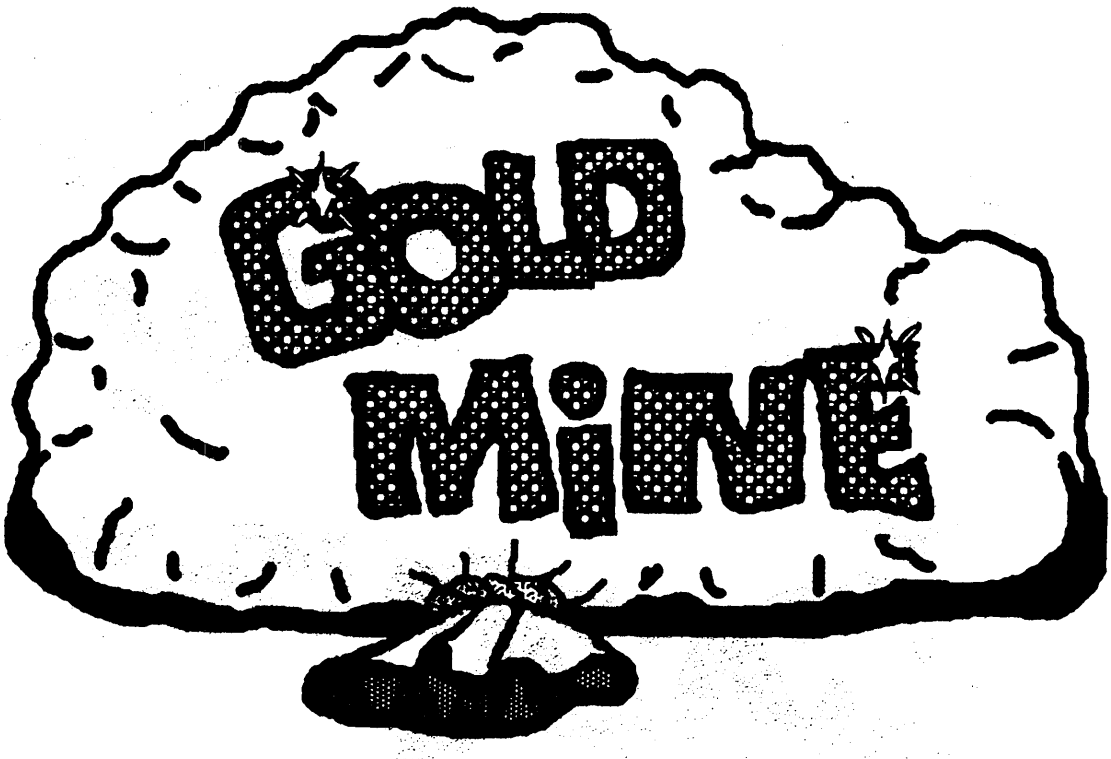
16-1920-101
January 1988



OPERATIONS MANUAL
including
Bookkeeping, Adjustments, Test/Diagnostic Procedures, Parts Information, & Schematics

Williams®
ELECTRONICS GAMES, INC.

GOLD MINE ROM and Jumper Table

Game	System 11B CPU Rev.	P/N - U15 Game µP	P/N - U27 G. ROM 1	P/N - U26 G. ROM 2	P/N - U21 S. ROM 1	P/N - U22 S. ROM 2	P/N - U24 Sound µP	Jumpers
BIG GUNS	-	5400-09150-00	A-5343-557-2	A-5343-557-1	A-5343-557-4	A-5343-557-3	5400-09150-00	W1, 2, 4, 5, 7, 8, 11, 14, 16, 17, and 19
SPACE STATION	-	↓	A-5343-552-2	A-5343-552-1	A-5343-552-4	A-5343-552-3	↓	↓
GOLD MINE	-	↓	Not Used	A-5343-1920-1	A-5343-1920-3	A-5343-1920-2	↓	↓

GOLD MINE Solenoid Table

Sol. No.	Function	Solenoid Type	Wire Color	Connections		Driver Trans.	Solenoid Part No.
				CPU Bd.	Playfield/ Cabinet		
01	Pin 1	Controlled	Gry-Brn	1P11-1	7J2-27	Q33	SB-28-1450-DC
02	Pin 2	Controlled	Gry-Red	1P11-3	7J2-28	Q25	SB-28-1450-DC
03	Pin 3	Controlled	Gry-Orn	1P11-4	7J2-29	Q32	SB-28-1450-DC
04	Pin 4	Controlled	Gry-Yel	1P11-5	7J2-30	Q24	SB-28-1450-DC
05	Pin 5	Controlled	Gry-Grn	1P11-6	7J2-31	Q31	SB-28-1450-DC
06	Pin 6	Controlled	Gry-Blu	1P11-7	7J2-32	Q23	SB-28-1450-DC
07	Pin 7	Controlled	Gry-Vio	1P11-8	7J2-33	Q30	SB-28-1450-DC
08	Pin 8	Controlled	Gry-Blk	1P11-9	7J2-34	Q22	SB-28-1450-DC
09	Pin 9	Controlled	Brn-Blk	1P12-1	7J2-5	Q17	SB-28-1450-DC
10	Pin 10	Controlled	Brn-Red	1P12-2	7J2-6	Q9	SB-28-1450-DC
11	Pin-Reset Relay	Controlled	Brn-Orn	1P12-4	7J2-7	Q16	SZ-31-2000-DC
12	Ticket Dispenser	Controlled	Brn-Yel	1P12-5		Q8	-
13	GOLD MINE Flash	Controlled	Brn-Grn	1P12-6	9P1-5 (FL Ω Bd)	Q15	#89 Flashlamps
14	Donkey Flasher	Controlled	Brn-Blu	1P12-7	9P1-4 (FL Ω Bd)	Q7	#89 Flashlamps
15	Dog Flasher	Controlled	Brn-Vio	1P12-8	9P1-2 (FL Ω Bd)	Q14	#89 Flashlamps
16	R. Miner Flasher	Controlled	Brn-Gry	1P12-9	9P1-1 (FL Ω Bd)	Q6	#89 Flashlamps
17	Not Used	Special #1	Blu-Brn	1P19-7		Q75	-
18	Not Used	Special #2	Blu-Red	1P19-4		Q71	-
19	Not Used	Special #3	Blu-Orn	1P19-3		Q73	-
20	Not Used	Special #4	Blu-Yel	1P19-6		Q69	-
21	Not Used	Special #5	Blu-Grn	1P19-8		Q77	-
22	Not Used	Special #6	Blu-Blk	1P19-9		Q79	-

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 connectingdevices 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.

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Contents

GOLD MINE Operation, Adjustment, and Testing Information

Game Parts Information & Schematics

GOLD MINE

Operation, Adjustment, and Testing Information

- ROM Summary
- Connector Identification
- Game Control Locations
- Shuffle Alley Assembly Instructions
- Game Operation
- Game Play
- Bookkeeping Mode
- Game Adjustment Procedure
- Game Pricing
- Test/Diagnostic Procedures

GOLD MINE (System-11B) ROM Summary

IC	DESCRIPTION	TYPE	IDENTIFIER	BOARD	PART NUMBER
Game ROM 1	16K x 8 ROM	27128	U27	CPU	A-5343-1920-1
Sound ROM 2	32K x 8 ROM	27256	U22	CPU	A-5343-1920-2
Sound ROM 1	32K x 8 ROM	27256	U21	CPU	A-5343-1920-3

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 IDENTIFICATION

WILLIAMS ELECTRONIC GAMES uses a special technique to identify connectors. Each plug or jack receives a prefix number (which identifies the location of the connector; usually, a 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.

GOLD MINE CIRCUIT BOARDS

All *GOLD MINE* Circuit Boards are in the backbox. They are accessible by removing the backbox glass, unlatching the insert board , and tilting it forward onto the pin panel hood.

