each game. The Game Designer/Engineer/Programmer team members work together to use these as controlling factors for game play. By varying the setting of these Adjustment Items, it is possible to "fine-tune" a game to suit a particular location, enabling the owner/operator to reap maximum earnings, while still providing the players with sufficient challenge to keep them playing.

GAME ADJUSTMENT PROCEDURE (Continued)

3 1 ATTRACT MODE SOUNDS

The operator can choose (via the Start button) whether sounds may be heard during the Attract Mode. The choices are:

- On - Sounds ARE heard during the Attract Mode.
- Off - Sounds are NOT heard during the Attract Mode.

3 2 SPECIAL PERCENT

The operator can choose (via the Start button) the percentage limit for the SPECIAL award. The range of this adjustment setting is 1% (Conservative) through 10% (Extremely Liberal), and OFF.

3 3 SECOND CHANCE PERCENT

The operator can specify (via the Start button) the number of Second Chances (Extra Balls) awarded per game, as determined by the percentage setting selected. The range of this adjustment setting is 5-11 % (Conservative) through 20-40 % (Extremely Liberal).

3 4 5-CARD FREE CARD

The operator can choose (via the Start button) the number of Free (Always Lit) Cards that the 5-Card feature starts at and resets to after the feature has been earned. The range of this setting is 0 Cards (Conservative) through 3 Cards (Liberal).

3 5 SECOND 5-CARD TIMER

The operator can specify (via the Start button) the time period for achieving consecutive Royal Flush shots. The range of the this setting is 5 seconds (Conservative) through 10 seconds (Liberal) during which time the Collect Royal lamp remains lit.

3 6 SPOT CARD TIMER (RAMP)

The operator can specify (via the Start button) the time period for the Spot Card Timer when the Spot Card Lamp is lit by completing Ramp Shots. The range of this setting is 10 seconds (Conservative) through 20 seconds (Liberal), during which time the Card Lamp remains lit.

3 7 SPOT CARD TIMER (LANE)

The operator can specify (via the Start button) the time period for the Spot Card Timer when the Spot Card Lamp is lit by getting a ball through the Left Return Lane. The range of this setting is 5 seconds (Conservative) through 10 seconds (Liberal), during which time the Card Lamp remains lit.

GAME ADJUSTMENT PROCEDURE (Continued)

3 8 NO 21 BUSTS

The operator can choose (via the Start button) the number of 21 awards the player must earn before the Bust feature is activated. The range of this setting is 0 awards (Conservative) through 3 awards (Very Liberal), and Never (Bust Card is never activated).

3 9 CONSECUTIVE RAMPS for LOCK

The operator can choose (via the Start button) the number of Ramp Shots that must be successfully completed to enable locking a ball for Multi-ball. The range of this setting is 5 successful Ramp Shots (Conservative) through 2 successful Ramp Shots (Liberal).

4 0 WINNING STREAK TIMER

The operator can specify (via the Start button) the time period that the Winning Streak Lamp flashes. The range of this setting is 5 seconds (Conservative) through 15 seconds (Liberal), during which time the Slot Lamp remains flashing. Consecutive Winning Streak Shots enables the Slot Machine.

4 1 SLOT TIMER

The operator can specify (via the Start button) the time period for achieving the Slot Shot, and winning at the Slot Machine. The range of this setting is 5 seconds (Conservative) through 10 seconds (Liberal), during which time the Slot Lamp remains flashing.

4 2 WIN METER START

The operator can choose (via the Start button) the position of the Win Meter at game start for each player. The range of this setting is position 1 (Conservative) through position 4 (Liberal).

4 3 WIN METER TIMER

The operator can specify (via the Start button) the time period--without a win--before the meter moves down 1 notch. The range of this setting is 10 seconds (Conservative) through 30 seconds (Liberal) , and OFF (Win Meter never times down).

4 4 HOLD CARD MEMORY

The operator can specify (via the Start button) whether or not held cards are downgraded from ball to ball. The two choices available are:

- On - Once held, cards will stay held until Royal Flush is collected.
- Off - Held cards, downgrade to flashing cards when the ball drains.

4 5 JACKPOT PERCENT

The operator can specify (via the Start button) the percentage limit for the Jackpot feature. The range of this setting is 5 % (Conservative) through 30 % (Liberal), and Normal (Jackpot is awarded normally random).

4 6 FRONT MOLDING BUTTONS are OUT OF ORDER

The operator can choose (via the Start button) whether RIVERBOAT GAMBLER will operate if the front molding buttons are out of order. The choices are:

- On - The front molding buttons are out of order, and RIVERBOAT GAMBLER operates without the buttons.
- Off - The front molding buttons are working.

GAME ADJUSTMENT PROCEDURE (Continued)

47 REDEMPTION

The operator can choose (via the Start button) -(If Replay Adjustment 6 is set to COLL)- Any of the five ticket Redemption modes (Note: All modes will dispense a ticket in place of any normal awarded credit. The five choices are:

- Miscellaneous - Set number of tickets awarded per feature (Jackpot = 5, Special =20, Roulette Win = 1, Casino Letters = 1, 1 Million = 1, and each 20 Million = 10).
- Chip Levels (3) - One ticket awarded for each set number of chips (choices possible: 100, 500, & 1000)
- Jackpots - One ticket awarded for each Jackpot scored.
- Features - One ticket awarded for each feature completed.
- Credits - One ticket awarded in place of each credit earned by player.

48 JET SPEECH

The operator can choose (via the Start button) the frequency of colorful speech from the Bumper Jet area. The choices are:

- Normal - The frequency of colorful speech from the Bumper Jet area is normal.
- Low - The frequency of colorful speech from the Bumper Jet area is less frequent.
- Off - No Bumper Jet speech.

49 CUSTOM MESSAGE

The operator can choose (via the Start button) whether to display a message during the Attract Mode. (When display of a message is selected, the operator can either utilize the message provided or change the message.) Three choices are available:

- 1 - Display a message during the Attract Mode. The lower display shows this choice as ON. The 3-line message provided is:
EARN THE RIGHT TO PLAY ROULETTE, COME RIDE THE RIVERBOAT
- 2 - Do NOT display a message during the Attract Mode. (Lower display shows OFF.)
- 3 - The lower display shows this choice as CHANGE. The operator can enter a special ("custom") message, as follows:
 - A. Press ADVANCE once. The operator can now enter as many as three 16-character lines for display during the Attract Mode.
 - B. Use the flipper button(s) to select each message character (alphabet, numbers, and special symbols are available). In case of error, enter a "back arrow" (just before "space") to correct, followed by correct character. For a period after any letter, use letters with periods (following the special symbols). The entire character set is the following:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9 < > ? - / ' "
A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z. _
 - C. Move to the next character via the Start button. The game program does not allow entirely blank lines to be displayed.

50 DISPLAY AU 01 - 04

The operator can choose (via the Start button) how to display the coinage audit information, Au 01 - 04. No information is lost; it remains stored in the CPU memory. The information is now available for readout via the player score displays. Three choices are available:

- Yes - Both the audit text (slot identification) and the value is displayed.
- Value - Only the numerical value is displayed.
- No - NO display occurs.

GAME ADJUSTMENT PROCEDURE (Continued)

5 1 1 COIN BUY-IN

The operator can choose (via the Start button) whether the player is allowed to 'buy-in' a subsequent game for 1 coin. The number of games that may be purchased at this cost is determined by the number of players in the previous game; that is, if the previous game had three players, 3 Credits can be purchased at the rate of 1 coin per credit. The choices are:

- Yes - The player has 10 seconds to 'buy-in' the next game(s) at the 1 coin per game rate.
- No - The 'buy-in' feature is disabled.

5 2 REPLAY BOOST

The operator can choose (via the Start button) whether the Replay Score is boosted (increased) during any games awarded by regular game play. This adjustment is disabled whenever a game is set to Free Play (Ad 23 - Yes). The choices are:

- Yes - The Replay Score is increased by 1 Million each time a game is won (see Rules); it resets to its normal setting whenever a coin is inserted.
- No - The Replay Score increase is disabled.

53 - 58 Special Preset Adjustment Settings

SPECIAL PRESET ADJUSTMENTS CAUTION

Adjustments 53 through 66 are Special Preset Adjustments to enable the operator to perform the setting of multiple adjustments at once. They permit the operator to: (1) modify the game for a specific area (for example, coinage settings for a country); (2) change a group of adjustments to conform with laws of certain localities; and (3) change the degree of difficulty of game play (Ad 62 through 66). Whenever the operator chooses to use any Special Preset Adjustment, the operator can later access any or all of the Individual Adjustments affected by that Special Adjustment for subsequent changes.

A similar technique is recommended in the event of error or uncertainty concerning any Special Preset Adjustment, after the operator selects it: The operator can restore the factory setting of each Individual Adjustment, then select the desired Special Preset Adjustment, and then return to any of the preceding Individual adjustments to determine whether use of the Special Adjustment has had the desired effect.

The Backbox displays for each Special Preset Adjustment indicate whether the operator has selected it, by identifying the Adjustment in the upper displays by name and the selection choice of NO, meaning Not Selected (this is the Factory Setting), or YES, meaning Selected, in the lower display. Operator installation of the 'selected' Preset Adjustment occurs by using the Start button to choose YES and then pressing the ADVANCE switch. The displays then show the name of the Adjustment again, with DONE to show that the installation is now in effect.

Note that, when an operator installs any of the Special Preset Adjustments, Adjustment Items using the automatic adjust feature of the game program reset to the INITIAL auto adjust value listed for that Adjustment Item.

GAME ADJUSTMENT PROCEDURE (Continued)

NOTE

A game in which the CPU has ROMs installed for German (Deutsch) or French (Francais) language and play adjustments automatically has certain Adjustment Items preset. The following tables show these Preset Adjustment Items for each of the special language games.

- 53 through 58 For German/European Games Only:** Install German 1, 2, 3, 4, 5 or 6
The operator can use these Adjustment Items to modify the game pricing selection of Standard Setting named "German 2 or German 1" in the Pricing Table to permit the style of play for the particular price shown in the **RIVERBOAT GAMBLER** Preset Game Adjustments Table for German/European Games.

RIVERBOAT GAMBLER
Preset Game Adjustments Table for German/European Games

Adj #	Adj Description	German Ad 1 53	German Ad 2 54	German Ad 3 55	German Ad 4 56	German Ad 5 57	German Ad 6 58
06	Replay Award	Credit	Coll	Audit	Credit	Coll	Audit
07	Special Award	Credit	Ball	Score	Credit	Ball	Score
08	Match Feature	7 %	7 %	Off	7 %	7 %	Off
14	Backup High Score 1	9,500,000	9,500,000	00	9,500,000	9,500,000	00
15	Backup High Score 2	9,000,000	8,000,000	00	9,000,000	9,000,000	00
16	Backup High Score 3	8,500,000	8,500,000	00	8,500,000	8,500,000	00
17	Backup High Score 4	8,000,000	8,000,000	00	8,000,000	8,000,000	00
18	High Score 1 Credits	03	03	00	03	03	00
19	High Score 2 Credits	00	00	00	00	00	00
20	High Score 3 Credits	00	00	00	00	00	00
21	High Score 4 Credits	00	00	00	00	00	00
24	Coinage Setting	6 spiele/5 DM	6 spiele/5 DM	6 spiele/5 DM	7 spiele/5 DM	7 spiele/5 DM	7 spiele/5 DM

GAME ADJUSTMENT PROCEDURE (Continued)

53 through 58 For French Games Only: Install French 1, 2, 3, 4, 5, or 6.

The operator can use these Adjustment Items to modify the style of play for the particular setting shown in the RIVERBOAT GAMBLER Preset Adjustments Table for French Games.

**RIVERBOAT GAMBLER
Preset Game Adjustments Table for French Games**

Adj #	Adj Description	French 1	Ad 53	French 2	Ad 54	French 3	Ad 55	French 4	Ad 56	French 5	Ad 57	French 6	Ad 58
31	Kickback Setting	Medium		Hard		Easy		Medium		Medium		Medium	
32	Ex Ball Percent	25 %		20 %		70 %		25 %		25 %		25 %	
60	Install 5 Ball	N/A		N/A		N/A		N/A		N/A		Yes	

53 through 58 (For USA / Canadian Games only)

The operator can use these Adjustment Items to modify the game pricing selection and the type of game play in certain Adjustments.

**RIVERBOAT GAMBLER
Preset Game Adjustments Table for US./ Canadian Games**

Adj #	Adj Description	Install Buy-In	Ad 53	Not Used	Ad 54	Install 3-ball	Ad 55	3 Ball / 2 Coin	Ad 56	3 Ball / 1 Coin	Ad 57	5 Ball 2 Coins	Ad 58
02	Replay Start	N/A				7,000,000		7,000,000		7,000,000		9,000,000	
09	Balls / Game	N/A				3		3		3		5	
14	Backup High Score 1	N/A				8,500,000		8,500,000		8,500,000		9,500,000	
15	Backup High Score 2	N/A				8,000,000		8,000,000		8,000,000		9,000,000	
16	Backup High Score 3	N/A				7,500,000		7,500,000		7,500,000		8,500,000	
17	Backup High Score 4	N/A				7,000,000		7,000,000		7,000,000		8,000,000	
24	Coinage Setting	USA 3				N/A		USA 1		USA 2		USA 3	
52	Buy-In	Yes				N/A		N/A		N/A		N/A	
64	Install Hard	N/A				N/A		N/A		N/A		Yes	
65	Install Medium	N/A				Yes		N/A		N/A		N/A	

GAME ADJUSTMENT PROCEDURE (Continued)

5 9 Install Add-A-Ball

The operator can utilize this option to delete all Free Play awards and replace them with Extra Ball awards. Individual Adjustments are affected, as follows:

<u>Ad</u>	<u>Name</u>	<u>New Setting</u>	<u>Ad</u>	<u>Name</u>	<u>New Setting</u>
06	Replay Award	Ball	18	Hi Scr 1 Credits	00
07	Special Award	Ball	19	Hi Scr 2 Credits	00
08	Match Feature	Off	20	Hi Scr 3 Credits	00
11	Max. Ex. Ball	6	21	Hi Scr 4 Credits	00
			52	Grand Credits	00

6 0 Install 5 Ball

The operator can change the game to 5-ball play, including the changing of certain features to the recommended 5-ball difficulty level. NOTE: Ad 65 (Install HARD) settings are also set when the game is changed to '5-ball Play'. Other Adjustments are affected, as follows:

<u>Ad</u>	<u>Name</u>	<u>New Setting</u>	<u>Ad</u>	<u>Name</u>	<u>New Setting</u>
02	Replay Start	8,500,000	16	B'up HI Score 3	8,500,000
09	Balls / Game	05	17	B'up HI Score 4	8,000,000
14	B'up HI Score 1	9,500,000	54	1 Coin Buyin	Cancelled
15	B'up HI Score 2	9,000,000	65	Install Hard	Yes

6 1 Install Novelty

The operator can remove all Free Play and Extra Ball awards. Individual Adjustments are affected, as follows:

<u>Ad</u>	<u>Name</u>	<u>New Setting</u>	<u>Ad</u>	<u>Name</u>	<u>New Setting</u>
01	Fixed Replay	SCORES	08	Match Feature	Off
02	Replay Level 1	Off	11	No Extra Ball	00
03	Replay Level 2	Off	18	Hi Scr 1 Credits	00
04	Replay Level 3	Off	19	Hi Scr 2 Credits	00
05	Replay Level 4	Off	20	Hi Scr 3 Credits	00
06	Replay Award	Audit	21	Hi Scr 4 Credits	00
07	Special Award	Score	52	Grand Credits	00

6 2 Install Extra Easy

The operator can change the game play difficulty adjustments to a combination that is extremely easy (sometimes called "liberal"). The Game Difficulty Setting Table, which precedes these 70 Individual Adjustments descriptions, lists the Adjustments and the settings that comprise the 'Extra Easy' group.

6 3 Install Easy

The operator can change the game play difficulty adjustments to a combination that is slightly easier than the Factory Settings. The Game Difficulty Setting Table, which precedes these 70 individual Adjustments descriptions, lists the Adjustments and the settings that comprise the 'Easy' group.

6 4 Install Medium

The operator can change the game play difficulty adjustments to a combination that matches the Factory Settings. The Game Difficulty Setting Table, which precedes these 70 Individual Adjustments descriptions, lists the Adjustments and the settings that comprise the 'Medium' group.

GAME ADJUSTMENT PROCEDURE (Continued)

6 5 Install Hard

The operator can change the game play difficulty adjustments to a combination that is more difficult than the Factory Settings. The Game Difficulty Setting Table, which precedes these 70 Individual Adjustments descriptions, lists the Adjustments and the settings that comprise the 'Hard' group.

6 6 Install Extra Hard

The operator can change the game play difficulty adjustments to a combination that is much more difficult than the Factory Settings. The Game Difficulty Setting Table, which precedes these 70 Individual Adjustments descriptions, lists the Adjustments and the settings that comprise the 'Extra Hard' group.

6 7 Auto Burn-In

The operator can choose the YES option for this Special Preset Adjustment to perform certain automatic testing of the game, as used in the factory. It does not affect the game operation, but merely provides for a cyclic testing of most of the game's mechanisms.

6 8 Install Factory

The operator can request the game (via the Start button) to provide the normal Factory Settings, essentially restoring the game to its 'factory condition'. The operator must select the 'YES' option for this adjustment. This Adjustment clears all Audits, resets all Game Adjustments to the respective Factory Settings, and provides a restart of the Auto Replay (Ad 01). After selecting the YES option, the operator must press the ADVANCE button. The game then displays FACTORY SETTING.

Closing of the coin door before appearance of the FACTORY SETTING message or a problem in the Memory Protect circuit will cause the game to display ADJUST FAILURE. A loss of battery power or improper treatment of the Game Adjustments will cause the game to attempt to restore Factory Settings. The game announces the results of this reset process with the appropriate message, FACTORY SETTING or ADJUST FAILURE.

6 9 Clear Audits

The operator can request the clearing of the non-coinage audits (Au 05 through 55) by selecting (via the Start button) the YES option, as shown in the lower display. This Adjustment zeroes the counters tallying the remaining Audit factors. Please note that this does NOT affect the Automatic Replay Percentaging data nor the automatic High Score Reset counter. After the YES option is displayed, the operator must press the ADVANCE button. The game then displays DONE to show that the non-coinage audits were reset to zero.

7 0 Clear Coins

The operator can request the clearing of the coinage audits (Au 01 through 04) by selecting (via the Start button) the YES option, as shown in the lower display. This adjustment zeroes the counters tallying the number of coins through each slot, the Paid Credits counter, and the Credits display. After the YES option is displayed, the operator must press the ADVANCE button. The game then displays DONE to show that the coinage audits were reset to zero.

RESETTING THE HIGH SCORES

The challenge of exceeding the High Score (either the factory setting or a higher score by another player) is the goal of many pinball game players. To keep a pinball game challenging requires a method of resetting the High Score value for those occasions when a skilled player registers a truly excellent score. Other players note this score and may decide not to play simply because their skill is not adequate to exceed an extremely high score.

For **RIVERBOAT GAMBLER**, in fact, three methods of resetting the High Score values are available. The simplest method involves allowing Game Adjustment Item Ad 22 to reset the High Score values automatically after the specified number of plays designated by the operator. The second method requires pressing the High Score Reset switch on the inside of the coin door in the Attract Mode. This action simply erases the previous high score values and replaces them with the Backup High Score values. The third method establishes new values replacing the factory setting values or previous operator setting values; it requires performing the following steps:

1. Using AUTO-UP or MANUAL-DOWN, reach Item Ad 14 (and Items Ad 15, 16, and 17, if desired). The High Score value of the factory setting (or previous operator-adjusted setting) appears in the upper display. If this value is satisfactory, go to step 4 below.
2. If you wish to increase the High Score value from that displayed in the upper display, use AUTO-UP, and press the Start button, until the desired value shows in the upper display.
3. If you wish to decrease the High Score value, use MANUAL-DOWN, and press the Start button, until the desired value shows in the upper display.
4. Using AUTO-UP, press and hold down ADVANCE, until the lower display shows Ad 70. Press ADVANCE once, to return to Game-Over Mode.
5. Press the High Score Reset switch (on coin door), and listen for the sound signifying that the score reset action is complete. Observe player score displays to verify that the new High Score values are displayed.

GAME PRICING

PRICING MADE EASY. Game Adjustment Item Ad 24 allows the operator an easy method of setting the pricing functions. Pressing the Start button allows the operator a choice of one of the 16 "Standard" Settings, with associated automatic pricing (the upper display shows the Country Identifier, with a number for a country having more than one "Standard" Setting; the lower displays show the games per coin(s) information). In the Pricing Table, each "Standard" Setting is denoted by a Country Identifier. Automatic Pricing causes each of the other pricing items (columns 25 through 30) to change to the value shown in the table for that selected "Standard" Setting. In the table where the word "CUSTOM" appears, the owner/operator must enter the values shown (columns 25 through 30) to obtain the games per coin factor shown in the Games/Coin column of the table. To make these setting adjustments, the owner/operator must press the Start button until the words "CUSTOM COINAGE" appear in the player score displays.

CUSTOM PRICING. Adjustment Item 24 must be set to the Custom Coinage Setting (upper display showing CUSTOM COINAGE) to enable the operator to enter desired custom pricing selections for Items 25 through 30, based on the Pricing Table. Item 25 is the left coin chute multiplier. Item 26 is the center coin chute multiplier. Item 27 is the right coin chute multiplier. Item 28 is the number of coin units equal to one Credit. (A Credit is usually equal to one game.)

The calculation of the ratio of Games : Price uses the ratio equation of $X : VC$, where:

X = Coin Chute Multiplier (Item 25, 26, or 27 in Pricing Table);

V = Value of coin;

C = Coin units equivalent to one Credit (Item 28).

For example, for 25¢ chutes at the factory setting, substituting values in the Games : Price ratio calculation gives $1 : 25 \times 1$, or one game for 25¢.

UNITS REQUIRED FOR BONUS CREDIT. Item 29 is the number of coin units that must pass through the coin chute(s) before an additional Credit (game) is posted (displayed). At the factory setting, the number in this item is 00. (This 00 means that NO bonus credit (free game) is awarded, although purchase of more than one game at a time occurs.)

MINIMUM COIN UNITS. Item 30 determines the number of coin units that must pass through the coin chute(s) before play may begin. The Factory Setting for this item is 00. (This 00 means that the Minimum Coin Units feature (Item 30) is disabled; a 01 setting also means that this feature is still disabled, yet the Credits message display should display fractional coin units.)

RIVERBOAT GAMBLER Pricing Table

Country	Coin Chute			Games/Coin	Ad 24 Display	Pricing Functions					
	Left	Center	Right			25	26	27	28	29	30
USA and Canada	25¢	-	25¢	1/25¢, 4/\$1 ²	U.S.A. 1	01	04	01	01	00	00
				1/50¢, 2/75¢, 3/\$1 ^{1,2}	U.S.A. 2	03	12	03	04	00	00
				1/50¢, 2/\$1 ²	U.S.A. 3	01	04	01	02	00	01
				1/25¢, 3/\$1 ²	U.S.A. 4	01	00	01	02	04	01
				1/25¢, 3/50¢, 6/\$1	CUSTOM	01	04	01	01	02	00
				1/25¢, 5/\$	CUSTOM	01	00	01	01	04	00
				1/50¢ ; Add'l game: 25¢	CUSTOM	98	00	98	99	00	00
Austria	5 Sch	10 Sch	10 Sch	1/2x5 Sch, 3/2x10 Sch ²	AUSTRIA	01	02	02	02	04	01
	5 Sch	-	10 Sch	2/5 Sch, 5/10 Schilling	CUSTOM	02	00	05	01	00	00
	1 Sch	5 Sch	10 Sch	2/5x1 Sch, 2/5 Sch, 5/10 Sch	CUSTOM	02	10	25	05	00	00
Australia	20¢	-	\$1	1/3x20¢, 2/\$1 ²	AUSTRAL.	02	00	10	05	00	00
United Kingdom	10 P	50 P	1£	1/2x10 P, 3/50 P, 7/1£ ²	U.K.	03	15	30	05	30	00
	10 P	50 P	20P	1/10 P, 5/50 P, 2/20 Pence	CUSTOM	01	05	02	01	00	00
Switzerland	1 Fr	2 Fr	5 Fr	1/1 Fr, 3/2 Fr, 7/5 Franc ²	SWISS	01	03	07	01	00	00
	1 Fr	-	2 Fr	1/1 Fr, 3/2 Fr	CUSTOM	03	00	06	02	00	00
Belgium	20 Fr	20 Fr	20 Fr	3/20 Franc ²	BELGIUM	03	03	03	01	00	00
	5 Fr	-	20 Fr	1/2x5 F, 2/20 Franc	CUSTOM	01	00	04	02	00	01
	5 Fr	20Fr	20 Fr	1/2x5 F, 2/20 F, 2/20 F	CUSTOM	01	04	04	02	00	01
	5 Fr	5Fr	20 Fr	1/2x5 F, 1/2x5 F, 2/20 F	CUSTOM	01	01	04	02	00	01

GAME PRICING (Continued)

RIVERBOAT GAMBLER Pricing Table (Continued)

Country	Coin Chute			Games/Coin	Ad 24 Display	Pricing Functions					
	Left	Center	Right			25	26	27	28	29	30
West German	1 DM	2 DM	5 DM	1/1 DM, 2/2 DM, 7/5 DMark ^{2,3}	GERMAN 1	06	12	30	05	30	00
				1/1 DM, 2/2 DM, 6/5 DM ^{1,2}	GERMAN 2	08	12	30	05	00	00
				1/1 DM, 3/2 DM, 9/5 DM	CUSTOM	09	18	45	05	00	00
				1/2x1 DM, 1/2 DM, 3/5 DM	CUSTOM	03	06	15	05	00	00
				2/1 DM, 5/2 DM, 14/5 DM	CUSTOM	13	26	65	05	65	00
Netherlands	1 Hfl	2.5 Hfl	2.5 Hfl	1/1 Hfl, 3/2.5 Holland Florin ²	NETHERL	06	15	15	05	00	00
	25¢	-	1G	1/25¢, 5/1 Guilder	CUSTOM	01	00	05	01	00	00
	1G	-	1G	1/1 Guilder ²	HOLLAND	01	00	01	01	00	00
Sweden	5 Kr	5 Kr	5 Kr	1/5 Krona ²	SWEDEN	01	01	01	01	00	00
	1 Kr	-	1 Kr	1/2x1 Krona	CUSTOM	01	04	01	02	00	01
France	1 Fr	5 Fr	10 Fr	1/3x1 F, 2/5 F, 5/10 Franc ^{1,2}	FRANCE	02	10	20	05	20	00
	1 Fr	5 Fr	10 Fr	1/2x1 F, 3/5 F, 7/10 Franc	CUSTOM	03	15	30	05	30	00
	5 Fr	10 Fr	10 Fr	1/5 F, 3/10 F, 7/2x10 Franc	CUSTOM	03	15	30	10	60	15
	5 Fr	10 Fr	10 Fr	2/5 F, 4/10 F, 9/2x10 Franc	CUSTOM	02	10	20	05	40	10
	5 Fr	10 Fr	10 Fr	2/5 F, 5/10 F, 11/2x10 Franc	CUSTOM	01	05	10	02	20	05
Italy	500L	500L	500L	1/500 Lire ²	ITALY	01	01	01	01	00	00
Spain	25 P	-	100 P	1/25 P, 5/100 Peseta ²	SPAIN	05	00	20	04	00	00
	25 P	-	100 P	1/25 P, 4/100 Peseta	CUSTOM	01	00	04	01	00	00
	25 P	-	100 P	1/2x25 P, 2/100 Peseta	CUSTOM	01	00	04	02	00	00
	25 P	-	100 P	1/2x25 P, 3/100 Peseta	CUSTOM	03	00	12	04	00	06
Japan	100 ¥	-	100 ¥	1/100 Yen ²	JAPAN	01	00	01	01	00	00
	-	100 ¥	-	2/100 ¥	CUSTOM	01	04	01	02	00	01
Antilles, Nthrlnd	25¢	-	1G	1/25¢, 4/1 Guilder ²	ANTILLES	01	01	04	01	00	00
Chile	Token	-	Token	1/1 Token ²	CHILE	01	04	01	01	00	00
Denmark	1 Kr	5 Kr	10 Kr	1/2x1 Kr, 3/5 Kr, 7/10 Krone ²	DENMARK	03	15	30	05	30	00
Finland	1 Mka	-	5 Mka	1/2x1 Mka, 3/5 Markka ²	FINLAND	03	00	15	05	00	00
New Zealand	20¢	-	20¢	1/3x20¢ ²	N. Z.	01	00	01	03	00	01
Norway	1 Kr	-	1 Kr	1/2x1 Kr, 3/5x1 Krone ²	NORWAY	01	00	01	02	05	00
Argentina	10¢	10¢	10¢	1/1 Token ²	ARG.	01	01	01	01	00	00
Greece	10 D	20 D	50 D	1/2x10D, 1/20D, 3/50 Drachma ²	GREECE	03	06	15	05	00	00

Notes: 1. Factory Default. 2. Standard Setting - Change by pressing Start button. 3. Other functions are also affected; see the explanations for Adjustment Items 53 through 58.

TEST/DIAGNOSTIC PROCEDURES

WILLIAMS ELECTRONICS GAMES also provides a series of diagnostic tests to aid the operator in determining game condition (that is, whether the game's features and highlights are operating satisfactorily). These tests activate virtually all the electronic and electromechanical devices comprising the game, so that the operator can readily locate a malfunctioning device or simply verify that all devices are working properly. In order, these tests deal with the music, the displays, the game sounds, the lamps, the solenoids, and the switches.

In addition to the diagnostic testing, a feature called the Auto Burn-in Mode is available. Activating this mode enables the operator to observe the game while all of the diagnostic tests, except the switch tests, occur. This can be very helpful in locating 'intermittent' problems.

Activating either the entire test series or one of the individual tests requires use of the Game Adjustment/ Diagnostic switches. Open the coin door for access to these switches. To proceed to the Diagnostic Tests, the operator must simply switch the game On, set the AUTO-UP/MANUAL-DOWN switch to MANUAL-DOWN, and press the ADVANCE button.

CAUTION

The System 11C game program greatly aids the operator and service personnel: At the beginning of the Test/Diagnostic Procedures (and also at game Turn-On), the player score displays now signal, with a message ("Press ADVANCE for Report") that the game program has detected a problem that affects game play. Messages for **RIVERBOAT GAMBLER** include "Adjust Switch ##", "Pinball Missing", and Music Error". Refer to the text on Problem Analysis Messages at the end of the Test/Diagnostic Procedures for more details concerning the messages' meaning. To proceed with the Test/ Diagnostic Procedures, use AUTO-UP, and press ADVANCE.

MUSIC TEST.

1. In the Music Test, observe that the upper displays show the message, MUSIC TEST. Switching to AUTO-UP, observe that the message now reads MUSIC OFF, and that the lower display shows 00 00. Press the Start button to select the desired music selection: 01 through 07 (the selections repeat). Adjust the volume control for proper sound level for the game location.
2. Use the AUTO-UP position.

DISPLAY TEST.

1. To initiate the Display Test, press ADVANCE. Observe that upper display briefly shows the message, DISPLAY TEST, and that the lower display shows 01 (the Display Test Identifier).
2. Use AUTO-UP. Observe that all displays begin a display cycle of all 0s through all 9s, one digit at a time. Verify that the proper comma segments light during display of the odd-numbered digits. Next, a special "all segments" character 'walks' from left to right across each player score display.
3. To halt the display cycle, use MANUAL-DOWN. Then, press ADVANCE to step through the sequential digit display, digit by digit, and the subsequent "all segments" characters display test. Use AUTO-UP to resume cycling, and to proceed to the next test.

SOUND TEST.

1. (From Display Test) To initiate the Sound Test, press ADVANCE. Observe that the upper displays show the message, SOUND TEST, and that the lower display shows 02 (the Sound Test Identifier). The lower display shows a series of test steps from 00 through 07. The same sound should be heard for each step, from 00 through 07.
2. To repeatedly pulse a single sound, use MANUAL-DOWN. Verify that one particular sound repeats. Press ADVANCE to step to the next sound, which repeats until ADVANCE is pressed again. Use AUTO-UP to resume cycling the sounds, and to proceed to the next test.

TEST/DIAGNOSTIC PROCEDURES (Continued)

LAMP TESTS.

1. All Lamps.

(From Sound Test) To initiate the first Lamps Test, press ADVANCE. Observe that the upper displays show the message, ALL LAMPS, and that the lower display shows 03 (All Lamps Test identifier) and that all feature lamps (playfield and backbox) blink on and off. (Note, however, that the General Illumination lamps remain lighted steadily.) To locate the wiring associated with a particular feature lamp, refer to the Lamp-Matrix Table. CPU Board connections at jacks 1J6 (columns) and 1J7 (rows) are also listed in the table.

2. Single Lamps.

From the All Lamps test, using AUTO-UP, press ADVANCE to initiate the Single Lamps Test. The upper displays initially show the message, SINGLE LAMPS, and the lower display shows 04. Then, the lower display shows 04 01, and the upper displays change to show "Green 0", the name of the lamp currently blinking. Press the Start button to proceed through an ascending series of designator numbers (01 through 64), with the upper displays showing the individual lamp's name. (To proceed through a descending series of lamp identifiers, use MANUAL-DOWN.) Press and hold the Start button to proceed rapidly to the desired lamp.

Riverboat Gambler Lamp Matrix

Column Row	1 Q66 Yel-Brn 1J7-1	2 Q64 Yel-Red 1J7-2	3 Q62 Yel-Orn 1J7-3	4 Q60 Yel-Blk 1J7-4	5 Q58 Yel-Grn 1J7-6	6 Q56 Yel-Blu 1J7-7	7 Q54 Yel-Vio 1J7-8	8 Q52 Yel-Gry 1J7-9
Q60 1 Red-Brn 1J6-1	Red 1	Bottom 21 Card 9	C Casino Lamps 17	20 Chips 25	C Stand-up Target 33	Ten 41	F Left Bank Target 49	Win Meter 1 Low 57
Q61 2 Red-Blk 1J6-2	Green 2	Middle 21 Card 10	A Casino Lamps 18	10 Chips 26	H Stand-up Target 34	Jack 42	I Left Bank Target 50	Win Meter 2 58
Q62 3 Red-Orn 1J6-3	Black 3	Top 21 Card 11	S Casino Lamps 19	50 Chips 27	I Stand-up Target 35	Queen 43	V Left Bank Target 51	Win Meter 3 59
Q63 4 Red-Yel 1J6-5	Play Roulette 4	20 Hit Lamp 12	I Casino Lamps 20	Spot Star 28	P Stand-up Target 36	King 44	E Left Bank Target 52	Win Meter 4 60
Q64 5 Red-Grn 1J6-6	Gold Star 1 5	Left Outlane 13	N Casino Lamps 21	Top Jet and 1 29	S Stand-up Target 37	Ace 45	C Right Bank Target 53	Win Meter 5 61
Q65 6 Red-Blu 1J6-7	Gold Star 2 6	Left Return Lane 14	O Casino Lamps 22	Bottom Jet and 3 30	Not Used 38	200 Chips 46	A Right Bank Target 54	Win Meter 6 62
Q66 7 Red-Vio 1J6-8	Gold Star 3 7	Right Return Lane 15	Hold Card 23	Right Jet and 2 31	Winning Streak 39	100 Chips 47	R Right Bank Target 55	Win Meter 7 63
Q67 8 Red-Gry 1J6-9	Spot Card 8	Right Outlane 16	Collect Royal 24	Not Used 32	Slot Shot 40	Shoot Again 48	D Right Bank Target 56	Bust Card 64

TEST/DIAGNOSTIC PROCEDURES (Continued)

SOLENOID TEST.

1. (From Lamp Test) Using AUTO-UP, press ADVANCE. Observe that the upper display shows the message, COIL TEST, the lower display shows 05 (Solenoid Test Identifier). Next, the lower display shows a series of test steps from 01 through 22, while the upper display shows the solenoid/circuit name. During each of these steps, pulsing of the respective solenoid/circuit occurs. The test cycles repeatedly, unless halted via the MANUAL-DOWN switch. Refer to the Solenoid Table for solenoid numbers and wiring information. CPU Board connections at 1P11, 1P12, and 1P19 are also listed in the table.

To continuously pulse a single solenoid/circuit, use MANUAL-DOWN. Press ADVANCE to sequence through the switched, controlled, and special solenoids. Use AUTO-UP to resume test cycling, and to proceed to the next test.

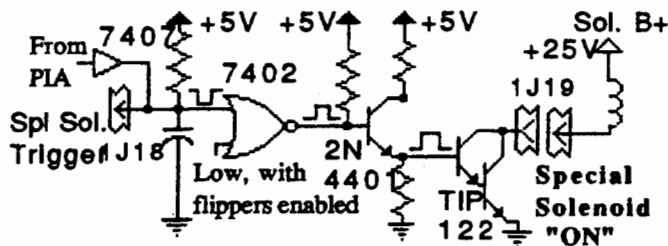
Riverboat Gambler Solenoid Table

Sol. No.	Function	Solenoid Type	Wire Color	Connections		Driver Trnstr	Solenoid Part Number Flashlamp Type i=Insert Panel. p=Playfield
				CPU Bd	Playfield/ Cabinet		
01A ³	Outsole	Switched	Vio-Brn	1P11-1	5J1-9: 5J4-9 (A)	Q33	AE-23-800
01C ³	Left Kicker (Sling) Flasher	Switched	Blk-Brn	(Gry-Brn)	5J5-9 (C)	Q33	#89/906 flashlamps 11.1p
02A ³	Ball Shooter Lane Feeder	Switched	1P11-3	5J1-7: 5J4-8 (A)		Q25	AE-23-800
02C ³	Right Kicker (Sling) Flasher	Switched	Blk-Red	Gry-Red)	5J5-8 (C)	Q25	#89/906 flashlamps 11.1p
03A ³	Left Drop Tgt Reset	Switched	Vio-Orn	1P11-4	5J1-6: 5J4-7 (A)	Q32	AE-24-900
03C ³	Left Drop Tgt Bank Flashre	Switched	Blk-Orn	Gry-Orn)	5J5-7(C)	Q32	#89/906 flashlamps 11.1p
04A ³	Right Drop Tgt Reset	Switched	Vio-Yel	1P11-5	5J1-5: 5J4-6 (A)	Q24	AE-24-900
04C ³	Right Drop Tgt Bank Flasher	Switched	Blk-Yel	(Gry-Yel)	5J5-5 (C)	Q24	#89/906 flashlamps 11.1p
05A ³	Ramp Up	Switched	Vio-Grn	1P11-6	5J1-4: 5J4-5 (A)	Q31	AE-23-800
05C ³	Standup Target Flasher	Switched	Blk-Grn	Gry-Grn)	5J5-4 (C)	Q31	#89/906 flashlamps 11.1p
06A ³	Ball Kicker (Locker)	Switched	Vio-Blu	1P11-7	5J1-3: 5J4-4 (A)	Q23	AE-23-800
06C ³	Left Ramp Flasher	Switched	Blk-Blu	(Gry-Blu)	5J5-3 (C)	Q23	#89/906 flashlamps 11.1p
07A ³	Knocker	Switched	Vio-Blk	1P11-8	5J1-2: 5J4-2 (A)	Q30	AE-23-800
07C ³	Right Ramp Flasher	Switched	Blk-Vio	(Gry-Vio)	5J5-2 (C)	Q30	#89/906 flashlamps 11.1p
08A ³	Ramp Down	Switched	Vio-Gry	1P11-9	5J1-1: 5J4-1 (A)	Q22	SM1-26-600
08C ³	Left Back Flasher	Switched	Blk-Gry	(Gry-Blk)	5J5-1 (C)	Q22	#906 flashlamp 1p
09	Right Back Flasher	Controlled	Brn-Blk	1P12-1	5J2-9: 5J6-9: 2J4-11	Q17	#906 flashlamp 1p
10	Playfield/Insert GI Relay	Controlled	Brn-Red	1P12-2	5J2-8: 5J6-8: 2J4-12	Q9	5580-09555-01 4a
11	Wheel Flashers (TR + LR)	Controlled	Brn-Orn	1P12-4	5J2-6: 5J6-7: 2J4-13	Q16	#906 flashlamp 1p
12	A/C Select Relay	Controlled	Brn-Yel	1P12-5	5J2-5	Q8	5580-09555-01 5
13	Diverter	Controlled	Brn-Grn	1P12-6	5J2-4: 5J6-5: 2J4-14	Q15	AE-24-900
14	Roulette Wheel B	Controlled	Brn-Blu	1P12-7	5J2-4: 5J6-3: 2J4-15	Q7	p/o B-12088
15	Roulette Wheel A	Controlled	Brn-Vio	1P12-8	5J2-2: 5J6-2: 2J4-16	Q14	p/o B-12088
16	Wheel Flasher (LL + TR)	Controlled	Brn-Gry	1P12-9	5J2-1: 5J6-1: 2J4-10	Q6	#906 flashlamps 2i
17	Top Jet Bumper	Special #1	Blu-Brn	1P19-7	5J3-7: 5J7-7	Q75	AE-23-800
18	Left Kicker (Sling)	Special #2	Blu-Red	1P19-4	5J3-6: 5J7-6	Q71	AE-26-1500
19	Bottom Jet Bumper	Special #3	Blu-Orn	1P19-3	5J3-3: 5J7-3	Q73	AE-23-800
20	Right Kicker (Sling)	Special #4	Blu-Yel	1P19-6	5J3-4: 5J7-5	Q69	AE-26-1500
21	Right Jet Bumper	Special #5	Blu-Grn	1P19-8	5J3-2: 5J7-2	Q77	AE-23-800
22	Not Used	Special #6	Blu-Blk	1P19-9	5J3-1: 5J7-1	Q79	
-	<u>Lower Right Flipper</u>	-	Orn-Vio [Blu-Vio] ²	1P19-1	2J5-5: 2P10-7 [2J10-1: 2P8-15]	-	FL11630/50VDC
-	<u>Lower Left Flipper</u>	-	Orn-Gry ² [Blu-Gry]	1P19-2	2J5-4: 2P10-8 [2J10-2: 2P8-14]	-	FL11630/50VDC

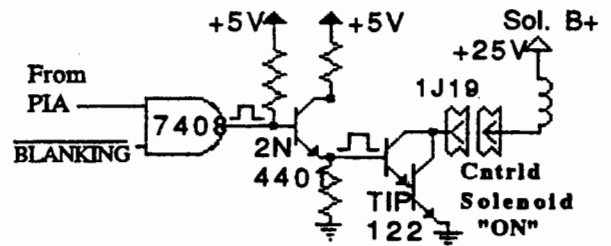
NOTES
1. Wire colors, except flipper Orn-Vio and Orn-Gry, are ground connections (to coil terminal with unbanded end of diode). Flipper Orn-Vio, Orn-Gry wires connect from CPU Board to flipper switch. 2. Flipper connections shown in braces are from flipper switch to flipper coil.
3. "A" circuits are pulsed, when Sol. 12 is de-energized; "C" circuits are pulsed, with Sol. 12 energized. Wire colors in brackets are those from respective A and C terminals corresponding to the J1-terminal connection listed for the Aux Power Driver Bd, which controls the device pulsing by Sol. 12. 4. Relay is mounted on Relay Bd, (4a) p/n C-11998-1; (4b) C-11902-1. 5. Relay is mounted on Aux Power Driver Bd, D-12247 in the backbox.

TEST/DIAGNOSTIC PROCEDURES (Continued)

"On" State Logic - Special Solenoid



"On" State Logic - Controlled Solenoid



"Off" State - Special Solenoid:

The Special Switch Trigger Input goes low. Meanwhile, the PIA line remains high. The remaining signals reverse their states.

"Off" State - Controlled Solenoid:

The Enable Input (from the PIA) goes low. Meanwhile, the BLANKING signal remains high. The rest of the signals reverse their states.

NOTE

As directed by the game program, the Solenoid A/C Select Relay (solenoid 12) switches the solenoid B+ power between two power busses to permit actuating two groups of solenoids at the proper times. In its de-energized state, the Relay connects the 'circuit A power' to 16 "controlled" and "switched" solenoids (identified in the table with no suffix letter or the letter A, after the solenoid number). Individual solenoid operation then depends on the game program enabling the ground path for solenoid actuation via the driver transistor associated with each solenoid circuit. For example, the game program can actuate the Outhole Kicker solenoid (sol. 01A), via the driver transistor Q33.

When the game program determines that the Solenoid A/C Select Relay (sol. 12) must be energized, the relay connects 'circuit C power' to eight group C solenoids (01C through 08C). Now, driver transistor Q33 can actuate the Left Sling Flasher circuit (sol. 01C), which has one lamp circuit, on the playfield. Using this "multiplexing" technique, the same driver transistor can control actuation of two separate (A side and C side) solenoid circuits.