CPU BOARD. The System-11B CPU Board (p/n D-11883-1-1920) must be equipped with the ROMs specified in the *GOLD MINE* (System-11B) ROM Summary. For this CPU Board and ROM combination, jumpers W1, W2, W4, W5, W7, W8, W11, W14, W16, W17, and W19 should be connected.

DISPLAY BOARDS. The Master Display Board is p/n D-10749. For operation of six player score displays, jumpers W1 through W8 should be disconnected (or cut) on the Master Display Board. The six 7-digit Player Score Displays (1 , 2 , etc.) are p/n C-8364-1. The 2-digit Credit, 2-digit FRAMES Display is p/n C-8365-1.

POWER SUPPLY BOARD. The Power Supply Board is p/n D-8345-1914.

Prefix numbers for connectors of the System-11B circuit boards and *GOLD MINE* major assemblies are listed below:

1 - CPU Board
2 - (not assigned)
3 - Power Supply Board
4 - Master Display Board
5 - Slave Display Board
6 - Backbox
7 - Cabinet
8 - Playfield
9 - Insert Board
10 - Frontbox (Coin Door Vault)
11 - (not assigned)
12 - (not assigned)
13 - (not assigned)
14 - (not assigned)
15 - Flipper Power Supply (not used on shuffle alley games)

GOLD MINE GAME CONTROL LOCATIONS

The High Score Reset key-operated switch is on the right rear of the frontbox (pedestal containing the coin door vault).

The On-Off switch is underneath the playfield, just behind the frontbox.

The Volume Control is inside the frontbox. It is accessible by opening the coin door.

The Credit switch is a pushbutton on the left of the coin door on the frontbox.

The Game/Scoring Selection switch is a pushbutton on the right of the coin door on the frontbox.

GAME ADJUSTMENT/DIAGNOSTIC SWITCHES. *GOLD MINE* allows the operator to program virtually all game adjustments, obtain bookkeeping information, and diagnose problems, using only two switches mounted on the inside of the coin door.

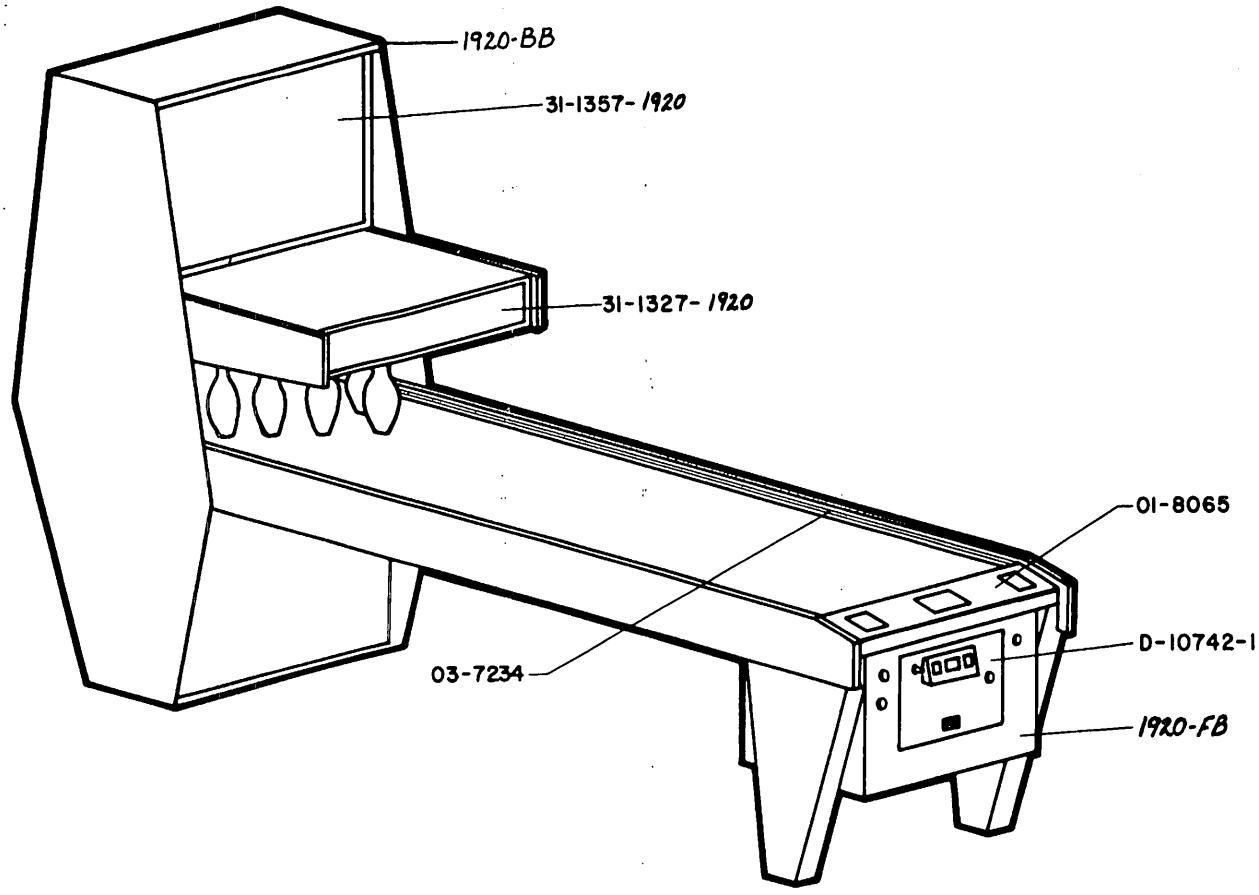
GOLD MINE GAME CONTROL LOCATIONS (Continued)

ADVANCE, AUTO-UP/MANUAL-DOWN, and TICKET REDISPENSE are switches located on the inside of the coin door. (The TICKET REDISPENSE switch is not used.) Refer to the Game Adjustment Procedure and Test/Diagnostic Procedures for details concerning their 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.

The CPU Diagnostic switch (SW 2) is the right switch (of the two switches mounted on the lower edge of the CPU Board) near a large, socketed microprocessor chip. This switch initiates the Memory Chip Test explained in the Test/Diagnostic Procedures.

The Sound Diagnostic switch (SW 1) is the left switch of the two mounted on the lower edge of the CPU Board. This switch initiates the Sound Section Test. Refer to the Test/Diagnostic Procedures.



Miscellaneous Game Parts

Part No.	Description
1920-BB	*GOLD MINE* Backbox
31-1357-1920	*GOLD MINE* Backglass
31-1327-1920	*GOLD MINE* Pin Panel Hood Glass
01-8065	Score Card Mounting Panel Cover
D-10742-1	Coin Door Assembly (USA 2 x 25¢)
1920-FB	*GOLD MINE* Frontbox
03-7234	Shuffle Alley Playfield Edge Molding

***GOLD MINE* Dimensions**

Length:	103-5/8"	(263 cm)	
Height:	71-1/4"	(181 cm)	
Width:	27-18"	(69 cm)	
Weight:	360 lb.	(163 kg)	uncrated
	390 lb.	(177 kg)	crated

Figure 1. ***GOLD MINE* Particulars**

SHUFFLE ALLEY ASSEMBLY INSTRUCTIONS

1. Open the shipping container; remove all cartons.
2. Unpack the carton labelled "Coin Box". Remove cash box, instruction manual, keys, and other parts from inside the coin door vault, and set them aside.
3. Place coin door vault upside down on floor with coin door facing you, and open the coin door.
4. Place the front legs with their smooth edge toward the coin door side of the coin door vault. Align the holes on the inside of the legs with holes on the inside of the coin door vault.
5. Attach the legs with the four bolts (provided in the cash box).
6. Remove the back leg assembly from its carton. Stand it upright several feet forward of its desired location (for access during installation). Block the back leg assembly wheels to prevent accidental movement.
7. Carefully remove playfield frame assembly from shipping carton, and place pin panel end of playfield frame assembly on back leg assembly. Align the holes and bolt the back leg assembly to the playfield frame assembly.