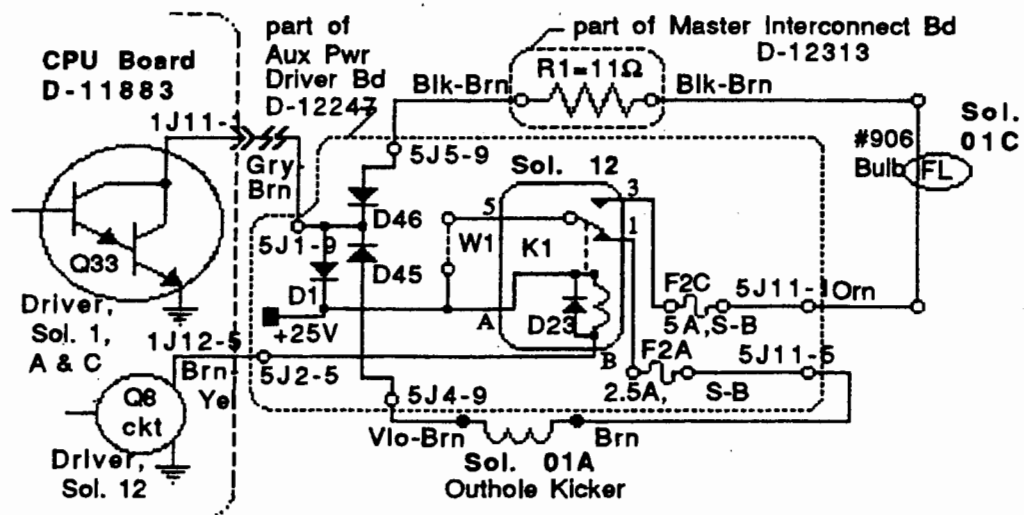


Figure 4. Typical Solenoid A/C Select Relay Circuit, showing the function of Solenoid 12, the Solenoid A/C Select Relay.

TEST/DIAGNOSTIC PROCEDURES (Continued)

SWITCH TESTS.

1. Switch Levels.

(From Solenoid Test) To initiate the Switch Levels Test, press ADVANCE. Observe that the upper display shows the message, SWITCH LEVELS, and the lower display shows 06 (Switch Levels Test Identifier). Normally, the right portion of the lower display remains blank, indicating that no switch is actuated.

If, however, a switch is actuated (possibly stuck closed), the lower display shows that switch's number, while the upper displays indicate the switch's name. A sound also accompanies the displays. (This is another facet of the **RIVERBOAT GAMBLER** game program's switch testing capability.) If more than one switch is closed, a series of displays show each actuated switch's name and number.

(In addition, either of these problems could result in the reporting of a switch problem (or problems) at game Turn-On or at the beginning of Diagnostic Tests.)

As soon as the operator opens a closed switch, its name and number are eliminated from the Switch Levels display series. For **RIVERBOAT GAMBLER**, switch numbers can range from 01 through 64. Refer to the Switch-Matrix Table for switch numbers and wiring information. CPU Board connections at jacks 1J8 (columns) and 1J10 (rows) are also listed in the table.

Riverboat Gambler Switch Matrix

Column Row	1 Q45 Grn-Brn 1J8-1	2 Q49 Grn-Red 1J8-2	3 Q44 Grn-Orn 1J8-3	4 Q48 Grn-Yel 1J8-4	5 Q43 Orn-Blk 1J8-5	6 Q47 Grn-Blu 1J8-7	7 Q42 Grn-Vio 1J8-8	8 Q46 Grn-Gry 1J8-9
1 Wht-Brn 1J10-9	Plumb Tilt 1	Shooter 9	Left Ramp Return 17	1/4 Skill Shot 25	C Stand-up Target 33	Not Used 41	F Left Drop Target 49	Right Flipper 57
2 Wht-Red 1J10-8	A/C Relay C-Side 2	Outhole 10	Left Outlane 18	1/2 Skill Shot 26	H Stand-up Target 34	Past Skill Shot 42	I Left Drop Target 50	Left Flipper 58
3 Wht-Orn 1J10-7	Start Button 3	Left Trough 11	Left Return Lane 19	3/4 Skill Shot 27	I Stand-up Target 35	21 Stand-up Target 43	V Left Drop Target 51	Roulette Wheel 59
4 Wht-Yel 1J10-6	Right Coin Switch 4	Center Trough 12	Skill Shot Made 20	Left Sling 28	P Stand-up Target 36	Locker/ Eject 44	E Left Drop Target 52	Red Button 60
5 Wht-Grn 1J10-5	Center Coin Switch 5	Right Trough 13	Not Used 21	Top Jet 29	S Stand-up Target 37	Ramp Down Now 45	C Right Drop Target 53	Pass Button 61
6 Wht-Blu 1J10-3	Left Coin Switch 6	Right Ramp Entry 14	Right Return Lane 22	Bottom Jet 30	Not Used 38	Not Used 46	A Right Drop Target 54	Green Button 62
7 Wht-Vio 1J10-2	Slam Tilt 7	Top Ramp Entry 15	Right Outlane 23	Right Jet 31	Top Ramp Exit 39	Not Used 47	R Right Drop Target 55	Black Button 63
8 Wht-Gry 1J10-1	High Score Reset 8	Left Ramp Entry 16	Right Ramp Return 24	Right Sling 32	Bust Card 40	Ball at Diverter 48	D Right Drop Target 56	Rebound Switch 64

Row Problems. If a display of two (or more) switch numbers of a row occurs, although only one switch is closed, check for a short circuit to ground.

Multiple Switch Number Indications. Check for a bad diode on any of the switches.

Column Problems. If display of two (or more) switch numbers in a column occurs, although only one switch is closed, check for a short to ground or, a bad transistor (Q42-Q49) on the CPU Board.

Use AUTO-UP to proceed to the next test.

TEST/DIAGNOSTIC PROCEDURES (Continued)

SWITCH TESTS (Continued).

2. Switch Edges.

From the Switch Levels Test, press ADVANCE. Observe that the upper display shows the message, SWITCH EDGES; the lower display shows 07 (Switch Edges Test Identifier). The right portion of the lower display is blank, indicating that no switch is actuated.

This test permits the operator to test whether actuating a switch provides the proper signal to the System 11C switch testing program. When actuating a switch, the operator should see the switch's name and number in the displays. If no indication appears at the time the switch is actuated the operator then knows that there is a malfunction associated with that switch.

Using this technique, the operator can test each switch appearing in the **RIVERBOAT GAMBLER** switch problem report (either at game Turn-On or at the beginning of the Diagnostic Tests) to determine whether the switch can be actuated. If the switch's name and number are displayed while the operator checks its operation, the operator then knows that the reported problem with that switch is NOT currently caused by a switch malfunction. The operator can then seek other causes for the reported problem, being almost certain now that the switch did not fail. This test is also useful when the operator is adjusting the sensitivity of a particular switch's actuation mechanism.

Among the possibilities is the fact that the players have not actuated that switch because of some other problem; the operator should try to analyze what could cause the switch to be missed during game play, and remedy that problem cause. With these new tests, switch problems are, therefore, more easily isolated.

3. **Playfield or CPU Board?** To determine whether a switch problem is in the playfield or the CPU Board, remove connectors 1P8 and 1P10 from the CPU Board. Begin the Switch Test. Use a jumper wire to simulate switch actuation. For example, placing a jumper between 1J10-9 and 1J8-2 should (based on the Switch-Matrix Table) should produce an indication of switch 09 being actuated.

ROULETTE WHEEL TEST

From the Switch Edges Test, press ADVANCE. Observe that the Player 1 and 2 displays show the message, WHEEL TEST. The Player 2 display now shows the last known position of the Roulette Wheel, while the Player 4 display is divided to show the 'state' of the Home Switch. On the left of the Player 4 display, an "H" means that the Home Switch is open or the opto is interrupted; on the right, a number shows the count on the stepper wheel (1-200; however, if the Home Switch is not working, the number can go as high as 256).

Using AUTO-UP this test is automatic: The wheel spins, waits 2 seconds, then spins again. The Wheel stops next to the counterclockwise position of the wheel, if the Home Switch works. Using MANUAL-DOWN, press ADVANCE to spin the wheel. The wheel stops next to the counterclockwise position of the wheel, if the Home Switch works. If the wheel is not spinning you can manually step the motor by pressing the Start button.

During this test, the Player 3 display shows 08Err, if an error occurs (the game program did not detect the Home Switch).

ENDING THE DIAGNOSTIC TESTS.

To end the Diagnostic Tests, reach the C-Side Test (08 in the lower display), use AUTO-UP and press ADVANCE. The backbox displays should show the **RIVERBOAT GAMBLER** game's Id information (the Id 00 screen). Use MANUAL-DOWN, and press ADVANCE to reach Adjustment Item 70 (INSTALL FACTORY). Use AUTO-UP, and press ADVANCE to go to the Attract Mode.

TEST/DIAGNOSTIC PROCEDURES (Continued)

AUTO BURN-IN MODE.

The Auto Burn-in Mode permits the operator to check Intermittent (or nonrecurring) problems associated with most portions of the game's circuitry. Repeatedly cycling through a group of tests can sometimes bring a problem, which occurs only randomly or occasionally, to exhibit itself more frequently, thereby aiding in the isolation of the problem. To activate the Auto Burn-in Mode:

1. While in the Game Adjustments, reach Ad 67 and change the Factory Setting of NO to YES, via the Start button. Set the AUTO-UP/MANUAL-DOWN switch to AUTO-UP.
2. Press ADVANCE to start the Auto Burn-in Mode. This mode repeatedly sequences through the Music Test, the Display Test, the Sound Test, the All Lamps portion of the Lamp Test, and the Solenoid Test.
3. To halt the Auto Burn-in Mode, switch the game Off and then On. **RIVERBOAT GAMBLER** now starts in the Attract Mode. (If a switch problem is now reported by the displays, perform the Switch Tests again to determine the nature of the problem; then, perform necessary repairs.)

SYSTEM 11C MEMORY CHIP TEST.

A new feature is now included in the Memory Chip Test for System 11C. During power-up, the CPU performs a self-testing routine. When all tests are satisfactory, the game proceeds to the Attract Mode, allowing players to use the game. Whenever a portion of the testing does not produce satisfactory results, the game displays a message, before proceeding to the next portion of the testing. ONLY after all tests are satisfactory does the game allow play to begin.

In addition to the displayed message, when any part of the self-test routine fails, LED2 ('DIAGNOSTIC'), mounted on the CPU Board, can be observed to determine the probable cause of the problem. This LED blinks, or flashes, a certain number of times to identify the probable cause, as described in the CPU LED Indicator Codes Table. The operator can also start the self-test routine by pressing the CPU Diagnostic Switch (SW 2) on the edge of the CPU Board.

CPU LED Indicator Codes Table

Diagnostic LED		
Blinks/ Flashes	CPU Problem	Explanation
1	U25 RAM FAILURE	U25 RAM could not be used properly (NO other tests are performed; the game is locked here, until the game is turned off).
2	MEM. PROT. FAILURE	This message means that (A) the Coin Door may be shut; (B) the Memory Protect Switch may be stuck in the ON position; (C) the memory protect logic is protecting the memory; or (D) a U25 RAM failure is occurring. (See Note 1)
3	U51 PIA FAILURE	U51 has a malfunction. (See Note 2)
4	U38 PIA FAILURE	U38 has a malfunction. (See Note 2)
5	U41 PIA FAILURE	U41 has a malfunction. (See Note 2)
6	U42 PIA FAILURE	U42 has a malfunction. (See Note 2)
7	U54 PIA FAILURE	U54 has a malfunction. (See Note 2)
8	U10 PIA FAILURE	U10 has a malfunction. (See Note 2)
9	IRQ FAILURE	IRQ has a malfunction. It may be missing or too fast or too slow.
10	U27 ROM FAILURE	U27's internal checksums do not match. It may be a ROM failure, or its associated connections and connecting devices are causing it to appear to have a problem. (The following U26 test is skipped.)
11	U26 ROM FAILURE	U26's internal checksums do not match.
Notes: 1. This test assumes that the Coin Door is OPEN; it is initiated ONLY by pressing the CPU Diagnostic Switch (SW2). 2. Alternatively, its associated connections or connecting devices are causing the IC to appear to have problems.		

TEST/DIAGNOSTIC PROCEDURES (Continued)

SYSTEM 11C SOUND CIRCUITRY TESTS.

Testing of the System 11C Sound circuitry, including the Audio Board, is possible only after successful completion of the System 11C Memory Chip Test.

Audio Board Test. The game program conducts a brief check of the Audio Board (D-11581) circuitry at game Turn-on; the game program reports the test results by brief sounds, as follows: No sound = Audio Board is not operating, or a failure is affecting the sound circuitry (broken cable; dead amplifier; etc.); 1 sound = system OK; 2 sounds = RAM problem; 3 sounds = U4 problem; 4 sounds = U19 problem; 5 sounds = U20 problem.

NO SOUND DURING THIS TEST (but sound can be heard during the Diagnostic Tests).

Check the -12 V supply voltage on the Audio Board. If this -12V dc voltage is low (or AC ripple seems too high), perform the following checks:

1. The gray and gray-green transformer secondary wires for 19.4 V ac.
2. The CPU Board filter capacitor C26 for -12 V dc.
3. The filter capacitor C26 for excessive AC ripple (over 0.75V ac).

If the previous checks did not isolate the problem, turn the Volume Control for maximum output. Momentarily touch a powered-up AC soldering pencil on the center tap of the Volume Control.

CAUTION

DO NOT use a soldering iron over 40 watts. Note also that cordless soldering irons will NOT work for this test.

Hearing a low hum or a 'click' indicates that the power amplifier (U1, TDA2002), the Volume Control, and the speaker are operating satisfactorily, as is the sound circuit cabling. Not hearing a sound requires repeating the test with the Volume Control turned part way down, to determine whether the Volume Control is faulty. Also, check the cable connectors for proper mating, and that no broken wires affect this circuit.

PROBLEM ANALYSIS MESSAGES

The System 11C game program has a great capability to aid the operator and service personnel: At Game Turn-on (and also at the beginning of the Test/Diagnostic Procedures) after the game has been operating for an extended period, the player score displays may signal with a message, "Press ADVANCE for Report", that the game program has detected a possible problem with the game.

To obtain details of the problem, open the coin door and press the AUTO-UP/MANUAL-DOWN switch to MANUAL-DOWN. Press the ADVANCE button to begin displaying the message(s). The following messages apply to your **RIVERBOAT GAMBLER** game.

Adjust Failure. This message indicates a problem with the setting of Game Adjustments. For example, if the game operator changes Adjustment Item settings by selecting Yes for AD 68 (Install Factory) and then closes the coin door before the appearance of the FACTORY SETTING message, the game will display the ADJUST FAILURE message to indicate that the resetting of the Adjustment Items did not occur properly. As mentioned earlier in the Game Adjustment Procedure text (near Ad 68), other factors can also cause this message to appear.

Adjust Switch ##. This message indicates that at least one switch was stuck 'On' at game turn-on or has NOT been actuated during ball play (for 90 balls or ~30 games) by displaying the message "Adjust Switch ##", listing each problem switch by number. (The game program compensates the game play requirements affected by each disabled switch to allow 'nearly normal' play. This helps keep **RIVERBOAT GAMBLER** earning, until the service technician can repair the problem, bringing the game back to its normal good profits!)

To verify the problem, refer to the Test/ Diagnostic Procedures text describing Switch Testing, and check each reported switch using applicable Switch Levels and Switch Edges tests. Always check switch operation using a ball, to simulate game conditions. (Switch problems may often be resolved by adjusting the wire switch actuators, fixing switch circuitry problems, securing loose connectors, etc. Mechanisms using 'opto switches' (drop targets, etc.) need to be checked for proper power connections (+12V dc and ground).

Pinball Missing. **RIVERBOAT GAMBLER** normally uses three balls; however, it will operate with two balls. This message announces that a ball is missing or stuck somewhere. When the ball is located, return it to the game via the Outhole. Other possibilities for this problem could be malfunctions of the Ball Trough switches (#11, #12, or #13) or the Ball Shooter switch (#9).

Ramp UP Error / Ramp DOWN Error. Display of either message means that the Ramp did not reach its proper position. To check for 'Ramp Up' operation, switch the game Off, and then On. To check for 'Ramp Down' operation, start a game. Ramp problem causes can include: 1) A mechanical problem preventing Ramp movement, possibly a ball stuck under the ramp, playfield plastics interfering with ramp movement, etc.; 2) The Ramp Down switch is not operating properly; 3) The fuse for the Ramp Up solenoid is blown or the solenoid wiring is "open" electrically (preventing solenoid operation).

xxxxx Sw. Is Stuck On. This message indicates that a switch, which is not usually On, remains in the On position after the game is switched on. The stuck switch is essential for game play (for example, a coin chute switch, the slam tilt switch, the plumb bob tilt switch), and should be cleared to permit proper game operation.

PROBLEM ANALYSIS MESSAGES(Continued)

Momentary Short. This message indicates that the game program detected a short circuit (to ground) affecting one or more of the switches listed in the switch matrix. To erase the message, analyze the reason for the switch being reported by performing the Switch Tests portion of the Test/ Diagnostic Procedures. Frequent appearance of this message requires activation of the Switch Levels Test to locate the switch causing the "WHT-xxx ROW x SHORT" message. Possible 'row short' causes are: 1) Slam Tilt (or other coin door) switch touching the grounded coin door; 2) A *leaf-type*, playfield switch touching a grounded part; 3) Players poking metallic objects (wires, coat hangers, etc.) into the game; 4) Switch cable insulation pierced or damaged allowing bare wire contact with a grounded part; 5) A 4-bank Drop Target Opto PC Board which is not connected to ground; 6) All switches in a row closing at the same time (Note: This instance is NOT a switch problem; however, for most games this is a very rare possibility).

Factory Settings. Repeated appearance of this message indicates that the CMOS RAM no longer retains any custom Pricing or Game Adjustment settings and has reverted to factory default settings. Generally, the following CPU checks will isolate the cause of the CMOS RAM memory failure. The voltage at pin 24 of U25 should be +5V (game turned on) and at least +3.8V (game turned off). When the voltage drops below +3.8V, memory reset occurs. Check the batteries and battery holder. Be sure that the batteries are good and that there is no contamination on the battery holder terminals. Turn the game OFF, and use an ohmmeter to check diodes D1 and D2 on the CPU Board. D1 should read 0 ohms when forward-biased and infinite ohms when reverse-biased. D2 should read 15 ohms when forward-biased and infinite ohms when reverse-biased. Turn game ON, and use an oscilloscope to check Q40. Q40 should display square waves on all three terminals.

MAINTENANCE INFORMATION

Regular maintenance is essential to a game's continuing contribution to the operator's earnings.

LUBRICATION

The two main lubrication points of the Ball Shooter Lane Feeder mechanism are the pivots for the arm. Note that the mechanism of other playfield devices are somewhat similar to the Ball Shooter Lane Feeder Device; and have the same lubrication requirements as the Ball Shooter Lane Feeder Device. A medium viscosity oil (20W or 30W) is very satisfactory for these devices.

Because of the functional design (arm-actuated via solenoid plunger operation), the pivot points of the Left and Right Kickers ("Slingshots") all require lubrication as a regular servicing procedure.

Lubrication to ensure proper operation also applies to the target blades of the Drop Targets. MBI Instrument Grease, also known as Drop Target Switch Lubricant, with a Williams' part number of 20-8886, is a recommended lubricant.

SWITCH CONTACTS

For proper game operation, switch contacts should be free of dust, dirt, contamination, and corrosion. Blade switch contacts are plated to resist corrosion. Cleaning blade switch contacts requires gentle closing of the contacts on a clean business card or piece of paper, and then pulling the paper about 2 inches, which should restore the clean contact surface. Adjust the switch contacts to a 1/16-Inch gap.

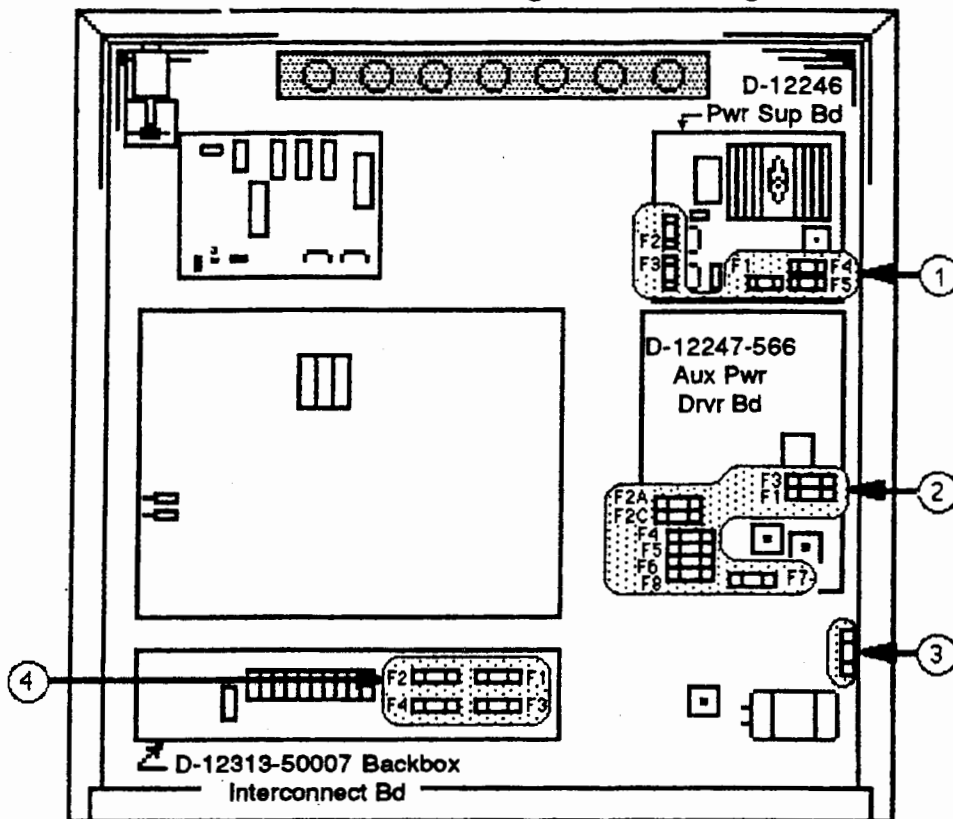
Flipper button switches and the End of Stroke (EOS) switch on the flipper tend to suffer from pitting caused by the high current in this circuit. Weak or "slow" flipper action is the result of this pitting. Carefully restore the surface of the flipper switch contact with a very fine contact file; finish the surface restoration with a contact burnishing tool. This should bring the flipper back to its usual 'snappy' action.

CLEANING

Good game action and extended playfield life are the results of regular playfield cleaning. During each collection stop, the playfield glass should be removed and thoroughly cleaned and the playfield should be wiped off with a clean, lint-free cloth. The game balls should be cleaned and inspected for any chips, nicks, or pits. Replace any damaged balls to prevent playfield damage.

Regular, more extensive, playfield cleaning is recommended. However, avoid excessive use of water and caustic or abrasive cleaners because they tend to damage the playfield surface. Playfield wax or polish may be used sparingly, to prevent a buildup on the playfield surface. Do not use cleaners containing petroleum distillates on any playfield plastics because they may dissolve the plastic material or damage the artwork.

Fuse Locations Diagram & Listing



Fuse Listing

Item	Part Number	Description	Circuit/Location
1	5731-12328-00	Fuse, 3/8A., Slow-Blow (S-B), 250V	F1; D-12246 Power Supply Board
1	5731-12327-00	Fuse, 1/8A., S-B, 250V	F2, F3; D-12246 Power Supply Board
1	5731-09432-00	Fuse, 7A S-B, 250v	F4, F5; D-12246 Power Supply Board
2	5731-09128-00	Fuse, 2-1/2A., S-B, 250v	F2A, F3, F4; D-12247 Aux Pwr Driver Board
2	5731-09651-00	Fuse, 5A., S-B, 250v	F1, F2C; D-12247 Aux Pwr Driver Board
2	5731-08665-00	Fuse, 2A., S-B, 250v	F5, F6; D-12247 Aux Pwr Driver Board
2	5731-06314-00	Fuse, 4A., S-B, 250v	F7; D-12247 Aux Pwr Driver Board
2	5731-09432-00	Fuse, 7A., S-B, 250v	F8; D-12247 Aux Pwr Driver Board
3	5730-09071-00	Fuse, 8A., Normal-Blow (N-B), 32v	+18 Vdc Lamp Ckt/ Lwr Rt B'box fuseholder (1)
4	5731-09651-00	Fuse, 5A., S-B, 250v	F1 - F4: Gen. Illumin/B'box Interconnect Board
-	5730-09252-00	Fuse, 8A., N-B, 125v	Input ("high voltage") Power Line/Cabinet Box*

* One 4A., S-B, 250v fuse (5731-06314-00) is provided for an overseas (220v) game installation.

Concerning the fuses listed as Item 2, F 1 protects the +25V dc Special Solenoid circuit connected via the Red-White wires. F 2 A protects the "A" Solenoids connected with Brown wires. F 2 C protects the "C" Solenoids connected with Orange wires. F 3 protects the Controlled Solenoids connected with Red wires. F 4 protects the +50V Solenoids connected with Violet-Yellow wires. F 5 protects the Right Flipper. F 6 protects the Left Flipper. F 7 protects the input to the +50V dc rectifier, and F 8 protects the input to the +25Vdc rectifier on the Aux Power Driver Board.

Notes

Section 2

Game Parts Information

- ***Parts Lists & Diagrams***

Locations:

Game Circuit Boards and Major Mechanisms

Power Supply Board (D-12246)

Aux Power Driver Board (D-12247-566)

Backbox Interconnect Board (D-12313-50007)

Audio Board (D-11581-50007)

System 11C CPU Board (D-11883-50007)

Master Display Board (D-12232-3)

7-Segment Display

Lamp and Relay Boards

5 Switch & Diode Board

All Major Mechanism Assemblies of RIVERBOAT GAMBLER

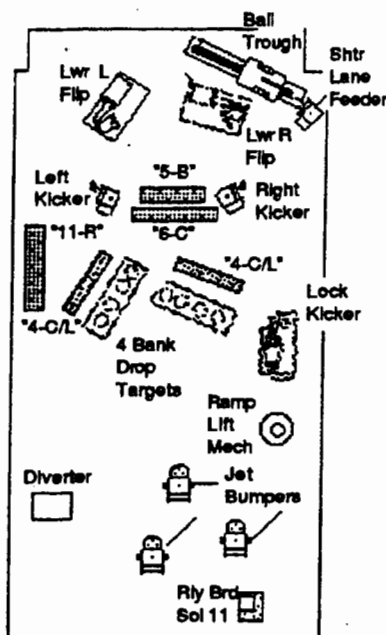
Solenoids/Flashers

Switches

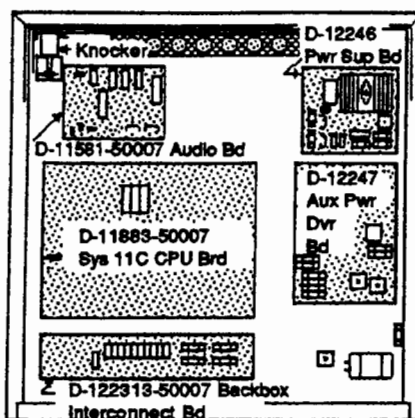
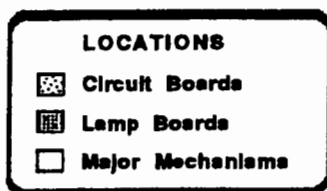
Lamps

Playfield Parts

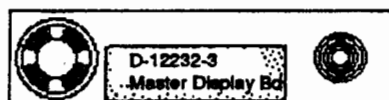
Locations Diagram-Game Circuit Boards and Major Mechanisms



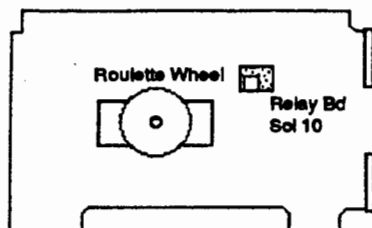
Underside of Playfield
Viewed in Raised position



Backbox



Display/Speaker Panel, Rear View

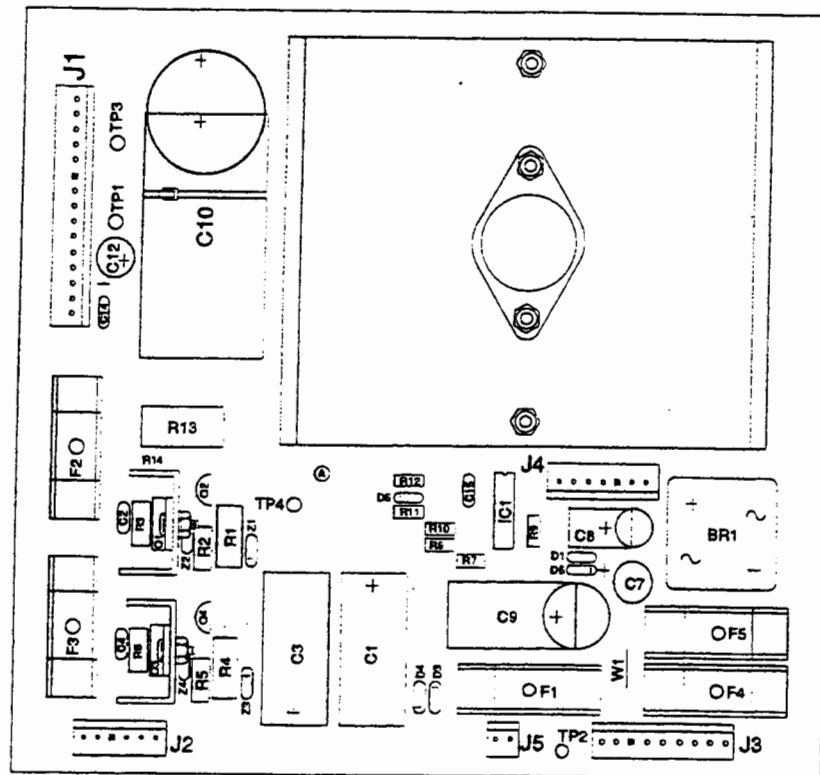


Insert Board, Inner Side View

C-13174-R	Lower Right Flipper
C-13174-L	Lower Left Flipper
C-9638	Shooter Lane Feeder
B-9362-L-1	Coil & Bracket Assembly
B-12265	Right & Left Kickers
B-11203-R-1	Coil & Bracket Assembly
B-11203-L-1	Coil & Bracket Assembly
C-13876	Lamp Board ("5-B")
C-13877	Lamp Board ("6-C")
C-13878	Lamp Board ("11-R")
C-13875	Lamp Board ("4C/L")
C-13450	4 Bank Drop Target
C-12499	4 Bank Opto Board
B-13959	Ball Kicker/Locker
B-11304-3	Ramp Lifter Assembly
B-13655	Coil & Bracket Assembly
B-9414-3	Jet Bumpers
B-9415-1	Coil & Bracket Assembly
C-11902-1	Relay Board
B-13915	Diverter
A-13917	Associated parts

B-10686-1	Knocker
D-11581-50007	Audio Board
D-11883-50007	System 11C CPU Board
D-12213-50007	Backbox Interconnect Board
D-12246	Power Supply Board
D-12247	Aux. Power Driver Board
D-13952	Speaker/Display Assembly
D-12232-3	Master Display Board
A-14093-1	Roulette Wheel
D-12045	Stepper Motor Control Board
C-11998-1	Relay Board

D-12246 Power Supply

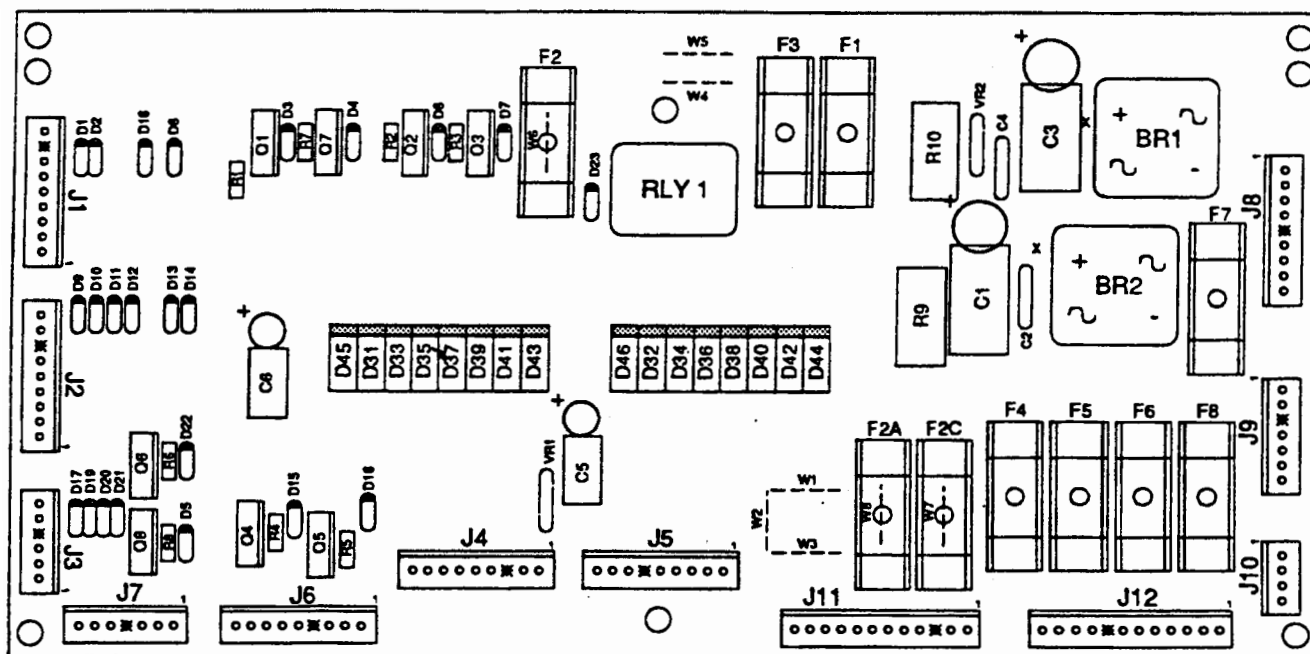


Item	Part No.	Ckt Designator	Description	Item	Part No.	Ckt Designator	Description
1	5765-12317-00		Power Supply PCB	26	5075-09060-00	ZR2, ZR4	Zener, 1N4764, 100v, 1w
2	5733-12060-01	F1-F5	Fuse Holder	27	5460-09424-00	IC1	IC, Volt. Reg., MC1723C5
3	5731-09432-00	F4, F5	Fuse, 7A., S-B, 250v	28	5010-09069-00	R3, R6	Resistor, 330K, 5%, 1/2w, C.F.
4	5731-12328-00	F1	Fuse, 3/8A., S-B, 250v	29	5010-10631-00	R2, R5	Resistor, 1.2K, 5%, 1/2w
5	5730-12327-00	F2, F3	Fuse 1/8 A., 250v	30	5010-09536-00	R1, R4	Resistor, 39K, 5%, 1w
6	5791-10862-15	J1	Connector, 15-pin Hdr, Sq Pin .156	31	5013-09426-00	R7	Resistor, 2.15K, 1%, 1/4w, C. F.
7	5791-10862-06	J2	Connector, 6-pin Hdr, Sq Pin .156	32	5013-09427-00	R8	Resistor, 4.99K, 1%, 1/4w, C. F.
8	5791-10862-09	J3	Connector, 9-pin Hdr, Sq Pin .156	33	5010-09541-00	R9	Resistor, 2.7K, 2%, 1/4w, C. F.
9	5100-09690-00	BR1	Bridge Rectifier, 35A., 200V	34	5010-09085-00	R10	Resistor, 1.5K, 5%, 1/4w, C. F.
10	5164-12154-00	Q1	Transistor, MJE15030, NPN	35	5010-09428-00	R11	Resistor, 1.5K, 2%, 1/4w, C. F.
11	5194-12155-00	Q3	Transistor, MJE15031, PNP	36	5010-09508-00	R12	Resistor, 270Ω, 2%, 1/4w, C. F37
12	5194-09055-00	Q2	Transistor, MPSD52, PNP	37	5012-09429-00	R13	Resistor, 0.12Ω, 5%, 5w
13	5164-09056-00	Q4	Transistor, MPSD02, NPN	38	5040-12324-00	C1, C3	Capacitor, 150 mfd, 160v, radial
14	5162-09425-00	Q5	Transistor, 2N6057, NPN	39	5043-09072-00	C2, C4	Capacitor, 0.1 mfd, 500v, disc
15	5701-09652-00		Thermal Pad T0-3	40	5040-09421-00	C7	Capacitor, 100 mfd, 25v, radial
16	4006-01003-06		Mach. Screw, 6-32 x 3/8	41	5040-09422-00	C8	Capacitor, 47 mfd, 50v, radial
17	4006-01003-08		Mach. Screw, 6-32 x 1/2	42	5040-09420-00	C9	Capacitor, 1000 mfd, electr, 25v, axial or radial
18	20-9229		Thermal Compound		5040-08893-00		
19	4406-01117-00		Nut, 6-32 Hex.	43	5040-09419-00	C10	Capacitor, 18,000 mfd, electr, 20v, axial
20	5010-09534-00	W1	Resistor, 0Ω	44	5040-09423-00	C12	Capacitor, 330 mfd, electr, 10v, radial
21	4703-00007-00		Lockwasher, #6 Ext.	45	5043-09446-00	C14	Capacitor, 0.1 mfd, 50v, disc
22	5705-12330-00		Heatsink 4"	46	5043-09065-00	C15	Capacitor, 470 pfd
23	5705-09199-00		Heatsink 6030B	47	5824-09248-00	TP1-TP4	Terminal, #1502-1 (Test Post)
24	5070-09054-00	D1, D3-D6	Diode, 1N4004	48	03-7947		Tie Wrap, 8" Long
25	5075-09059-00	ZR1, ZR3	Zener, 1N5990, 3.9v, 1/2w				

NOTES:

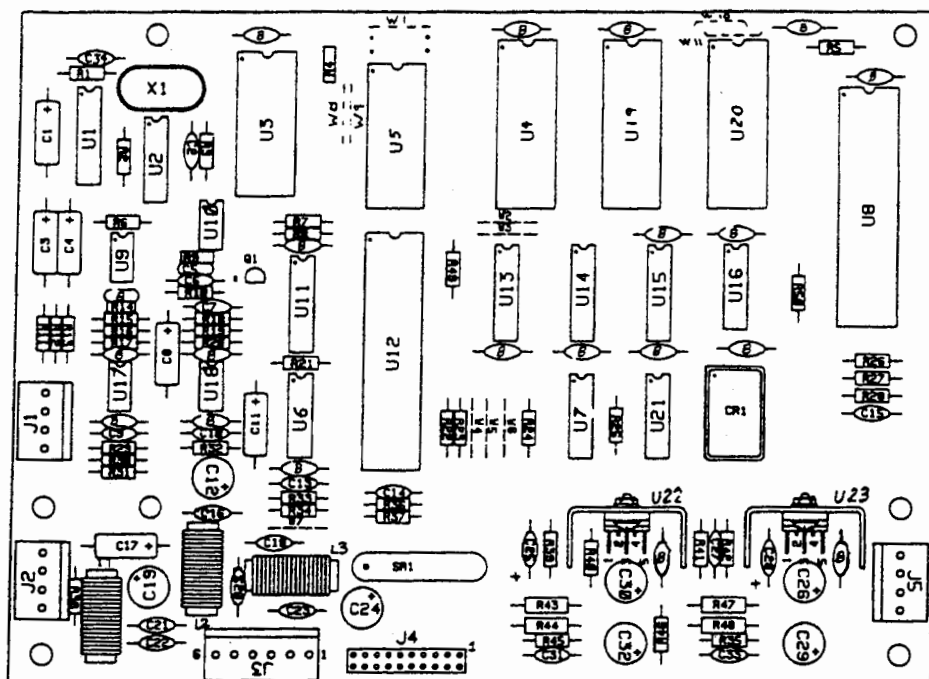
- Heat sink compound must be applied between transistor and heat sink
- Observe index mark on integrated circuit, polarity of capacitors and diodes, and position of transistors.
- The view of Q5 and its related heat sink and hardware is from the bottom of the heatsink, to clarify installation.