CAUTION

Be careful not to pinch wires between playfield frame assembly and backleg assembly.

8. Place support (chair or stool) under front end of playfield frame assembly.
9. Locate the volume control cable, the switches and lamps cable, and the ground braid. Place these cables in the "U" notch provided, making sure they are not pinched.
10. Align the two holes on each side of the outer edge of the front legs with the mounting holes in the playfield frame assembly, and bolt the legs to the playfield frame assembly.
11. Attach the coin box vault to the playfield frame assembly, using the two bolts provided.
12. Mate the two cable connectors, and attach the ground braid under the wing nut inside the coin door vault.
13. Release cables from shipping retaining rubber in rear of pin panel. Place them through the hole at the top rear of the playfield frame assembly.
14. Remove backbox from its carton. Remove backglass and set aside.
15. Carefully set the backbox on top of the playfield frame assembly (above the pin panel), and place the cables from the playfield frame assembly through the bottom of the backbox.
16. Loosen the shipping screws on the insert board to gain access to the boards and connectors.
17. Mate the connectors (do *not* use excessive force) between the playfield frame assembly and the backbox. Ensure that the wire colors match from the male to the female connectors.
18. Position the backbox to align the mounting holes, then bolt it to the top of the playfield frame.
19. Attach the five ground braids under the wing nut near the speaker. (Ground braids come from: coin door, playfield frame assembly, speaker, pin panel, and backbox.
20. Install back cover (wing nuts facing in), then secure the cover by tightening the nuts, reaching from inside the back box.
21. Check for properly mated connectors, then close the insert board, and install the backglass.
22. Move the game into the desired location; level the game (side-to-side), using the front leg levelers.

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.

GAME OPERATION

POWERING UP. With the coin door closed, plug the game in, and turn it ON, using the On-Off switch. In Normal operation, the pins reset; the pin panel hood lamps light; the game comes on in the Game-Over Mode.

GAME OPERATION (Continued)

CAUTION

If the game comes on in the Bookkeeping Mode (Credits display showing 04, FRAMES display showing 00, and 1 display showing the game identification number, 1920), turn the game OFF, then ON again. (If the game now comes on in the Game-Over Mode, bookkeeping totals have been reset to zero.)

If the game again comes on in the Bookkeeping Mode, open the coin door (to open the Memory Protect switch). Now, turn the game OFF and ON *twice*. (A game lacking battery power now reverts to factory settings for both bookkeeping data and game adjustments.) Re-enter any special operator settings that differ from the factory settings.

GAME-OVER MODE. The GAME-OVER lamp lights. The 1 (player 1) display shows 0. Then, the high scores (from the Regulation game) flash on the 1 through 6 player score displays.

CREDIT POSTING. Insert coin(s). A sound is heard for each coin, and the Credits display shows the number of credits purchased. Even if the number of maximum allowable credits* is exceeded by coin purchase or high score, credits are posted correctly. However, the coin-lockout coil then de-energizes, until the remaining credits are less than the maximum. No more credits may be purchased (and coins are rejected), while the coin-lockout coil is de-energized.

STARTING A GAME. Press the Credit button once. A startup sound plays, and the amount shown in the Credit display decreases by one. Player display 1 flashes (until the first playfield switch is actuated), and the FRAMES display shows 1. Additional players may enter the game by pressing the Credit button once for each player, before frame 2 is indicated.

TILT. Actuating the Slam Tilt switch inside the frontbox ends the current game. *GOLD MINE* then returns to the Game-Over Mode.

END OF GAME. A random digit* appears in the FRAMES display. Credit* is awarded, when the last digit of any player's score display (1 through 6) matches the random digit. Match, high score, and game-over sounds are made, as appropriate.

* - operator-adjustable feature

GAME PLAY

GAME SELECTION. Before beginning play, the player must press the Game/Scoring Selection switch pushbutton (to the right of the coin door on the frontbox) to select the desired game and scoring from among the five games available.

REGULATION. Scoring is identical to official bowling.

GOLD MINE. Scoring is like Regulation; however, in each frame with a Strike or a Spare, the player gets a Bonus Shot. The scores for this Bonus Shot appears in a Gold Bag ("the miner's poke") on the backglass. Another Strike scores the higher number; anotherSpare scores the lower number. Any other shot during this Bonus play scores the total downed pin count after the second shot.

SUPER STRIKE. The player scores 90 for a Strike, and gets one frame of FLASH for extra points. A Spare scores 60. A "blown frame" scores total downed pin count after the second shot.

STRIKE-90. The player receives 90 points for a Strike, and keeps playing as long as the Strikes continue. A Spare scores 60. A "blown frame" scores total downed pin count after the second shot.

GAME PLAY (Continued)

FLASH. The player receives the *Higher* Value of flashing scores for Strike. A Spare scores the *Lower* Value of the flashing scores. A "blown frame" scores the total downed pin count after the second shot.

BOOKKEEPING MODE

Functions 01 through 25
The coin door must be open to access the Game Adjustment/Diagnostic switches. All readings and adjustments require operation of these coin door switches.

1. Set the AUTO-UP/MANUAL-DOWN switch to AUTO-UP, and press ADVANCE, until the Credit display indicates (test) 04. The FRAMES display indicates (function) 00. The 1 player score display indicates 1920, the game identification number.

2. Press ADVANCE to display desired functions in the FRAMES display (refer to the **Bookkeeping Table**). Now, record the desired bookkeeping data totals (e.g., number of coins, total paid credits, etc.) from the 1 display. (To review the value of a function that has been passed, use MANUAL-DOWN, and press ADVANCE until the desired function number appears in the FRAMES display, with its corresponding value in the 1 display.

3. To return to Game-Over Mode, use AUTO-UP or MANUAL-DOWN, and press ADVANCE to display Function 50 in the FRAMES display. Using AUTO-UP, press ADVANCE once. *GOLD MINE* is now in the Game-Over Mode.

4. To zero bookkeeping totals *and* return to Game-Over Mode, use AUTO-UP or MANUAL-DOWN to display Function 50 in the FRAMES display. Press the Credit button to display Special Function 35 in the 1 UP display. Using AUTO-UP, press ADVANCE once. *GOLD MINE* is now in the Game-Over Mode.

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 shuffle alley players. (The High Score value, of course, pertains to a REGULATION game.) To keep a shuffle alley 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 the extremely high score.

For *GOLD MINE*, in fact, two methods of resetting the High Score value are available. The simplest method requires that the High Score Reset key-operated switch on the right rear of the frontbox be actuated in the Game-Over Mode. This action simply erases the previous high score value and replaces it with the factory setting value (200), or whatever value the operator has specified, using the second method, explained next.

To change the factory setting value for the High Score, the second method requires opening the coin door for access to the Game Adjustment/Diagnostic switches, to perform the following steps:

1. Using AUTO-UP or MANUAL-DOWN, reach test 04, Function 12. The high score value of the factory setting (200) appears in the 1 display. If this value is satisfactory, go to step 4.

2. If you wish to increase the High Score value from the factory setting value, use AUTO-UP, and press the Credit button, until the desired value shows in the 1 display.