D-12247-566 Aux Power Driver Unit Board



Part No.	Ckt Designator	Description
5763-12184-00		Bare P.C. Board
5040-09537-00	C1, C3	Capacitor, 100 μ fd., 100v, Radial
5040-12181-00	C5, C6	Capacitor, 10 μ fd., 100v, Radial
5043-09072-00	C2, C4	Capacitor, 0.1 μ fd., 500v
5010-09160-00	R1 - R8	Resistor, 220 Ω , 1/4w C.F., 5%
5012-12238-00	R9	Resistor, 3.3K Ω , 5w, 10%
5010-09534-00	W1, W3, W4, W6	Resistor, 0 Ω , 1/4w
5017-12180-00	VR1, VR2	Varistor, 100v
5100-09690-00	BR1, BR2	Bridge Rectifier, 35A, 200v
5070-08785-00	D1 - D23	Diode, 1N4003
5070-09045-00	D31 - D46	Diode, MR501
5191-12179-00	Q1 - Q8	Transistor, TIP36C
5580-09555-01	K1	Relay, DPDT, 13A
5733-12060-01		Fuse Holder
5731-08665-00	F5, F6	Fuse, 2A, S-B, 250v
5731-09128-00	F1, F2A, F3, F4	Fuse, 2-1/2A, S-B, 250v
5731-09651-00	F2C,	Fuse, 5A, S-B, 250v
5731-06314-00	F7	Fuse, 4A, S-B, 250v
5731-09432-00	F8	Fuse, 7A, S-B, 250v
5791-10862-09	J1, J2, J4 - J6, J8	Connector, 9-pin Hdr, Sq Pin
5791-10862-07	J3, J7, J9	Connector, 7-pin Hdr, Sq Pin
5791-10862-12	J11, J12	Connector, 12-pin Hdr, Sq Pin
5791-10862-04	J10	Connector, 4-pin Hdr, Sq Pin

D-11581-50007 Audio Board Assembly

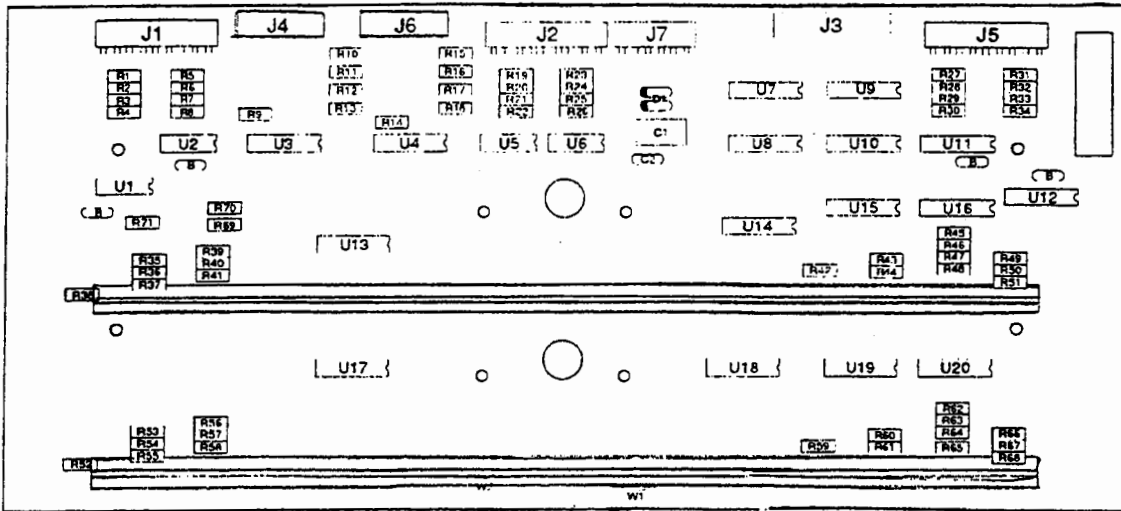


Part No.	Ckt Designator	Description	Part No.	Ckt Designator	Description
5370-09691-00	U6	IC, 55536 CVSD	5010-10985-00	R14, R15	Resistor, 20K, 1/4w, 5%
5766-12130-00		Bare P. C. Board	5010-09034-00	R22-R24, R17, R34	Resistor, 10K, 1/4w, 5%
5371-11087-00	U1	IC, D/A Conv, YM3012	5010-09324-00	R6, R19, R20, R21	Resistor, 27K, 1/4w, 5%
a) 5700-09006-00		Socket, IC, 16-pin (U1)	5010-09162-00	R39	Resistor, 100K, 1/4w, 5%
5370-11086-00	U3	IC, Sound Processor, YM2151	5010-09331-00	R16	Resistor, 13K, 1/4w, 5%
a) 5700-09004-00		Socket, IC, 24-pin (U3)	5013-09427-00	R13	Resistor, 4.99K Ω , 1/4W, 1%
5400-10320-00	U8	IC, μ Processor, MC68B09E	5010-08772-00	R18	Resistor, 15K Ω , 1/4W, 5%
a) 5700-08985-00		Socket, IC, 40-pin (U8)	5010-08824-00	R32	Resistor, 43K Ω , 1/4W, 5%
A-5343-50007-3	U4	IC, Audio ROM 1	5010-08846-00	R31	Resistor, 220K Ω , 1/4W, 5%
A-5343-50007-4	U19	IC, Audio ROM 2	5010-09086-00		Resistor, 6.8K Ω , 1/4W, 5%
A-5343-50007-5	U20	IC, Audio ROM 3	5010-09219-00	R38	Resistor, 8.2K, 1/4W, 5%
a) 5700-10176-00		Socket, IC, 28-pin (U4, U19)	5010-10258-00	R40	Resistor, 1M, 1/4w, 5%
5371-09152-00	U11	IC, D/A Convtr, MC1408	5010-09179-00	R10	Resistor, 3.3M, 1/4w, 5%
D-11578-4		Audio PCB Sub-assembly	5010-09333-00	R29	Resistor, 180K Ω , 1/4W, 5%
5430-10322-00	U12	IC, PIA, MC68B21	5010-09342-00	R30	Resistor, 36K Ω , 1/4W, 5%
5340-10139-00	U5	IC, RAMS 5516-2 2Kx8	5010-09534-00	W2, W9, W11	Resistor, 0 Ω , 1/4w, 5%
5281-09487-00	U16, U7	IC, Dual D Flipflop, 74LS74	5046-09350-00	C9	Capacitor, 180pfd, 100V, $\pm 5\%$
5281-10043-00	U13	IC, 74LS175	5048-10992-00	C10	Capacitor, 4700pfd, 50V, $\pm 10\%$
5281-09235-00	U21	IC, Triple NAND, 74LS10	5046-09346-00	C7	Capacitor, 1200pfd, 50V, $\pm 5\%$
5370-09321-00	U9, U10, U17, U18	IC, Op Amp, MC1458	5040-09365-00	C11	Capacitor, 1 μ fd, 63V, $\pm 10\%$
5281-09215-00	U2	IC, Hex Inv, 74LS04	5040-09343-00	C1, C3, C4, C8, C17	Capacitor, 10 μ fd, 20v, $\pm 20\%$
5281-09246-00	U14	IC, 2-4 Dec, 74LS139	5040-10974-00	C12, C19, C24	Capacitor, 100 μ fd, 35v
5281-09745-00	U15	IC, Dual Mux, 74LS138	5040-09776-00	C26, C30	Capacitor, 470 μ fd, 16v; $\pm 50, -10\%$
5370-09156-00	U22, U23	IC, Audio Amp, TDA2002	5040-12006-00	C29, C32	Capacitor, 1000 μ fd, 16v, 20%
a) 5705-09199-00		Heatsink, #6030B	5041-09243-00	C25, C28	Capacitor, 10 μ fd, 10v, $\pm 10\%$
b) 4006-01003-06		Mach. Screw, 6-32 x 3/8	5043-08980-00	C5, B (20)*	Capacitor, 0.01 μ fd, 50v, $\pm 80, -20\%$
c) 4406-01117-00		Nut, 6-32 Hex	5043-08996-00	C31, C33	Capacitor, 0.1 μ fd, 50v, $\pm 20\%$
d) 4703-00007-00		Lockwasher, #6 Ext.	5043-09065-00	C13 - C15	Capacitor, 470 pfd, 50v, $\pm 20\%$
5160-10269-00	Q1	Transistor, 2N3904, NPN	5043-09492-00	C2, C34	Capacitor, 100 pfd, 50v, $\pm 10\%$
5060-10396-00	SP1	SIP 4.7K & 470pfd, 8R8C	5043-09844-00	C6	Capacitor, 47 pfd, 50v, $\pm 20\%$
5010-09181-00	R44, R48	Resistor, 1.0 Ω , 1/2w, 5%	5043-09845-00	C16, C18, C20 - C23, C27	Capacitor, 1000 pfd, 50v, $\pm 20\%$
5010-09161-00	R35, R45	Resistor, 2.2 Ω , 1/4w, 5%	5520-09020-00	X1	Crystal, 3.58 MHz
5010-09361-00	R43, R46, R47	Resistor, 220 Ω , 1/2w, 5%	5521-10931-00	CR1	Oscillator, 8 MHz
5010-09358-00	R41, R42	Resistor, 1K, 1/4w, 5%	5551-09822-00	L1 - L3	Inductor, 4.7 μ H, 3A
5010-08998-00	R2, R3	Resistor, 2.2K, 1/4w, 5%	5791-09437-00	J4	Connector, 20 pin, (Hdr), Rib. Chl
5010-08983-00	R7-R9	Resistor, 3.3K, 1/4w, 5%	5791-10862-04	J1, J2, J5	Connector, 4 pin (Hdr)
5010-08991-00	R1, R4, R5, R11, R12, R25 - R28, R33, R36, R37, R49, R50	Resistor, 4.7K, 1/4w, 5%	5791-10862-06	J3	Connector, 6 pin (Hdr)
			16-8850-317		P.C.B. I.D. Label
			20-9229		Thermal Compound

NOTES:

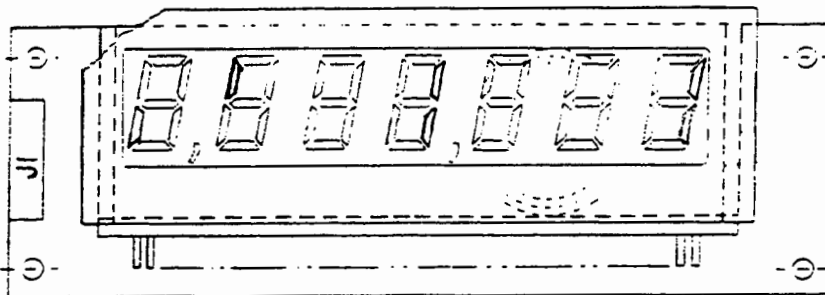
- 20 capacitors (shown on diagram with "B" symbol) provide +5VDC filtering for ICs.
- All capacitors are ceramic, 50v, axial, unless otherwise noted.
- All resistors are 5%, 1/4w, Carbon Film, unless otherwise noted.

D-12232-3 Master Display Board



Part No.	Ckt Designator	Description	Part No.	Ckt Designator	Description
5760-12306-00		Bare P.C. Board	5010-09534-00	W1, W2	Resistor, 0 Ω , 1/4W
5670-12308-00	DSPL1, DSPL2	Display, 16-Character, A/N	5791-10851-00	J3	26-pin Hdr, Rt. Angle
5310-09882-00	U1, U2, U5, U6	I.C. 4001	5010-08773-00	R1-R8, R19-R35	Res, 18K Ω , 1/4w, 5%
5310-08975-00	U7 - U12	I.C. 4049		R41, R43, R45, R71	
5680-08968-00	U3, U4, U13, U14, U17, U18	I.C. 6184. Anode Driver	5010-10258-00	R38, R52	Res, 1M Ω , 1/4w, 5%
5680-08969-00	U15, U16, U19, U20	I.C. 7180, Cathode Driver	5010-10927-00	R36, R39, R40, R42, R47, R48, R50, R51, R54, R56, R57, R59, R64, R65, R67, R68	Res, 8.2K Ω , 1/2w, 5%
5040-09343-00	C1	Axial Cap, 10 μ fd, 20v, $\pm$ 20%	5010-08981-00	R37, R44, R46, R49	Res, 10K Ω , 1/2w, 5%
5043-08980-00	Bypass	Axial Cap, 0.01 μ fd, 50v, +80, -20%		R55, R61, R63, R66	
5075-09135-00	D1, D2	Zener, 1N4740A, 10v, 1w	03-8088-1	Support	Support, Display
5791-10869-09	J1, J2, J5	9-pin Header, Rt. Angle	16-8850-234		P.C.B. I.D. Label
5791-10869-06	J7	6-pin Header, Rt. Angle			
23-6634		Cover, Display			

C-8364-1 7-Character Display Glass



Part No.	Description
5762-10933-00	PCB Slave Display
23-6545	Foam Display-Back
5670-09439-00	Display 7-Digit Glass
5791-09438-00	Connector, 20-pin Rt. Ang.
23-6546	Foam Display-Front

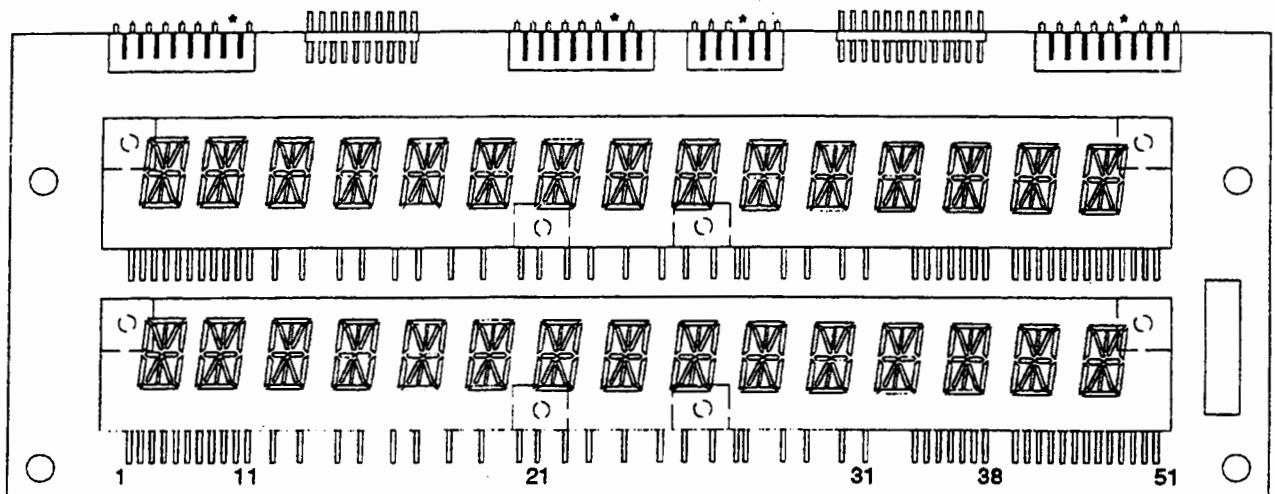
Pinout Table

used on Master Display Board, p/n D-12232-X

Board Pin #	Glass Pin #	Signal/ Function	Board Pin #	Glass Pin #	Signal/ Function	Board Pin #	Glass Pin #	Signal/ Function	Board Pin #	Glass Pin #	Signal/ Function
1	1	N/C		24	cut	31	47	Strobe 8		70	cut
2	2	Segment A	23	25	Strobe 12		48	cut	40	71	Strobe 4
3	3	Segment J		26	cut	32	49	Strobe 8		72	cut
4	4	Segment B	24	27	Strobe 12		50	cut		73	cut
5	5	Strobe 16		28	cut		51	cut		74	cut
6	6	Segment K		29	cut		52	cut	41	75	Strobe 3
7	7	Strobe 16		30	cut	33	53	Strobe 7		76	cut
8	8	Segment H	25	31	Strobe 11		54	cut	42	77	Strobe 3
9	9	Segment F		32	cut	34	55	Strobe 7		78	cut
10	10	Segment M	26	33	Strobe 11		56	cut	43	79	Strobe 2
11	11	Strobe 15		34	cut	35	57	Strobe 6	44	80	Comma
12	12	Segment C		35	cut		58	cut	45	81	Strobe 2
13	13	Strobe 15		36	cut		59	cut	46	82	Segment P
14	14	N/C	27	37	Strobe 10		60	cut	47	83	Segment R
15	15	Strobe 14		38	cut	36	61	Strobe 6	48	84	Segment E
16	16	Dot	28	39	Strobe 10		62	cut	49	85	Strobe 1
17	17	Strobe 14		40	cut	37	63	Strobe 5	50	86	Segment N
18	18	Segment D	29	41	Strobe 9		64	cut	51	87	Strobe 1
19	19	Strobe 13		42	cut	38	65	Strobe 5	52	88	Segment
20	20	Dot	30	43	Strobe 9		66	cut	53	89	-100V dc
21	21	Strobe 13		44	cut		67	cut			
22	22	N/C		45	cut		68	cut			
	23	cut		46	cut	39	69	Strobe 4			

5670-12308-00

16-Character Display Glass



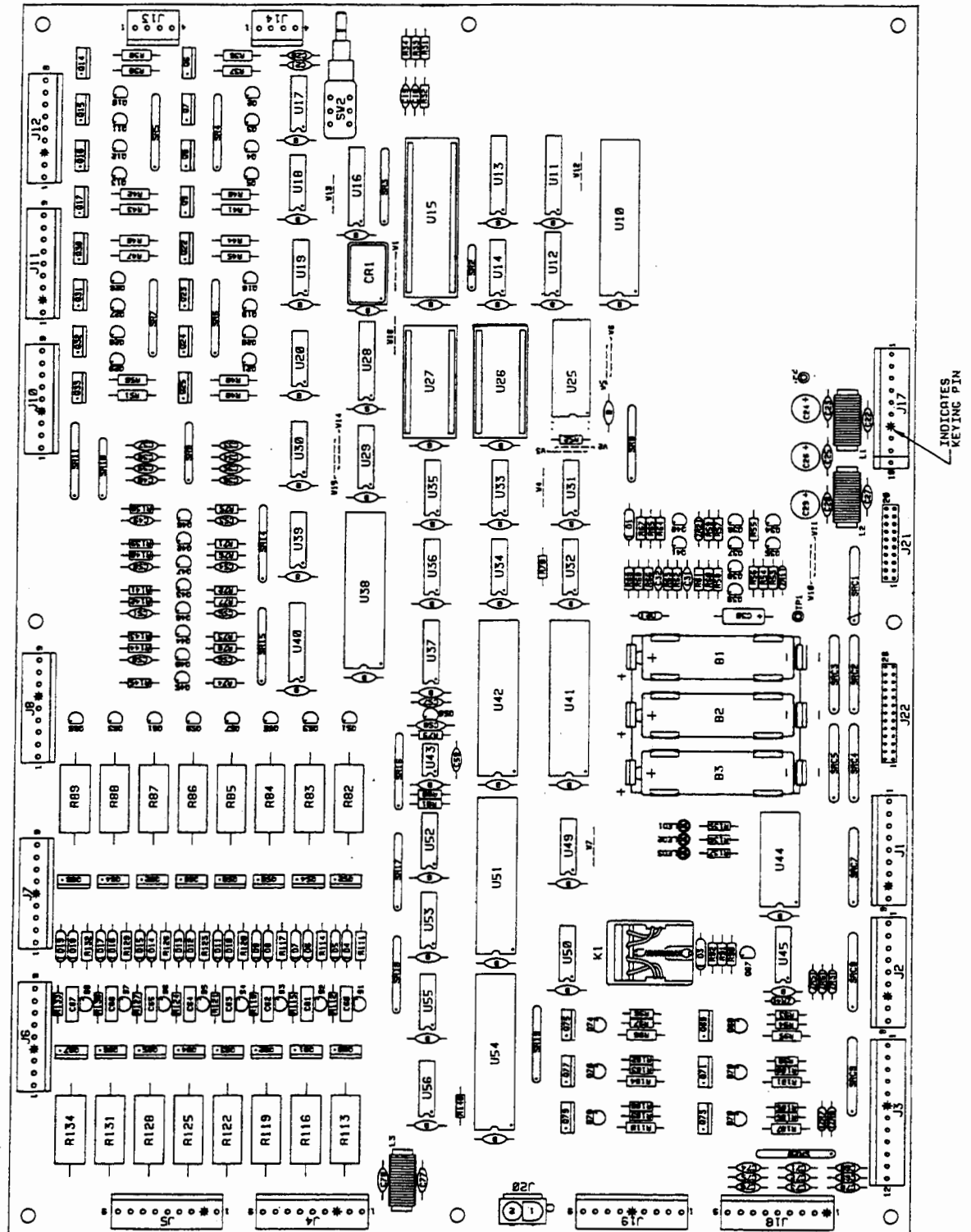
D-11883-50007 System 11C CPU Board

Part No.	Ckt Designator	Description	Part No.	Ckt Designator	Description
5764-12206-00		Bare P. C. Board			
5281-09308-00	U16	IC, Octal Bus Xcvr, 74LS245	5010-10003-00	R62, R63	Resistor, 390Ω, 5%, 1/4w, C. F.
5430-08972-00	U10, U38, U41, U42, U51, U54	IC, PIA, MC6820/6821	5010-10171-00	R67	Resistor, 56Ω, 5%, 1/4w, C. F.
5340-10139-00	U25	IC, 2K x 8 CMOS Static RAM	5010-10170-00	R69	Resistor, 47Ω, 5%, 1/4w, C. F.
5280-09010-00	U44	IC, 4-16 Decoder, 74154	5010-09160-00	R59, R61, W12, W13	Resistor, 220Ω, 5%, 1/4w, C. F.
5281-09246-00	U7, U8, U12	IC, 2-4 Decoder, 74LS139	5010-09416-00	R33, R34, R71-R78, R135-R137	Resistor, 470Ω, 5%, 1/4w, C. F.
5075-09406-00	ZR3 - ZR8	Diode, Zener, 6.2v, 0.5w	5010-10631-00	R111, R114, R117, R120, R123, R126, R129, R132	Resistor, 1.2KΩ, 5%, 1/2w, C. F.
5164-10998-00	Q42 - Q49	Transistor, NPN, 2N5550, TO-92	5019-09783-00	SR18	SIP, 9R, 10-pin, 6.8KΩ, .125w/R, 5%
5431-09449-00	U43	IC, Timer, MC1455	5019-09362-00	SR3, SR15, SR17, SR19, SR20	SIP, 9R, 10-pin, 4.7KΩ, .125w/R, 5%
5310-09236-00	U29	IC, 14-b Counter, 4020	5019-09808-00	SR4, SR6, SR11	SIP, 9R, 10-pin, 560Ω, .125w/R, 5%
5281-09743-00	U32	IC, Quad 2-Input AND, 74LS08	5019-09785-00	SR16	SIP, 9R, 10-pin, 2.2KΩ, .125w/R, 5%
5281-09247-00	U14	IC, Quad 2-Input NOR, 74LS02	5019-10472-00	SR14	SIP, 9R, 10-pin, 3.3KΩ, .125w/R, 5%
5281-09235-00	U35	IC, Triple 3-Input NAND, 74LS10	5019-09669-00	SR8	SIP, 9R, 10-pin, 1.0KΩ, .125w/R, 5%
5280-09013-00	U36	IC, Hex Inverter, 7404	5019-09780-00	SR9, SR10	SIP, 4R, 8-pin, 1KΩ, 5%
5281-09499-00	U31, U34	IC, Quad 2-Input NAND, 74LS00	5019-09786-00	SR2	SIP, 5R, 6-pin, 4.7KΩ, .125w/R, 5%
5281-10014-00	U33	IC, Dual 4-Input NAND, 74LS20	5019-09792-00	SR5, SR7	SIP, 9R, 10-pin, 2.7KΩ, .125w/R, 5%
5281-09486-00	U28	IC, Octal D Flip-flop, 74LS374	5060-10396-00	SRC1 - SRC5, SRC7 - SRC9	SIP, 8R, 8C, 10-pin, 4.7KΩ & 470pfd
5281-09745-00	U37	IC, 3-8 Decoder, 74LS138			
5281-09867-00	U11, U13, U40	IC, Octal Buffer, 74LS244	5043-08980-00	C18, C19, C21, C31, C32, C49-C56, C59, + 43 Bypass, marked B	Capacitor, 0.01 μfd, 50v(+80, -20%), Axial
5280-09873-00	U17-U20, U52, U53	IC, Quad 2-Input AND, 7408	5043-09845-00	C22, C23, C25, C27, C28	Capacitor, 1K pfd, 50v(+20%), Axial
5280-08974-00	U55, U56	IC, Hex Inverter, 7406	5043-08996-00	C70-75, C77, C78	Capacitor, 0.1 μfd, 50v(+20%), Axial
5310-09155-00	U30, U39	IC, Quad 2-Input NAND, MC14011	5040-10974-00	C24, C26, C29	Capacitor, 100 μfd, Electr., 25v(+50, -10%), Axial
5280-08948-00	U45, U50	IC, Quad 2-Input NOR, 7402	5045-09796-00	C60-C67	Capacitor, 0.1 μfd, Polycarbonate Rad., 100v(±10%)
5280-09309-00	U49	IC, Hex Buffer, 7407	5043-09065-00	C33-C40, C68, C69, C76	Capacitor, 470 pfd, 50v(+20%), Axial
5671-09019-00	LED1-LED3	LED, Red, Display	5040-09545-00	C30	Capacitor, 22 μfd, Electr., 10v(+50, -10%) Axial
5521-10506-00	CR1	Oscillator, 4 MHz	5041-09031-00	C58	Capacitor, 1 μfd, Tant., 25v(±20%), Axial
5162-08976-00	Q51, Q53, Q55, Q57, Q59, Q61, Q63, Q65, Q62, Q54, Q56, Q58, Q60, Q62, Q64, Q66, Q6-Q8, Q14-Q17, Q22-Q25, Q30-Q33, Q69, Q71, Q73, Q75, Q77, Q79, Q80-Q87	Transistor, NPN Darl. 2N6427, TO-92	5043-09030-00	C57	Capacitor, 0.047 μfd, 50v(+20%), Axial
5191-08978-00	Q52, Q54, Q56, Q58, Q60, Q62, Q64, Q66	Transistor, PNP, TIP42, TO-220	5551-09822-00	L1-L3	Inductor, 4.7 μH, 3A
5162-09410-00	Q6-Q8, Q14-Q17, Q22-Q25, Q30-Q33, Q69, Q71, Q73, Q75, Q77, Q79, Q80-Q87	Transistor, NPN, TIP122, TO-220	5641-09312-00	SW1	Switch, Pushbutton, DPDT, 100v, 5A
5160-08938-00	Q2-Q5, Q10-Q13, Q18-Q21, Q26-Q28, Q34-Q38, Q41, Q67, Q68, Q70, Q72, Q74, Q76, Q78	Transistor, NPN, 2N4401, TO-92	5641-09653-00	B1-B3	Battery, Alkaline, 1.5v, AA
5160-10269-00	Q40	Transistor, NPN, 2N3904, TO-92	5880-09022-00		Battery Holder, #171
5190-09016-00	Q39, Q50	Transistor, PNP, 2N4403, TO-92	5881-09021-00		IC Socket, 28 pin
5130-09014-00	S1-S8	SCR, 30v, 0.8A, 2N5060	5700-10176-00	U26	IC, Game ROM 2, 27256
5070-06258-00	D3-D19	Diode, 1N4001	a) A-5343-50007-1	U27	IC, Game ROM 1, 27256
5070-08919-00	D2	Diode, 1N4148, 150mA	b) A-5343-50007-2		IC Socket, 40 pin
5070-09266-00	D1	Diode, 1N5817, 1.0A	5700-08985-00	U15	IC, μProcessor, 6802
5075-09018-00	ZR1	Diode, Zener, 1N5996A, 6.8v, 0.5w	a) 5400-09150-00	TP1, TP2	Test Point
5075-09059-00	ZR2	Diode, Zener, 1N5990, 3.9v, 0.5w	5824-09248-00		Thermal Compound
5010-08992-00	R94, R97, R100, R103, R106, R109	Resistor, 560Ω, 5%, 1/4w, C. F.	20-9229	K1	Relay, 4-pole, 40Ω, 6v
5010-09039-00	R56	Resistor, 10Ω, 5%, 1/4w, C. F.	5580-08994-01	1J1, 1J2, 1J4-1J8, 1J10-1J12, 1J17-1J19	Connector, 9 pin (Hdr)
5010-09534-00	W1, W2, W4, W5, W7, W11, W14, W16	Resistor, 0Ω, 5%, 1/4w, C. F.	5791-10862-09	1J13, 1J14	Connector, 4 pin (Hdr)
5010-08991-00	R32, R52, R55, R68, R92, R146	Resistor, 4.7KΩ, 5%, 1/4w, C. F.	5791-10862-12	1J3	Connector, 12 pin (Hdr)
5010-09358-00	R54, R57, R58, R64, R66, R138-R145	Resistor, 1.0KΩ, 5%, 1/4w, C. F.	5791-10850-00	1J22	Connector, 26 pin Ribbon (Hdr)
5010-09113-00	R79	Resistor, 33KΩ, 5%, 1/4w, C. F.	5791-09437-00	1J21	Connector, 20 pin Ribbon (Hdr)
5010-08983-00	R70, R80	Resistor, 3.3KΩ, 5%, 1/4w, C. F.	20-9491	W18, W19	Bus Wire, Jumper
5010-09034-00	R53, R60, R65, R90	Resistor, 10KΩ, 5%, 1/4w, C. F.			
5010-09086-00	R81	Resistor, 6.8KΩ, 5%, 1/4w, C. F.			
5010-08997-00	R23, R24, R91, R93, R96, R99, R102, R105, R108, R112, R115, R118, R121, R124, R127, R130, R133	Resistor, 2.7KΩ, 5%, 1/4w, C. F.			
5012-09037-00	R113, R116, R119, R122, R125, R128, R131, R134	Resistor, 0.4Ω, 5%, 3w, Wire-Wrld.			
5010-08993-00	R36-R51, R95, R98, R101, R104, R107, R110	Resistor, 68Ω, 5%, 1/2w, C. F.			
5012-10860-00	R82-R89	Resistor, 27Ω, 5%, 2w, C. F.			

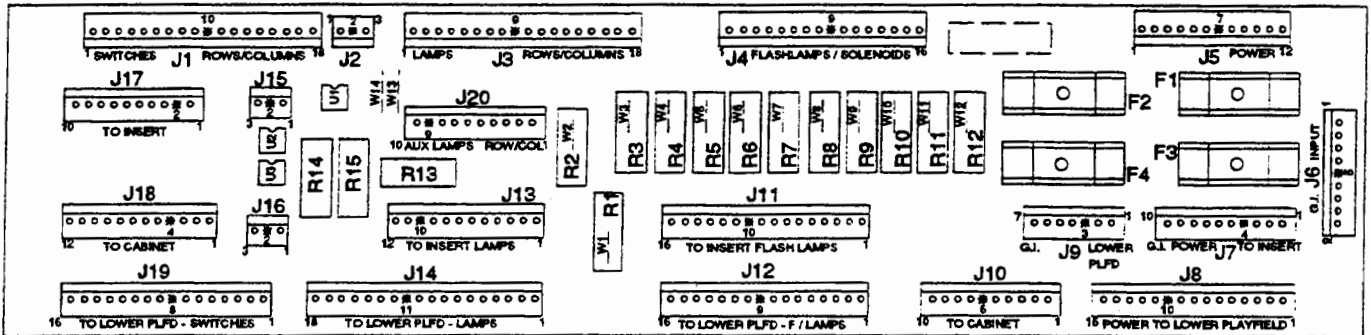
NOTES:

- For Schematic, refer to drawing #15-9019.
- Items 56 and 58 (resistors) must be mounted 1/8" above PCB surface.
- Standard Jumper: W1, W2, W4, W5, W7, W11, W14, W16

System 11C CPU Board



D-12313-50007 Backbox Interconnect Board



Part No.	Ckt Designator	Description
5768-12332-00		Master Interconnect Board
5010-09534-00	R11, R12	Resistor, 0 Ω
5012-12238-00	R14, R15	Resistor, 3.3K Ω , 5W, 10%
5012-12337-00	R13	Resistor, 1.5K Ω , 5W, 10%
5012-12163-00	R11	Resistor, 11 Ω , 5W, 10%
5012-10024-00	R1-R8	Resistor, 5.6 Ω , 5W, 10%
5012-12188-00	R9	Resistor, 3 Ω , 5W, 10%
5490-10892-00	U1 - U3	Opto Isolator 4N25
5731-09651-00	F1-F4	Fuse, 5A.S.B., 250v
5733-12060-01		Fuse Holder, F1-F4
5791-10862-03	J2, J15, J16	Connector, 3-pin Hdr Sq Pin .156
5791-10862-07	J9	Connector, 7-pin Hdr Sq Pin .156
5791-10862-09	J6	Connector, 9-pin Hdr Sq Pin .156
5791-10862-10	J7, J10, J17	Connector, 10-pin Hdr Sq Pin .156
5791-10862-12	J5, J13, J18	Connector, 12-pin Hdr Sq Pin .156
5791-10862-15	J8	Connector, 15-pin Hdr Sq Pin .156
5791-10862-16	J4, J11, J12, J19	Connector, 16-pin Hdr Sq Pin .156
5791-10862-18	J1, J3, J14	Connector, 18-pin Hdr Sq Pin .156
16-8850-318		P.C.B. I.D. Label

(Location of boards noted on page 44.)

C-13874
Lamp Board ("5-BP")

Part Number	Description
5768-12679-00	Lamp PCB
24-8767	Twist Socket
24-8768	Bulb #555 (6.3V, 0.25A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-07	Connector, 7-pin Sq post

C-13877
Lamp Board ("6-C")

Part Number	Description
5768-12682-00	Lamp PCB
24-8767	Twist Socket
24-8768	Bulb #555 (6.3V, 0.25A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-08	Connector, 9-pin Sq post

C-13875
Lamp Board ("4C/L")

Part Number	Description
5768-12680-00	Lamp PCB
24-8767	Twist Lamp Socket
24-8768	Bulb #555 (6.3V, 0.25A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-06	Connector, 6-pin Sq post

C-13878
Lamp Board ("11-R")

Part Number	Description
5768-12683-00	Lamp PCB
24-8767	Twist Lamp Socket
24-8768	Bulb #555 (6.3V, 0.25A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-10	Connector, 10-pin Sq post

C-13876
Lamp Board ("5-B")

Part Number	Description
5768-12681-00	Lamp PCB
24-8767	Twist Lamp Socket
24-8768	Bulb #555 (6.3V, 0.25 A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-07	Connector, 7-pin Sq post

C-12000
Lamp Board ("3-T")

Part Number	Description
5768-12245-00	Lamp PCB
24-8767	Twist Lamp Socket
24-8768	Bulb #555 (6.3V, 0.25A)
5070-09054-00	Diode, 1N4004, 1.0A
5791-10871-05	Connector, 5-pin Sq post

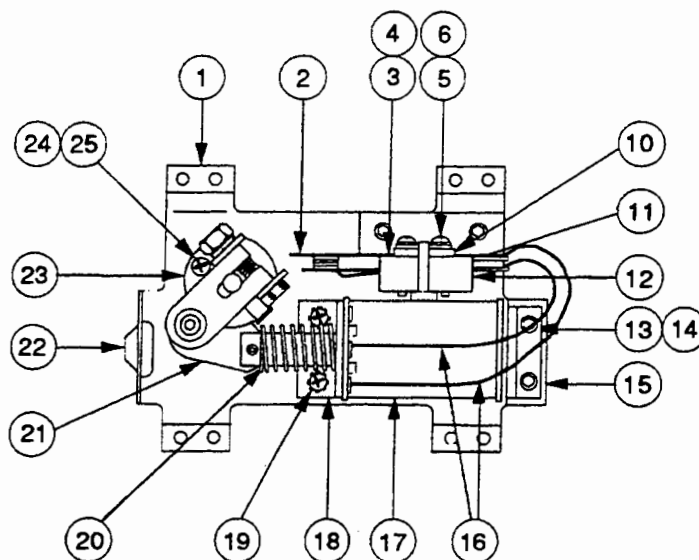
B-12224 ("1")
Lamp Board

Part Number	Description
5768-12312-00	Lamp PCB
24-8767	Twist Lamp Socket
24-8768	Bulb #555 (6.3V, .25A)
5070-09054-00	Diode, 1N4004, 1.0A

C-11998-1
Relay Board

Part Number	Description
5010-09534-00	Resistor, 0Ω
5070-09054-00	Diode, 1N4004, 1.0A
5580-09555-01	Relay, DPDT, 24V, 13A
5768-12243-00	Relay PCB
5791-12273-02	Connector, 2-pin Sq post
5791-12273-07	Connector, 7-pin Sq post

C-13174-R Right Flipper Assembly



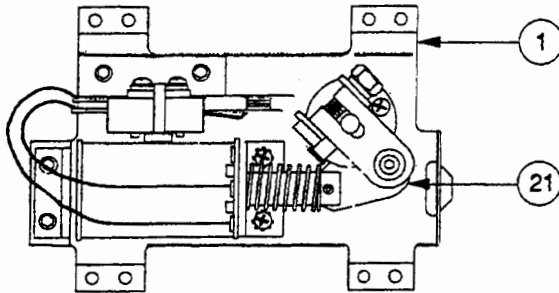
Item	Part Number	Description	Item	Part Number	Description
1	B-13104-R	Flipper Base Assy, R.	21	B-10655-R	Crank Link Assembly, Right
2	03-7811	End of Stroke (EOS) Sw	a)	02-4179	Link Spacer Bushing
3	RM-21-06	Sleeve, Vinyl (Cap. leads)	b)	4010-01086-14	Cap Screw, 10-32 x 7/8, SH
4	5045-12098-00	Capacitor, 2.2 μ Fd, 250V, 20%	c)	4700-00023-00	Washer, 5/8 x 13/64 x 16ga.
5	4701-00002-00	Lockwasher, #6 Split	d)	4701-00004-00	Lockwasher, #10 Split
6	4105-01019-10	Sh. Metal Screw, #5 x 5/8	e)	4410-01132-00	Nut, 10-32 ESNA
7	23-6622	Tape, Double-sided	f)	A-10656*	Flipper Link Assembly
8	4008-01079-05	Cap Screw, 8-32 x 5/16	1.)	02-4219	Coil Plunger
9	4701-00003-00	Lockwasher, #8 Split	2.)	20-9370-1	Spring Pin, 5/32 dia. x 7/16
10	01-9375	Switch Mounting Bracket	3.)	03-8050-1	Flipper Link
11	03-7520-2	Ty-Wrap, Nylon	g)	B-10657-R	Flipper Crank Assy, R.
12	20-6516	Speednut, Tinnerman	1.)	01-8073-R	Flipper Crank, R.
13	4010-01066-06	Cap Screw, 10-32 x 3/8, SH	2.)	17-1037	Crank Washer
14	4701-00004-00	Lockwasher, #10 Split	3.)	4010-01066-18	Cap Screw, 10-32 x 1-1/8
15	A-12111	Flipper Stop Assembly	4.)	4410-01127-00	Nut, 10-32 Hex Hd.
16	HW-30018-6	Wire, 18 AWG, Blue	5.)	4700-00107-00	Flatwasher, 5/8 x 13/64 x 12 ga.
17	FL-11630	Flipper Coil (Red)	6.)	4701-00004-00	Lockwasher, #10 Split
18	01-7695	Solenoid Bracket	7.)	RM-23-06	Tubing, H. S. 1/4 DWP
19	4006-01017-04	Mach. Screw, 6-32 x 1/4	22	23-6577	Bumper Plug
20	10-376	Coil Plunger Spring	23	03-7568	Flipper Bushing
			24	4006-01005-06	Mach. Screw, 6-32 x 3/8
			25	4406-01117-00	Nut, 6-32 Hex.

* See Separate Diagram

Associated Parts:

20-9250-5	Flipper Arm on Shaft
23-6519-4	Red Rubber Ring

C-13174-L Left Flipper Assembly



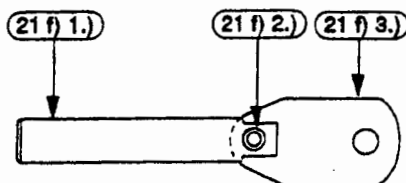
(Parts Listed Replace Same Items of C-13174-R)

Item	Part Number	Description
1	B-13104-L	Flipper Base Assembly, L
21	B-10655-L	Crank Link Assembly, L
g)	B-10657-L	Flipper Crank Assembly
1.)	01-8073-L	Flipper Crank, Left

Flipper Assembly Notes...

1. Each Flipper Assembly on the Lower Playfield is mounted beneath the playfield, in conjunction with the plastic Flipper Paddle and Shaft (20-9250-6) and Flipper Rubber (23-6519-4) on the upper side of the playfield.
2. The tip of the EOS Switch must travel 0.150 (+ .010, - .000) inch, before the contacts fully open, with the flipper in the actuated position. The EOS Switch contacts must have a gap of 0.062 ($\pm$.015) inch.
Adjustment of the EOS Switch must be made at a minimum distance of 0.25 inch from the switch body.
3. All moving elements of the assembly must operate freely, with no evidence of binding.
4. The large end of the Coil Plunger Spring (Item 20) must fit within the four lugs of the Solenoid Bracket.
5. For coil replacement, remove the Solenoid Bracket (Item 18) to prevent screw damage.
6. Use Loctite™ 242 when reattaching screws to the Flipper Stop Assembly, the Solenoid Bracket, and the Flipper Bushing.
7. When replacing the Bumper Plug (Item 22) to restore proper flipper operation, readjust the flipper paddle and shaft position.
8. Solid-color blue wire connects to the banded end of each diode, mounted on the connector end of the Flipper Coil (Item 17). Trace-color wire connects to the unbanded end of the diode.

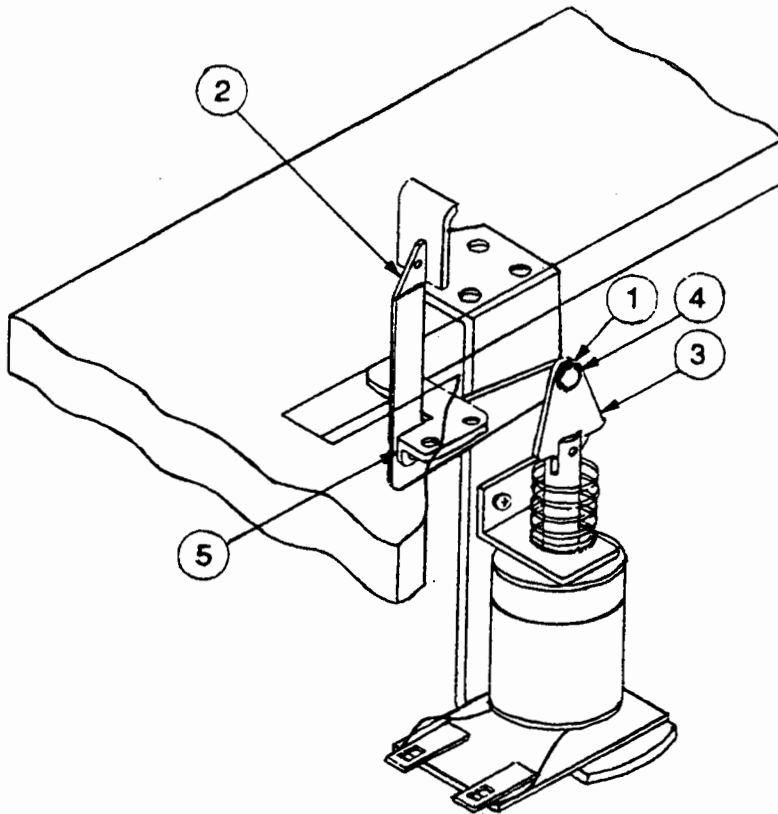
A-10656 Flipper Link Assembly



(Items listed refer to items for C-13174-R)

Item	Part No.	Description
21 f) 1.)	02-4219	Coil Plunger
21 f) 2.)	20-9370-1	Spring Pin, 5/32 x 7/16
21 f) 3.)	03-8050-1	Flipper Link

B-12665 Kicker Arm ("Slingshot") Assembly



Item	Part No.	Description
1	12-6227	Clip, Hairpin
2	A-12664	Kicker Crank Assembly
3	A-5103	Coil Plunger Assembly
a)	02-2364	Coil Plunger
b)	20-8716-5	Roll Pin, 1/8 x 7/16
c)	03-8085	Armature Link
4	4700-00003-00	Flat Washer, .265 x .500 x .067
5	A-5653	Mounting Bracket Assy

Associated Parts for Right Kicker

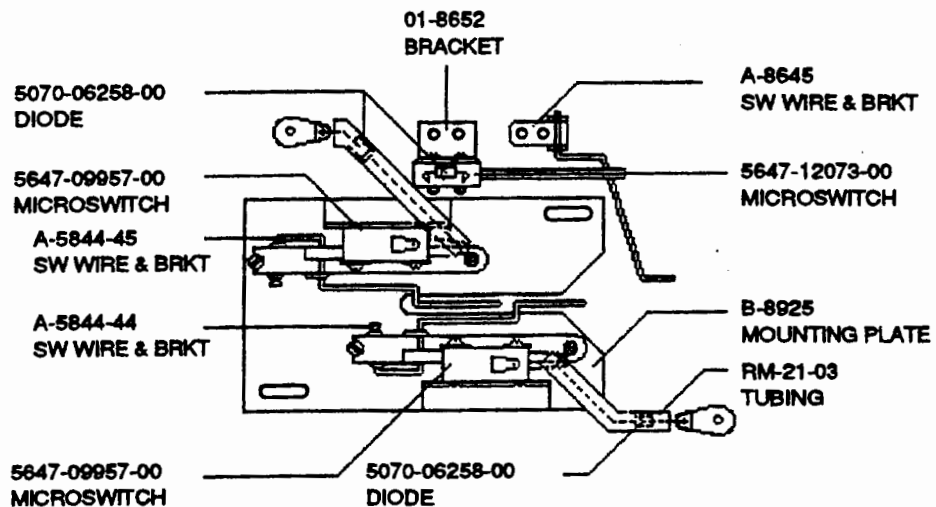
Part No.	Description
B-11203-R-1	Coil & Bracket Assy
B-7572-1	Bracket & Stop Assy
01-8-508-S	Coil Retaining Bracket
4006-01017-06	Mach. Screw, 6-32 x 3/8
4406-01119-00	Nut, 6-32 ESN
AE-26-1500	Coil Assembly
03-7066	Coil Tubing

Associated Parts for Left Kicker

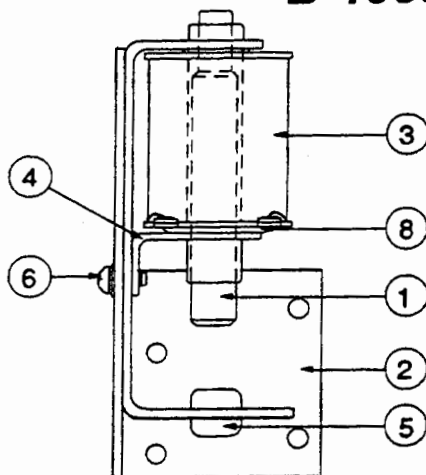
Part No.	Description
B-11203-L-1	Coil & Bracket Assy
B-7572-1	Bracket & Stop Assy
01-8-508-S	Coil Retaining Bracket
4006-01017-06	Mach. Screw, 6-32 x 3/8
4406-01119-00	Nut, 6-32 ESN
AE-26-1500	Coil Assembly
03-7066	Coil Tubing

Ball Trough Switches

(Viewed from underside of playfield to show location)

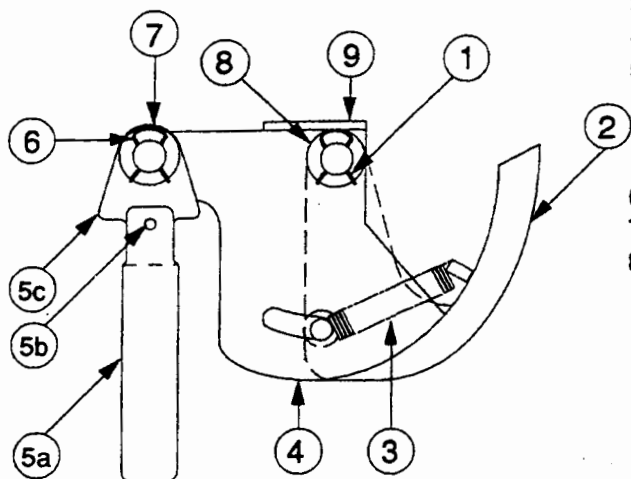


B-10686-1 Kicker Assembly



Item	Part Number	Description
1	A-5347	Coil Plunger Assembly
a)	02-2653	Coil Plunger
b)	03-6013	Bell Arm Ext.
2	B-7409-2	Mtg. Bracket Assembly
3	AE-23-800	Coll Sub-assembly
4	01-8-508-T	Coll Retaining Bracket
5	23-6420	Rubber Grommet
6	4008-01017-06	Mach. Screw, 8/32 x 3/8
7	H-11835	Kicker Cable
8	03-7067-5	Coll Tubing

C-9638 Ball Shooter Lane Feeder

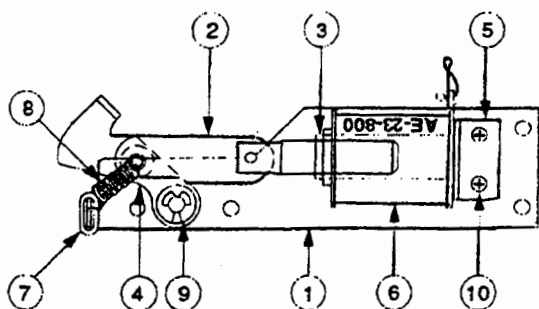


Item	Part No.	Description
1	12-6227	Clip, Hairpin
2	A-8247	Eject Cam Assy
3	10-362	Ejector Spring (Plain)
4	A-6949-L	Spring Plate Assy
5	A-8050-1	Coil Plunger Assy
a)	02-3407-2	Coil Plunger
b)	20-8716-5	Roll Pin
c)	03-8085	Armature Line
6	4700-00030-00	Flat Washer, 17/64 x 1/2 x 15 ga
7	4700-00103-00	Flat Washer, 17/64 x 1/2 x 28 ga.
8	A-8268	Mounting Bracket Assembly

Associated Parts

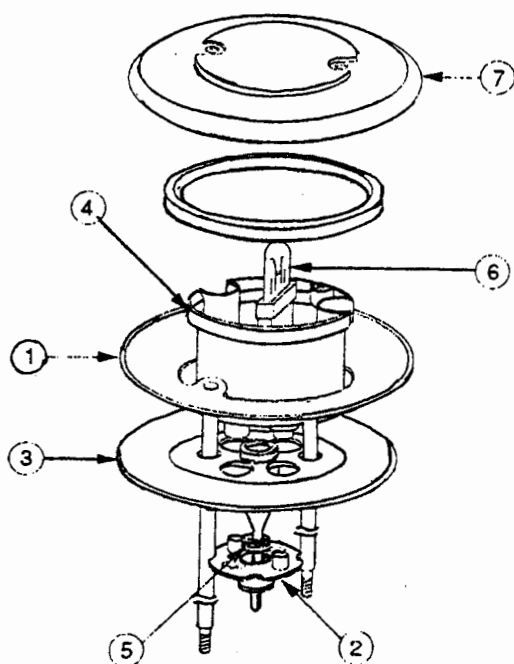
B-9362-L-1	Coil & Bracket Assy
B-7572-1	Bracket & Stop Assy
01-8-508-S	Coil Retaining Bracket
4006-01017-06	Mach. Screw, 6-32 x 3/8
4406-01119-00	Nut, 6-32 ESN
AE-23-800	Coil Assembly
03-7066	Coil Tubing

B-8039-2 Outhole Kicker Assembly



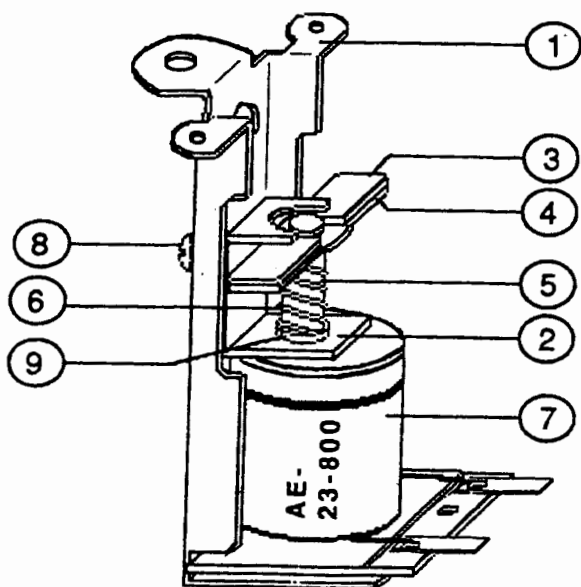
Item	Part No.	Description
1	A-6378	Mounting Plate Assy
2	A-8335	Coil Plunger Assy
a)	02-2364	Coil Plunger
b)	20-8716-5	Roll Pin, 1/8 x 7/16
c)	01-4251	Ball Return Link
3	03-7066	Coil Tubing
4	A-6889	Kicker Lever Assy
5	A-8038	Coil Stop Assy
6	AE-23-800	Coil Assy
7	03-7176-1	Striker Ring
8	10-101-4	Spring-Reset
9	20-8712-25	"E" Ring, 1/4" Shaft
10	4006-01003-03	Mach. Screw, 6-32 x 3/16

B-9414-3 Jet Bumper Assembly



Item	Part No.	Description
1	A-4754	Bumper Ring Assy
2	03-6009-A5	Bumper Base-Wht
3	03-6035-4	Bumper Wafer-Red
4	03-7443-5	Bumper Body-Wht
5	10-7	Spring-Jet Bumper
6	A-11199	Socket & Bulb Assy
7	03-8254-9	Bumper Cap

B-9415-1 Jet Bumper Coil Assembly

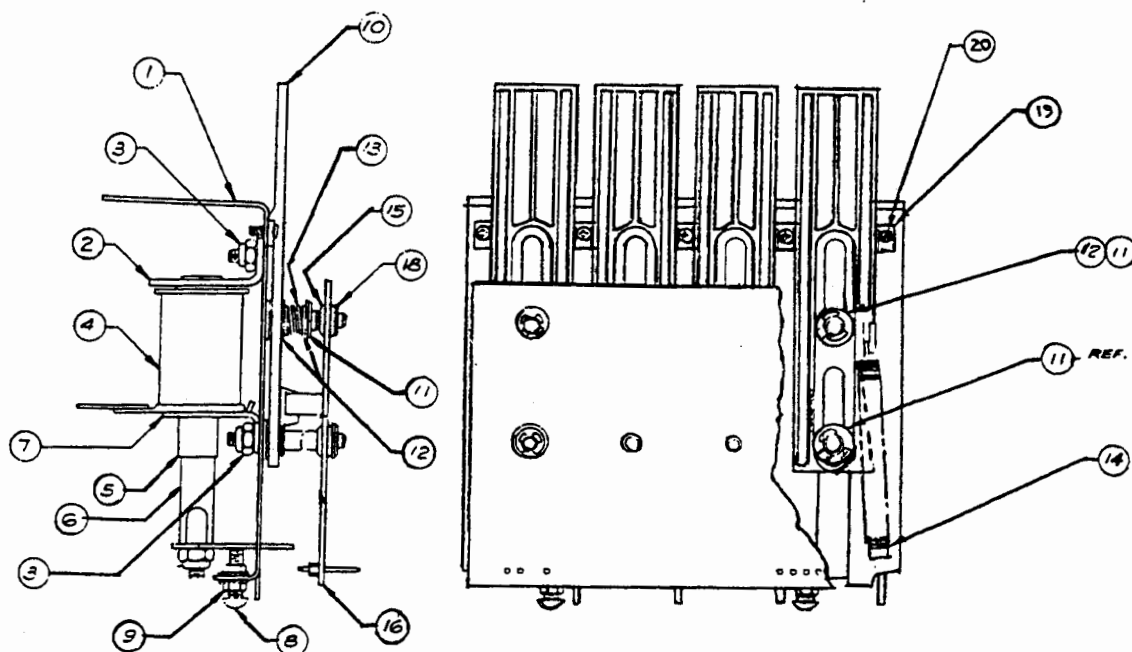


Item	Part No.	Description
1	B-7417	Bracket & Stop Assy
2	01-1747	Coil Retaining Brkt
3	01-5492	Armature Link, Steel
4	01-5493	Armature Link, Bakelite
5	02-3406-1	Coil Plunger
6	10-326	Armature Spring
7	AE-23-800	Coil Assembly
8	4006-01017-04	Mach. Screw, 6-32 x 1/4
9	03-7066	Coil Tubing

Associated Parts

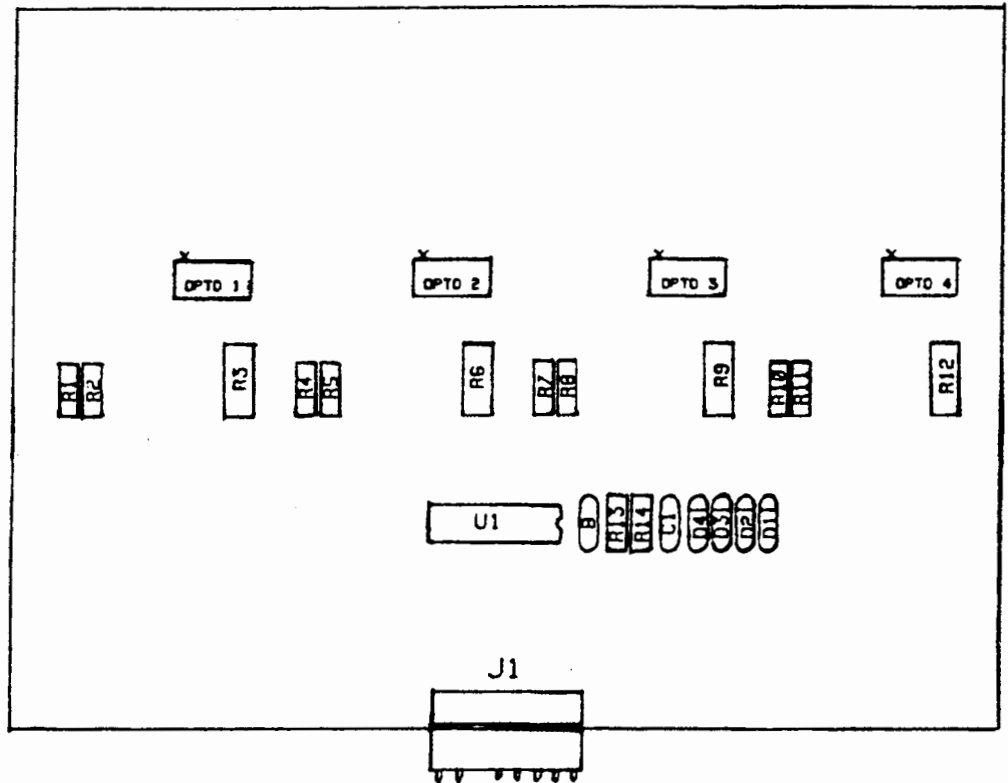
B-12030-2	Jet Bumper Sw & Diode
B-12029-2	Jet Bumper Sw & Brkt
SW-11A-37	Jet Bumper Switch Assy
01-1168	Mounting Brkt, Switch
01-3670	Switch Plate-Curved
03-7395	Switch Actuator
4005-01051-12	Mach. Screw, 5-40 x 3/4
4405-01117-00	Nut, 5-40 Hex.
5070-06258-00	Diode, 1N4001, 1.0A.

C-13450 4-Bank Drop Target



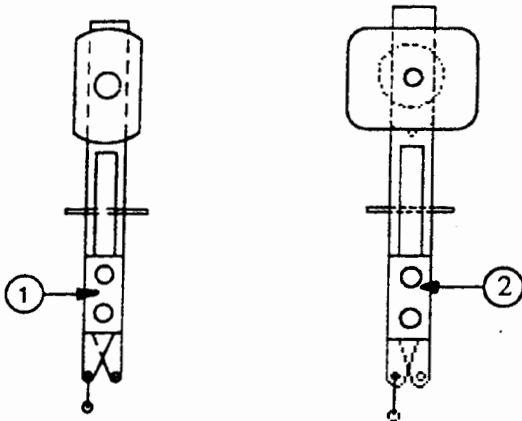
Item	Part No.	Description	Item	Part No.	Description
1	C-13451	Bracket & Stud Assy	11	20-8712-25	Retaining Clip
2	A-11397	Stop Bracket Assy	12	4700-00072-00	Washer #12
3	4408-01119-00	Nut #8 ESN	13	10-392	Comp. Spring
4	AE-24-900	Coil Assembly	14	10-364	Exten. Spring
5	03-7066-4	Coil Tubing	15	23-6626	Grommet
6	A-13453	Reset Plate Assy	16	C-12499	4-Drop Tgt Opto Brd
7	01-9548	Coil Mounting Brkt	17	4700-00016-00	Washer #8
8	4008-01016-00	M.S. 8-32 x 5/8 P-PH	18	20-8712-18	Retaining Clip
9	4408-01128-00	Nut #8-32 KEPS	19	03-8334-4	4 Bank Tgt Stop
10	03-8036	Plain Target	20	4004-01005-04	M.S. 4-40 x 1/4 P-PH

C-12499 4-Bank Drop Target Opto Board



Part No.	Ckt. Designation	Description
5010-08774-00	R14	Resistor 22K Ω , 1/4W, 5%
5010-08930-00	R3, R6, R9, R12	Resistor 470K Ω , 1/2W, 5%
5010-09162-00	R13	Resistor 100K Ω , 1/4W, 5%
5010-09324-00	R2, R5, R8, R11	Resistor 27K Ω , 1/4W, 5%
5043-08980-00	C1, Bypass	Cap. .01M 50V, +80 -20
5070-09054-00	D1, D2, D3, D4	Diode 1N4004, 1.0A
5370-12272-00	U1	IC LM339 Quad Comp
5490-10159-00	Opto1 - Opto 4	Optp Inter Module Large Gap
5768-12376-00	Bare PCB	Bare PC Board
5791-124548-08	J1	8 pin header R/A lock Sq. .100

Standup Targets



Item	Part No.	Description
1	B-12583-7	Target Assy, Complete
2	B-12912-10	Target Assy, Complete
2	B-12912-11	Target Assy, Complete

C-13996 Back Panel Assembly

Part No.	Description
C-13337	Single Flash Lamp Assembly
C-13874	5 Lamp PCB Assembly
03-8149-10	Mini Dome (Blue)
03-8149-11	Mini Dome (Green)
31-1475-50007	Screened Back Panel
A-13781-50007	Back Panel & Inserts
03-8188-13	Rectangle Insert (Clear)
03-8333-16	Oval Insert (Yellow)
11-831-50007	Wood Backboard

C-13940 5 Switch & Diode Board

Part No.	Description
5768-12697-00	5 Switch & Diode PCB
5070-09054-00	Diode, 1N4004, 1.0A
5791-10862-07	Connector, 7-pin Sq post
5791-12462-07	Connector, 7-pin Sq post lock

R-13848 **Multi Ramp Assembly**

Item	Part No.	Description	Item	Part No.	Description
1	A-13844	Ramp Hinge Assembly	f)	4002-01005-10	MS, 2-56 x 5/8 P-PH
2	B-13845	Up/Down Ramp Assembly	g)	4701-00024-00	LW, #2 Split
a)	01-9425	Ramp Flap	h)	5070-06258-0	Diode, 1N4001, 1.0A
b)	01-9669	Ramp Protect Plate	i)	5647-12073-36	Sub-mini Micro Switch
c)	01-9670	Crank/Pin Guide Bracket	5	B-13850-2	Gate & Switch Assembly
d)	03-8452	Up/Down Ramp	a)	01-8240	Plate-Nut 2-56
e)	07-6688-19N	Rivet, 7/32 x .218	b)	01-8600	Insulator
f)	4700-00003-00	FW, .125 x .281 x .032	c)	01-9735-2	Ramp Enter Gate Brkt
3	B-13849	Skill Shot Switch/Brkt Assy	d)	03-8367	Ball Gate Spacer
a)	A-12238	Sub-mini Switch Assembly	e)	12-6933-2	Ramp Enter Gate Wire
b)	01-8600	Insulator	f)	4002-01005-10	MS, 2-56 x 5/8 P-PH
c)	01-9734	Skill Shot Switch Bracket	g)	4701-00024-00	LW #2 Split
d)	4002-01005-08	MS, 2-56 x 1/2 P-PH	h)	5070-06258-00	Diode, 1N4001, 1.0A
e)	4701-00024-00	LW, #2 Split	i)	5647-12073-36	Sub-mini Micro Switch
4	B-13850-1	Gate & Switch Assembly	6	H-13938	Mani Ramp Cable
a)	01-8240	Plate-Nut #2-56	7	01-9746	Transfer Wire Bracket
b)	01-8600	Insulator	8	01-9768	Ramp Enter Plate
c)	01-9735-1	Ramp Enter Gate Brkt	9	01-9769-1	Ramp Enter .81 Plate
d)	03-8267	Ball Gate Spacer	10	01-9769-2	Ramp Enter 1.5 Plate
e)	12-6933-1	Ramp Enter Gate Wire	11	01-9772	Ball Stop Bracket
			12	03-8451	Multi Ramp

D-13846 **Left Return Ramp Assembly**

Item	Part No.	Description
1	A-12163	Sub-mini Switch Assembly
2	01-9476-1	Switch Mounting Bracket
3	01-9772	Ball Stop Bracket
4	03-8454	Left Return Ramp
5	12-6931	Ramp Transfer Wire
6	12-6931-1	Ramp Transfer Wire
7	20-9646-1	Switch Cover
8	20-9652	Pushnut .156 Shaft
9	4004-01003-05	MS, 4-40 x 5/16 P-PH-S
10	4404-01119-00	Nut 4-40 ESN

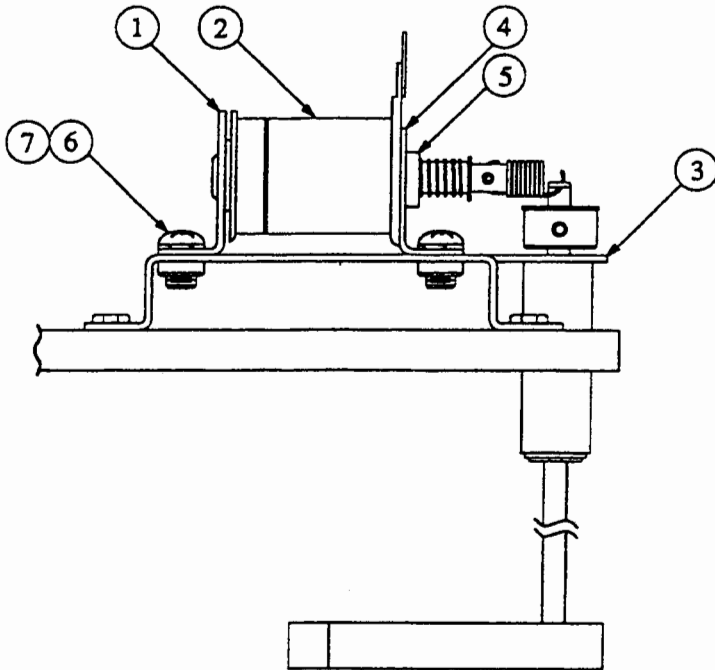
D-13960 **Ball Kick Ramp Assembly**

Item	Part No.	Description
1	01-9788	Outside Ramp Wall
2	01-9789	Inside Ramp Wall
3	20-9284	Spade Bolt
4	07-6688-17	Rivet, 1/8 x 5/32
5	01-9790	Ramp Floor

D-13847 **Right Return Ramp Assembly**

Item	Part No.	Description
1	A-12556	Switch & Diode Assy
2	B-13300-1	Switch & Bracket Assy
3	01-8600	Insulator
4	01-8774	Switch Bracket
5	01-9772	Ball Stop Bracket
6	03-8455	Right Return Ramp
7	4002-01005-06	MS, 2-56 x 3/8 P-PH
8	4004-01003-05	MS, 4-40 x 5/16 P-PH
9	4004-01041-06	MS, 4-40 x 3/8 P-FLH
10	4006-01027-06	MS, 6-32 x 3/8 P-RWH
11	4404-01119-00	Nut 4-40 ESN
12	4701-00024-00	LW, #2 Split

B-13915 Ball Diverter Assembly

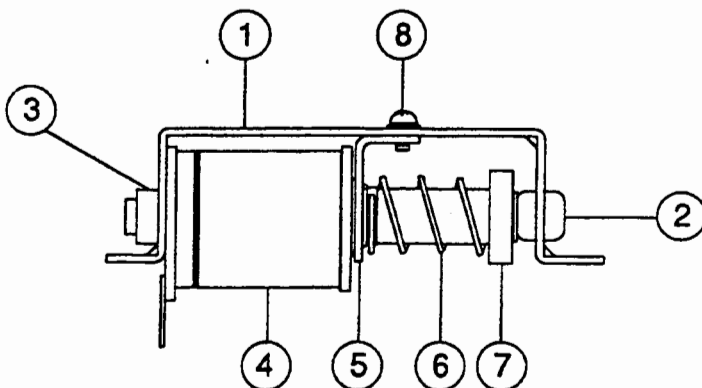


Item	Part Number	Description
1	A-10821	Stop Bracket Assy
2	AE-24-900	Coil Assembly
3	B-13916	Ball Diverter Assy
4	01-8413	Coil Mounting Brkt
5	03-7066	Coil Tubing
6	4010-01008-06	MS, 10-32 x 3/8
7	4701-00004-00	LW, #10 Split

Associated Parts

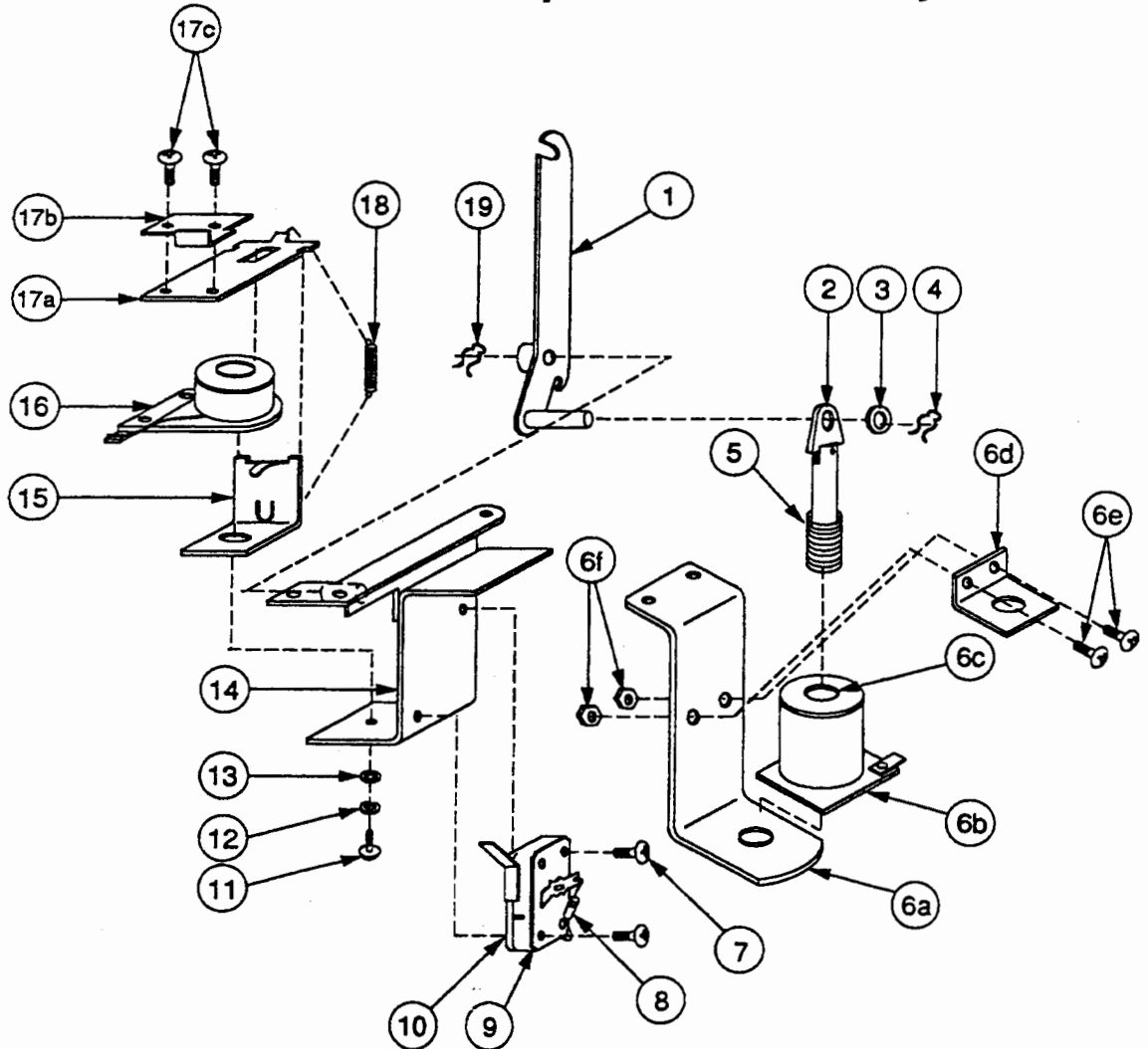
A-13917	Diverter Shaft Assy
02-4479	Diverter Shaft
03-8462	Plastic Ball Diverter
20-8712-25	"E" Ring 1/4 Shaft
20-8716-1	Roll Pin 3/32 x 1/2

B-13959 Ball Kicker (Locker) Assembly



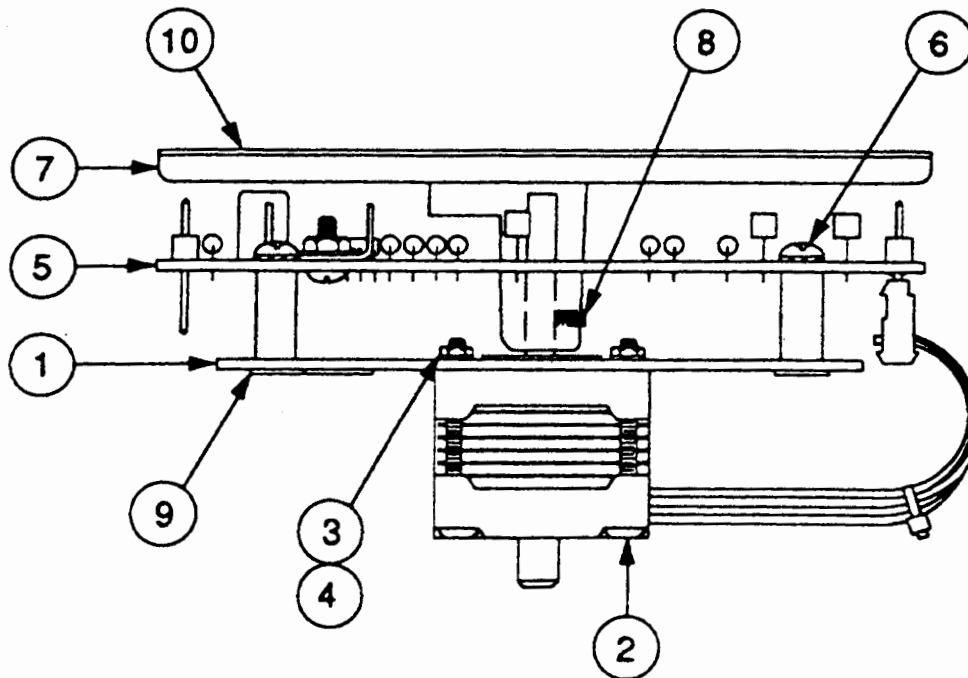
Item	Part Number	Description
1	01-9787	Ball Kicker Brkt
2	23-6420	Rubber Grommet
3	03-7076-5	Coil Tubing
4	AE-23-800	Coil Assembly
5	01-8-508-T	Coil Retaining Brkt
6	10-135	Coil Plunger Spring
7	A-13270	Bell Armature Assy
8	4008-01017-04	MS, 8-32 x 1/4

B-11304-3 Ramp Lifter Assembly



Item	Part Number	Description	Item	Part Number	Description
1	A-11137	Lift Crank Assembly	9	A-7438-1	Terminal Strip
2	A-8050	Plunger Assembly	10	5647-12001-00	Microswitch
3	4700-00073-00	Flatwasher	11	4008-01021-00	MS, 8-32x7/16
4	12-6227	Hairpin Clip	12	4701-00003-00	LW, #8 Split
5	10-128	Spring	13	4700-00089-00	Flatwasher
6	B-13655	Coil/Bracket Assembly	14	B-11302-1	Lift Mech Bracket Assy
a)	B-7572-1	Bracket & Stop Assy	15	A-6892	Frame & Eyelet Assy
b)	AE-23-800	Coil Assembly	16	SM1-26-600	Coil Assembly
c)	03-7066	Coil Tubing	17	A-11139	Armature Assembly
d)	01-8-508-S	Coil Retainer Bracket	a)	A-8936	Armature Sub-assy
e)	4006-01017-06	MS, 6-32 x 3/8	b)	01-8390	Lift Crank Lock
f)	4406-01119-00	Nut, 6-32 ESN	c)	4006-01003-03	MS, 6-32 x 3/16
7	4004-01003-10	MS, 4-40 x 5/8	18	10-363	Extension Spring
8	5070-06258-00	Diode, 1N4001, 1.0A	19	12-6227	Hairpin Clip

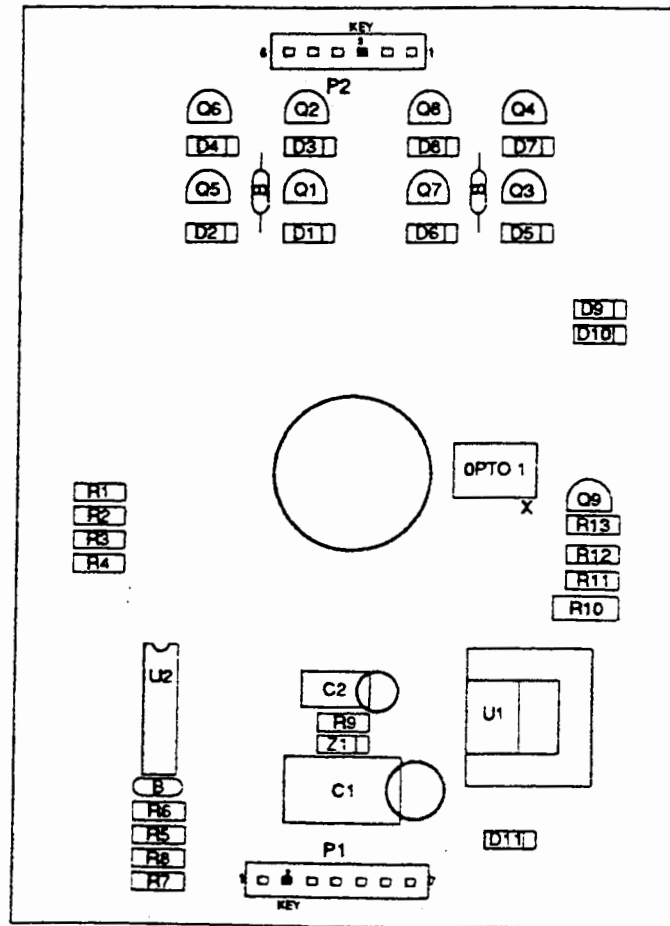
A-14093-1 Roulette Wheel Assembly



Item	Part Number	Description
1	01-8820-1	Motor Plate
2	B-12088	Motor & Connector Assembly
3	20-9570	Nut, M3 x .5, Hex
4	4701-00023-00	Lockwasher, #5 Split
5*	D-12045	Motor Control Board
6	4006-01003-06	Mach. Screw, 6-32 x 3/8
7	03-8161	Wheel
8	4006-01076-04	Set Screw, 6-32 x 1/4
9	16-8587-932	Label
10	31-2-50007-1	Decal

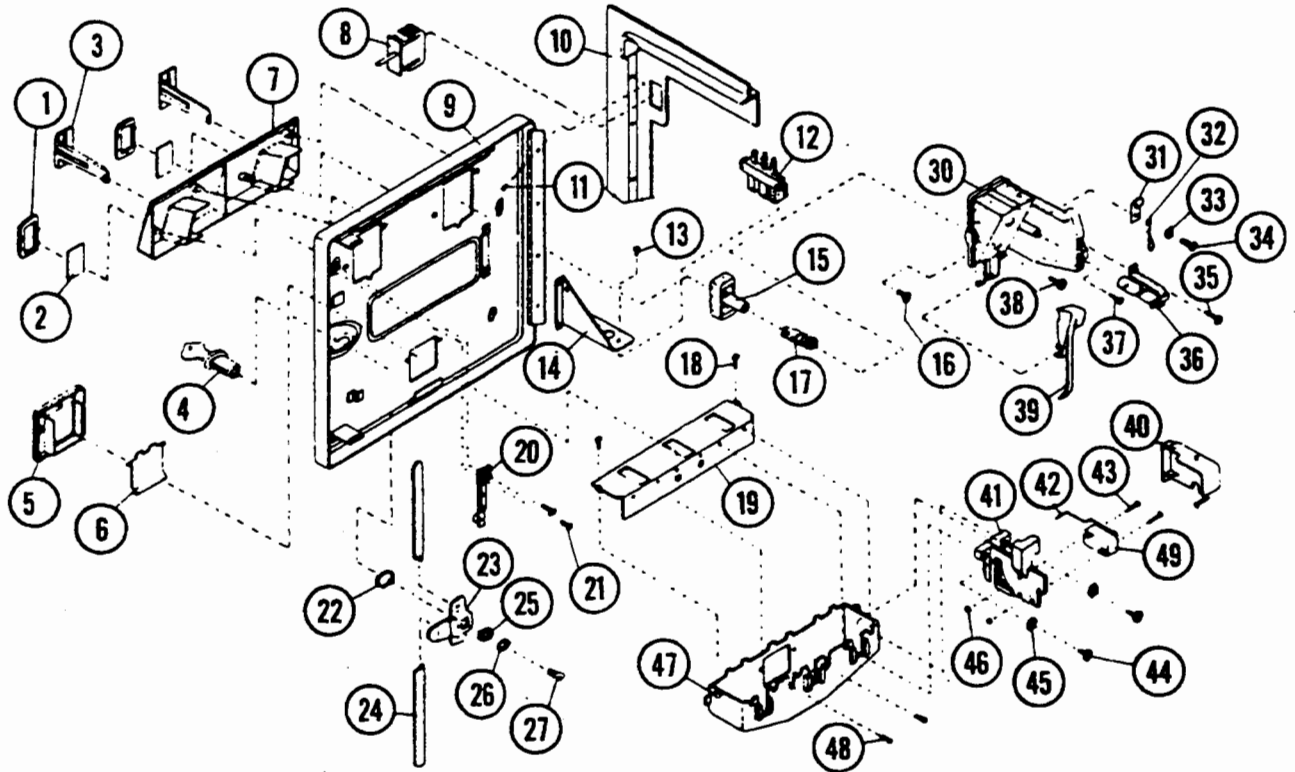
* See Separate Parts List (next page)

D-12045 Motor Control Board

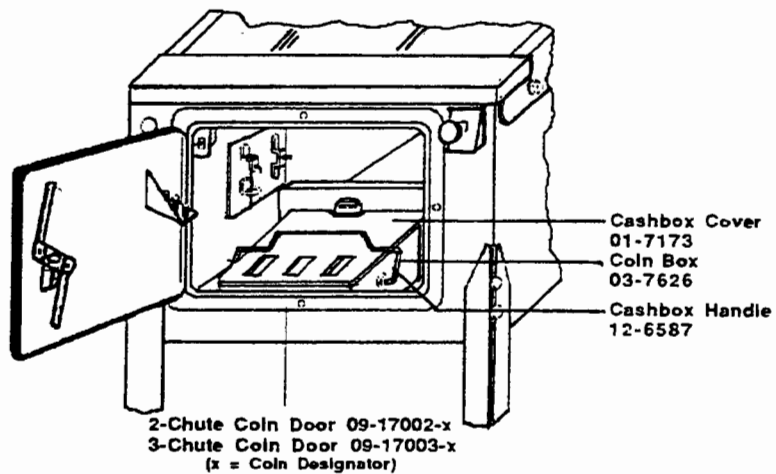


Part No.	Ckt. Symbol	Description	Part No.	Ckt. Symbol	Description
5768-12270-00		Bare PC Board	5043-08980-00	B	Capacitor, .01μfd, 50V
5250-08157-00	U1	IC, Voltage Regulator, 7805	5010-08998-00	R1-R4	Resistor, 2.2KΩ, 1.4W, 5%, CF
5370-12272-00	U2	IC, Quad Comp, LM339	5010-09034-00	R5-6, R9	Resistor, 10KΩ, 1/4W, 5%, CF
5490-10159-00	OPTO 1	Opto Interruptor Module	5010-08991-00	R7, R8	Resistor, 4.7KΩ, 1.4W, 5%, CF
5160-08938-00	Q1-Q4	Transistor, 2N4401	5010-08930-00	R10	Resistor, 470Ω, 1/2W, 5%, CF
5190-09016-00	Q5-Q8	Transistor, 2N4403	5010-09324-00	R11	Resistor, 27KΩ, 1/4W, 5%, CF
5190-10270-00	Q9	Transistor, 2N3906	5010-09356-00	R12	Resistor, 820Ω, 1/4W, 5%, CF
5070-06258-00	D1-D10	Diode, 1N4001, 1.0A	5010-09162-00	R13	Resistor, 100KΩ, 1/4W, 5%, CF
5070-08919-00	D11	Diode, 1N4148, 150 mA	5791-10871-06	P2	Connector, 6pin (Hdr)
5075-09059-00	Z1	Zener Diode, 3.9V	5791-10871-07	P1	Connector, 7 pin (Hdr)
5040-12298-00	C1	Capacitor, 100μfd, Electr. 40V (+50%, -10%), Axial	5705-09042-00		Heatsink
5040-09365-00	C2	Capacitor, 1μfd, 10V (+50%, -10%), Axial	4006-01003-06		Mach. Screw, #6-32 x 3/8
			4703-00007-00		Lockwasher, #6 Ext.
			4406-01117-00		Nut, #6-32 Hex.

C-13155-1 Coin Door Assembly



Pinball Front Box



COIN DOOR ASSEMBLY

USA Door with decals, p/n C-13155-1

2-Chute Door - 09-17002-x 3-Chute Door - 09-17003-x

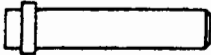
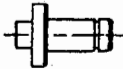
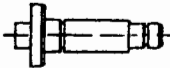
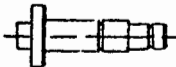
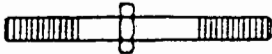
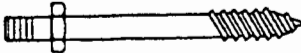
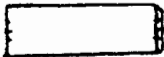
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Item	Part Number	Description	Quantity
1	27-1038	Button Cover	2 or 3
2	27-1041-1-54	Price Panel	2 or 3
3	27-1026-1-15	Coin Entry Plate	2 or 3
4	27-1016	Lock Assembly	1
5	27-1061-1	Coin Return - Bezel	1
6	27-1062	Coin Return Flap	1
7	27-1021	Button Housing - 2-slot	1
	27-1022	Button Housing - 3-slot	1
8	27-1111	Interlock Switch	1
9	27-1006-1	Coin Door , 2-Slot	1
	27-1007-1	Coin Door , 3-Slot	1
10	27-1005	Coin Door Frame	1
11	27-1003	M/C Screw, 6-32 x 3/16	4
12	27-1008	Diagnostic Switch	1
13	27-1101	M/C Screw, 4-40 x 1/4	2
14	27-1102	Bracket, Diagnostic Switch	1
15	27-1037	Button	2 or 3
16	27-1078	M/C Screw, 6-32 x 3/8	2 or 3
17	27-1039	Conical Spring	2 or 3
18	27-1079	Self-tapping Screw, #6 x 1/4	2
19	27-1077-1	Coinbox Cover	1
20	27-1066	Slam Switch	1
21	27-1067	M/C Screw, 4-40 x 1/2	2
22	27-1017	Nut (key)	1
23	27-1012	Locking Cam	1
24	27-1011	Locking Arm	2
25	27-1020	Washer	1
26	27-1018	Star Washer	1
27	27-1019	M/C Screw 1/4-28 x 5/16	1
28	Not Used		
29	Not Used		
30	27-1112	Coin Inlet Chute	2 or 3
31	27-1088	Cable Clamp	2 or 3
32	27-1025	Key Hook	1
33	27-1086	Washer, #6	2 or 3
34	27-1078	M/C Screw, 6-32 x 3/8	1 or 2
	27-1113	M/C Screw, 6-32 x 7/16	1
35	27-1079	Self-tapping Screw, #6 x 1/4	2 or 3
36	27-1084	Lamp Socket	2 or 3
	27-1085	Lamp	2 or 3
37	27-1096	Self-tapping Screw, #5 x 3/8	2 or 3
38	27-1087	M/C Screw, 6-32 x 5/8	2 or 3
39	27-1082	Lever Arm	2 or 3
40	27-1097	Switch Cover	2 or 3
41	27-1091-1	Coin Accept Chute	2 or 3
42	27-1075	Wire Form (small)	2 or 3
	or		
	27-1093	Wire Form (large)	
43	27-1094	M/C Screw, 4-40 x 7/8	4 or 6
44	27-1087	M/C Screw, 6-32 x 5/8	4 or 6
45	27-1086	Washer, #6	4 or 6
46	27-1095	Nut, 4-40 ESNA	4 or 6
47	27-1076-1	Coin Return Box	1
48	27-1078	M/C Screw, 6-32 x 3/8	2
49	27-1092	Microswitch	2 or 3

Unique Parts

Part Number	Description	Part Number	Description
A-11780-2	One Way Gate Assembly	01-9790	Ball Guide Ramp
A-13781-50007	Back Panel & Inserts	02-4177-1	Mini Post, 8-32
A-13844	Ramp Hinge Assembly	02-4479	Diverter Shaft
A-13863	Shooter Lane Gate Assembly		
A-13917	Ball Diverter Shaft Assembly	03-7960-50007-1	Full Playfield Mylar
		03-7960-50007-2	Jet Bumper Mylar
B-13300-1	Switch & Bracket Assembly	03-8225-7	Oblong Black Target
B-13813	Shooter Lane Enter Assy	03-8451	Multi Ramp
B-13814	Shooter Lane Exit Assy	03-8452	Lift Ramp
B-13818	Inside Ramp Return Assy	03-8454	Left Return Ramp
B-13845	Ramp Lifter Assembly	03-8455	Right Return Ramp
B-13849	Skill Shot Switch Brkt Assy	03-8462	Plastic Diverter
B-13850-1	Gate & Switch Assembly	11-50007-IN	Wood Insert Panel
B-13850-2	Gate & Switch Assembly	11-50007-PL	Wood Playfield
B-13915	Ball Diverter Mech.	11-831-50007	Wood Back Board
B-13916	Ball Diverter Assembly	11-927-50007	Backbox
B-13959	Ball Kicker Assembly		
B-14014	Shtr Lane Ball Guide Assy	12-6931	Wire Transfer Ramp
		12-6931-1	Wire Transfer Ramp
C-13817	Inside Ramp Feed Assy	12-6933-1	Ramp Enter Gate Wire
C-13819	Outside Ramp Feed Assy	12-6933-2	Ramp Enter Gate Wire
C-13820	Inside Blackjack Feed Assy	12-6939	Shooter Lane Gate Wire
C-13821	Outside Blackjack Feed Assy	12-6943	1 Way Gate Wire
C-13874	5 Lamp PCB Assembly		
C-13875	4 Lamp PCB Assembly	17-1109	Jet Cap
C-13876	5 Lamp PCB Assembly		
C-13877	6 Lamp PCB Assembly	31-1-50007	Screened Playfield Plastics
C-13878	11 Lamp PCB Assembly	31-1002-50007	Screened Playfield
C-13914-1	Front Molding w/ Buttons	31-1008-50007	Screened Bottom Arch
C-13940	5 Switch & Diode Assembly	31-1009-50007	Screened Shooter Plate
C-13960	Ball Kick Ramp Assembly	31-1357-50007	Screened Backglass
C-13996	Back Panel Assembly	31-1420-50007	Scrnd Speaker Panel Cover
		31-1463-50007	Drop Target Decal
D-13780-50007	Screened Speaker Panel	31-1475-50007	Screened Back Panel
D-13846	Left Return Ramp Assy	31-1567-1	White Button
D-13847	Right Return Ramp Assy	31-1567-2	Red Button
D-13952	Speaker/Display Assembly	31-1567-3	Black Button
		31-1567-4	Green Button
H-12190-50007	Main Backbox Cable	31-1586-50007	Screened Insert
H-12192-50007	Cabinet Cable	31-1590-50007	Top Decal Sheet
H-13544-50007	Playfield Switch Cable	31-1591-50007	Bottom Decal Sheet
H-13545-50007	Playfield Lamp Cable		
H-13546-50007	Playfield Solenoid Cable	5641-12673-00	Sw 5 Position Membrane
H-13936	Back Panel Assembly	5768-12697-00	5 Switch & Diode PCB
H-13937	Ramp Switch Cable		
H-13938	Main Ramp Cable		
R-13848	Multi Ramp Assembly		
01-3516-1	Front Molding/Four Holes		
01-8995-L-1	Flipper Ball Guide		
01-8995-R-2	Flipper Ball Guide		
01-9671	Front Molding Latch Brkt		
01-9788	Ball Guide Outside Ramp		
01-9789	Ball Guide Left Side Ramp		