GOLD MINE Bookkeeping Table

Test 04 Function	Description	1 [1] Display	2 Display	Factory Setting
00	Game Identification Number	1920	(#) ⟶	(# = ROM Revision Level)
01	Coins, Left Chute (next to coin door hinge)	432		
02	Coins, Center Chute	0		
03	Coins, Right Chute	398		
04	Total Paid Credits	830		
05	Match Credits	27		
06	Total Credits	1168		
07	Number of REGULATION Games Played	900		
08	Number of GOLD MINE Games Played	200		
09	Number of STRIKE 90 Games Played	60		
10	Number of SUPER STRIKE Games Played	3		
11	Number of FLASH Games Played	5		
12	Back-up High Scores to Date [2]			200
13	Not Used [3]			
14	Not Used [3]			
15	Not Used [3]			
16	Not Used [3]			
17	Not Used [3]			
18	Maximum Credits			20
19	Pricing Control (refer to **Game Pricing Table** entries)			01
20	Left Coin Chute Multiplier			01
21	Center Coin Chute Multiplier			04
22	Right Coin Chute Multiplier			01
23	Coin Units for Credit			01
24	Coin Units for Bonus Credit			00
25	Minimum Coin Units			00

NOTES:

1. The numbers shown in the 1 Display column for Functions 1 through 11 are examples.
2. Function 12 (Back-up High Scores) can be set to any value from 0 to 300, using the Credit button. Using AUTO-UP, the Credit button increases the value by 1. Using MANUAL-DOWN, the Credit button decreases the value by 1.
3. Disregard data values shown in displays; they are not bookkeeping data.

RESETTING THE HIGH SCORES (Continued)

3. If you wish to decrease the High Score value, use MANUAL-DOWN, and press the Credit button, until the desired value shows in the 1 display.

4. Using AUTO-UP, press and hold down ADVANCE, until the FRAMES display shows Function 50. Press ADVANCE once, to return to Game-Over Mode.

5. Turn the High Score Reset key-operated switch (on rear of frontbox). Observe player score displays (1 , 2 , etc.) to verify that new High Score value is displayed.

GAME ADJUSTMENT PROCEDURE

Functions 26 through 50

The coin door must be open to access the Game Adjustment/Diagnostic switches. All readings and adjustments require operation of these coin door switches.

1. Use AUTO-UP and press ADVANCE. The Credits display indicates (test) 04. The FRAMES display indicates (function) 00. The 1 player score display indicates 1920, the game identification number.

2. To progress toward a higher Function number (in the FRAMES display), use AUTO-UP and press ADVANCE. To return to a previous Function number, use MANUAL-DOWN and press ADVANCE.

3. With the desired Function (refer to the **Game Adjustment Table)** showing in the FRAMES display, increase the value shown in the 1 display by using AUTO-UP and pressing the Credit button. Repeat this step for each Function, until all adjustments have been made.

GOLD MINE Game Adjustment Table

Test 04 Function	Description	Factory Setting
26	Match — Enabled (On) = 00; Disabled (Off) = 01 (Enabled Match awards 10% replays)	00
27 [1]	Strike Difficulty — Easy = 00 Hard = 01	00
28 [2]	7 - 10 Pickup Difficulty — Easy = 00 Hard = 01	00
29	First Beer Frame — Disabled (Off) = 00; Enabled (On) = 01...99	05
30	Second Beer Frame — Disabled (Off) = 00; Enabled (On) = 01...99	00
31	Game Adjustment #1 - Attract Mode Sound: Off = 00 On = 01	01
32	Game Adjustment #2 - Background Sound: Off = 00 On = 01	01
.	Game Adjustment #3 - Not Used	.
.	through	.
.		.
39	Game Adjustment #9 - Not Used	00
40	Award	00
41	Not Used	00
42	Foreground Audit #1 - Not Used	00
.	through	.
.		.
.		.
48	Foreground Audit #7 - Not Used	00
49	Number of Auto-Cycle Passes	
50	Special Function 15: Auto-Cycle Mode 35: Zero Bookkeeping Totals 45: Restore factory settings & zero bookkeeping totals	

NOTES:

1. Function 27 (Strike Difficulty) permits easy or hard Strike achievement. Factory setting 00 allows *easy* achievement. Selecting the *hard* Strike achievement (01) causes p layfield switches 29 through 32 to be disabled.

2. Function 28 (7 - 10 Pickup Difficulty) adjusts the timing interval allowed for making playfield switches 23, 24, 33, and 34. Factory setting 00 allows the player a *longer* period to knock down the 7 - 10 row pins. Selecting the *shorter* interval (01) makes knocking down the 7 - 10 row pins more difficult.

GAME ADJUSTMENT PROCEDURE (Continued)

4. Then, press and hold ADVANCE, until Function 50 shows in the FRAMES display. From Function 50, you can: (A) return to the Game-Over Mode; (B) zero bookkeeping totals; or (C) restore factory settings and zero bookkeeping totals. Perform either of the following, as desired:

   A. Use AUTO-UP and press ADVANCE once to reach Game-Over Mode. *GOLD MINE* is now in the Game-Over Mode.

   B. To zero the bookkeeping totals *and* return to Game-Over Mode, use AUTO-UP or MANUAL-DOWN to display Function 50 in the FRAMES display. Press the Credit button to display Special Function 35 in the 1 display. Using AUTO-UP, press ADVANCE once. *GOLD MINE* is now in the Game-Over Mode.

   C. To restore factory settings, zero bookkeeping totals, *and* return to Game-Over Mode, use AUTO-UP or MANUAL-DOWN to display Function 50 in the FRAMES display. Press the Credit button to display Special Function 45 in the 1 display. Using AUTO-UP, press ADVANCE once. *GOLD MINE* is now in the Game-Over Mode.

GAME PRICING

PRICING MADE EASY. Function 19 allows the operator an easy method of setting the pricing functions. If the operator enters a "standard setting" number (from 1 to 8) into Function 19, each of the other pricing functions (20 through 24) changes to the value shown in the **Game Pricing Table** for that selected "standard setting".

CUSTOM PRICING. Function 19 must be set to 0 (zero) to enable the operator to enter desired custom pricing selections for Functions 20 through 24, based on the **Game Pricing Table.** Function 20 is the left coin chute multiplier. Function 21 is the center coin chute multiplier. Function 22 is the right coin chute multiplier. Function 23 is the number of coin units specified as being equivalent to one Credit (game). Function 24 is the number of coin units that must pass through the coin chutes(s) before an additional Credit (game) is posted (displayed).

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

X = Coin Chute Multiplier (Function 20, 21, or 22 in **Game Pricing Table**)
V = Value of coin
C = Coin units required for credit (Function 23).

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

UNITS REQUIRED FOR BONUS CREDIT. Function 24 is the number of coin units, which must pass through the coin chutes(s) before an additional Credit (game) is posted (displayed). At the factory setting, the number in this function 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. Function 25 determines the number of games that must be purchased before play may begin. The factory setting for this function is 00. (This 00 means that the Minimum Coin Units feature (Function 25 is disabled, by the factory setting.)