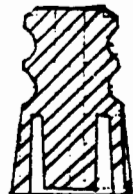
Metal Posts

	Part Number	Description	[Quantity]
	02-3409	Spring Post	[1]
	02-3905	Bumper Post, #8 WS	[4]
	02-4056	Bumper Post	[1]
	02-4057	Bumper Post	[1]
	02-4177-1	Mini Post, 8-32	[1]
	02-4271-1	Post	[4]
	02-4271-2	Post	[8]
	02-4271-3	Post	[4]
	02-4424-1	Post, #6-32/#8-32	[15]
	02-4426-1	Post, #6-32/#8 SMS	[2]
	02-4433	Post, #8-13/16	[2]

Plastic Posts



03-8319-13
Star Post #8 (Clear)
Single Ring
[24]



03-8247-13
Star Post #8 (Clear)
Double Ring
[8]

Backbox Parts List

Part Number	Description	Part Number	Description
A-12497	Upper Insert Bd Hinge Assy	b) 31-1420-50007	Spkr Panel Cover (Screened)
A-12498	Lwr Insert Bd Hinge Assy	c) 31-1422-50007	Speaker Grille (Screened)
B-10686-1	Knocker & Bracket Assy	d) 5555-12015-00	Speaker, 4Ω, 6"Rd, 10W
D-11581-50007	Audio Board	e) 5555-12068-00	Piezo Speaker, 4", 50W
D-11831-50007	System 11C CPU Board	01-6645	Venting Screen
D-12246	Power Supply Board	01-9047	Insert Stop Bracket
D-12247	Aux. Power Driver Board	20-9637	Lock & Cam Kit
D-12313-50007	Backbox Interconnect Bd	5040-09051-00	Capactor, 30, 000μFD, 25V
D-13336	PCB Plate Assembly	5100-09418-00	Bridge Rectifier, 100V, 35A
D-13952	Speaker/Display Assembly	50007-BB	RIVERBOAT GAMBLER
a) D-12232-3	Master Display Board		Backbox

Miscellaneous Parts

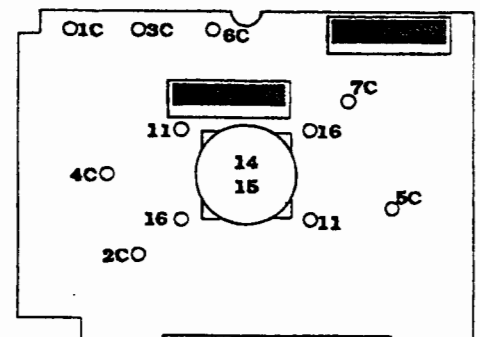
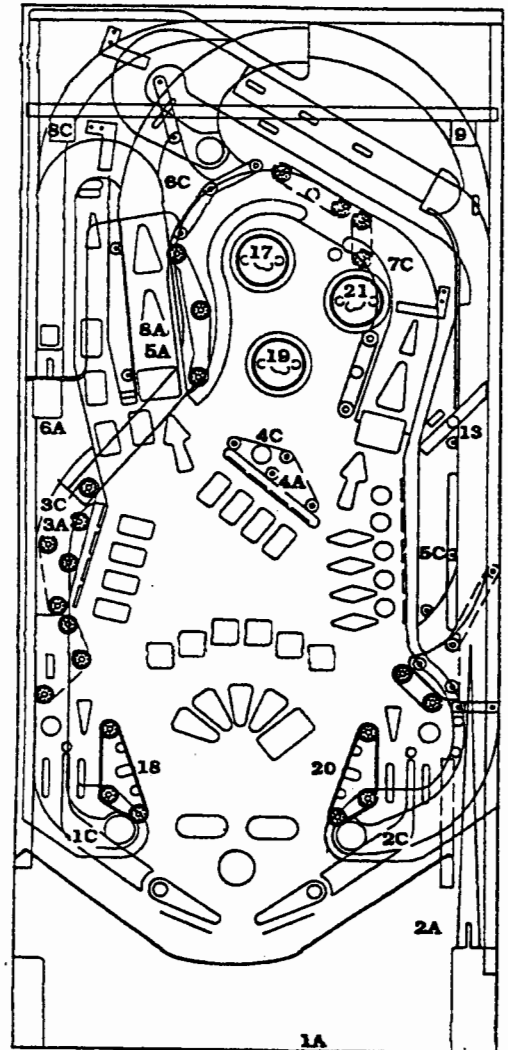
Part Number	Description	Part Number	Description
A-8552-50007	Backglass Assembly	09-17002-26	USA Coin Door
B-12588-L	Left Side Cab. Molding	10-149	Shooter Rod Spring
B-12588-R	Right Side Cab. Molding	16-50007-1	Instruction Card
C-10843	Metal Leg Assembly	16-50007-103	Operators Handbook
D-11920-18	Mech. Panel Assembly	20-6500	Steel Ball 1-1/16"
01-3516-1	Front Molding w/4 Holes	20-6502-A	Plumb Bob
01-5575	Bottom Arch Mounting Brkt	24-6549	#44 Bulb
01-6733	Speaker Grille	24-8704	#89 Bulb
01-8419	Playfield Holdown Bracket	24-8768	#555 Bulb
01-8726-L-1	Left Playfield Holder Brkt	24-8802	#906 Bulb
01-8726-R-1	Right Playfield Holder Brkt	5102-10310-00	Line Filter
08-7028-T	Playfield Glass	5610-12136-00	Transformer
08-7377	Leg Adjuster	5641-12673-00	5 Position Membrane Switch

Cable List

Part Number	Description	Part Number	Description
H-10978-1	AC Line Filter Cable	H-12200	Switch Interconnect Cable
H-11460-50007	Main Display Cable	H-12299-568	Logic/Power Cable
H-11612	Speaker Panel Cable	H-13544-50007	Playfield Switch Cable
H-11834	18V Rectifier Cable	H-13545-50007	Playfield Lamp Cable
H-11835	Knocker Cable	H-13546-50007	Playfield Solenoid Cable
H-12190-50007	Main Backbox Cable	H-13870	Black Jumper Cable
H-12192-50007	Cabinet Cable	H-13936	Back Panel Cable
H-12196-576	Secondary Cable	H-13937	Ramp Switch Cable
H-12199	Lamp Interconnect Cable	H-13988	Main Ramp Cable

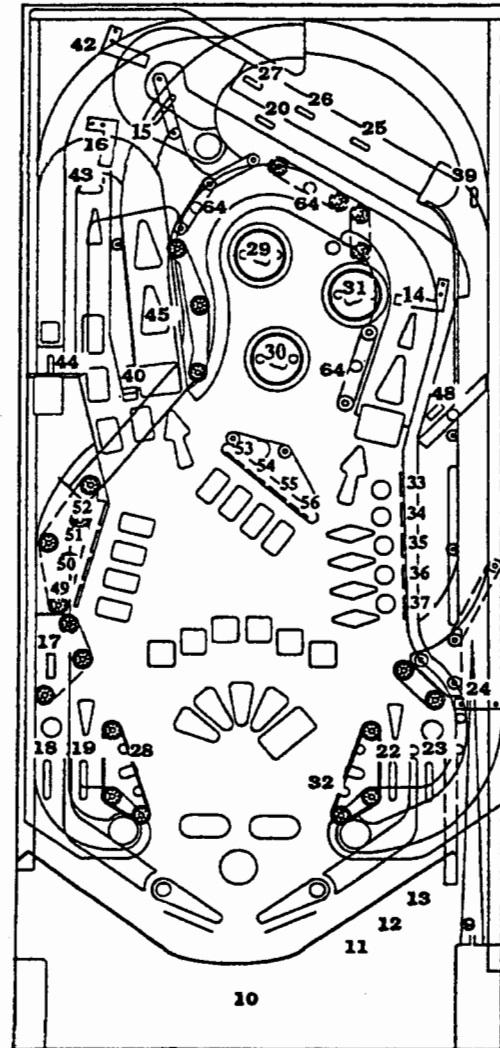
Solenoids/Flashers

Item	Part Number	Description
1A	AE-23-800	Outhole Kicker
1C	#906 Flashlamp	Left Kicker (Sling) Flasher
2A	AE-23-800	Shooter Lane Feeder
2C	#906 Flashlamp	Right Kicker (Sling) Flasher
3A	AE-24-900	Left Drop Tgt Reset
3C	#89 Flashlamp	Left Dr Tgt Bank Flasher
4A	AE-24-900	Right Drop Tgt Reset
4C	#89 Flashlamp	Right Dr Tgt Bank Flasher
5A	AE-23-800	Ramp Up
5C	#89 Flashlamp	Standup Tgt Flasher
6A	AE-23-800	Ball Kicker (Locker)
6C	#89 Flashlamp	Left Ramp Flasher
7A	AE-23-800	Knocker
7C	#89 Flashlamp	Right Ramp Flasher
8A	SMI-26-600	Ramp Down
8C	#906 Flashlamp	Left Back Flasher
09	#906 Flashlamp	Right Back Flasher
10	5580-09555-01	Plyd/Insert G.I. Relay
11	#906 Flashlamp	Wheel Flashers (TL & LR)
12	5580-09555-01	A/C Select Relay
13	AE-24-900	Diverter
14	p/o B-12088	Roulette Wheel B
15	p/o B-12088	Roulette Wheel A
16	#906 Flashlamp	Wheel Flasher (LL & TR)
17	AE-23-800	Top Jet Bumper
18	AE-26-1500	Left Kicker
19	AE-23-800	Bottom Jet Bumper
20	AE-26-1500	Right Kicker
21	AE-23-800	Right Jet Bumper
22		Not Used



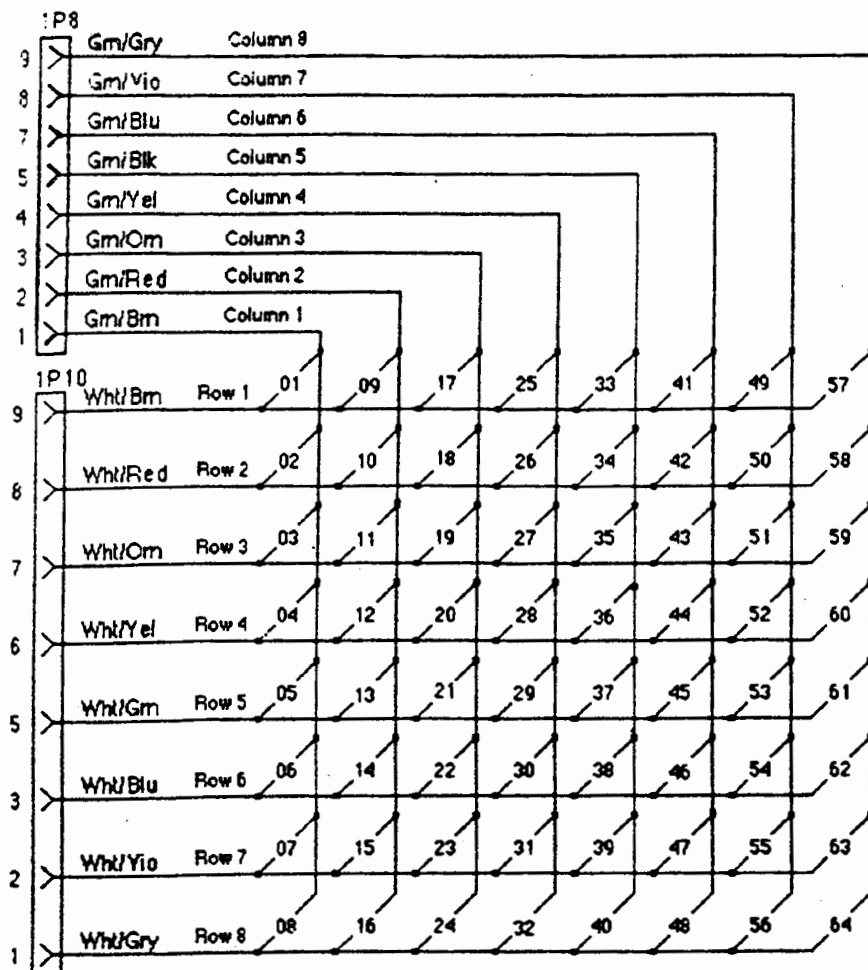
Switches

Cabinet: 1, 3, 57, 58
Coin Door: 4, 5, 6, 7, 8
Front Molding: 60, 61, 62, 63
Insert Panel: 59



Item	Part Number	Description
1	20-6502-A	Plumb Bob
2	5580-09555-01	A/C Relay C-side
3	SW-1A-126	Start Button
4	27-1092	Right Coin Switch
5		Not Used
6	27-1092	Left Coin Switch
7	27-1066	Slam Tilt
8	27-1008	High Score Reset
9	5647-12073-04	Shooter Lane
10	5647-12133-12	Outhole
11	5647-09957-00	Left Trough
12	5647-09957-00	Center Trough
13	5647-12073-08	Right Trough
14	5647-12073-36	Right Ramp Entry
15	5647-12073-19	Top Ramp Entry
16	5647-12073-36	Left Ramp Entry
17	5647-12073-13	Left Ramp Return
18	5647-12073-19	Left Outlane
19	5647-12073-19	Left Return Lane
20	5647-12073-13	Skill Shot Made
21		Not Used
22	5647-12073-19	Right Return Lane
23	5647-12073-19	Right Outlane
24	5647-12073-21	Right Ramp Return
25	5647-12073-13	1/4 Skill Shot
26	5647-12073-13	1/2 Skill Shot
27	5647-12073-13	3/4 Skill Shot
28	SW-1A-114 (Kick)	Left Kicker
	SW-1A-120 (Score)	
29	B-12030-2	Top Jet Bumper
30	B-12030-2	Bottom Jet Bumper
31	B-12030-2	Right Jet Bumper
32	SW-1A-114 (Kick)	Right Kicker
	SW-1A-120 (Score)	
33	B-12912-10	"C" Stand-up Tgt
34	B-12912-10	"H" Stand-up Tgt
35	B-12912-10	"I" Stand-up Tgt
36	B-12912-10	"P" Stand-up Tgt
37	B-12912-10	"S" Stand-up Tgt
38		Not Used
39	5647-12073-36	Top Ramp Exit
40	B-12583-6	Bust Card
41		Not Used
42	5647-12073-36	Past Skill Shot
43	B-12912-11	21 Stand-up Tgt
44	5647-12073-19	Ball Kicker (Locker)
45	5647-12001-00	Ramp Down Now
46		Not Used
47		Not Used
48	5647-12073-21	Ball At Diverter
49	p/o C-13450	"F" Left Drop Tgt

Item	Part Number	Description
50	p/o C-13450	"I" Left Drop Tgt
51	p/o C-13450	"V" Left Drop Tgt
52	p/o C-13450	"E" Left Drop Tgt
53	p/o C-13450	"C" Right Drop Tgt
54	p/o C-13450	"A" Right Drop Tgt
55	p/o C-13450	"R" Right Drop Tgt
56	p/o C-13450	"D" Right Drop Tgt
57	SW-10A-48	Right Flipper Button
58	SW-10A-48	Left Flipper Button
59	p/o D-12045	Roulette Wheel
60	5641-12673-00	Red Button
61	5641-12673-00	Pass Button
62	5641-12673-00	Green Button
63	5641-12673-00	Black Button
64	B-12715	Rebound Switch

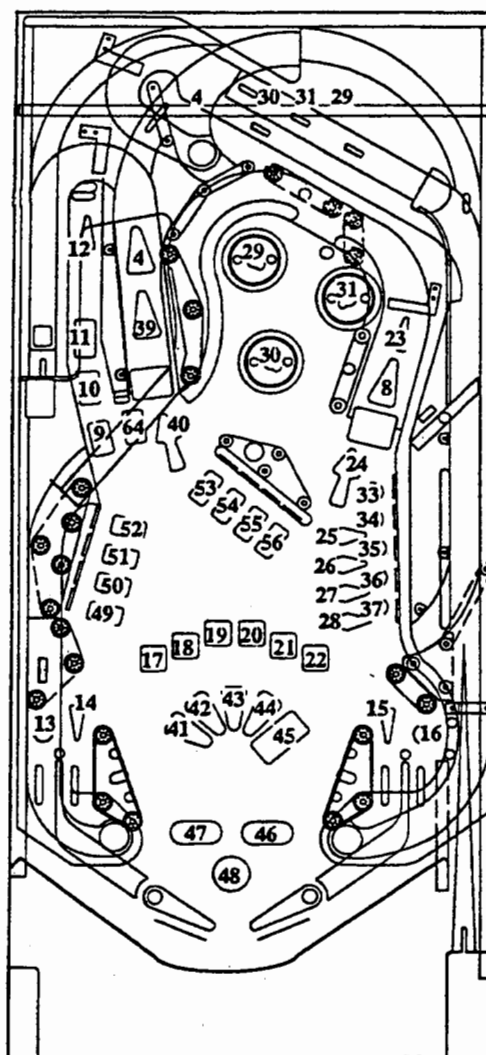


Riverboat Gambler Switch Matrix

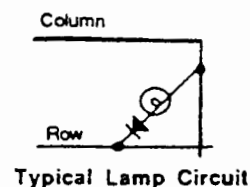
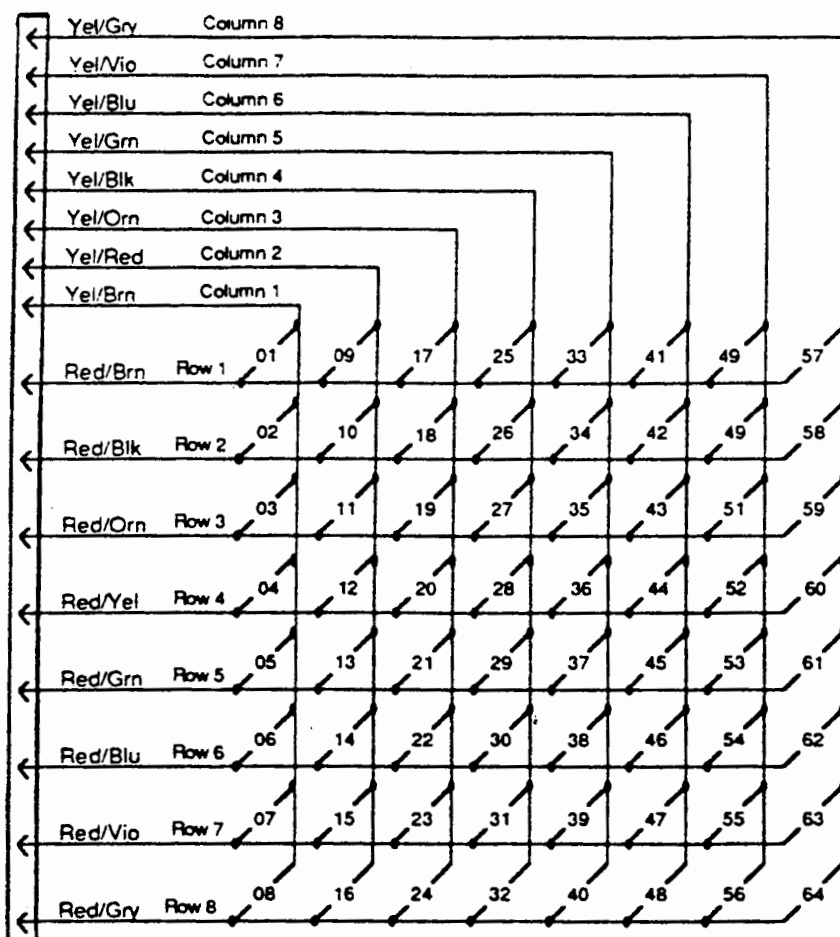
Column	1 Q45 Gm-Bm 1J8-1	2 Q49 Gm-Red 1J8-2	3 Q44 Gm-Om 1J8-3	4 Q48 Gm-Yel 1J8-4	5 Q43 Gm-Blk 1J8-5	6 Q47 Gm-Blu 1J8-7	7 Q42 Gm-Vio 1J8-8	8 Q46 Gm-Gry 1J8-9
Row								
1 Whl-Bm 1J10-9	Plumb Tilt 1	Shooter 9	Left Ramp Return 17	1/4 Skill Shot 25	C Stand-up Target 33	Not Used 41	F Left Drop Target 49	Right Flipper 57
2 Whl-Red 1J10-8	A/C Relay C-Side 2	Outhole 10	Left Outlane 18	1/2 Skill Shot 26	H Stand-up Target 34	Past Skill Shot 42	I Left Drop Target 50	Left Flipper 58
3 Whl-Om 1J10-7	Start Button 3	Left Trough 11	Left Return Lane 19	3/4 Skill Shot 27	I Stand-up Target 35	21 Stand-up Target 43	V Left Drop Target 51	Roulette Wheel 59
4 Whl-Yel 1J10-6	Right Coin Switch 4	Center Trough 12	Skill Shot Made 20	Left Sling 28	P Stand-up Target 36	Locker/ Kicker 44	E Left Drop Target 52	Red Button 60
5 Whl-Gm 1J10-5	Center Coin Switch 5	Right Trough 13	Not Used 21	Top Jet 29	S Stand-up Target 37	Ramp Down Now 45	C Right Drop Target 53	Pass Button 61
6 Whl-Blu 1J10-3	Left Coin Switch 6	Right Ramp Entry 14	Right Return Lane 22	Bottom Jet 30	Not Used 38	Not Used 46	A Right Drop Target 54	Green Button 62
7 Whl-Vio 1J10-2	Slam Tilt 7	Top Ramp Entry 15	Right Outlane 23	Right Jet 31	Top Ramp Exit 39	Not Used 47	R Right Drop Target 55	Black Button 63
8 Whl-Gry 1J10-1	High Score Reset 8	Left Ramp Entry 16	Right Ramp Return 24	Right Sling 32	Bust Card 40	Ball at Diverter 48	D Right Drop Target 56	Rebound Switch 64

Lamps

Item	Bulb	Description
1	#555	Red
2	#555	Green
3	#555	Black
4	#555	Play Roulette
5	#555	Gold Star 1
6	#555	Gold Star 2
7	#555	Gold Star 3
8	#555	Spot Card
9	#555	Bottom 21 Card
10	#555	Middle 21 Card
11	#555	Top 21 Card
12	#44	20 Hit Lamp
13	#44	Left Outlane
14	#555	Left Return Lane
15	#555	Right Return Lane
16	#44	Right Outlane
17	#555	"C" Casino Lamps
18	#555	"A" Casino Lamps
19	#555	"S" Casino Lamps
20	#555	"I" Casino Lamps
21	#555	"N" Casino Lamps
22	#555	"O" Casino Lamps
23	#555	Hold Card
24	#44, #555	Collect Royal
25	#555	20 Chips
26	#555	10 Chips
27	#555	50 Chips
28	#555	Spot Star
29	#555	Top Jet & 1
30	#555	Bottom Jet & 3
31	#555	Right Jet & 2
32		Not Used
33	#555	"C" Stand-up Tgt
34	#555	"H" Stand-up Tgt
35	#555	"I" Stand-up Tgt
36	#555	"P" Stand-up Tgt
37	#555	"S" Stand-up Tgt
38		Not Used
39	#555	Winning Streak
40	#44, #555	Slot Shot
41	#555	Ten
42	#555	Jack
43	#555	Queen
44	#555	King
45	#555	Ace
46	#44	200 Chips
47	#44	100 Chips
48	#44	Shoot Again
49	#555	"F" Left Drop Tgt
50	#555	"I" Left Drop Tgt
51	#555	"V" Left Drop Tgt



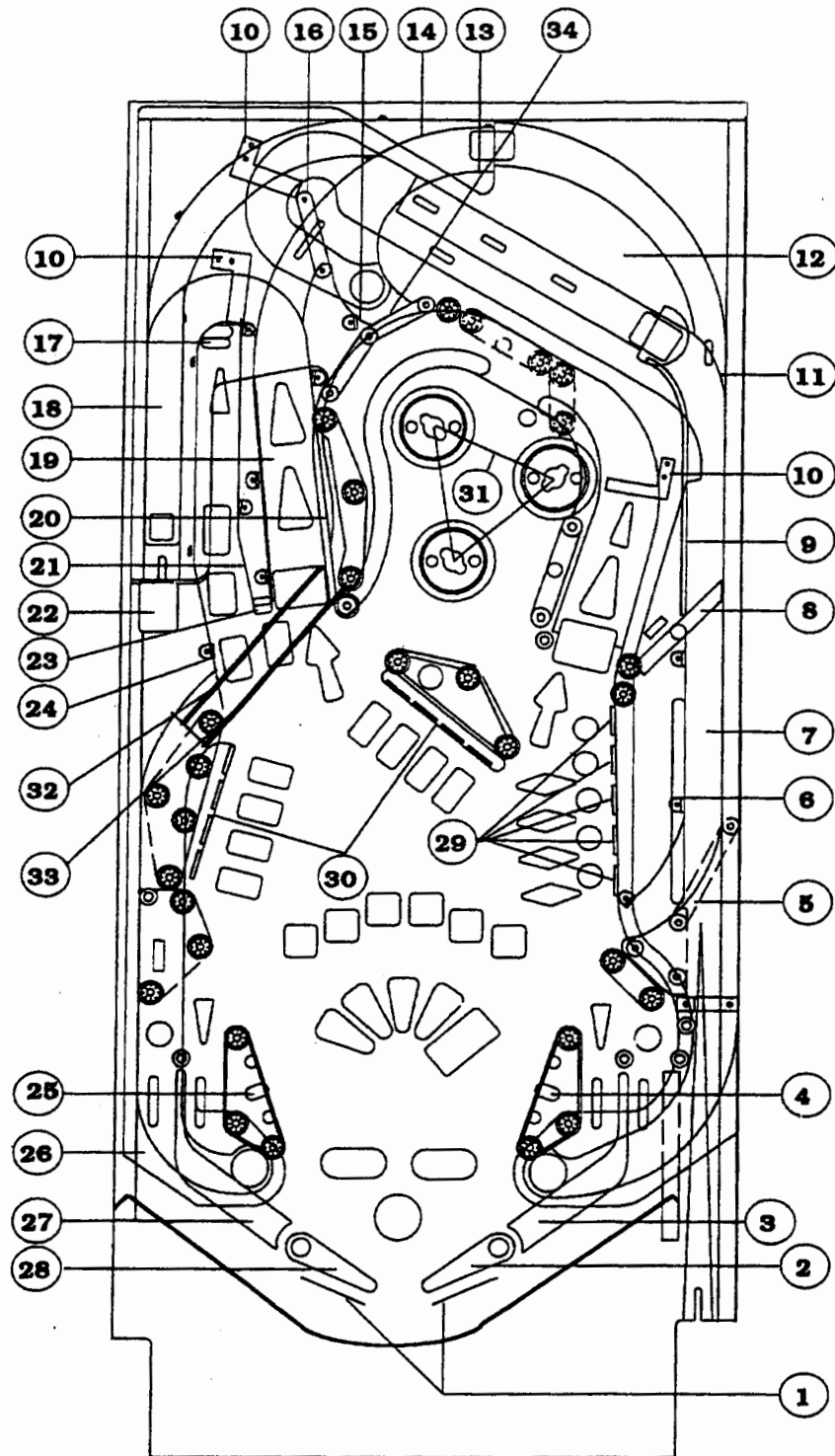
Item	Bulb	Description
52	#555	"E" Left Drop Tgt
53	#555	"C" Right Drop Tgt
54	#555	"A" Right Drop Tgt
55	#555	"R" Right Drop Tgt
56	#555	"D" Right Drop Tgt
57	#555	Win Meter 1 Low
58	#555	Win Meter 2
59	#555	Win Meter 3
60	#555	Win Meter 4
61	#555	Win Meter 5
62	#555	Win Meter 6
63	#555	Win Meter 7
64	#555	Bust Card



Riverboat Gambler Lamp Matrix

Column	1	2	3	4	5	6	7	8
Row	Q66 Yel-Brn 1J7-1	Q64 Yel-Red 1J7-2	Q62 Yel-Orn 1J7-3	Q60 Yel-Blk 1J7-4	Q58 Yel-Grn 1J7-6	Q56 Yel-Blu 1J7-7	Q54 Yel-Vio 1J7-8	Q52 Yel-Gry 1J7-9
1 Q80 Red-Brn 1J6-1	Red 1	Bottom 21 Card 9	C Casino Lamps 17	20 Chips 25	C Stand-up Target 33	Ten 41	F Left Bank Target 49	Win Meter 1 Low 57
2 Q81 Red-Blk 1J6-2	Green 2	Middle 21 Card 10	A Casino Lamps 18	10 Chips 26	H Stand-up Target 34	Jack 42	I Left Bank Target 50	Win Meter 2 58
3 Q82 Red-Orn 1J6-3	Black 3	Top 21 Card 11	S Casino Lamps 19	50 Chips 27	I Stand-up Target 35	Queen 43	V Left Bank Target 51	Win Meter 3 59
4 Q83 Red-Yel 1J6-5	Play Roulette 4	20 Hit Lamp 12	I Casino Lamps 20	Spot Star 28	P Stand-up Target 36	King 44	E Left Bank Target 52	Win Meter 4 60
5 Q84 Red-Grn 1J6-6	Gold Star 1 5	Left Outlane 13	N Casino Lamps 21	Top Jet and 1 29	S Stand-up Target 37	Acc 45	C Right Bank Target 53	Win Meter 5 61
6 Q85 Red-Blu 1J6-7	Gold Star 2 6	Left Return Lane 14	O Casino Lamps 22	Bottom Jet and 3 30	Not Used 38	200 Chips 46	A Right Bank Target 54	Win Meter 6 62
7 Q86 Red-Vio 1J6-8	Gold Star 3 7	Right Return Lane 15	Hold Card 23	Right Jet and 2 31	Winning Streak 39	100 Chips 47	R Right Bank Target 55	Win Meter 7 63
8 Q87 Red-Gry 1J6-9	Spot Card 8	Right Outlane 16	Collect Royal 24	Not Used 32	Slot Shot 40	Shoot Again 48	D Right Bank Target 56	Bust Card 64

Playfield Parts



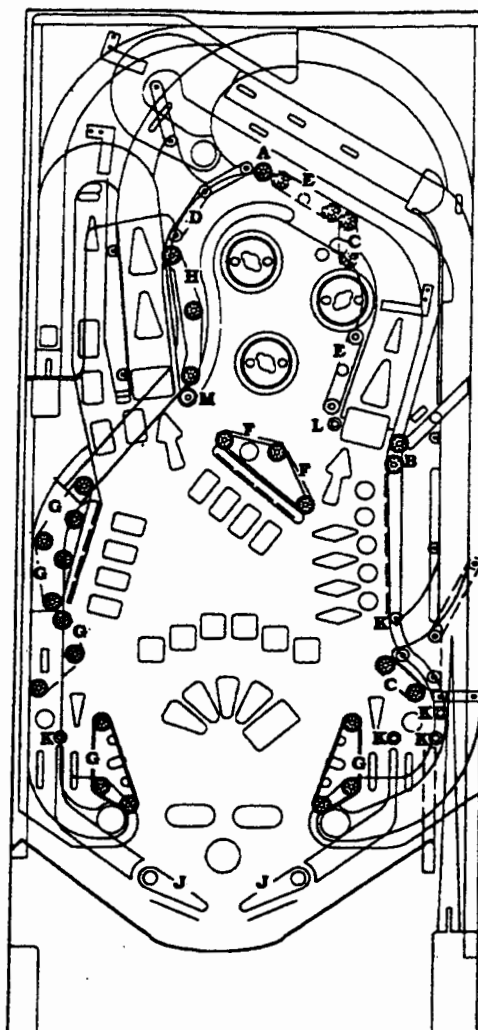
Playfield Parts

Item	Part number	Description	Item	Part Number	Description
1	12-6871	Anti-Rebound Wire	19	B-13845	Up/Down Ramp Assy
2	C-13174-R	Right Flipper	20	B-11304-3	Ramp Lifter Assy
a)	20-9250-5	Paddle & Shaft	a)	B-13655	Coll & Bracket Assy
3	B-13921-R	Right Rtrn Ln Guide	21	C-13820	Ball Guide Assy
4	B-12665	Right Kicker Assy	22	B-13959	Ball Kicker (Locker)
a)	B-11203-R-1	Coll & Bracket Assy	23	B-12583-6	Stand-up Target
5	A-13863	One Way Gate Assy	24	C-13821	Ball Guide Assy
a)	12-6939	Gate Wire	25	B-12665	Left Kicker Assy
6	B-13814	Ball Guide Assy	a)	B-11203-L-1	Coll & Bracket
7	D-13847	R Rtrn Ramp Assy	26	D-13846	L Rtrn Ramp Assy
8	B-13915	Diverter	27	B-13921-L	L Rtrn Ln Guide
a)	A-13917	Shaft Assembly	28	C-13174-L	Left Flipper
9	12-6929	Ball Guide	a)	20-9250-5	Paddle & Shaft
10	B-13850-1	Switch Gate Assy	29	B-12912-10	Standup Targets
a)	12-6933-1	Gate Wire	30	C-13450	4Bank Drop Tgt Assy
11	B-13813	Ball Guide Assy	a)	C-12499	4 Bank Opto Board
12	R-13848	Multi-ramp Assy	31	B-9414-3	Jet Bumper Assy
13	B-13818	Ball Guide Assy	a)	B-9415-1	Jet Bumper Coll Assy
14	C-13819	Ball Guide Assy	b)	B-12030-2	Switch & Diode Assy
15	C-13817	Ball Guide Assy	32	12-6931-1	Lower Ramp Wire
16	A-11760-2	One Way Gate Assy	33	12-6931	Side Ramp Wire
a)	12-6943	Gate Wire	34	B-12267	One Way Gate Assy
17	B-12912-11	Stand-up Target	a)	12-6802	Gate Wire
18	D-13960	Ball Kick Ramp Assy			

Parts Under Bottom Arch

Part Number	Description
B-8623	Upper Trough Baffle Assembly
C-8235	LowerTrough Baffle Assembly
12-6542	Trough Baffle Wire
01-3569-1	Ball Trough (Runway)
01-5575	Bottom Arch Mounting Bracket Assembly
B-8039-2	Outhole Kicker Assembly
B-8925	Microswitch Plate Assembly

Playfield Rubber Parts



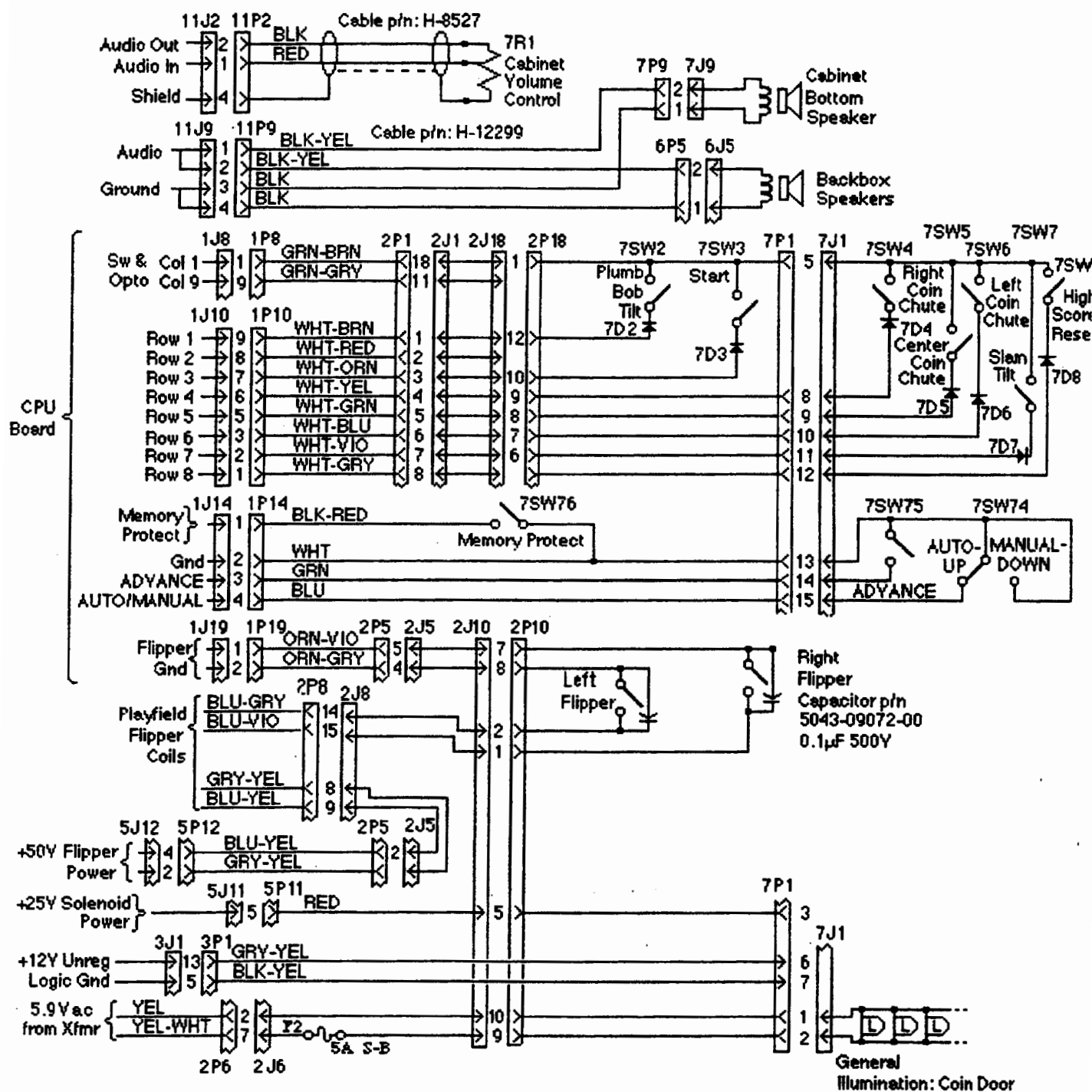
Item	Part No.	Description	Qty
A	23-6300	5/16" Ring	1
B	23-6301	3/4" Ring	1
C	23-6302	1" Ring	2
D	23-6303	1-1/4" Ring	1
E	23-6304	1-1/2" Ring	2
F	23-6305	2" Ring	2
G	23-6306	2-1/2" Ring	5
H	23-6307	3" Ring	1
J	23-6519-4	Red Flipper Ring	2
K	23-6535	Ring Bumper	5
L	23-6552	Yellow Sleeving	1
M	23-6579	3/4" Bumper Cone	5
N	23-6327	Shooter Tip	1

Section 3

Reference Diagrams & Schematics

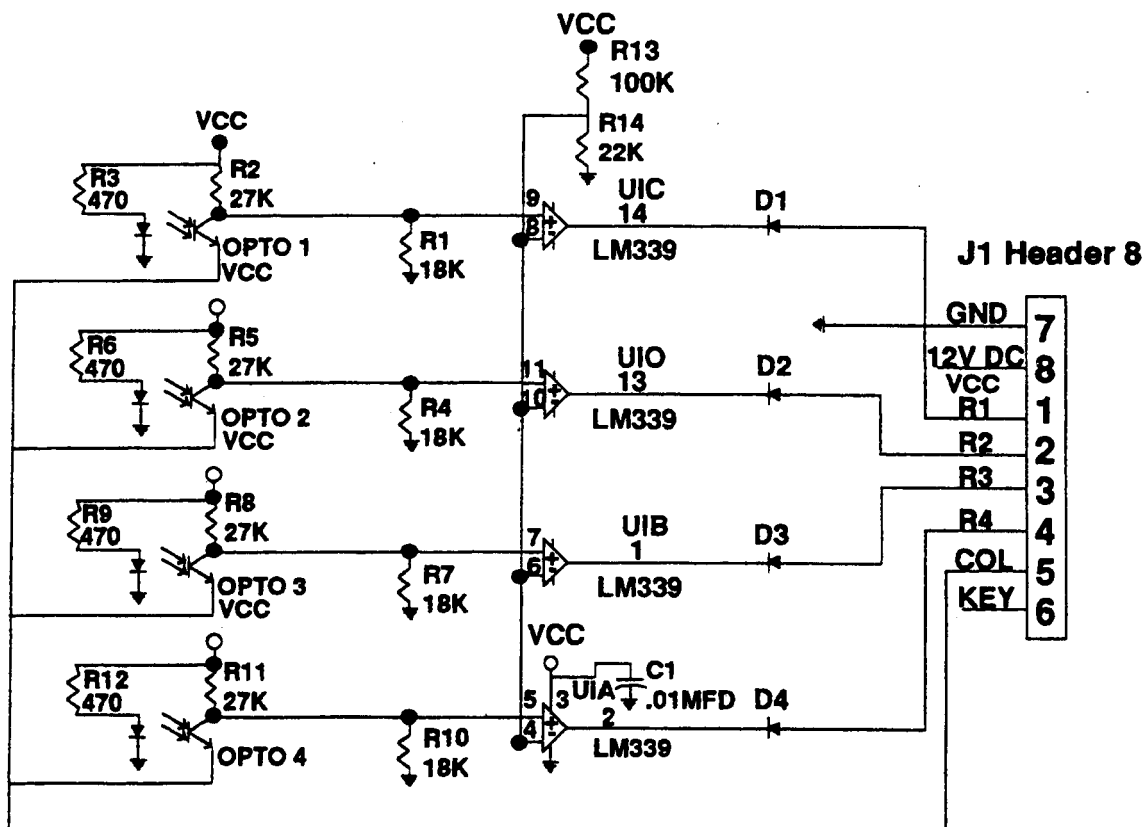
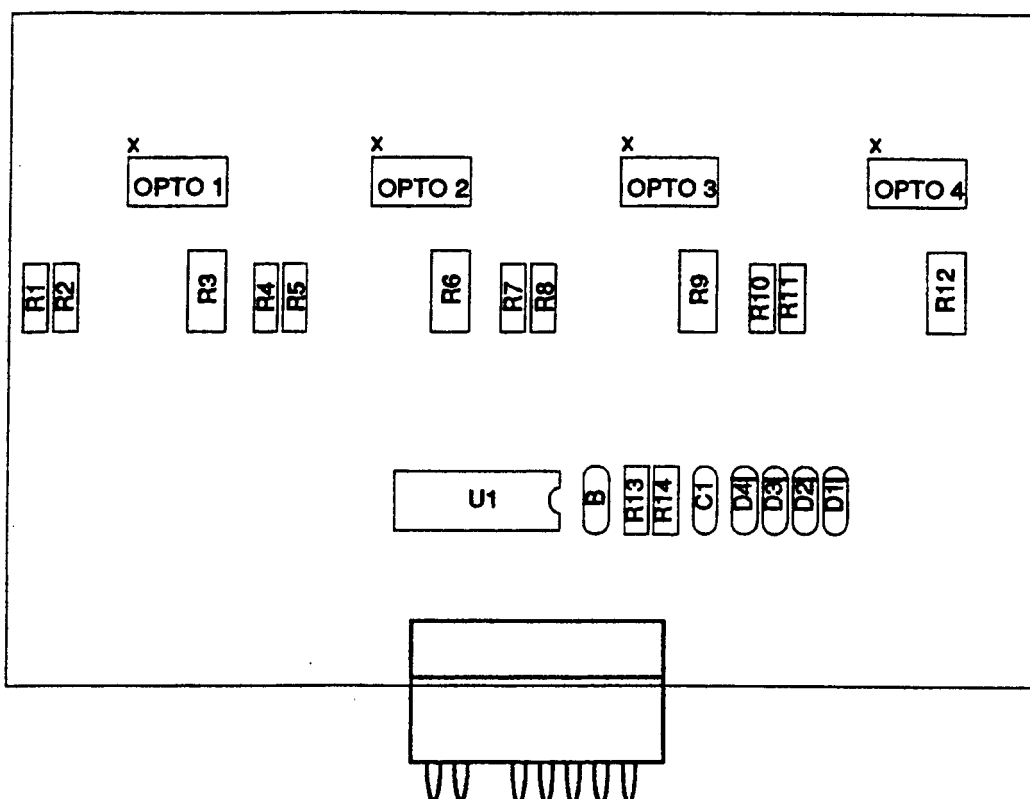
Diagrams and Schematics:

- Cabinet Wiring**
- Opto Boards**
- Power Supply Board**
- System 11C CPU Board**
- Master Display Board**
- Audio Board**
- Aux Power Driver Board**
- Backbox Interconnect Board**
- Controlled, Special, & Switched Solenoids**
- Power Wiring**
- Game Circuit Boards Interboards Signals**
- Diagnostic Test Flowchart**

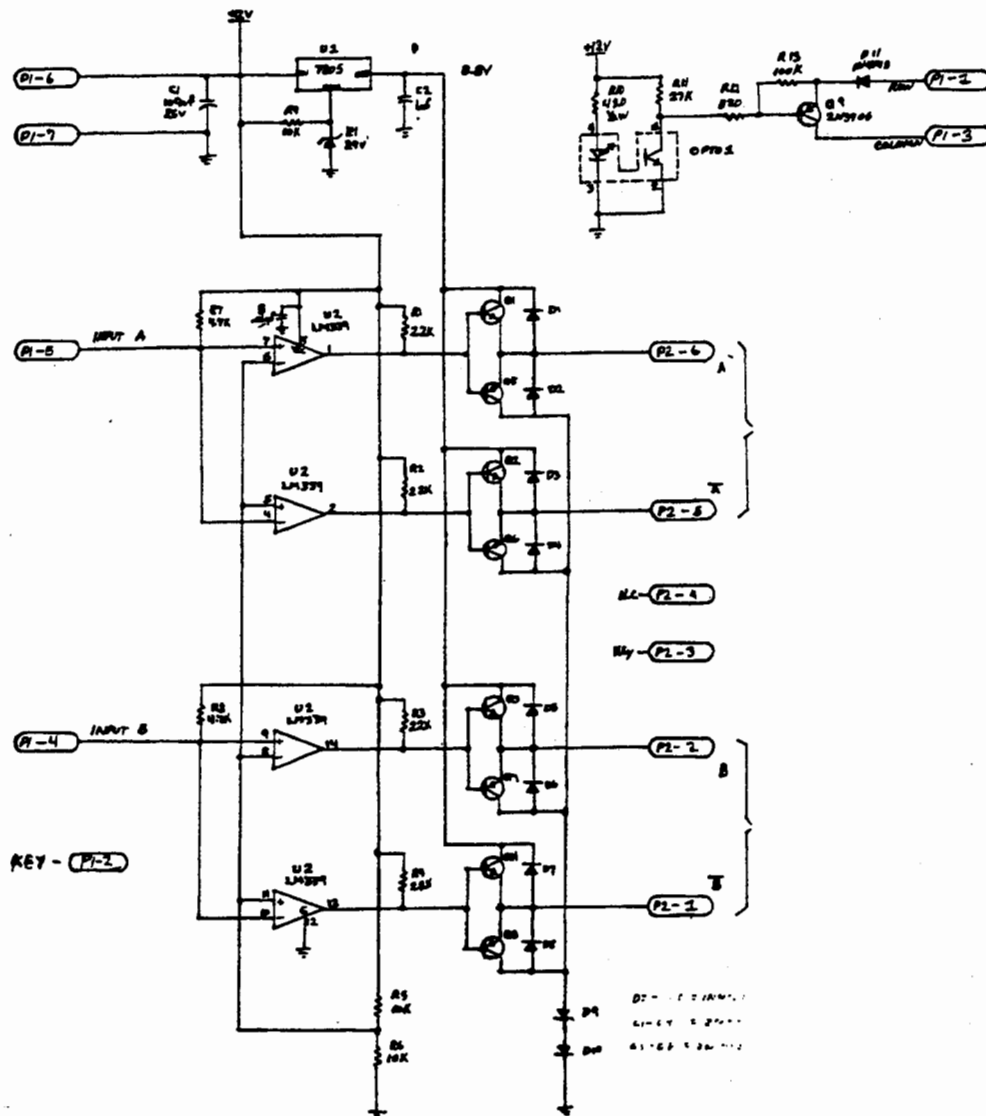
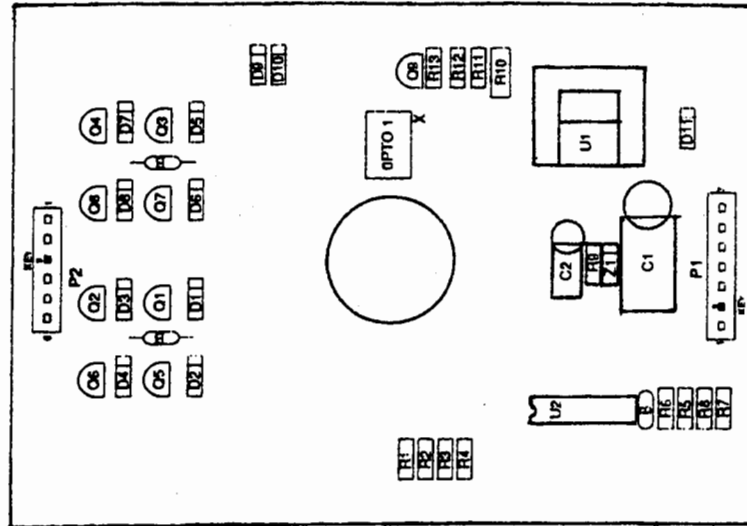


RIVERBOAT GAMBLER Cabinet Wiring

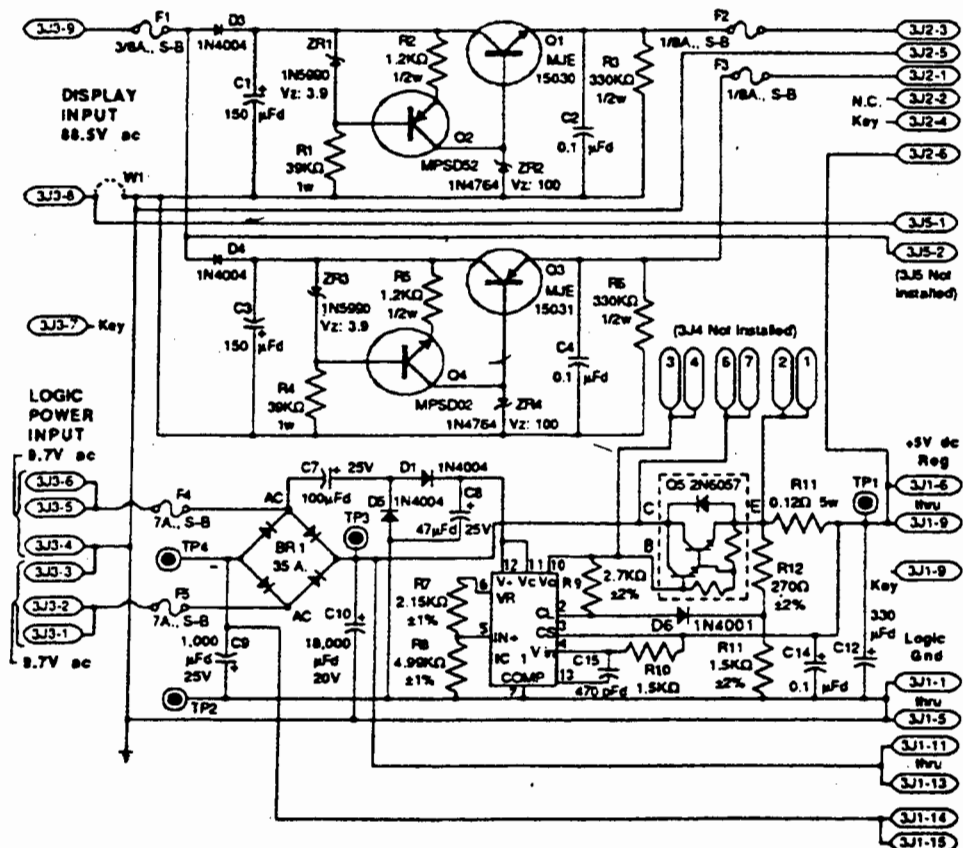
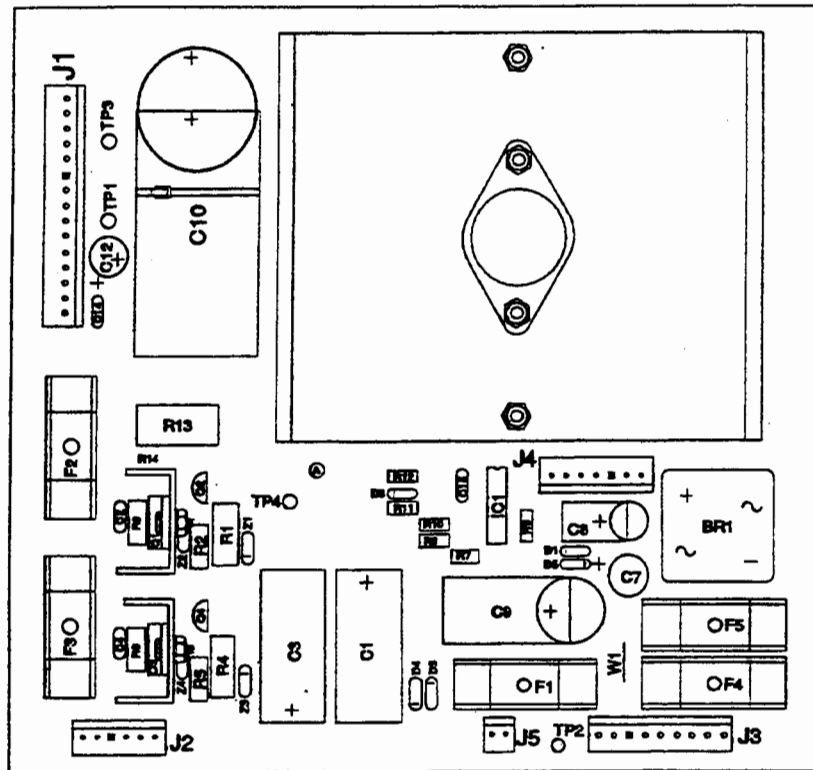
C-12499 4-Bank Drop Target Opto Board



D-12045 Motor Control Board

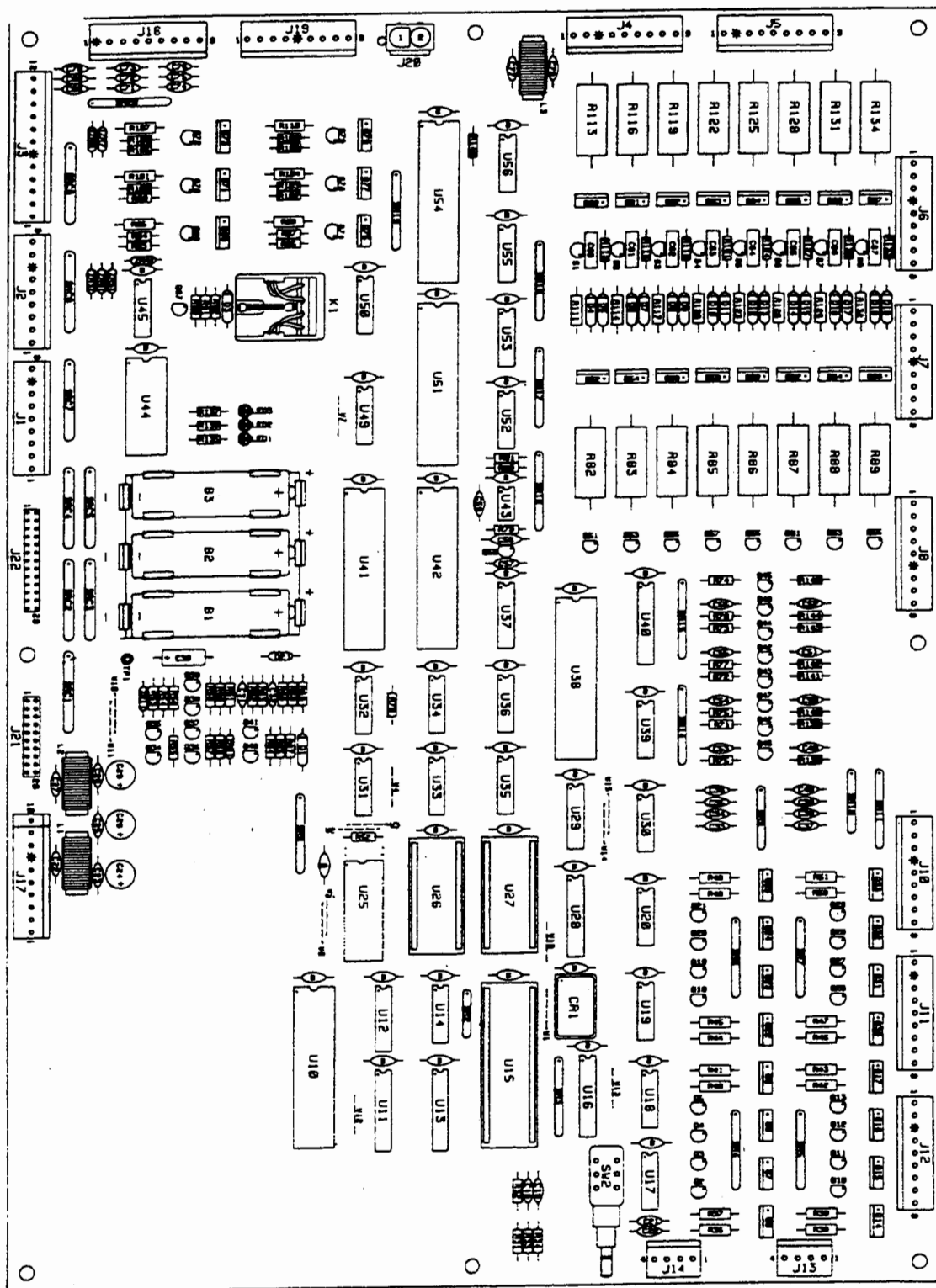


D-12246 Power Supply

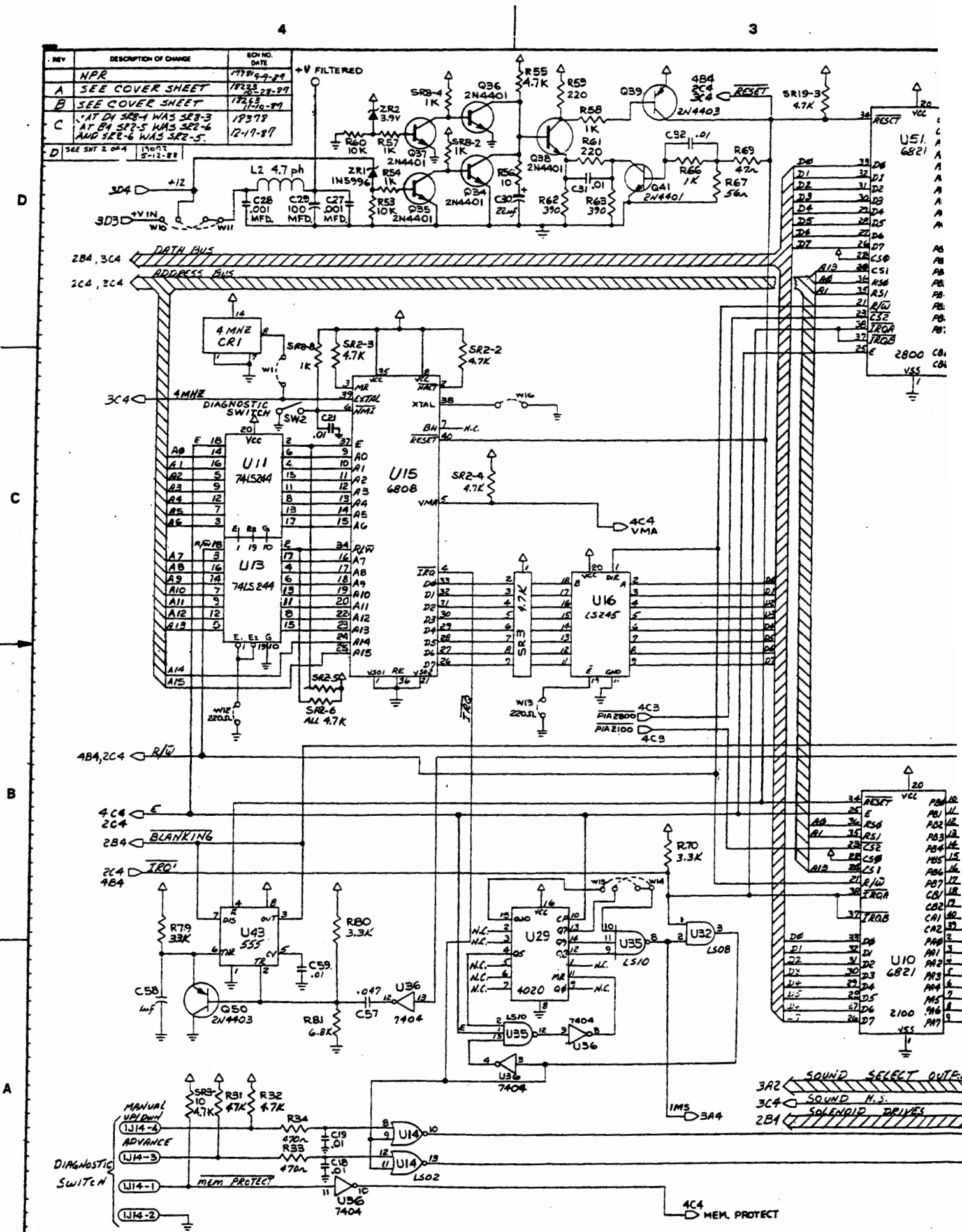


RIVERBOAT GAMBLER 85

D-11883-50007 System 11C CPU Board



REV	DESCRIPTION OF CHANGE	CON. NO. DATE
	NPR	1779-9-29
A	SEE COVER SHEET	17823-2-29-79
B	SEE COVER SHEET	17823-2-29-79
C	AT D4 SR2-4 WAS SR2-3 AT B4 SR2-5 WAS SR2-6 AND SR2-6 WAS SR2-5.	17823-2-29-79 17823-2-29-79 12-11-87
D	SEE SHT 2 OF 4	17823-2-29-79 5-12-87

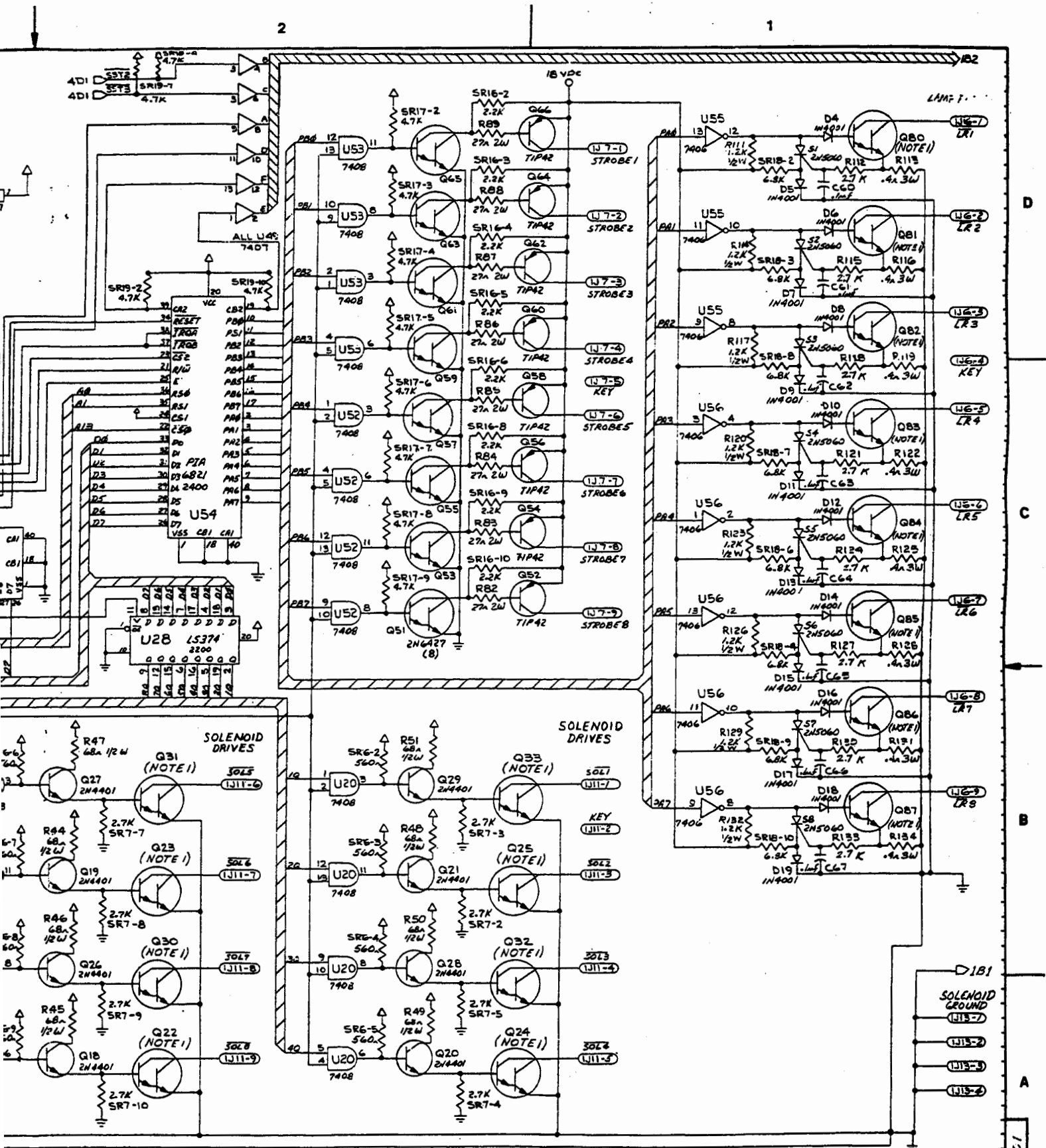




4

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A

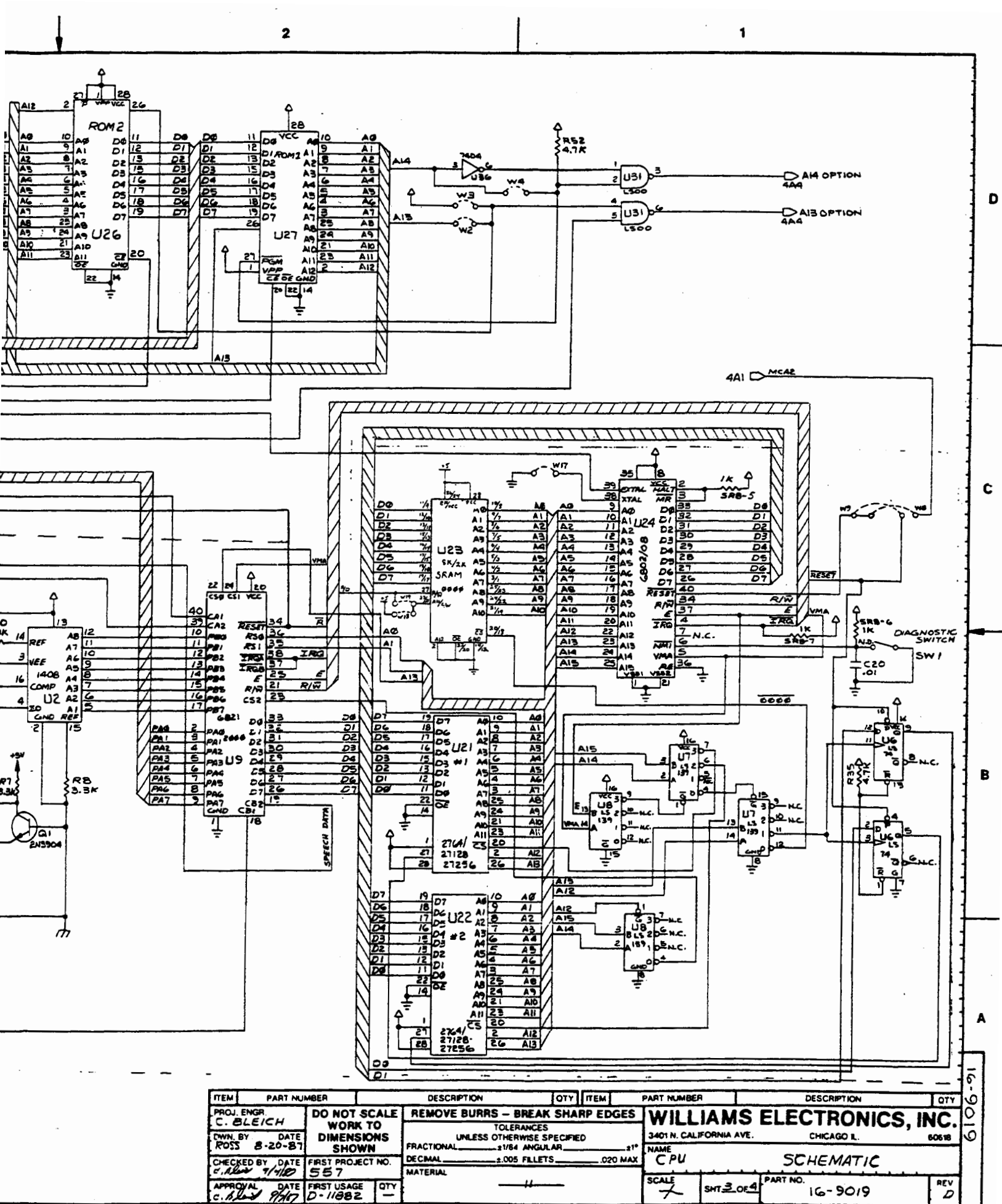


ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ. ENGR C. BLEICH	DO NOT SCALE WORK TO DIMENSIONS SHOWN	REMOVE BURRS - BREAK SHARP EDGES TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTIONAL $\pm 1/64$ ANGULAR $\pm 1^\circ$ DECIMAL $\pm .005$ FILETS $\pm .020$ MAX MATERIAL		WILLIAMS ELECTRONICS, INC. 3401 N. CALIFORNIA AVE. CHICAGO IL. 60618			
DOWN BY ROSS 8-20-87	FIRST PROJECT NO. 557			NAME CPU	SCHEMATIC		
CHECKED BY C. BLEICH 7/7/87	FIRST USAGE D-11882	QTY -		SCALE X	SHT 2 OF 4	PART NO. 16-9019	REV D

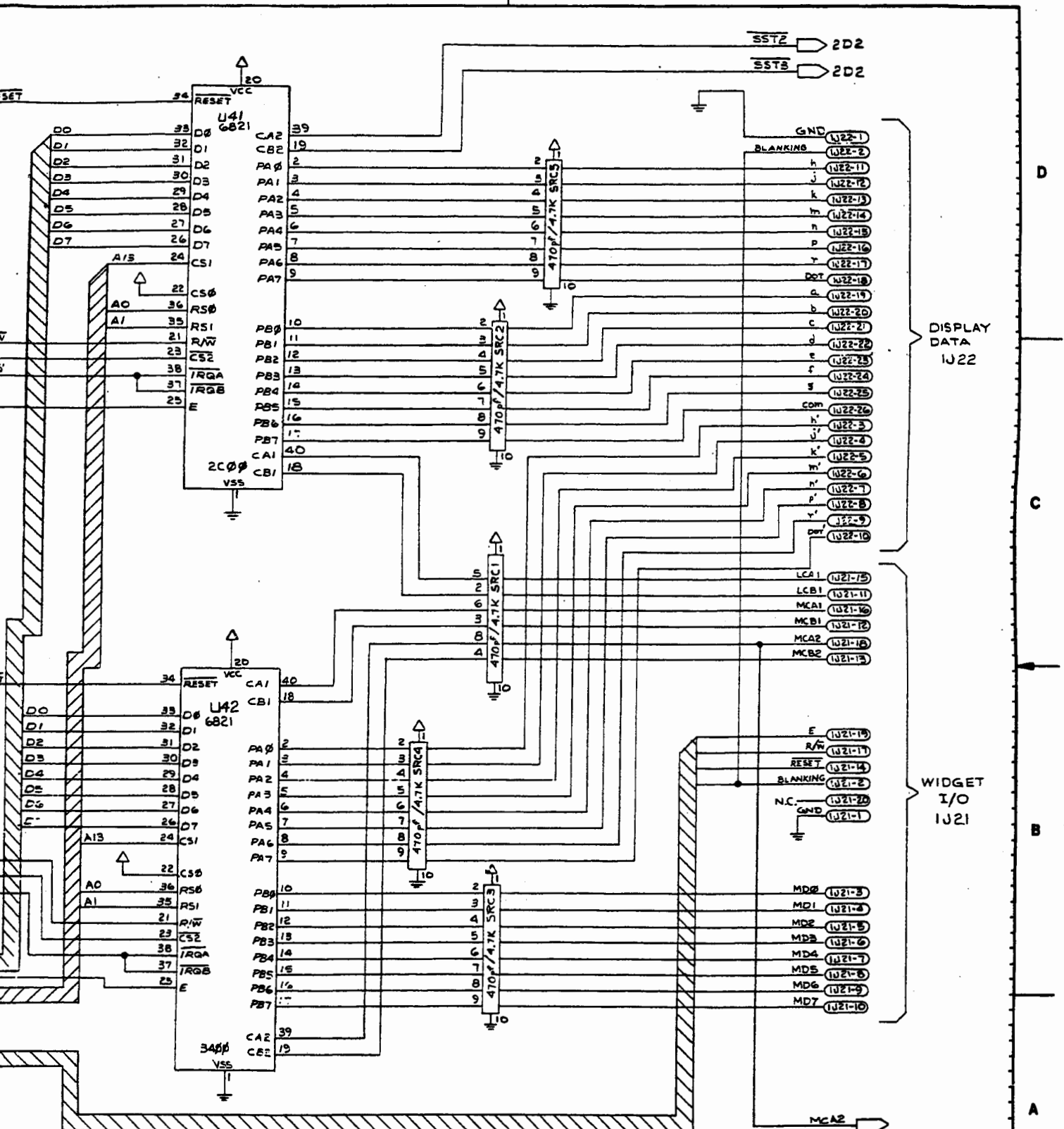
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1A3D-1MS

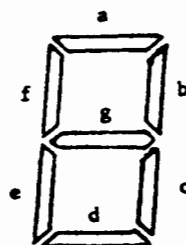
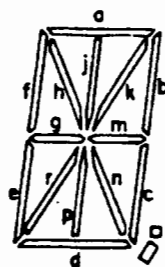
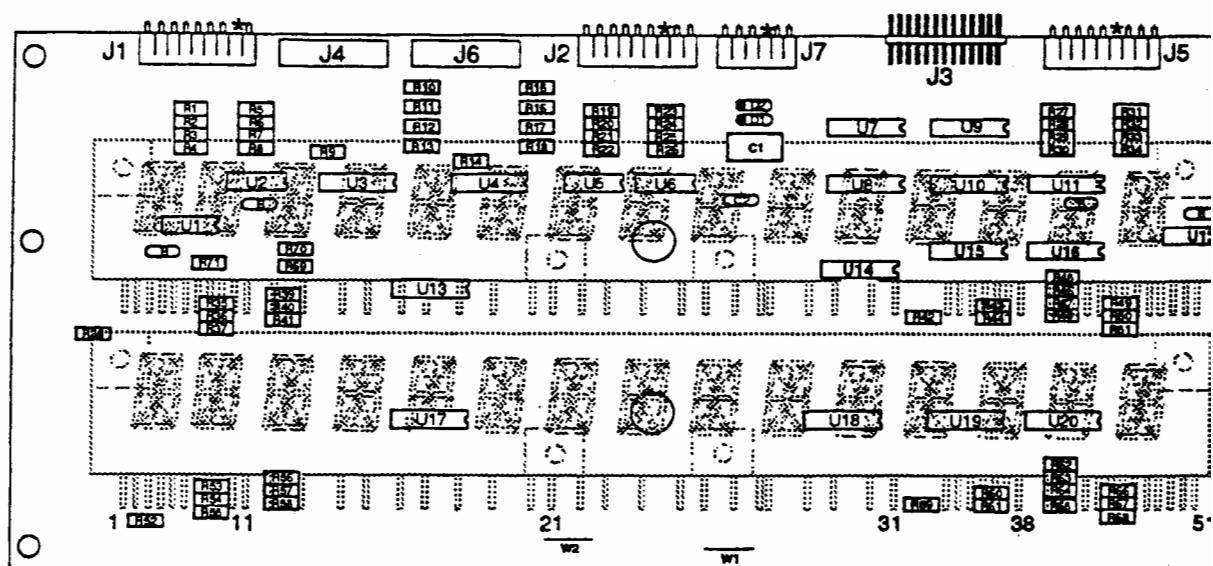
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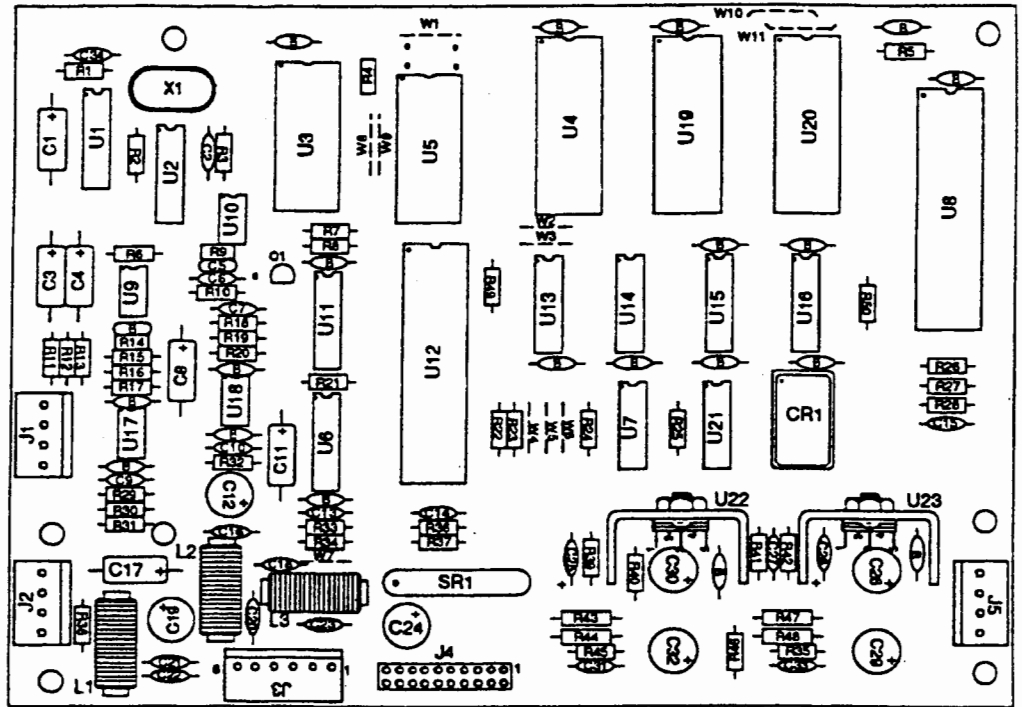


ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ. ENGR. C. BLEICH	DO NOT SCALE WORK TO DIMENSIONS SHOWN	REMOVE BURRS - BREAK SHARP EDGES		WILLIAMS ELECTRONICS, INC.			
DWN. BY ROSS 8-20-87		TOLERANCES UNLESS OTHERWISE SPECIFIED		3401 N. CALIFORNIA AVE.	CHICAGO IL.	60618	
CHECKED BY G. ALLEN 7/1/87	FIRST PROJECT NO. 557	FRACTIONAL 1/64 ANGULAR ±.005 FILLETS ±.020 MAX		NAME CPU	SCHEMATIC		
APPROVAL G. ALLEN 7/1/87	FIRST USAGE D-11882	MATERIAL — 11 —		SCALE N/S	SHT. 4 OF 4	PART NO. 16-9019	REV. 0



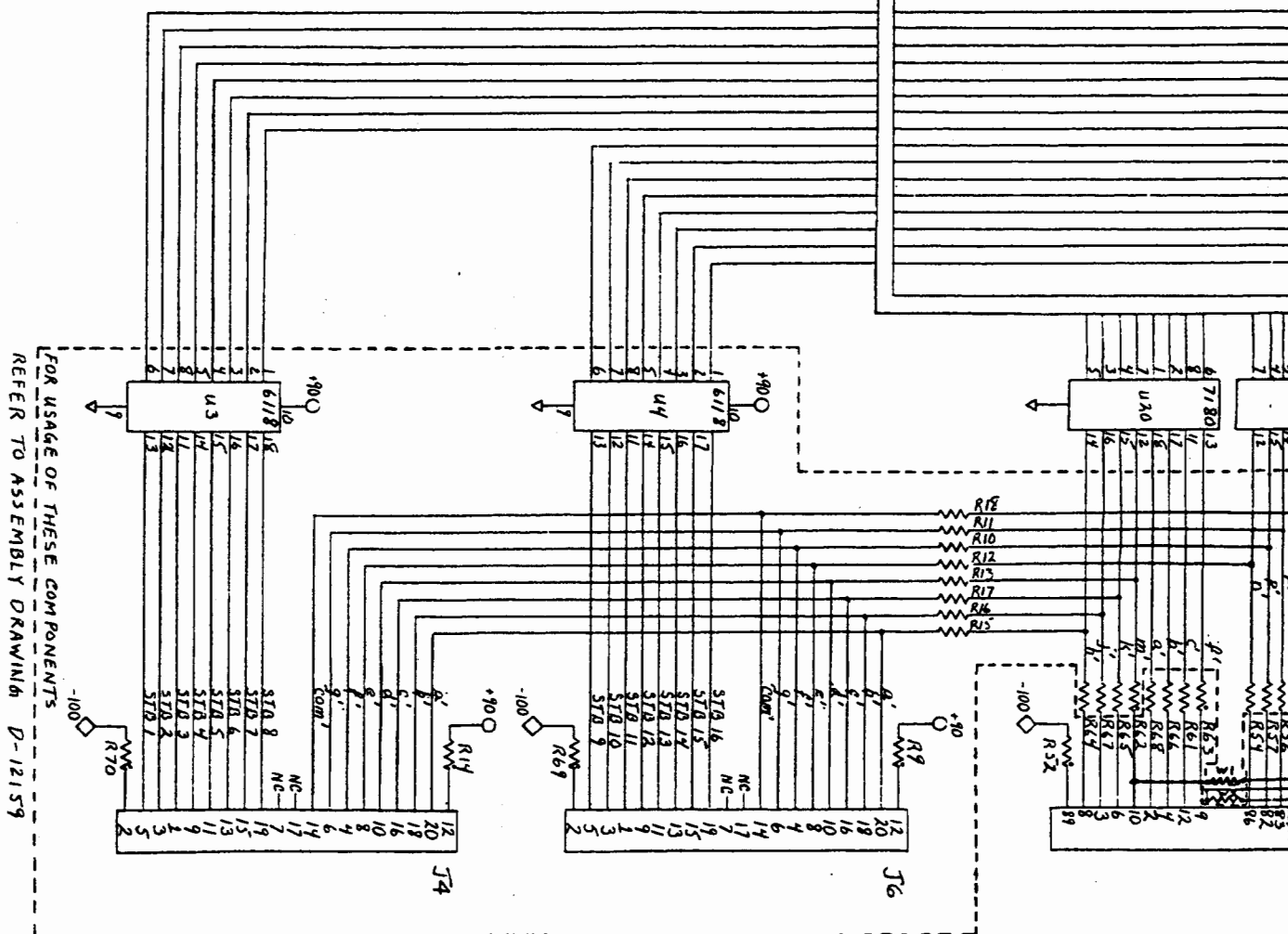
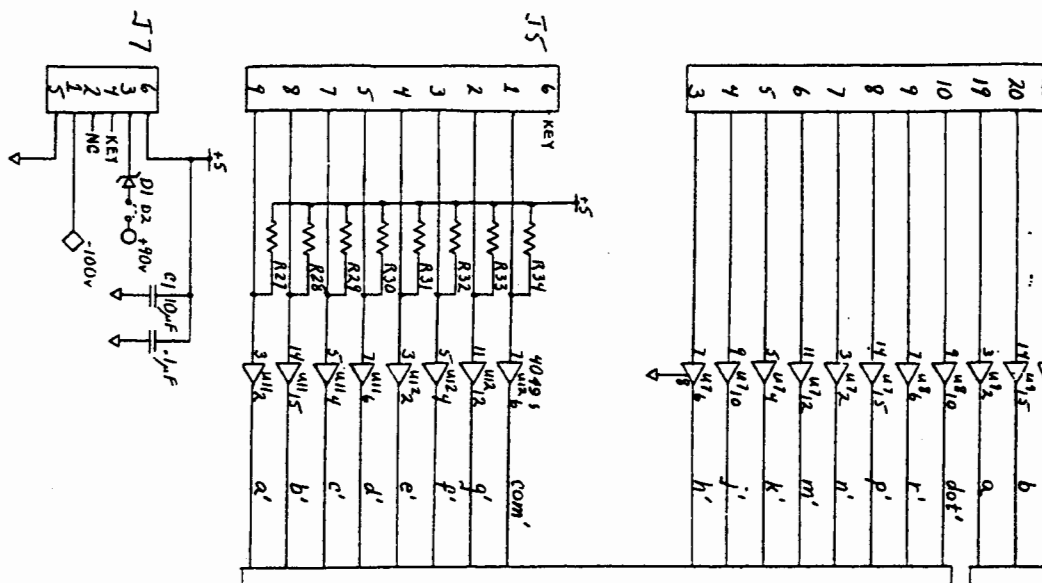
Display Characters Segment Designations

D-12232-3 Master Display Board



D-11581-50007 Audio Board

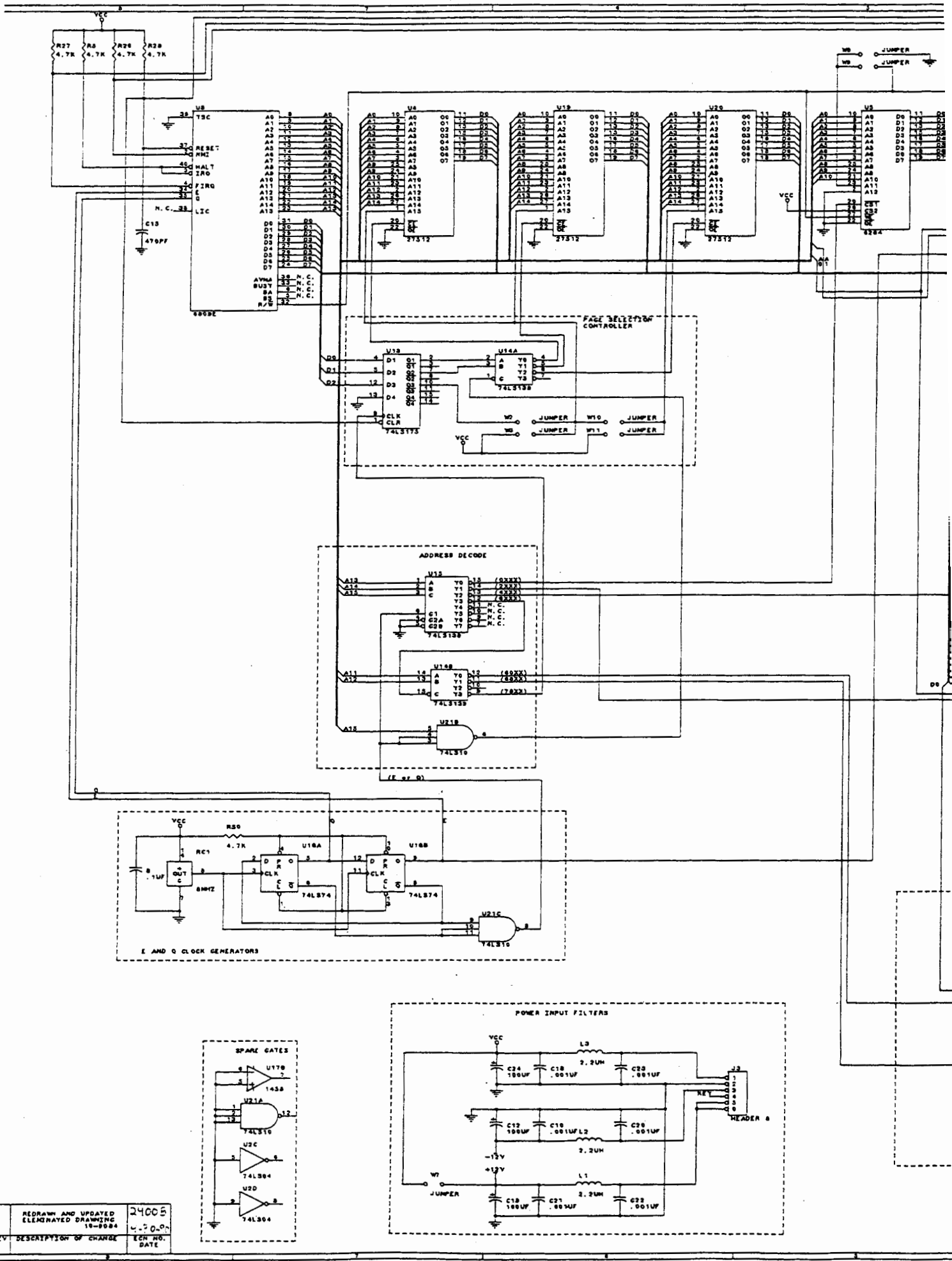
REV	DESCRIPTION OF CHANGE	ECH NO. DATE
-	NPR	1154 1-1-88
A	4049 was 4050, 4049 was 4050, J6 was J4, J4 was J6	17926 11-7-88