GOLD MINE Pricing Table

Country	Coin Chute Left	Center	Right	Games/Coin	Pricing Functions 19	20	21	22	23	24	25
USA and Canada	25¢	-	25¢	1/25¢, 4/$1 [1,2]	01	01	04	01	01	00	00
				1/50¢, 2/75¢, 3/$1 [2]	02	03	12	03	04	00	00
				1/50¢, 2/$1 [2]	03	01	04	01	02	00	00
				1/25¢, 3/50¢, 6/$1	00	01	04	01	01	02	00
				1/25¢, 5/$1	00	01	00	01	01	04	00
West Germany	1 DM	2 DM	5 DM	1/1 DM, 2/2 DM, 7/5 DMark [2,3]	10	06	12	30	05	30	00
				1/1 DM, 3/2 DM, 10/5 DM [2]	09	09	18	45	05	45	00
				1/1 DM, 3/2 DM, 9/5 DM	00	09	18	45	05	00	00
				1/2x1 DM, 1/2 DM, 3/5 DM	00	03	06	15	05	00	00
				2/1 DM, 5/2 DM, 14/5 DM	00	13	26	65	05	65	00
France	1 F	5 F	10 F	1/3x1 F, 2/5 F, 5/10 Franc [2]	13	02	10	20	05	20	00
Antilles (Netherlands)	25¢	-	1 G	1/25¢, 4/1 Guilder	00	01	01	04	01	00	00
Netherlands	25¢	-	1 G	1/25¢, 5/1 Guilder	00	01	00	05	01	00	00
	1 HFl	2.5 HFl	2.5 HFl	1/1 HFl, 3/2.5 HFl [2]	11	06	15	15	05	00	00
Belgium	5 F	-	20 F	1/2x5 F, 2/20 Franc	00	01	01	04	02	00	00
	5 F	5 F	20 F	1/2X5 F, 1/2X5 F, 3/20 F [2]	08	03	03	12	04	00	00
	5 F	20 F	20 F	1/2x5 F, 2/20 F, 2/20 F	00	01	04	04	02	00	00
	5 F	5 F	20 F	1/2X5 F, 1/2X5 F, 2/20 F	00	01	01	04	02	00	00
Spain	25 P	-	100P	1/25 P, 5/100 Peseta [2]	15	01	00	05	01	00	00
Switzerland	1 F	2 F	5 F	1/1 F, 3/2 F, 7/5 Franc	00	02	06	14	02	00	00
	1 F	-	2 F	1/1 F, 3/2 F [2]	07	03	00	06	02	00	00
Japan	100 ¥	-	100 ¥	2/100 Yen	00	04	00	04	02	00	00
	-	100 ¥	-	2/100 ¥ [2]	16	01	04	01	02	00	00
Italy	500 L	-	500 L	1/500 Lire [2]	14	01	04	01	01	00	00
Australia	20¢	-	$1	1/2x20 ¢, 3/$1 [2]	05	01	00	06	02	00	00
United Kingdom	10 P	50 P	20 P	1/10 P, 5/50 P, 2/20 Pence	00	01	05	02	01	00	00
	10 P	50 P	10 P	1/10 P, 5/50 P [2]	06	01	05	01	01	00	00
Argentina	10¢	10¢	10¢	1/1 Token	00	01	01	01	01	00	00
Austria	5 Sch	-	10 Sch	2/5 Sch, 5/10 Schilling	00	02	00	05	01	00	00
	1 Sch	5 Sch	10 Sch	2/5x1 Sch, 2/5 Sch, 5/10 Sch	00	02	10	25	05	00	00
	5 Sch	10 Sch	10 Sch	1/2x5 Sch, 3/2x10 Sch [2]	04	03	06	06	04	00	00
Chile	Token	-	Token	1/1 Token [1,2]	01	01	04	01	01	00	00
Denmark	1 Kr	5 Kr	10 Kr	1/2x1 Kr, 3/5 Kr, 7/10 Krone	00	01	06	14	02	00	00
Finland	1 Mka	-	1 Mka	1/1 Markka [1,2]	01	01	04	01	01	00	00
New Zealand	20¢	-	20¢	1/2x20¢ [2]	03	01	04	01	02	00	00
Norway	1 Kr	-	1 Kr	1/2x1 Kr, 3/5x1 Krone	00	01	00	01	02	05	00
Sweden	1 Kr	-	1 Kr	1/2x1 Krona [2]	03	01	04	01	02	00	00
	1 Kr	5 Kr	5 Kr	1/3x1 Kr, 2/5 Krona [2]	12	02	10	10	05	00	00

Notes: 1. Factory Default. 2. Standard Setting - Adjust setting of Function 19 ONLY. 3. Default with jumper W7 cut/removed.

TEST/DIAGNOSTIC PROCEDURES

WILLIAMS ELECTRONICS GAMES provides a series of diagnostic tests to aid the operator in determining whether the game is 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 displays, the game sounds, the lamps, the solenoids, and the switches.

In addition to the diagnostic testing, a feature called the Auto-Cycle Mode is available. Activating this mode enables the operator to observe the game while all of the diagnostic tests *except the switch test* 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.

DISPLAY TEST.

1. Using MANUAL-DOWN, press ADVANCE. Observe that all displays exhibit all 0s.

2. Use AUTO-UP. Observe that all displays begin a display cycle of all 0s through all 9s, one digit at a time.

3. To stop the display cycle, use MANUAL-DOWN. Press ADVANCE to step through the sequential digit display, digit by digit. Use AUTO-UP to resume cycling, and to proceed to the next test.

SOUND TEST.

1. (From Display Test) Using AUTO-UP, press ADVANCE. Observe that the Credit display shows 00 (the test identifier) and that the FRAMES display shows a series of test steps from 00 through 07. Verify that a different sound is heard each time the number in the FRAMES display changes.

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.

LAMP TEST.

1. (From Sound Test) Using AUTO-UP, press ADVANCE. Observe that the Credit display shows 01 (lamp test identifier) and that all feature lamps flash. To locate the wiring associated with a particular lamp, refer to the **Lamp-Matrix Table.** CPU Board connections at connectors 1J6 (rows) and 1J7 (columns) are also listed in the table.

GOLD MINE Lamp-Matrix Table

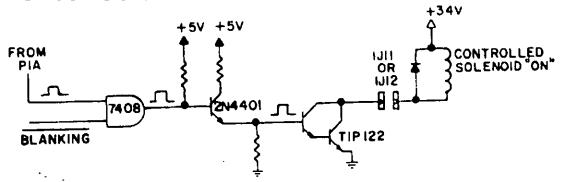
COLUMN / ROW	1 Q66 YEL-BRN 1J7-1	2 Q64 YEL-RED 1J7-2	3 Q62 YEL-ORN 1J7-3	4 Q60 YEL-BLK 1J7-4	5 Q58 YEL-GRN 1J7-6	6 Q56 YEL-BLU 1J7-7	7 Q54 YEL-VIO 1J7-8	8 Q52 YEL-GRY 1J7-9
Q80 1 RED-BRN 1J6-1	Left 100 Score 1	Right 100 Score 9	Right 200 Field 17	Player 2 Strike Two 25	Player 4 Strike Two 33	Player 6 Strike Two 41	Gold Mine Upr Cntr 600/400 49	Game #1 Regulation 57
Q81 2 RED-BLK 1J6-2	Left 200 Score 2	Left 100 Field 10	Right 100 Field 18	Player 2 Spare 26	Player 4 Spare 34	Player 6 Spare 42	Gold Mine Upr Right 400/200 50	Game #2 GOLD STRIKE 58
Q82 3 RED-ORN 1J6-3	Left 300 Score 3	Left 200 Field 11	Right 500 Field 19	Match 27	Credit Button 35	Bowl Again 43	Gold Mine Mid Left 600/400 51	Game #3 Super Strike 59
Q83 4 RED-YEL 1J6-5	Left 400 Score 4	Left 300 Field 12	Player 1 Strike One 20	Player 3 Strike One 28	Player 5 Strike One 36	10th Frame 44	Gold Mine Mid Cntr 800/600 52	Game #4 Strike 90 60
Q84 5 RED-GRN 1J6-6	Center 500 Score 5	Left 400 Field 13	Player 1 Strike Two 21	Player 3 Strike Two 29	Player 5 StrikeTwo 37	10th Frame Strike 1 45	Gold Mine Mid Right 700/500 53	Game #5 Flash 61
Q85 6 RED-BLU 1J6-7	Right 400 Score 6	Left 500 Field 14	Player 1 Spare 22	Player 3 Spare 30	Player 5 Spare 38	10th Frame Strike 2 46	Gold Mine Lwr Left 400/200 54	Not Used 62
Q86 7 RED-VIO 1J6-8	Right 300 Score 7	Right 400 Field 15	Beer Frame 23	Game-Over 31	High Score to Date 39	10th Frame Spare 47	Gold Mine Lwr Cntr 500/300 55	Not Used 63
Q87 8 RED-GRY 1J6-9	Right 200 Score 8	Right 300 Field 16	Player 2 Strike One 24	Player 4 Strike One 32	Player 6 Strike One 40	Gold Mine Upr Left 400/200 48	Gold Mine Lwr Right 300/100 56	Not Used 64

SOLENOID TEST.