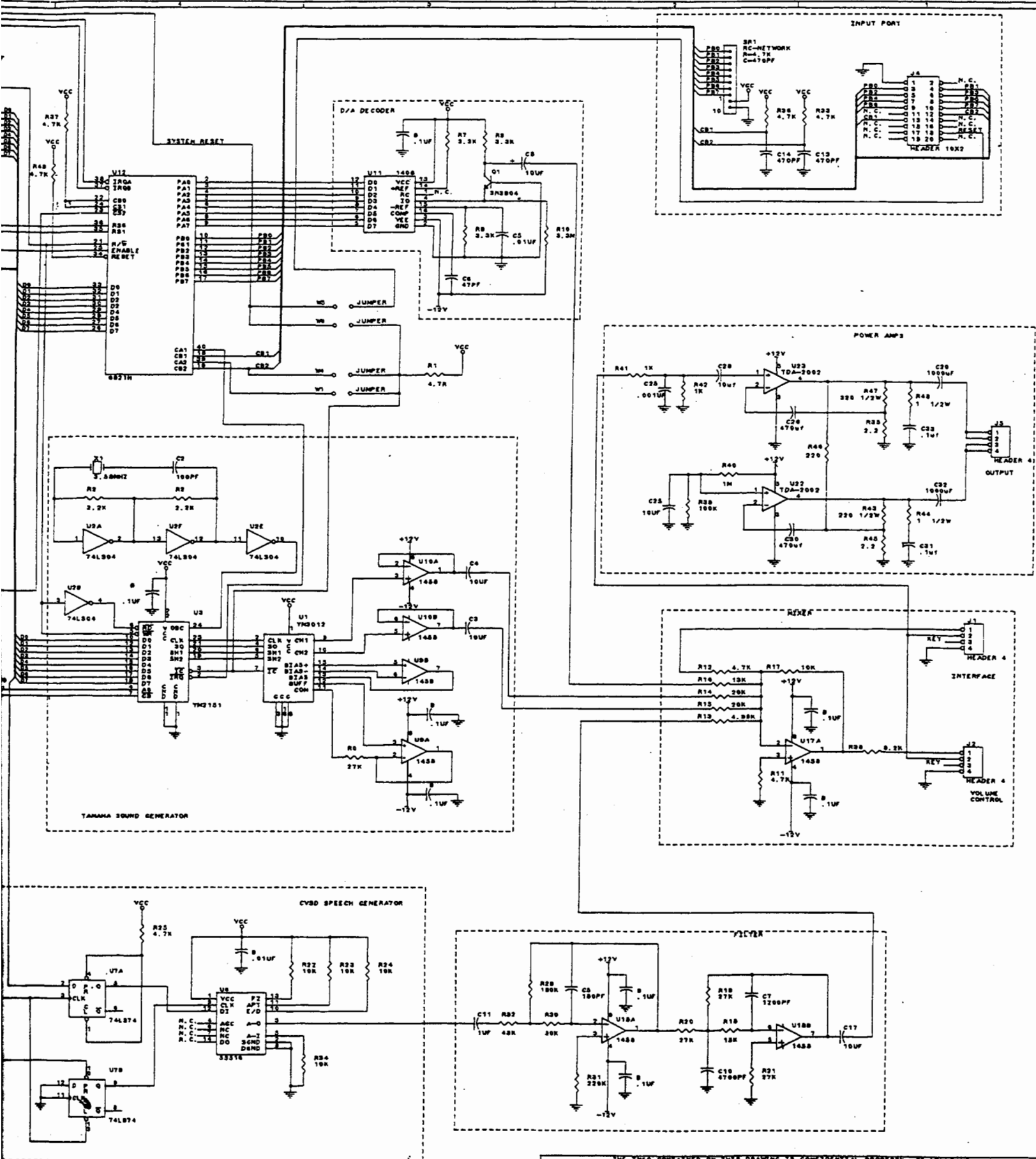
FOR USAGE OF THESE COMPONENTS
REFER TO ASSEMBLY DRAWING D-12159



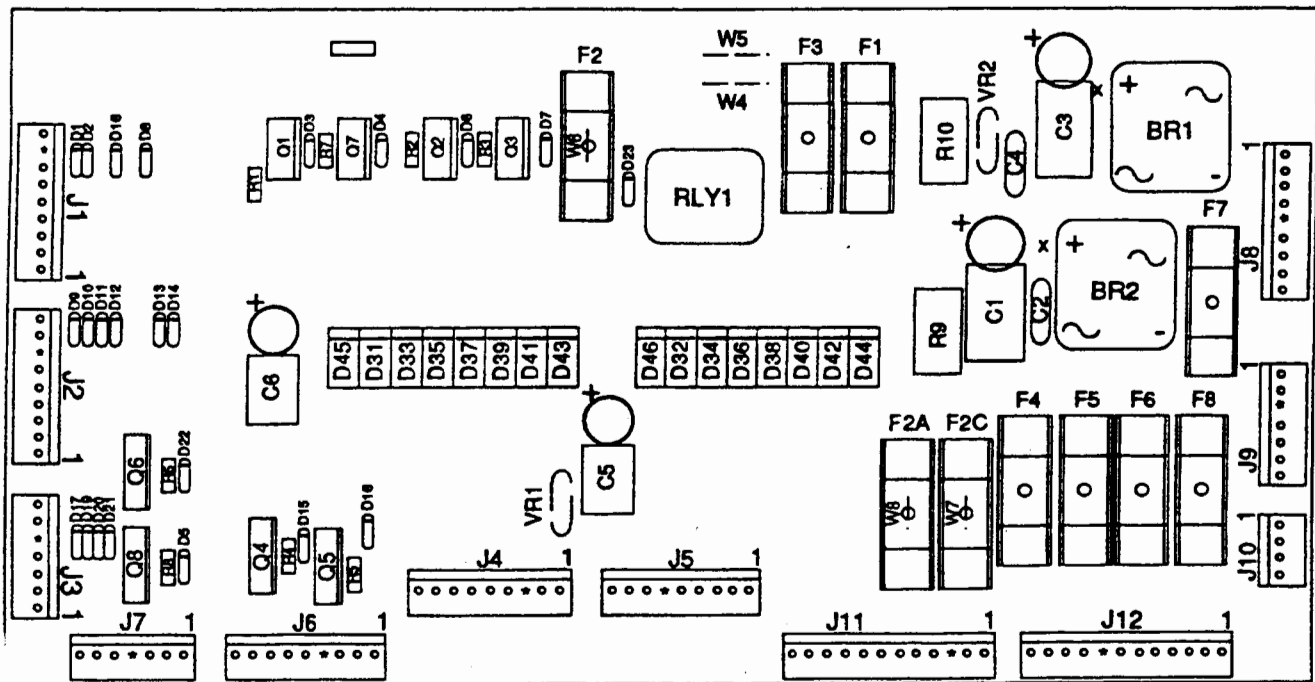
2



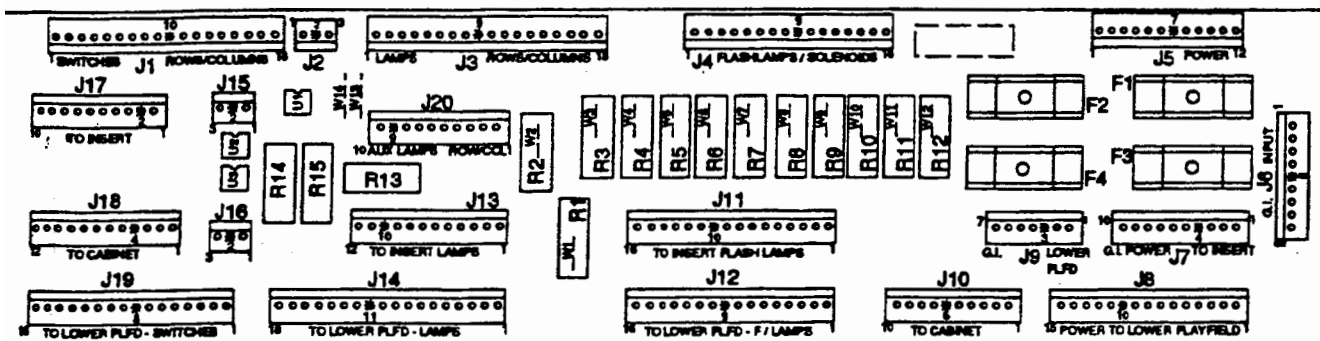
REDRAWN AND UPDATED ELEMENATED DRAWING 18-8884	24005
IV DESCRIPTION OF CHANGE	DATE



THE INFO CONTAINED ON THIS DRAWING IS CONFIDENTIAL PROPERTY OF WILLIAMS ELECTRONICS GAMES, INC. IT MAY NOT BE USED OR DISCLOSED TO OTHERS WITHOUT WRITTEN PERMISSION.			
PROJ. ENGR.	C. BLEICH	FIRST PROJ. NO.	554
CHKD. BY	C. BLEICH	DATE	
CHECKED BY	C. BLEICH	DATE	
C. BLEICH	4/25/88	DATE	
APPROVING	1/10/89	DATE	
FIRST USAGE		DESCRIPTION	AUDIO SYSTEM SCHEMATIC
D-11579		PART NUMBER	16-8999
SMT 1 OF 1		REV	E

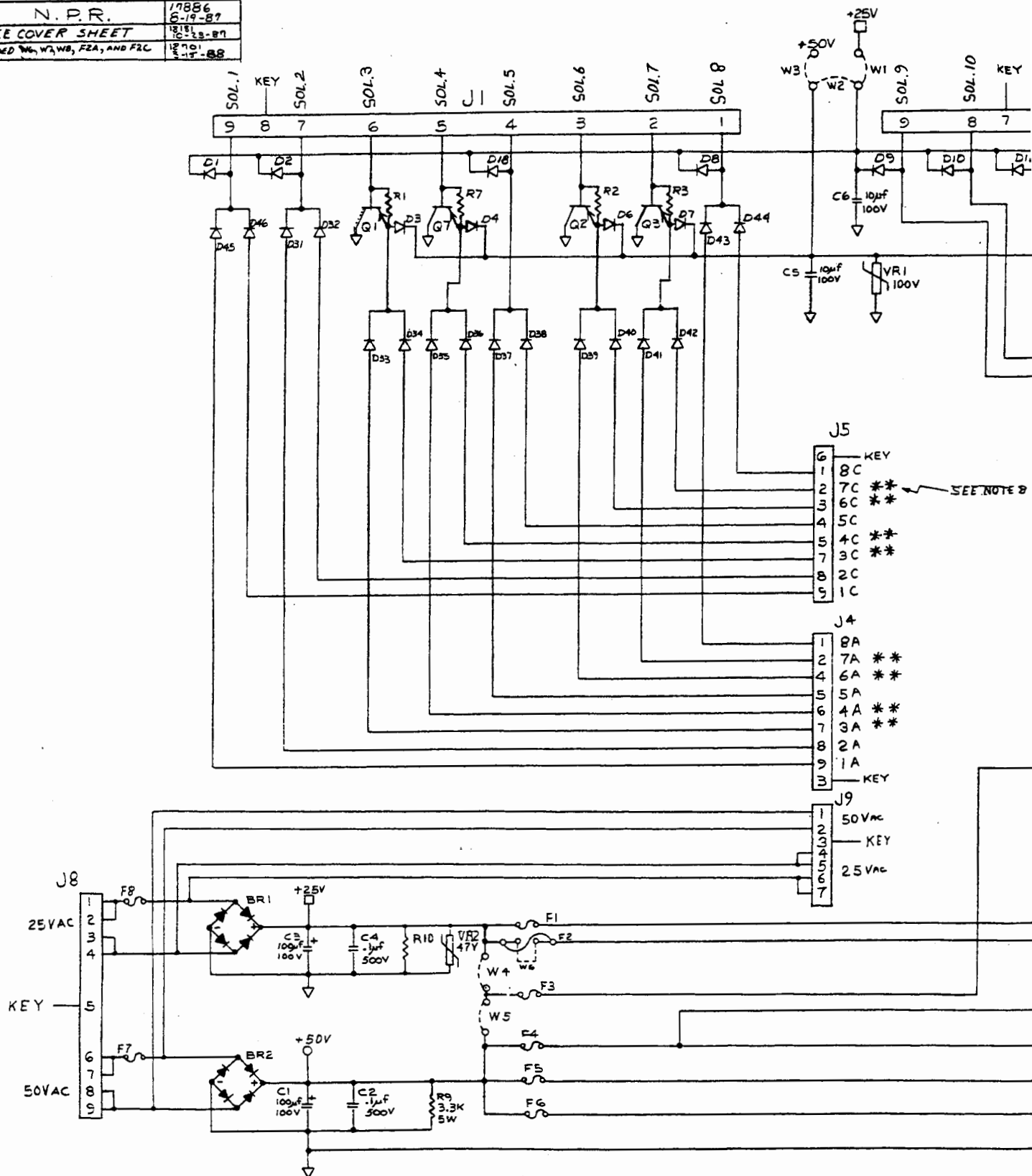


D-12247-566 Aux Power Driver Board



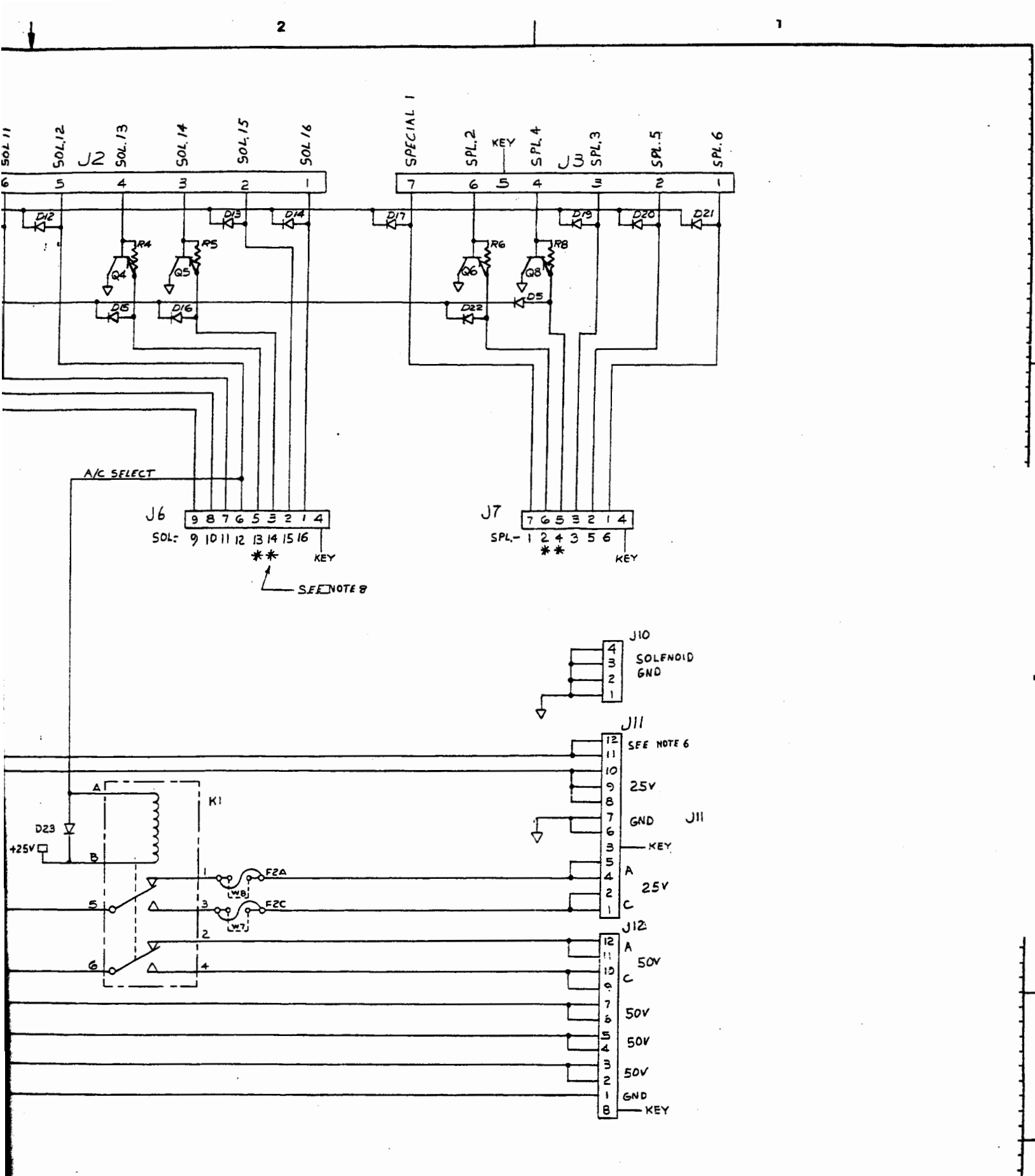
D-12313-50007 Backbox Interconnect Board

REV	DESCRIPTION OF CHANGE	ECN NO. DATE
	N.P.R.	17886 6-19-87
A	SEE COVER SHEET	18181 10-23-87
B	ADDED W1, W2, W3, F2A, AND F2C	12701 1-15-88



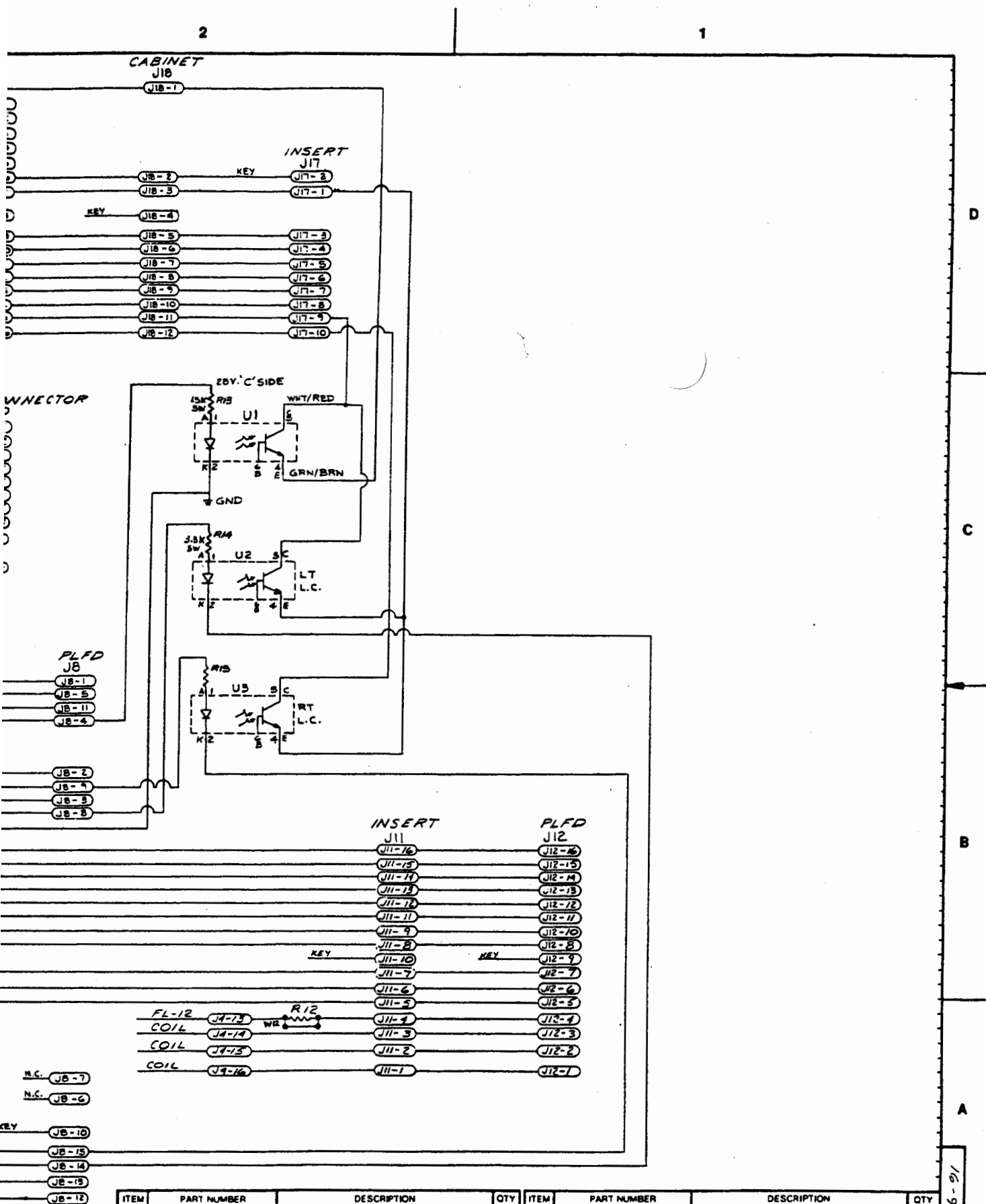
NOTES:

1. R1-R8, 220Ω 1/4 W
2. Q1-Q8, TIP-36C
3. D1-D23, IN4003
4. D31-D46, MR501
5. BR1, BR2, 35A 250V
6. W1, W3, W4 JUMPERS SELECT COMBINATION OF 25V AND 50V COILS; W2, W3, W5 JUMPERS SELECT 50V COILS.
7. F1-F8, SEE APPROPRIATE ASSEMBLY FOR FUSE VALUES (D-11813-).
8. *, 50V COILS ONLY; **, 50V COIL OR FLASH LAMP ONLY.
9. VOLTAGES SPECIFIED UNDER FULL LOAD CONDITIONS.



ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ. ENGR K. DEGER	DO NOT SCALE WORK TO DIMENSIONS SHOWN	REMOVE BURRS-BREAK SHARP CORNERS & EDGES		WILLIAMS ELECTRONICS, INC.			
OWN. BY ROSS 7-7-87	DATE	TOLERANCES UNLESS OTHERWISE SPECIFIED		3401 N. CALIFORNIA AVE. CHICAGO IL. 60618			
CHECKED BY DATE	DATE	DECIMAL .X .030 ANGULAR .1/2° .005 FRACTIONAL .1/64		NAME SCHEMATIC - AUX. PWR. DRIVER			
APPROVAL DATE	DATE	MATERIAL		SCALE N/S	SHT. 1 OF	PART NO. 16-90.5	REV 8
FIRST PROJECT NO. 557	FIRST USAGE 557-BB	QTY 1					

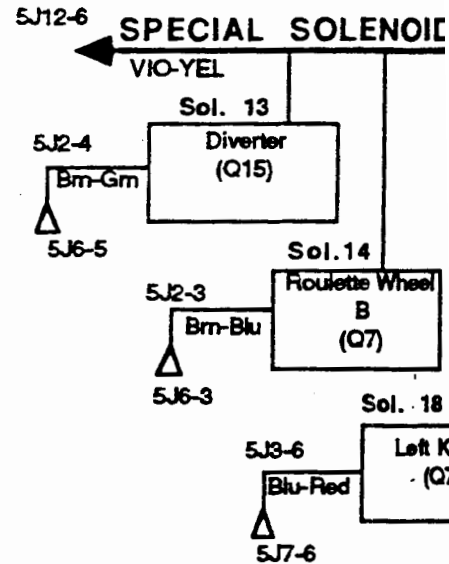
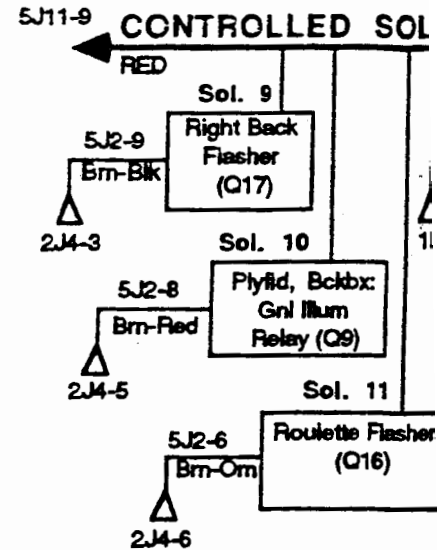
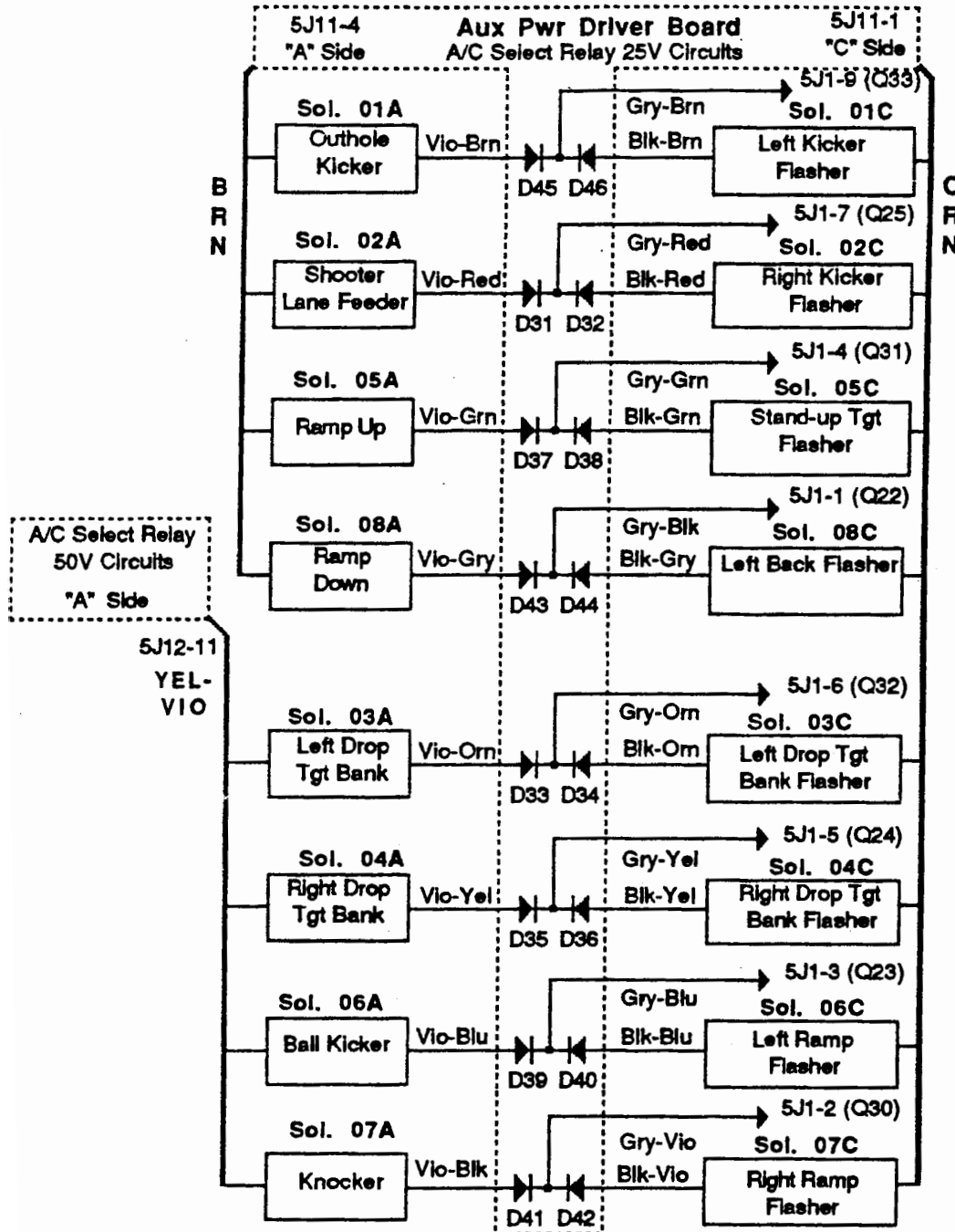
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ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
PROJ. ENGR. H. JAYSNAL		DO NOT SCALE WORK TO DIMENSIONS SHOWN		REMOVE BURRS-BREAK SHARP CORNERS & EDGES		TOLERANCES UNLESS OTHERWISE SPECIFIED	
DWN. BY Dm 6-28-60		FIRST PROJECT NO. 567		DECIMAL XXX : .005 FRACTIONAL		ANGULAR ±1/2° ±1/64	
CHECKED BY C. J. JAYSNAL 6/28/60		FIRST USAGE 6-12-61		MATERIAL H		SCALE N/S	
APPROVAL C. J. JAYSNAL 6/28/60		QTY 1		WILLIAMS ELECTRONICS, INC. 3401 N. CALIFORNIA AVE. CHICAGO ILL. 60618		NAME SCHEMATIC-INTERCONNECT BOARD.	
				SHT. 1 OF 1		PART NO. 16-9052-1	
						REV -	

16-9032-1

SWITCHED SOLENOIDS



The diagram shows the A/C Select Relay (Q8) with the following connections:

- 5J2-5** (Brn-Yel) to **1P12-5** (A Side).
- 5J11-4** (G Side) to **5J11-1** (Switched 25V Circuits).
- 5J12-11** (YEL-VIO, A Side) to **5J12-11** (Switched 50V Circuits).
- 5J2-2** (Brn-Vio) to **5J6-2** (Roulette Wheel A (Q14)).
- 5J2-1** (Brn-Gry) to **5J6-1** (Roulette Flasher (Q6)).

RED-WHT

Sol. 17

Top Jet Bumper (Q75)

5J3-7

Blu-Brn

5J6-7

Sol. 19

Bottom Jet Bumper (Q73)

5J3-3

Blu-Orn

5J7-3

Sol. 21

Right Jet Bumper (Q77)

5J3-2

Blu-Grm

5J7-2

Sol. 22

Not Used (Q79)

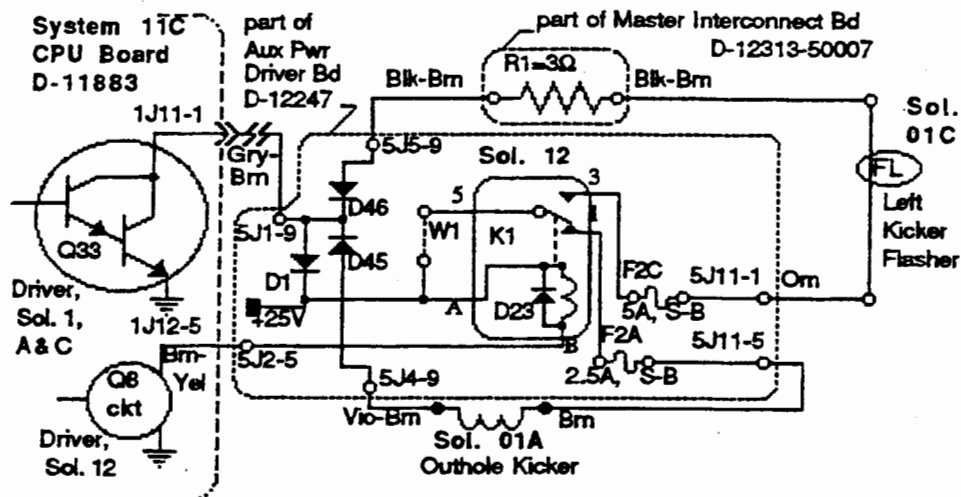
5J3-1

Blu-Blk

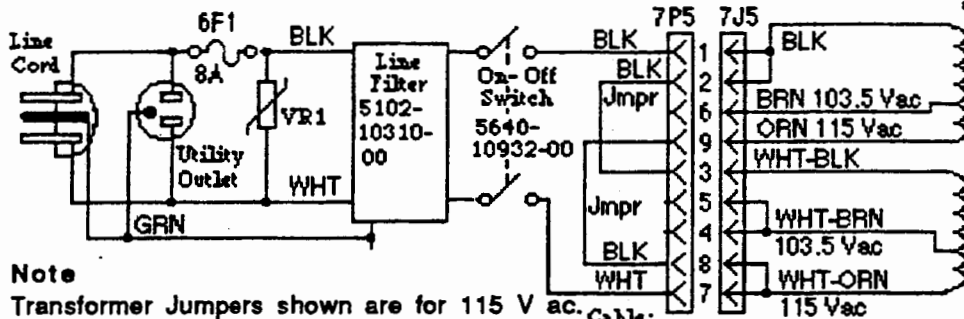
5J7-1

Diagram of the rear of the vehicle showing the location of the Right Kicker (Q69) and Left Kicker (Q71) relative to the Sol. 20 and Sol. 18 areas.

- Sol. 20** (Right side)
- Sol. 18** (Left side)
- Right Kicker (Q69)** (Right side)
- Left Kicker (Q71)** (Left side)
- 5J3-4** (Right side)
- 5J7-5** (Right side)
- Blu-Yel** (Right side)
- 14** (Left side)
- the Wheel B (Q7)** (Left side)



Controlled, Special, & Switched Solenoids



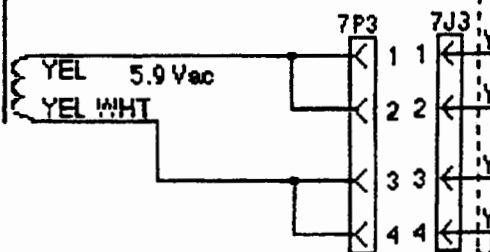
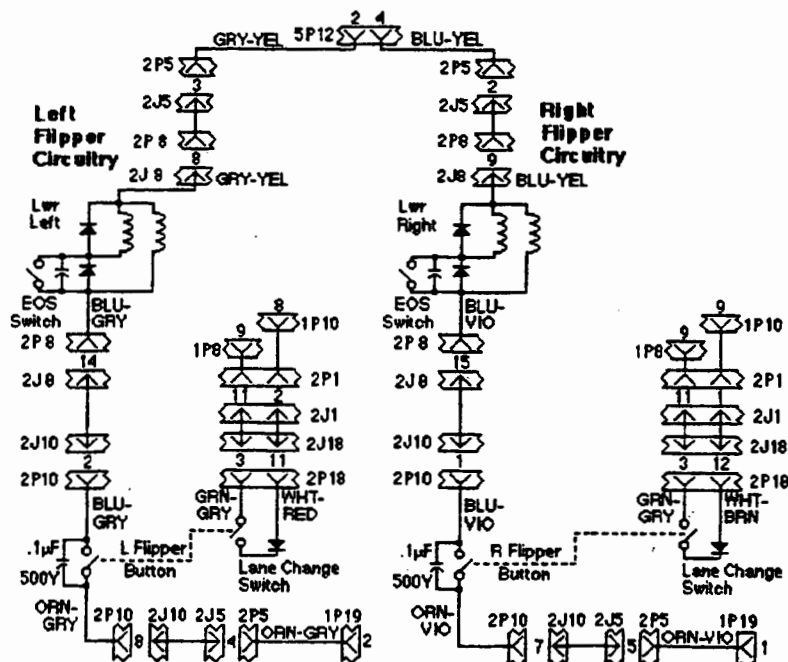
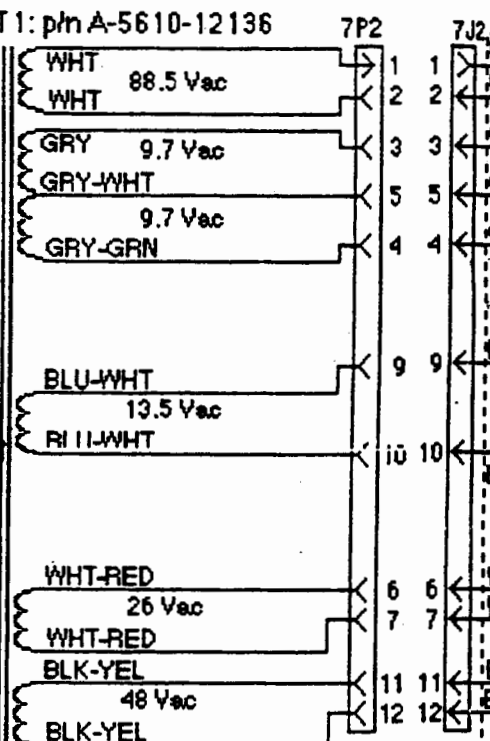
Note

Transformer Jumpers shown are for 115 V ac.
See Transformer Jumper Chart for other voltage jumper connections.

Cable:
H-10978

TRANSFORMER JUMPER CHART		
206/218 VAC	230 VAC	103.5 VAC
7P5 BLK 1 206V 2 6 218V 9 3 WHT 5 4 8 7	7P5 BLK 1 2 6 9 3 WHT 5 4 8 7	7P5 BLK 1 2 6 9 3 WHT 5 4 8 7
FUSE (6F1): 4A, S-B	4A, S-B	8A, N-B
VARISTOR: 275V	275V	130V
275V Varistor: 5017-09063-00 130V Varistor: 5017-09044-00 4A, S-B Fuse: 5731-06314-00 (for 220V) 8A, N-B Fuse: 5730-09252-00 (for 115V)		

7T1: pin A-5610-12136



Solen
Group

SYSTEM 11C CPU INTERBOARD SIGNALS

<u>Connector</u>	<u>Wire Color</u>	<u>Signal/Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal/Designation/Description</u>
1J1-1	BRN-GRY	ST-8: Display Digit Strobe / 4J1-1	1J2-1	VIO-GRY	ST-16: Display Digit Strobe / 4J2-1
1J1-2	BRN-VIO	ST-7: Display Digit Strobe / 4J1-2	1J2-2	VIO-BLK	ST-15: Display Digit Strobe / 4J2-2
1J1-3	BRN-BLU	ST-6: Display Digit Strobe / 4J1-3	1J2-3	VIO-BLU	ST-14: Display Digit Strobe / 4J2-3
1J1-4	BRN-GRN	ST-5: Display Digit Strobe / 4J1-4	1J2-4	VIO-GRN	ST-13: Display Digit Strobe / 4J2-4
1J1-5	BRN-YEL	ST-4: Display Digit Strobe / 4J1-5	1J2-5	VIO-YEL	ST-12: Display Digit Strobe / 4J2-5
1J1-6	BRN-ORG	ST-3: Display Digit Strobe / 4J1-6	1J2-6	VIO-ORG	ST-11: Display Digit Strobe / 4J2-6
1J1-7	BRN-RED	ST-2: Display Digit Strobe / 4J1-7	1J2-7	Key Pin	No Connection
1J1-8	Key Pin	No Connection	1J2-8	VIO-RED	ST-10: Display Digit Strobe / 4J2-8
1J1-9	BRN-BLK	ST-1: Display Digit Strobe / 4J1-9	1J2-9	VIO-BRN	ST-9: Display Digit Strobe / 4J2-9
1J3-1	BLU-BRN	D1 / Display BCD / 4J5-1	1J4-1	VIO	Lamp +18V dc Power
1J3-2	BLU-RED	C1 / Display BCD / 4J5-2	1J4-2	VIO	"
1J3-3	BLU-ORG	B1 / Display BCD / 4J5-3	1J4-3	Key Pin	No Connection
1J3-4	BLU-YEL	A1 / Display BCD / 4J5-4	1J4-4	---	No Connection
1J3-5	BLU-GRN	D2 / Display BCD / 4J5-5	1J4-5	---	No Connection
1J3-6	Key Pin	No Connection	1J4-6	---	No Connection
1J3-7	BLU-BLK	C2 / Display BCD / 4J5-7	1J4-7	---	No Connection
1J3-8	BLU-VIO	B2 / Display BCD / 4J5-8	1J4-8	VIO	Lamp +18V dc Power
1J3-9	BLU-GRY	A2 / Display BCD / 4J5-9	1J4-9	VIO	"
1J3-10	---	No Connection	1J6-1	RED-BRN	Lamp Row 1 (C80) / 2J3-18
1J3-11	---	No Connection	1J6-2	RED-BLK	Lamp Row 2 (C81) / 2J3-17
1J3-12	---	No Connection	1J6-3	RED-ORG	Lamp Row 3 (C82) / 2J3-16
1J5-1	---	No Connection	1J6-4	Key Pin	No Connection
1J5-2	Key Pin	No Connection	1J6-5	RED-YEL	Lamp Row 4 (C83) / 2J3-15
1J5-3	BLK	Ground (Lamp Ckt)	1J6-6	RED-GRN	Lamp Row 5 (C84) / 2J3-14
1J5-4	BLK	Ground (Lamp Ckt)	1J6-7	RED-BLU	Lamp Row 6 (C85) / 2J3-13
1J5-5	---	No Connection	1J6-8	RED-VIO	Lamp Row 7 (C86) / 2J3-12
1J5-6	---	No Connection	1J6-9	RED-GRY	Lamp Row 8 (C87) / 2J3-11
1J5-7	---	No Connection	1J8-1	GRN-BRN	Switch Col 1 (C45) / 2J1-18
1J5-8	BLK	Ground (Lamp Ckt)	1J8-2	GRN-RED	Switch Col 2 (C49) / 2J1-17
1J5-9	BLK	Ground (Lamp Ckt)	1J8-3	GRN-ORG	Switch Col 3 (C44) / 2J1-16
1J7-1	YEL-BRN	Lamp Col 1 (C65/66) / 2J3-8	1J8-4	GRN-YEL	Switch Col 4 (C48) / 2J1-15
1J7-2	YEL-RED	Lamp Col 2 (C63/64) / 2J3-7	1J8-5	GRN-BLK	Switch Col 5 (C43) / 2J1-14
1J7-3	YEL-ORG	Lamp Col 3 (C61/62) / 2J3-6	1J8-6	Key Pin	No Connection
1J7-4	YEL-BLK	Lamp Col 4 (C59/60) / 2J3-5	1J8-7	GRN-BLU	Switch Col 6 (C47) / 2J1-13
1J7-5	Key Pin	No Connection	1J8-8	GRN-VIO	Switch Col 7 (C42) / 2J1-12
1J7-6	YEL-GRN	Lamp Col 5 (C57/58) / 2J3-4	1J8-9	GRN-GRY	Switch Col 8 (C46) / 2J1-11
1J7-7	YEL-BLU	Lamp Col 6 (C55/56) / 2J3-3	1J9		Not Applicable
1J7-8	YEL-VIO	Lamp Col 7 (C53/54) / 2J3-2	1J11-1	GRY-BRN	Solenoid 1 (C33) / 5J1-9
1J7-9	YEL-GRY	Lamp Col 8 (C51/52) / 2J3-1	1J11-2	Key Pin	No Connection
1J10-1	WHT-GRY	Switch Row 8 / 2J1-8	1J11-3	GRY-RED	Solenoid 2 (C25) / 5J1-7
1J10-2	WHT-VIO	Switch Row 7 / 2J1-7	1J11-4	GRY-ORG	Solenoid 3 (C32) / 5J1-8
1J10-3	WHT-BLU	Switch Row 6 / 2J1-6	1J11-5	GRY-YEL	Solenoid 4 (C24) / 5J1-6
1J10-4	Key Pin	No Connection	1J11-6	GRY-GRN	Solenoid 5 (C31) / 5J1-4
1J10-5	WHT-GRN	Switch Row 5 / 2J1-5	1J11-7	GRY-BLU	Solenoid 6 (C23) / 5J1-3
1J10-6	WHT-YEL	Switch Row 4 / 2J1-4	1J11-8	GRY-VIO	Solenoid 7 (C30) / 5J1-2
1J10-7	WHT-ORG	Switch Row 3 / 2J1-3	1J11-9	GRY-BLK	Solenoid 8 (C22) / 5J1-1
1J10-8	WHT-RED	Switch Row 2 / 2J1-2	1J13-1	BLK	Solenoid Ground / 5J10-1
1J11-9	WHT-BRN	Switch Row 1 / 2J1-1	1J13-2	BLK	" / 5J10-2
1J12-1	BRN-BLK	Solenoid 9 (C17) / 5J2-9	1J13-3	BLK	" / 5J10-3
1J12-2	BRN-RED	Solenoid 10 (C9) / 5J2-8	1J13-4	BLK	" / 5J10-4
1J12-3	Key Pin	No Connection	1J14-1	BLK-RED	Memory Protect / 7J1-4
1J12-4	BRN-ORG	Solenoid 11 (C16) / 5J2-6	1J14-2	WHT	Ground / 7J1-3
1J12-5	BRN-YEL	Solenoid 12 (C8) / 5J2-5	1J14-3	GRN	ADVANCE Switch / 7J1-1
1J12-6	BRN-GRN	Solenoid 13 (C15) / 5J2-4	1J14-4	BLU	AUTO/MANUAL Switch / 7J1-2
1J12-7	BRN-BLU	Solenoid 14 (C7) / 5J2-3	1J17-1	BLK	Ground / 3J1-2
1J12-8	BRN-VIO	Solenoid 15 (C14) / 5J2-2	1J17-2	BLK	" / 3J1-3
1J12-9	BRN-GRY	Solenoid 16 (C6) / 5J2-1	1J17-3	BLK	" / 3J1-4
1J16-1	RED	Volume Control Input / 11J1-1	1J17-4	GRY	Power: +5V dc / 3J1-8
1J16-2	BLK	Volume Control Output / 11J1-2	1J17-5	GRY	" / 3J1-8
1J16-3	Key Pin	No Connection	1J17-6	GRY	" / 3J1-9
1J16-4	White	Signal Ground - CPU / 11J1-4	1J17-7	Key Pin	No Connection
1J18-1	---	No Connection	1J17-8	BLK-WHT	Power: -12V dc Unreg / 3J1-14
1J18-2	---	"	1J17-9	WHT-GRY	Power: +12V dc Unreg / 3J1-12
1J18-3	---	"	1J19-1	ORG-VIO	Flipper Ground / 2J5-5
1J18-4	---	"	1J19-2	ORG-GRY	Flipper Ground / 2J5-4
1J18-5	---	"	1J19-3	BLU-ORN	Spl Solnd 3 (C73) / 5J3-3
1J18-6	Key Pin	"	1J19-4	BLU-RED	Spl Solnd 2 (C71) / 5J3-6
1J18-7	---	"	1J19-5	Key Pin	No Connection
1J18-8	---	"	1J19-6	BLU-YEL	Spl Solnd 4 (C69) / 5J3-4
1J18-9	---	"	1J19-7	BLU-BRN	Spl Solnd 1 (C75) / 5J3-7
1J21	Ribbon Cable	Audio Board 11J4	1J19-8	BLU-GRN	Spl Solnd 5 (C77) / 5J3-2
1J22	Ribbon Cable	to Master Display Board 4J3	1J19-9	BLU-BLK	Spl Solnd 8 (C79) / 5J3-1