1. (From Lamp Test) Using AUTO-UP, press ADVANCE. Observe that the Credit display shows 02 (solenoid test identifier) and that the FRAMES display shows a series of test steps from 01 through 16. During each of these steps, pulsing of the respective solenoid occurs. Unless halted, the test cycles repeatedly. Refer to the **Solenoid Table** for solenoid numbers and wiring information, such as wire colors, CPU Board connections at 1P11 and 1P12, etc.

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

"On" State Logic - Controlled Solenoid



"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.

GOLD MINE Solenoid Table

Sol. No.	Function	Solenoid Type	Wire Color	Connections		Driver Trans.	Solenoid Part No.
				CPU Bd.	Playfield/ Cabinet		
01	Pin 1	Controlled	Gry-Brn	1P11-1	7J2-27	Q33	SB-28-1450-DC
02	Pin 2	Controlled	Gry-Red	1P11-3	7J2-28	Q25	SB-28-1450-DC
03	Pin 3	Controlled	Gry-Orn	1P11-4	7J2-29	Q32	SB-28-1450-DC
04	Pin 4	Controlled	Gry-Yel	1P11-5	7J2-30	Q24	SB-28-1450-DC
05	Pin 5	Controlled	Gry-Grn	1P11-6	7J2-31	Q31	SB-28-1450-DC
06	Pin 6	Controlled	Gry-Blu	1P11-7	7J2-32	Q23	SB-28-1450-DC
07	Pin 7	Controlled	Gry-Vio	1P11-8	7J2-33	Q30	SB-28-1450-DC
08	Pin 8	Controlled	Gry-Blk	1P11-9	7J2-34	Q22	SB-28-1450-DC
09	Pin 9	Controlled	Brn-Blk	1P12-1	7J2-5	Q17	SB-28-1450-DC
10	Pin 10	Controlled	Brn-Red	1P12-2	7J2-6	Q9	SB-28-1450-DC
11	Pin-Reset Relay	Controlled	Brn-Orn	1P12-4	7J2-7	Q16	SZ-31-2000-DC
12	Ticket Dispenser	Controlled	Brn-Yel	1P12-5		Q8	-
13	GOLD MINE Flash	Controlled	Brn-Grn	1P12-6	9P1-5 (FL Ω Bd)	Q15	#89 Flashlamps
14	Donkey Flasher	Controlled	Brn-Blu	1P12-7	9P1-4 (FL Ω Bd)	Q7	#89 Flashlamps
15	Dog Flasher	Controlled	Brn-Vio	1P12-8	9P1-2 (FL Ω Bd)	Q14	#89 Flashlamps
16	R. Miner Flasher	Controlled	Brn-Gry	1P12-9	9P1-1 (FL Ω Bd)	Q6	#89 Flashlamps
17	Not Used	Special #1	Blu-Brn	1P19-7		Q75	-
18	Not Used	Special #2	Blu-Red	1P19-4		Q71	-
19	Not Used	Special #3	Blu-Orn	1P19-3		Q73	-
20	Not Used	Special #4	Blu-Yel	1P19-6		Q69	-
21	Not Used	Special #5	Blu-Grn	1P19-8		Q77	-
22	Not Used	Special #6	Blu-Blk	1P19-9		Q79	-

SWITCH TEST.

1. (From Solenoid Test) Using AUTO-UP, press ADVANCE. Observe that the Credit display shows 03 (switch test identifier) and that the FRAMES display shows a series of test steps from 01 through 36. Each of these steps represents a game switch number. A sound accompanies the display of a switch number. During this test, the operator must manually actuate each switch. As soon as a switch is actuated, its number is removed from the sequence of numbers appearing on the FRAMES display. When all switches have been actuated, the FRAMES display is blank, and the sounds stop. Refer to the **Switch-Matrix Table** for switch numbers and wiring information (wire colors, CPU Board connections at jacks 1J8 (columns) and 1J10 (rows) , etc).

GOLD MINE Switch-Matrix Table

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 GRN-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	Select Game 1	Playfield E & F Series 9	Playfield L 17	Playfield P 25	Playfield Z 33	Not Used 41	Not Used 49	Not Used 57
2 WHT-RED 1J10-8	Not Used 2	Playfield E 10	Playfield K 18	Playfield O 26	Playfield Y 34	Not Used 42	Not Used 50	Not Used 58
3 WHT-ORN 1J10-7	Credit Button 3	Playfield B 11	Playfield H 19	Playfield N 27	Playfield X 35	Not Used 43	Not Used 51	Not Used 59
4 WHT-YEL 1J10-6	Right Coin Chute 4	Playfield A 12	Playfield AA 20	Playfield M 28	Playfield Back Row 36	Not Used 44	Not Used 52	Not Used 60
5 WHT-GRN 1J10-5	Center Coin Chute 5	Playfield D 13	Playfield G 21	Playfield W 29	Ticket Dispenser 37	Not Used 45	Not Used 53	Not Used 61
6 WHT-BLU 1J10-3	Left Coin Chute 6	Playfield C & D Series 14	Playfield S 22	Playfield V & W Series 30	Not Used 38	Not Used 46	Not Used 54	Not Used 62
7 WHT-VIO 1J10-2	Slam Tilt 7	Playfield J 15	Playfield R 23	Playfield T & U Series 31	Not Used 39	Not Used 47	Not Used 55	Not Used 63
8 WHT-GRY 1J10-1	High-Score Reset 8	Playfield I 16	Playfield Q 24	Playfield T 32	Not Used 40	Not Used 48	Not Used 56	Not Used 64

TEST/DIAGNOSTIC PROCEDURES (Continued)

SWITCH TEST (Continued)

2. Hold down each switch, until its number appears in the FRAMES display at least twice, accompanied by the sound.

   Row Problems. If a display of two switch numbers of a row occurs, although only one switch is closed, check for a short circuit between the column wires.

   Multiple Switch Number Indications. Check the associated column wire for a short circuit to ground.

   Column Problems. If display of two switch numbers in a column occurs (while only one switch is actuated), check for a short circuit between row wires.

3. *Playfield or CPU Board?* To determine whether a 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, place a jumper between connectors 1J10-1 and 1J8-2. A properly operating CPU Board shows actuation of switch 16.

ENDING THE DIAGNOSTIC TEST.

To end the Diagnostic Tests, reach Function 50 of Test 04, and using AUTO-UP, press ADVANCE. The backbox displays should momentarily blank, and then proceed to the Attract Mode.

AUTO-CYCLE MODE.

The Auto-Cycle 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-Cycle Mode:

1. In Function 50 of Test 04 (see the **Game Adjustments Table**), press the Credit button to display Special Function 15 in the 1 display.

2. Press ADVANCE to start the Auto-Cycle Mode. This mode repeatedly sequences through the Display Test, Sound Test (00), Lamp Test (01), and Solenoid Test (02).

3. To halt the Auto-Cycle Mode, turn the *GOLD MINE* game Off and On. The game now starts in the Attract Mode.

SYSTEM-11A MEMORY CHIP TEST.

A new feature is now included in the Memory Chip Test for System 11A. During power-up, the CPU performs a self-testing routine. Only after all tests are satisfactory does the game proceed to the Attract Mode, allowing players to use the game. Whenever any portion of the testing does not produce satisfactory results, the game does *not* proceed to the Attract Mode. Instead, it remains in the test mode, but does cause the Diagnostic LED, mounted on the CPU Board, to blink or flash a certain number of times to identify the probable cause.

By checking the number of blinks observed against the related entry in the **CPU LED Indicator Codes Table**, the operator can find what the CPU and Memory Chip testing routine has discovered. The operator can also start the self-testing routine by pressing the CPU Diagnostic Switch (SW 2) on the edge of the CPU Board. When there is a malfunction affecting the CPU Board or its memory chip components, one of the indications shown in the table should appear.

TEST/DIAGNOSTIC PROCEDURES (Continued)

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 connectingdevices 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.

SYSTEM-11A SOUND SECTION TEST.

Press the Sound Diagnostic Switch (SW 1) on the CPU Board. Listen for the sounds. The sequence of sounds repeats, until the operator turns the *GOLD MINE* game Off and On.

NO SOUNDS DURING THIS TEST (but sounds can be heard during the Diagnostic Tests). Check the sound-select inputs (pins 2 through 9 of U13) to see if they pulse during Diagnostic Test 00. Also, check the -12 V supply voltage on the CPU Board. If this 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 VAC.
2. The -12 V filter capacitor C26 on the CPU Board.
3. The filter capacitor C26 for excessive AC ripple (over 0.75VAC).

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 'click' or a low hum indicates that the power amplifier chip (TDA2002), Volume Control, and speaker are operating satisfactorily. Not hearing a sound requires repeating the test with the Volume Control turned part way down, to determine whether the Volume Control is faulty.

MAINTENANCE INFORMATION

Routine Care

During the stop to empty the coinbox and record the earnings from the bookkeeping data, the technician can perform a regular routine of game servicing to maintain the profit-making potential of the game. Among these maintenance tasks should be backglass cleaning, playfield cleaning, any necessary adjustment of playfield switches, adjustment of the the pin hanger mechanism when necessary, and replacement of any broken parts, including darkened/burned-out lamps.

A replacement part should duplicate the original, whenever possible. Do NOT replace a blown fuse with one of a greater ampere rating; excess current can destroy electronic components. Following any servicing activity, the technician should make a general check of game operation to verify that the game is now in proper operating condition.

Access to the Pin Panel

When access to the Pin Panel in the Hood is necessary, the following procedure may be helpful:

1. Unplug the game. Unscrew the Phillips head screw on the top of the pin panel hood (just above pin #1). Open the backbox; then, open the insert board, and lay it on top of the pin panel hood.

2. Reach through the hole in the bottom of the backbox, and turn the two latches securing the back cover. Remove the back cover to gain access to the wire harnesses (cables).

3. Disconnect the cables leading to the pin panel. Also, disconnect the pin panel ground braid from the common grounding post, by loosening the wingnut.

4. Take care *not* to snag or break any wires, and slide the pin panel toward the frontbox. *CAUTION:* This assembly has considerable mass (weight and bulk). Take care to avoid dropping or tipping it onto the playfield.

Solder Warning

WARNING

Use ONLY *Rosin-core* solder to repair electrical/electronic problems. Other types of solder can damage or destroy electronic parts, especially Printed Circuit Board wiring and switch contacts.

Fuse Listing

The following fuses are used:

Part Number	Description	Circuit/Location
5730-09252-00	Fuse, 8A Slow-Blow (S-B), 125v	Input Power ("high voltage") Line/Upper Backbox*
5731-09651-00	Fuse, 5A S-B, 250v	Gen. Illumination/Upper Backbox fuseholder (3)
5731-08761-00	Fuse, 1/4A S-B, 250v	F1, D-8345-1914 Power Supply
5731-09128-00	Fuse, 2-1/2A S-B, 250v	F2, D-8345-1914 Power Supply
5731-09071-00	Fuse, 8A, 32v	F3, D-8345-1914 Power Supply
5731-09432-00	Fuse, 7A S-B, 250v	F5, D-8345-1914 Power Supply
5731-09432-00	Fuse, 7A S-B, 250v	F6, D-8345-1914 Power Supply

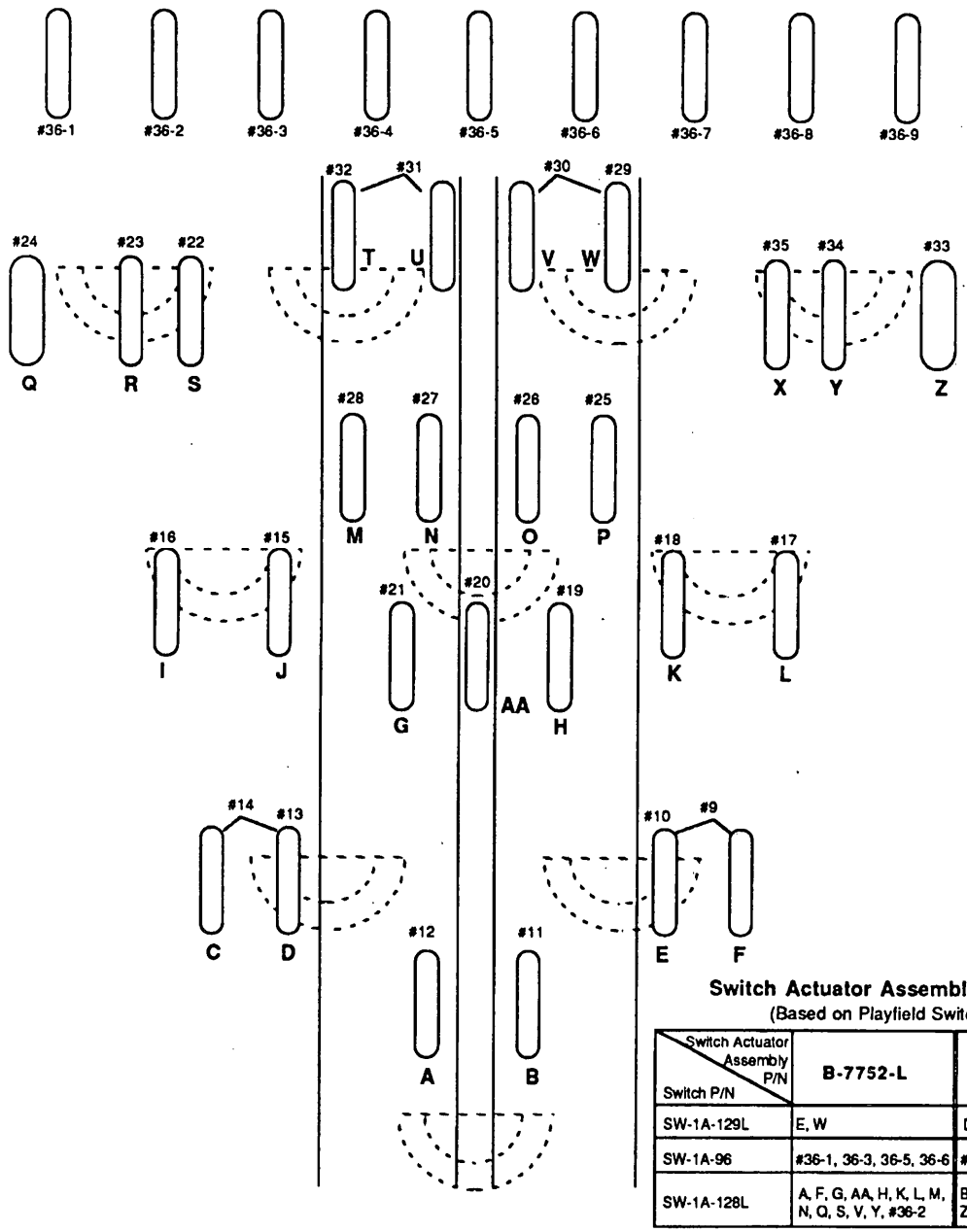
* A 4-A , 250v fuse (5731-06314-00) is provided for any overseas (220v) game installations.