AUX POWER DRIVER INTERBOARD SIGNALS

<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>
5J1-1	GRY-BLK	CPU: Solenoid 8 (Q22) / 1J11-9	5J2-1	BRN-GRY	CPU: Solenoid 18 (Q8) / 1J12-9
5J1-2	GRY-VIO	CPU: Solenoid 7 (Q30) / 1J11-8	5J2-2	—	No Connection
5J1-3	GRY-BLU	CPU: Solenoid 6 (Q23) / 1J11-7	5J2-3	—	No Connection
5J1-4	GRY-GRN	CPU: Solenoid 5 (Q31) / 1J11-6	5J2-4	BRN-GRN	CPU: Solenoid 13 (Q15) / 1J12-6
5J1-5	GRY-YEL	CPU: Solenoid 4 (Q24) / 1J11-5	5J2-5	BRN-YEL	CPU: Solenoid 12 (Q8) / 1J12-5
5J1-6	GRY-ORG	CPU: Solenoid 3 (Q32) / 1J11-4	5J2-6	BRN-ORG	CPU: Solenoid 11 (Q16) / 1J12-4
5J1-7	GRY-RED	CPU: Solenoid 2 (Q25) / 1J11-3	5J2-7	Key Pin	No Connection
5J1-8	Key Pin	No Connection	5J2-8	BRN-RED	CPU: Solenoid 10 (Q9) / 1J12-2
5J1-9	GRY-BRN	CPU: Solenoid 1 (Q33) / 1J11-1	5J2-9	BRN-BLK	CPU: Solenoid 9 (Q11) / 1J12-1
5J3-1	BLU-BLK	CPU: Solenoid 22 (Q79) / 1J19-9	5J4-1	VIO-GRY	Solenoid 08A
5J3-2	BLU-GRN	CPU: Solenoid 21 (Q77) / 1J19-8	5J4-2	VIO-BLK	Solenoid 07A
5J3-3	BLU-ORG	CPU: Solenoid 19 (Q73) / 1J19-3	5J4-3	Key Pin	No Connection
5J3-4	BLU-YEL	CPU: Solenoid 20 (Q69) / 1J19-8	5J4-4	VIO-BLU	Solenoid 06A
5J3-5	Key Pin	No Connection	5J4-5	VIO-GRN	Solenoid 05A
5J3-6	BLU-RED	CPU: Solenoid 18 (Q71) / 1J19-4	5J4-6	VIO-YEL	Solenoid 04A
5J3-7	BLU-BRN	CPU: Solenoid 17 (Q75) / 1J19-7	5J4-7	VIO-ORN	Solenoid 03A
5J4-1	—	—	5J4-8	VIO-RED	Solenoid 02A
5J5-1	WHT-GRY	Solenoid 08C / 2J4-8	5J4-9	VIO-BRN	Solenoid 01A
5J5-2	WHT-VIO	Solenoid 07C / 2J4-7	5J6-1	BRN-GRY	Solenoid 18 / 2J4-12
5J5-3	WHT-BLU	Solenoid 06C / 2J4-6	5J6-2	BRN-VIO	Solenoid 15 / 2J4-11
5J5-4	WHT-GRN	Solenoid 05C / 2J4-5	5J6-3	BRN-BLU	Solenoid 14 / 2J4-10
5J5-5	WHT-YEL	Solenoid 04C / 2J4-4	5J6-4	Key Pin	No Connection
5J5-6	Key Pin	No Connection	5J6-5	BRN-GRN	Solenoid 13 / 2J4-15
5J5-7	WHT-ORG	Solenoid 03C / 2J4-3	5J6-6	—	No Connection
5J5-8	WHT-RED	Solenoid 02C / 2J4-2	5J6-7	BRN-ORG	Solenoid 11 / 2J4-14
5J5-9	WHT-BRN	Solenoid 01C / 2J4-1	5J6-8	BRN-RED	Solenoid 10 / 2J4-13
5J6-1	—	—	5J6-9	BRN-BLK	Solenoid 09 / 2J4-10
5J7-1	—	No Connection	5J8-1	WHT-RED	Transformer: 28V ac / 7J2-8
5J7-2	BLU-GRN	Solenoid 21	5J8-2	WHT-RED	Transformer: 28V ac / 7J2-6
5J7-3	BLU-ORG	Solenoid 19	5J8-3	WHT-RED	Transformer: 28V ac / 7J2-7
5J7-4	Key Pin	No Connection	5J8-4	WHT-RED	Transformer: 28V ac / 7J2-7
5J7-5	BLU-YEL	Solenoid 20	5J8-5	Key Pin	No Connection
5J7-6	BLU-RED	Solenoid 18	5J8-6	BLK-YEL	Transformer: 48V ac / 7J2-11
5J7-7	BLU-BRN	Solenoid 17	5J8-7	BLK-YEL	Transformer: 48V ac / 7J2-11
5J9-1	—	No Connection	5J8-8	BLK-YEL	Transformer: 48V ac / 7J2-12
5J9-2	—	No Connection	5J8-9	BLK-YEL	Transformer: 48V ac / 7J2-12
5J9-3	—	No Connection	5J10-1	BLK	Solnd Gnd / 1J13-1
5J9-4	—	No Connection	5J10-2	BLK	Solnd Gnd / 1J13-2
5J9-5	—	No Connection	5J10-3	BLK	Solnd Gnd / 1J13-3
5J9-6	—	No Connection	5J10-4	BLK	Solnd Gnd / 1J13-4
5J9-7	—	No Connection	5J11-1	ORG	+25 Vdc "C" Solenoid Pwr/2J5-9
5J12-1	—	No Connection	5J11-2	—	No Connection
5J12-2	GRY-YEL	+50 Vdc Flipper Pwr/ 2J5-3	5J11-3	Key Pin	No Connection
5J12-3	—	No Connection	5J11-4	BRN	+25 Vdc "A" Solenoid Pwr/2J5-12
5J12-4	BLU-YEL	+50 Vdc Flipper Pwr/2J5-2	5J11-5	—	No Connection
5J12-5	—	No Connection	5J11-6	BLK	Ground/2J5-8
5J12-6	VIO-YEL	+50 Vdc Solenoid Pwr/2J5-10	5J11-7	—	No Connection
5J12-7	—	No Connection	5J11-8	—	No Connection
5J12-8	Key Pin	No Connection	5J11-9	RED	+25 Vdc Solenoid Pwr/2J5-8
5J12-9	—	No Connection	5J11-10	—	No Connection
5J12-10	—	No Connection	5J11-11	RED-WHT	+25 Vdc Solenoid Pwr/2J5-1
5J12-11	YEL-VIO	+50 Vdc Solenoid Pwr/2J5-11	5J11-12	—	No Connection
5J12-12	—	No Connection			

MASTER DISPLAY INTERBOARD SIGNALS

<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>
4J1-1	BRN-GRY	ST-6: Digit Display Strobe / 1J1-1	4J2-1	VIO-GRY	ST-16: Digit Display Strobe / 1J2-1
4J1-2	BRN-VIO	ST-7: Display Digit Strobe / 1J1-2	4J2-2	VIO-BLK	ST-15: Display Digit Strobe / 1J2-2
4J1-3	BRN-BLU	ST-8: Display Digit Strobe / 1J1-3	4J2-3	VIO-BLU	ST-14: Display Digit Strobe / 1J2-3
4J1-4	BRN-GRN	ST-5: Display Digit Strobe / 1J1-4	4J2-4	VIO-GRN	ST-13: Display Digit Strobe / 1J2-4
4J1-5	BRN-YEL	ST-4: Display Digit Strobe / 1J1-5	4J2-5	VIO-YEL	ST-12: Display Digit Strobe / 1J2-5
4J1-6	BRN-ORG	ST-3: Display Digit Strobe / 1J1-6	4J2-6	VIO-ORG	ST-11: Display Digit Strobe / 1J2-6
4J1-7	BRN-RED	ST-2: Display Digit Strobe / 1J1-7	4J2-7	Key Pin	No Connection
4J1-8	Key Pin	No Connection	4J2-8	VIO-RED	ST-8: Display Digit Strobe / 1J2-8
4J1-9	BRN-BLK	ST-1: Display Digit Strobe / 1J1-9	4J2-9	VIO-BRN	ST-9: Display Digit Strobe / 1J2-9
4J3	Ribbon Cable from CPU 1J22				
4J7-1	ORG	Display Power: -100V dc / 3J5-3	4J5-1	BLU-BRN	D1 / Display BCD / 1J3-1
4J7-2	—	No Connection	4J5-2	BLU-RED	C1 / Display BCD / 1J3-2
4J7-3	BRN	Display Power: +100V dc / 3J5-4	4J5-3	BLU-ORG	B1 / Display BCD / 1J3-3
4J7-4	Key Pin	No Connection	4J5-4	BLU-YEL	A1 / Display BCD / 1J3-4
4J7-5	BLK	Ground / 3J5-1	4J5-5	BLU-GRN	D2 / Display BCD / 1J3-5
4J7-6	GRY	Power: +5V dc / 3J5-6	4J5-6	Key Pin	No Connection
4J4, 4J6	To Slave Displays				
			4J5-7	BLU-BLK	C2 / Display BCD / 1J3-7
			4J5-8	BLU-VIO	B2 / Display BCD / 1J3-8
			4J5-9	BLU-GRY	A2 / Display BCD / 1J3-9

BACKBOX INTERCONNECT BOARD INTERBOARD SIGNALS

BACKBOX

Connector	Wire Color	Signal Designation/Description	Connector	Wire Color	Signal Designation/Description
2J1-1	WHT-BRN	Switch Row 1 /J11-8	2J2-1	GRY-YEL	+12Vdc Unreg/3J1-13
2J1-1	WHT-RED	Switch Row 2 /J11-8	2J2-2	—	No Connection
2J1-3	WHT-ORG	Switch Row 3 /J11-7	2J2-3	BLK-YEL	Ground/3J1-5
2J1-4	WHT-YEL	Switch Row 4 /J11-8	2J3-1	YEL-GRY	Lamp Col 6 (C61/52)/1J7-8
2J1-5	WHT-GRN	Switch Row 5 /J11-5	2J3-2	YEL-VIO	Lamp Col 7 (C63/54)/1J7-8
2J1-6	WHT-BLU	Switch Row 6 /J11-3	2J3-3	YEL-BLU	Lamp Col 8 (C65/56)/1J7-7
2J1-7	WHT-VIO	Switch Row 7 /J11-2	2J3-4	YEL-GRN	Lamp Col 5 (C67/58)/1J7-8
2J1-8	WHT-GRY	Switch Row 8 /J11-1	2J3-5	YEL-BLK	Lamp Col 4 (C69/60)/1J7-4
2J1-9	Key Pin	No Connection	2J3-6	YEL-ORG	Lamp Col 3 (C61/62)/1J7-3
2J1-10	—	No Connection	2J3-7	YEL-RED	Lamp Col 2 (C63/64)/1J7-2
2J1-11	GRN-GRY	Switch Col 8 (C46) /1J8-9	2J3-8	YEL-BRN	Lamp Col 1 (C65/66)/1J7-1
2J1-12	GRN-VIO	Switch Col 7 (C42) /1J8-8	2J3-9	Key Pin	No Connection
2J1-13	GRN-BLU	Switch Col 6 (C47) /1J8-7	2J3-10	—	No Connection
2J1-14	GRN-BLK	Switch Col 5 (C43) /1J8-5	2J3-11	RED-GRY	Lamp Row 8 (C87) /1J8-8
2J1-15	GRN-YEL	Switch Col 4 (C48) /1J8-4	2J3-12	RED-VIO	Lamp Row 7 (C86) /1J8-8
2J1-16	GRN-ORG	Switch Col 3 (C44) /1J8-3	2J3-13	RED-BLU	Lamp Row 6 (C85) /1J8-7
2J1-17	GRN-RED	Switch Col 2 (C49) /1J8-2	2J3-14	RED-GRN	Lamp Row 5 (C84) /1J8-8
2J1-18	GRN-BRN	Switch Col 1 (C45) /1J8-1	2J3-15	RED-YEL	Lamp Row 4 (C83) /1J8-5
2J4-1	WHT-BRN	Solenoid 01C In /5J6-9	2J3-16	RED-ORG	Lamp Row 3 (C81/82)/1J8-3
2J4-2	WHT-RED	Solenoid 02C In /5J6-8	2J3-17	RED-BLK	Lamp Row 2 (C81) /1J8-2
2J4-3	WHT-ORG	Solenoid 03C In /5J6-7	2J3-18	RED-BRN	Lamp Row 1 (C80) /1J8-1
2J4-4	WHT-YEL	Solenoid 04C In /5J6-5	2J5-1	RED-WHT	+25 Vdc (Solenoid)/5J11-12
2J4-5	WHT-GRN	Solenoid 05C In /5J6-4	2J5-2	BLU-YEL	Flipper Power/5J12-4
2J4-6	WHT-BLU	Solenoid 06C In /5J6-3	2J5-3	GRY-YEL	Flipper Power/5J12-2
2J4-7	WHT-VIO	Solenoid 07C In /5J6-2	2J5-4	ORG-GRY	Flipper Ground Ckt/1J19-2
2J4-8	WHT-GRY	Solenoid 08C In /5J6-1	2J5-5	ORG-VIO	Flipper Ground Ckt/1J19-1
2J4-9	Key Pin	No Connection	2J5-6	BLK	Ground/5J11-8
2J4-10	BRN-GRY	Solenoid 16 /5J6-1	2J5-7	Key Pin	No Connection
2J4-11	BRN-BLK	Solenoid 09 /5J6-9	2J5-8	RED	+25 Vdc (Solenoid)/ 5J11-9
2J4-12	BRN-RED	Solenoid 10 /5J6-8	2J5-9	ORG	+25 Vdc ("C" Solenoids)/ 5J11-1
2J4-13	BRN-ORG	Solenoid 11 /5J6-7	2J5-10	VIO-YEL	+50 Vdc (Solenoid)/ 5J12-7
2J4-14	BRN-GRN	Solenoid 13 /5J6-5	2J5-11	YEL-VIO	+50 Vdc (Solenoid)/ 5J12-11
2J4-15	BRN-BLU	Solenoid 14 /5J6-3	2J5-12	BRN	+25 Vdc ("A" Solenoids)/5J11-5
2J4-16	BRN-VIO	Solenoid 15 /5J6-2	2J7-1	—	No Connection
2J6-1	YEL	Gen Illum Pwr: 6V ac	2J7-2	—	No Connection
2J6-2	YEL	Gen Illum Pwr: 6V ac	2J7-3	—	No Connection
2J6-3	YEL	Gen Illum Pwr: 6V ac	2J7-4	—	No Connection
2J6-4	YEL	Gen Illum Pwr: 6V ac	2J7-5	ORG	+25 Vdc ("C" Solenoids)
2J6-5	Key Pin	No Connection	2J7-6	RED	+25 Vdc (Solenoid)/
2J6-6	YEL-WHT	Gen Illum Pwr: 6V ac	2J7-7	WHT-GRN	Backbox Gen Illum Pwr/2J6-8
2J6-7	YEL-WHT	Gen Illum Pwr: 6V ac	2J7-8	WHT-BRN	Backbox Gen Illum Pwr/2J6-8
2J6-8	YEL-WHT	Gen Illum Pwr: 6V ac	2J7-9	GRN	Backbox Gen Illum Pwr/2J6-3
2J6-9	YEL-WHT	Gen Illum Pwr: 6V ac	2J7-10	BRN	Backbox Gen Illum Pwr/2J6-1
2J8-1	BRN	+25 Vdc ("A" Solenoids)	2J9-1	WHT-VIO	Playfield Gen Illum Pwr/2J8-9
2J8-2	YEL-VIO	+50 Vdc Solenoid 03A, 04A, 08A	2J9-2	—	No Connection
2J8-3	VIO-YEL	+50 Vdc Solenoid 14, 18, 20	2J9-3	—	No Connection
2J8-4	ORG	+25 Vdc ("C" Solenoids)	2J9-4	—	No Connection
2J8-5	RED	+25 Vdc Solenoid 9-11, 15, 16	2J9-5	VIO	Playfield Gen Illum Pwr/2J8-4
2J8-6-7	—	No Connection	2J9-6	YEL	Playfield Gen Illum
2J8-8	GRY-YEL	Flipper Power	2J9-7	WHT-YEL	Playfield Gen Illum
2J8-9	BLU-YEL	Flipper Power	2J11-1	BRN-VIO	Solenoid 15
2J8-10	Key Pin	No Connection	2J11-2	BRN-BLU	Solenoid 14
2J8-11	RED-WHT	+25Vdc Solenoid 17, 19, 21	2J11-3	—	No Connection
2J8-12	—	No Connection	2J11-4	BRN-ORG	Solenoid 11
2J8-13	—	No Connection	2J11-5	BRN-RED	Solenoid 10
2J8-14	BLU-GRY	Lower Left Flipper	2J11-6	—	No Connection
2J8-15	BLU-VIO	Lower Right Flipper	2J11-7	BRN-GRY	Solenoid 18
2J10-1	BLU-VIO	Lower Right Flipper	2J11-8	—	No Connection
2J10-2	BLU-GRY	Lower Left Flipper	2J11-9	BLK-VIO	Solenoid 07C
2J10-3	—	No Connection	2J11-10	—	No Connection
2J10-4	—	No Connection	2J11-11	BLK-BLU	Solenoid 08C
2J10-5	RED	+25 Vdc (Solenoid)	2J11-12	BLK-GRN	Solenoid 05C
2J10-6	—	No Connection	2J11-13	BLK-YEL	Solenoid 04C
2J10-7	ORG-VIO	R Flipper Ground Ckt	2J11-14	BLK-ORG	Solenoid 09C
2J10-8	ORG-GRY	L Flipper Ground Ckt	2J11-15	BLK-RED	Solenoid 02C
2J10-9	WHT-YEL	Gen Illum Pwr: 6V ac	2J11-16	BLK-BRN	Solenoid 01C
2J10-10	YEL	Gen Illum Pwr: 6V ac	2J12-1	—	No Connection
2J12-1	RED-BRN	Lamp Row 1	2J12-2	—	No Connection
2J12-2	RED-BLK	Lamp Row 2	2J12-3	BRN-GRN	Solenoid 10
2J12-3	RED-ORG	Lamp Row 3	2J12-4	—	No Connection
2J12-4	RED-YEL	Lamp Row 4	2J12-5	BRN-RED	—
2J12-5	RED-GRN	Lamp Row 5	2J12-6	BRN-BLK	—
2J12-6	RED-BLU	Lamp Row 6	2J12-7	—	No Connection
2J12-7	RED-VIO	Lamp Row 7	2J12-8	BLK-GRY	Solenoid 08C
2J12-8	—	No Connection	2J12-9	—	No Connection
2J12-9	YEL-BRN	No Connection	2J12-10	BLK-VIO	Solenoid 07C
2J12-10	—	No Connection	2J12-11	BLK-BLU	Solenoid 06C
2J12-11	—	No Connection	2J12-12	BLK-GRN	Solenoid 05C
2J12-12	YEL-GRY	Lamp Col 8			

Connector	Wire Color	Signal
2J14-1	RED-BRN	Lamp
2J14-2	RED-BLK	Lamp
2J14-3	RED-ORG	Lamp
2J14-4	RED-YEL	Lamp
2J14-5	RED-GRN	Lamp
2J14-6	RED-BLU	Lamp
2J14-7	RED-VIO	Lamp
2J14-8	RED-GRY	Lamp
2J14-9	—	No C
2J14-10	YEL-BRN	Lamp
2J14-11	—	No C
2J14-12	YEL-RED	Lamp
2J14-13	YEL-ORG	Lamp
2J14-14	YEL-BLK	Lamp
2J14-15	YEL-GRN	Lamp
2J14-16	YEL-BLU	Lamp
2J14-17	YEL-VIO	Lamp
2J14-18	YEL-GRY	Lamp
2J19-1	GRN-RED	Switch
2J19-2	GRN-ORG	Switch
2J19-3	GRN-YEL	Switch
2J19-4	GRN-BLK	Switch
2J19-5	GRN-BLU	Switch
2J19-6	GRN-VIO	Switch
2J19-7	GRN-GRY	Switch
2J19-8	—	No C
3J1-1	BLK	Group
3J1-2	BLK	Group
3J1-3	BLK	Group
3J1-4	BLK	Group
3J1-5	BLK-YEL	Logic
3J1-6	GRY	CPU
3J1-7	GRY	CPU
3J1-8	GRY	CPU
3J1-9	GRY	CPU
3J1-10	Key Pin	No C
3J1-11	WHT-GRY	CPU
3J1-12	WHT-GRY	CPU
3J1-13	GRY-YEL	CPU
3J1-14	BLK-WHT	CPU
3J1-15	BLK-WHT	CPU
10J1-1	—	No C
10J1-2	—	No C
10J1-3	—	No C
10J1-4	—	No C
10J3-1	GRY	Power
10J3-2	BLK	Group
10J3-3	BLK-WHT	Power
10J3-4	—	No C
10J3-5	—	No C
10J3-6	WHT-GRY	Power

KBOX INTERCONNECT BOARD INTERBOARD SIGNALS

<u>Signal Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>
Lamp Row 1	2J12-13	BLK-YEL	Solenoid 04C
Lamp Row 2	2J12-14	BLK-ORN	Solenoid 03C
Lamp Row 3	2J12-15	BLK-RED	Solenoid 02C
Lamp Row 4	2J12-16	BLK-BRN	Solenoid 01C
Lamp Row 5			
Lamp Row 6	2J18-1	GRN-BRN	Switch Col 1
Lamp Row 7	2J18-2	—	No Connection
Lamp Row 8	2J18-3	GRN-GRY	Switch Col 8
No Connection	2J18-4	—	No Connection
Lamp Col 1	2J18-5	WHT-GRY	Switch Row 8
No Connection	2J18-6	WHT-VIO	Switch Row 7
Lamp Col 2	2J18-7	WHT-BLU	Switch Row 6
Lamp Col 3	2J18-8	WHT-GRN	Switch Row 5
Lamp Col 4	2J18-9	WHT-YEL	Switch Row 4
Lamp Col 5	2J18-10	WHT-ORG	Switch Row 3
Lamp Col 6	2J18-11	—	No Connection
Lamp Col 7	2J18-12	WHT-BRN	Switch Row 1
Lamp Col 8			
Switch Col 2	2J19-9	WHT-GRY	Switch Row 8
Switch Col 3	2J19-10	WHT-VIO	Switch Row 7
Switch Col 4	2J19-11	WHT-BLU	Switch Row 6
Switch Col 5	2J19-13	WHT-YEL	Switch Row 4
Switch Col 7	2J19-14	WHT-ORG	Switch Row 3
Switch Col 8	2J19-15	WHT-RED	Switch Row 2
Switch Col 8	2J19-16	WHT-BRN	Switch Row 1
No Connection			
	2J16-1	BLK-YEL	
	2J16-2	Key Pin	No Connection
	2J16-3	GRY-YEL	

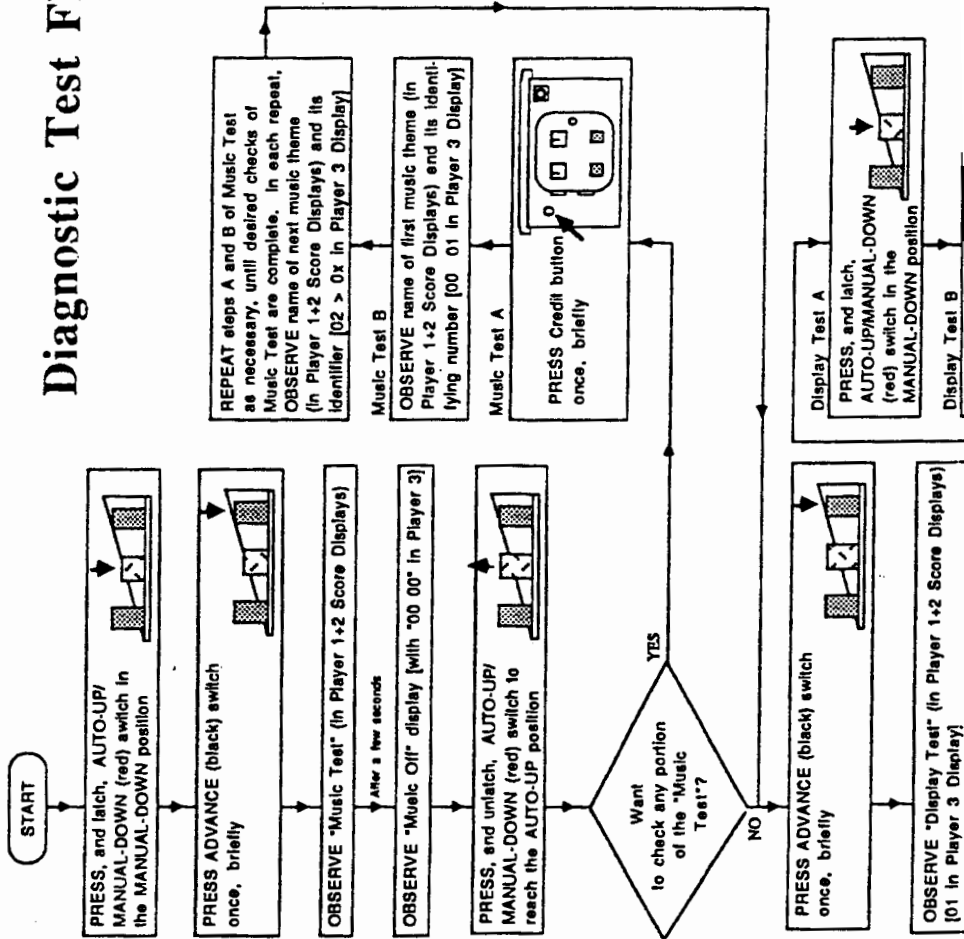
POWER SUPPLY INTERBOARD SIGNALS

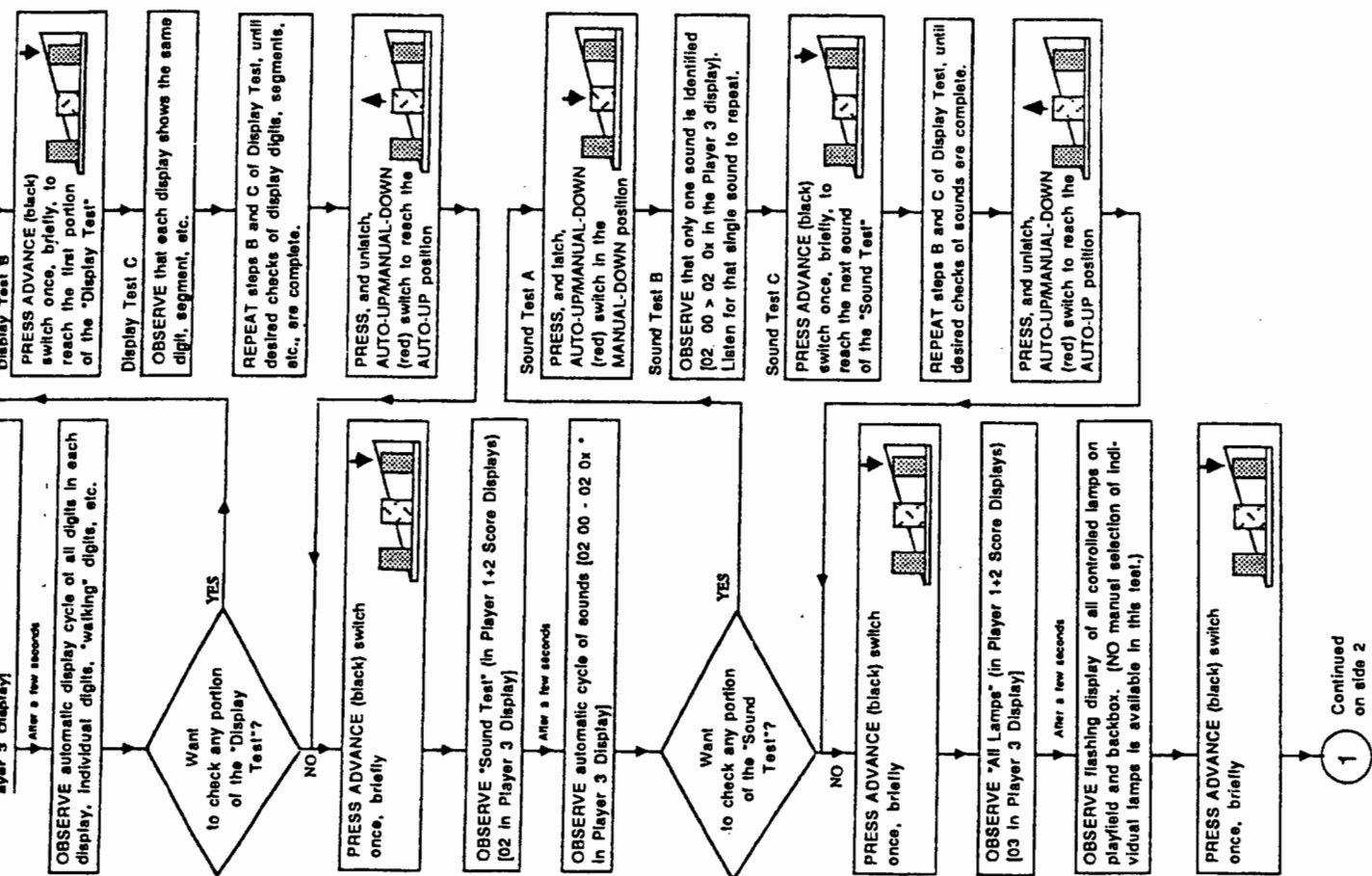
<u>Signal Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>
Ground / 11J3-2	3J2-1	ORG	Display Power: -100V dc / 4J7-1
Ground / 1J17-1	3J2-2	—	No Connection
Ground / 1J17-2	3J2-3	BRN	Display Power: +100V dc / 4J7-3
Ground / 1J17-3	3J2-4	—	No Connection
Logic Ground / 2J2-3	3J2-5	BLK	Ground (Display ckt) / 4J7-5
CPU Pwr: +5V dc Reg / 1J17-6	3J2-6	GRY	Display Power: +5V dc / 4J7-6
" / 11J3-1			
" / 1J17-4	3J3-1	GRY	Transformer: 19.4V ac, 10, C. T.
" / 1J17-5	3J3-2	GRY	Transformer: 19.4V ac, 10, C. T.
No Connection	3J3-3	GRY-WHT	Transformer: 19.4V ac, C.T. com
CPU Pwr: +12V dc Unreg / 11J3-8	3J3-4	GRY-WHT	Transformer: 19.4V ac, C.T. com
CPU Power: +12V dc Unreg / 1J17-9	3J3-5	GRY-GRN	Transformer: 19.4V ac, 10, C. T.
CPU Power: +12V dc Unreg / 2J2-1	3J3-6	GRY-GRN	Transformer: 19.4V ac, 10, C. T.
CPU Pwr: -12V dc Unreg / 1J17-8	3J3-7	Key Pin	No Connection
CPU Pwr: -12V dc Unreg / 11J3-3	3J3-8	WHT	Transformer: 88.5V ac
	3J3-9	WHT	Transformer: 88.5V ac

AUDIO BOARD INTERBOARD SIGNALS

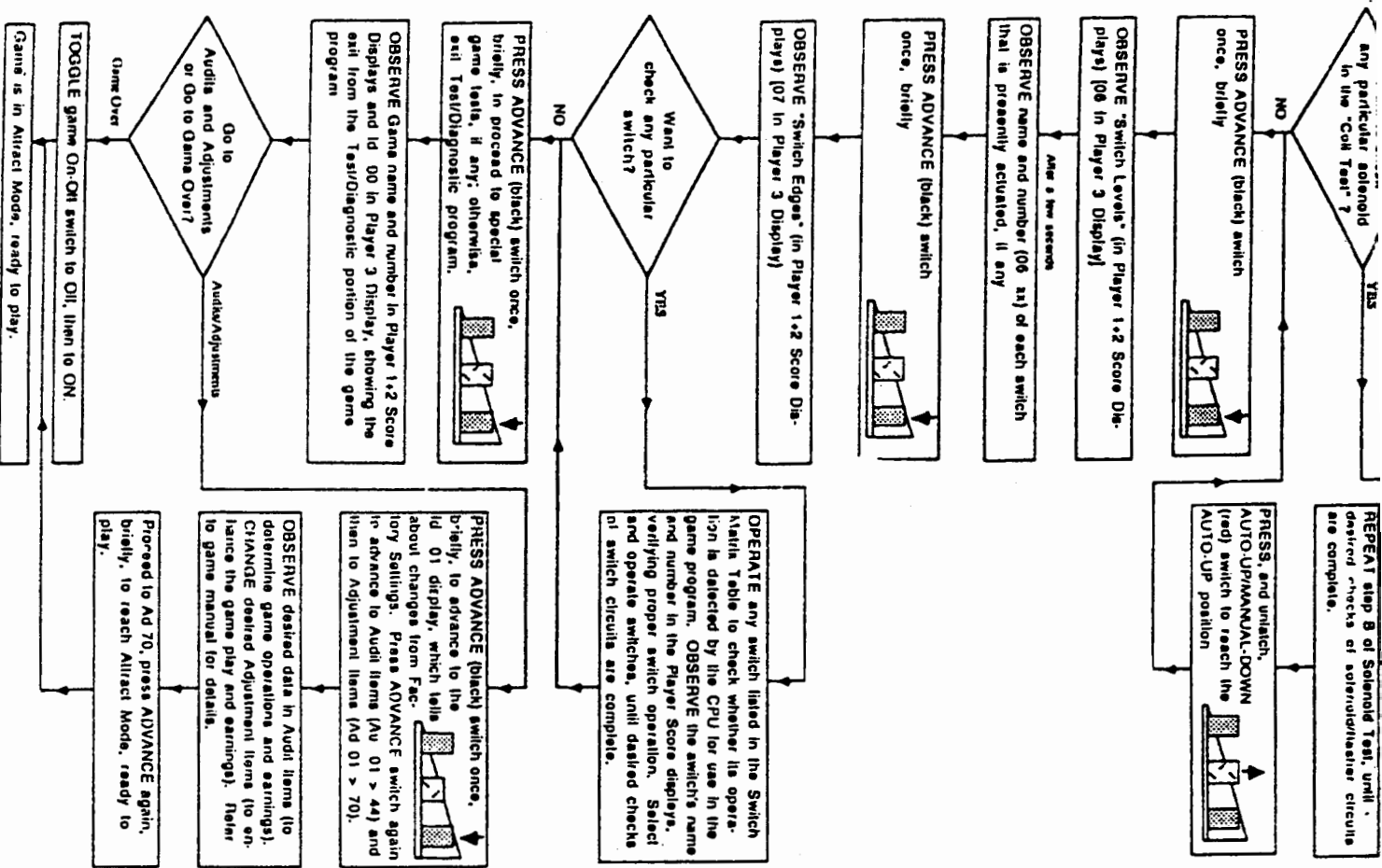
<u>Signal Designation/Description</u>	<u>Connector</u>	<u>Wire Color</u>	<u>Signal Designation/Description</u>
No Connection	10J2-1	RED	Signal Level (to Vol Cntrl)
No Connection	10J2-2	BLK	Signal Level (from Vol Cntrl)
No Connection	10J2-3	—	No Connection
No Connection	10J2-4	shield	Ground
Power: +5 Vdc / 3J1-7	10J4		Ribbon Cable from CPU Bld 1J21
Ground / 3J1-1			
Power: -12 Vdc Unreg / 3J1-16	10J5-1	BLK-YEL	/ Speaker
No Connection	10J5-2	BLK-YEL	/ Speaker
No Connection	10J5-3	BLK	/ Speaker
Power: +12 Vdc Unreg / 3J1-11	10J5-4	BLK	/ Speaker

Diagnostic Test Flowchart

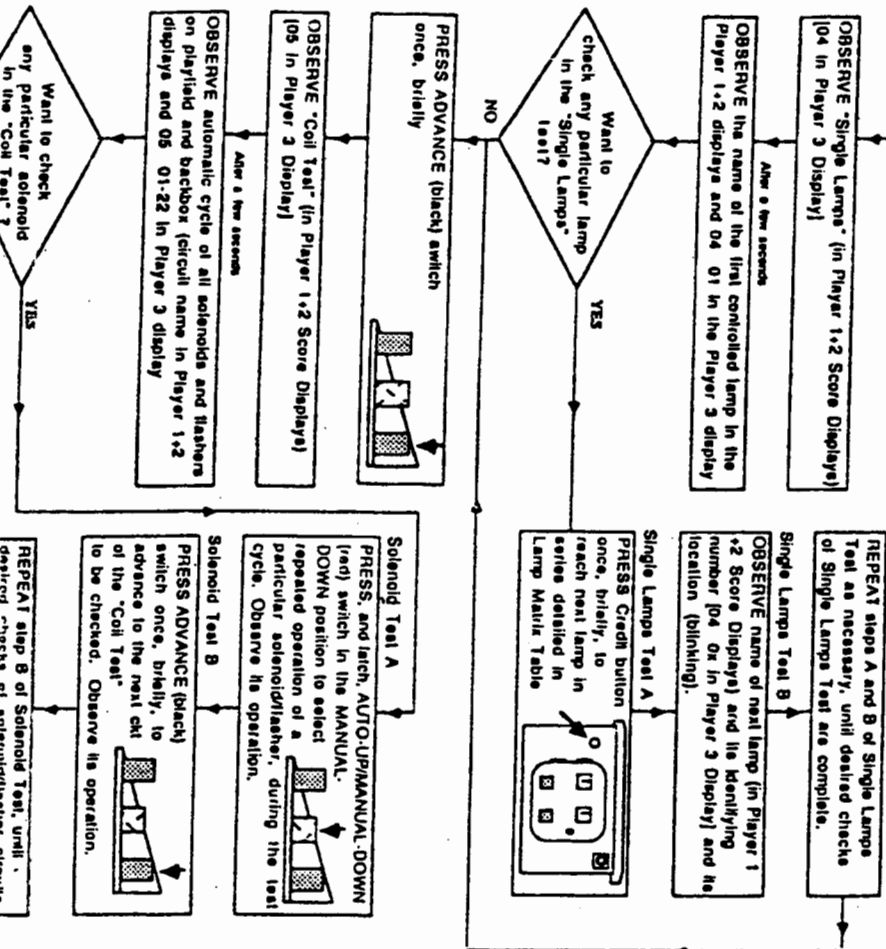




DIAGNOSTIC TEST FLOWCHART (SIDE 1)



Diagnostic Test Flowchart Side 2



DIAGNOSTIC TEST FLOWCHART (SIDE 2)

Riverboat Gambler Lamp Matrix

Column Row	1 Q86 Yel-Brn LJ7-1	2 Q84 Yel-Red LJ7-2	3 Q82 Yel-Orn LJ7-3	4 Q80 Yel-Blk LJ7-4	5 Q58 Yel-Grn LJ7-6	6 Q56 Yel-Blu LJ7-7	7 Q54 Yel-Vio LJ7-8	8 Q52 Yel-Gry LJ7-9
1 Q80 Red-Brn LJ8-1	Red 1	Bottom 21 Card 9	C Casino Lamps 17	20 Chips 25	C Stand-up Target 33	Ten 41	F Left Bank Target 49	Win Meter 1 Low 57
2 Q81 Red-Blk LJ8-2	Green 2	Middle 21 Card 10	A Casino Lamps 18	10 Chips 26	H Stand-up Target 34	Jack 42	I Left Bank Target 50	Win Meter 2 58
3 Q82 Red-Orn LJ8-3	Black 3	Top 21 Card 11	S Casino Lamps 19	50 Chips 27	I Stand-up Target 35	Queen 43	V Left Bank Target 51	Win Meter 3 59
4 Q83 Red-Yel LJ8-5	Play Roulette 4	20 Hx Lamp 12	I Casino Lamps 20	Spot Star 28	P Stand-up Target 36	King 44	E Left Bank Target 52	Win Meter 4 60
5 Q84 Red-Grn LJ8-6	Gold Star 1 5	Left Outlane 13	N Casino Lamps 21	Top Jet and 1 29	S Stand-up Target 37	Ace 45	C Right Bank Target 53	Win Meter 5 61
6 Q85 Red-Blu LJ8-7	Gold Star 2 6	Left Return Lane 14	O Casino Lamps 22	Bottom Jet and 3 30	Not Used 38	200 Chips 46	A Right Bank Target 54	Win Meter 6 62
7 Q86 Red-Vio LJ8-8	Gold Star 3 7	Right Return Lane 15	Hold Card 23	Right Jet and 2 31	Winning Streak 39	100 Chips 47	R Right Bank Target 55	Win Meter 7 63
8 Q87 Red-Gry LJ8-9	Spot Card 8	Right Outlane 16	Collect Royal 24	Not Used 32	Shot Shot 40	Shoot Again 48	D Right Bank Target 56	Bust Card 64

Riverboat Gambler Switch Matrix

Column Row	1 Q45 Grn-Brn LJ8-1	2 Q49 Grn-Red LJ8-2	3 Q44 Grn-Orn LJ8-3	4 Q48 Grn-Yel LJ8-4	5 Q43 Grn-Blk LJ8-5	6 Q47 Grn-Blu LJ8-7	7 Q42 Grn-Vio LJ8-8	8 Q46 Grn-Gry LJ8-9
1 Wht-Brn LJ10-9	Plumb Tkt 1	Shooter 9	Left Ramp Return 17	1/4 Skill Shot 25	C Stand-up Target 33	Not Used 41	F Left Drop Target 49	Right Flipper 57
2 Wht-Red LJ10-8	A/C Relay C-Side 2	Outhole 10	Left Outlane 18	1/2 Skill Shot 26	H Stand-up Target 34	Past Skill Shot 42	I Left Drop Target 50	Left Flipper 58
3 Wht-Orn LJ10-7	Start Button 3	Left Trough 11	Left Return Lane 19	3/4 Skill Shot 27	I Stand-up Target 35	21 Stand-up Target 43	V Left Drop Target 51	Roulette Wheel 59
4 Wht-Yel LJ10-6	Right Coin Switch 4	Center Trough 12	Skill Shot Made 20	Left Sling 28	P Stand-up Target 36	Locker/ Kicker 44	E Left Drop Target 52	Red Button 60
5 Wht-Grn LJ10-5	Center Coin Switch 5	Right Trough 13	Not Used 21	Top Jet 29	S Stand-up Target 37	Ramp Down Now 45	C Right Drop Target 53	Pass Button 61
6 Wht-Blu LJ10-3	Left Coin Switch 6	Right Ramp Entry 14	Right Return Lane 22	Bottom Jet 30	Not Used 38	Not Used 46	A Right Drop Target 54	Green Button 62
7 Wht-Vio LJ10-2	Slam Tkt 7	Top Ramp Entry 15	Right Outlane 23	Right Jet 31	Top Ramp Exit 39	Not Used 47	R Right Drop Target 55	Black Button 63
8 Wht-Gry LJ10-1	High Score Reset 8	Left Ramp Entry 16	Right Ramp Return 24	Right Sling 32	Bust Card 40	Ball at Diverter 48	D Right Drop Target 56	Rebound Switch 64