GOLD MINE

Game Parts Information & Schematics

- Playfield Switches and Lamps
- Pin Hanger Assembly
- Pin Panel Assembly
- "L" Relay Assembly
- Pin Panel Motor Assembly
- Power Supply Board (D-8345)
- Cabinet Wiring Diagram
- Pin Panel Solenoid & Insert Board Flashers Wiring Diagram
- Master Display Board (D-10749)
- Displays
- CPU Board (D-11883-1)
- Interboards Signals & Cables Diagrams
- Power Wiring Diagram

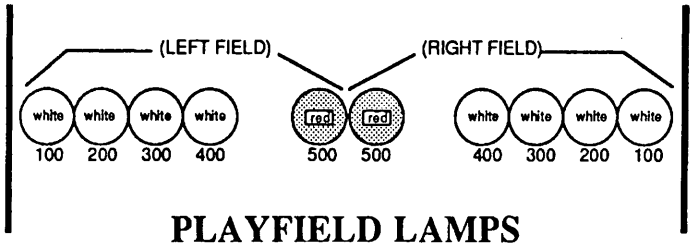
Playfield Switches Layout



Switch Actuator Assembly - Switch P/N List

(Based on Playfield Switches Layout diagram)

Switch Actuator Assembly P/N / Switch P/N	B-7752-L	B-7752-R	Switch Actuator Assembly P/N / Switch P/N
SW-1A-129L	E, W	D, T	SW-1A-129R
SW-1A-96	#36-1, 36-3, 36-5, 36-6	#36-4, 36-7, 36-8, 36-9	SW-1A-96
SW-1A-128L	A, F, G, AA, H, K, L, M, N, Q, S, V, Y, #36-2	B, C, I, J, O, P, R, U, X, Z	SW-1A-128R



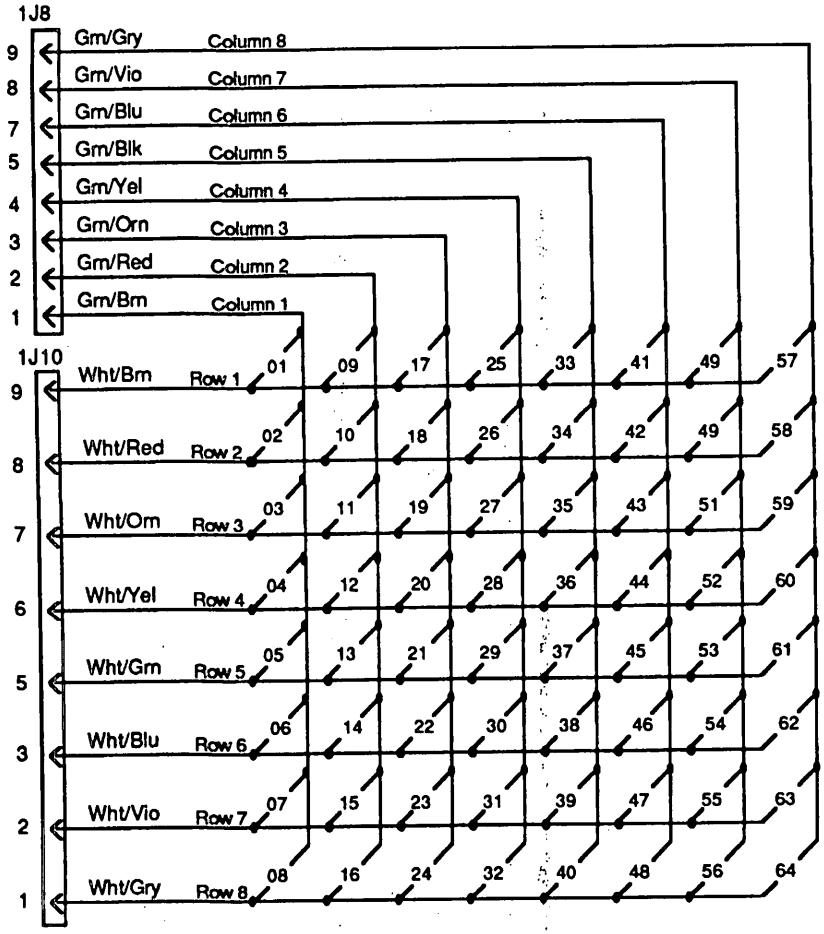
PLAYFIELD LAMPS
Diagram

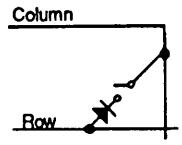
Shuffle Alley Lamps

Lamps used on Playfield, in Frontbox, in Pin Panel Hood (except fluorescent), and in Backbox Insert Board (except flashlamps) are #44, p/n 24-6549.

Fluorescent Lamps in Pin Panel Hood are 14-watt Cool White (GE F14T12-CW, or equivalent), p/n 24-6597-5.

Flashlamps on Insert Board are #89, p/n 24-8704.

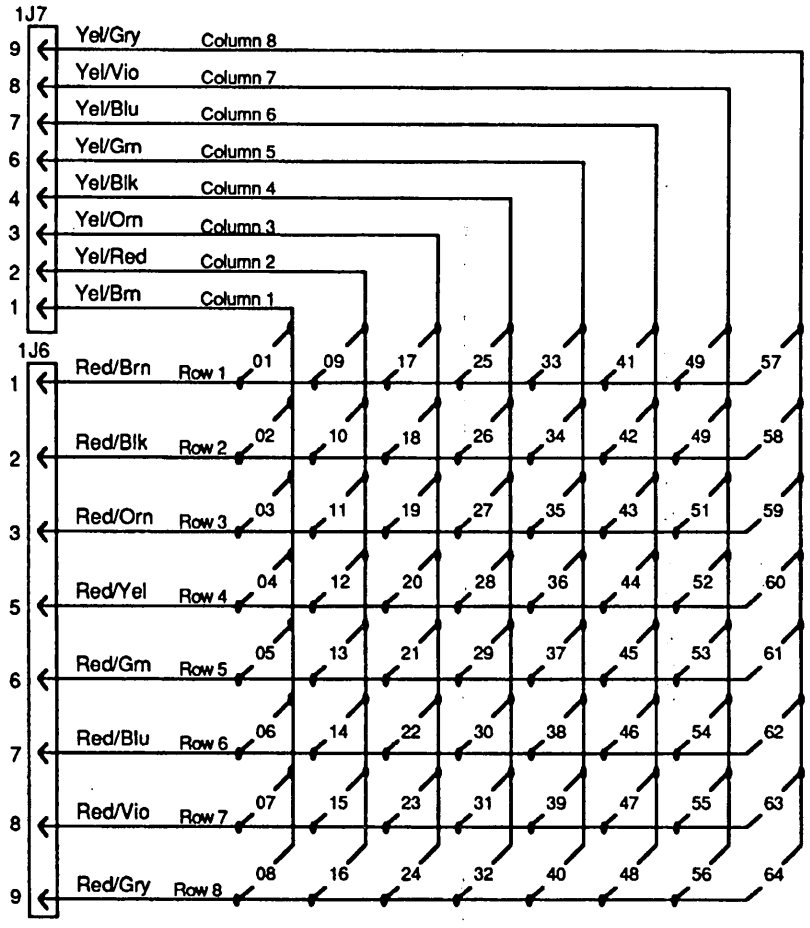


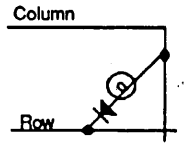


Typical Switch Circuit

GOLD MINE Switch-Matrix Table

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 GRN-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	Select Game 1	Playfield E & F Series 9	Playfield L 17	Playfield P 25	Playfield Z 33	Not Used 41	Not Used 49	Not Used 57
2 WHT-RED 1J10-8	Not Used 2	Playfield E 10	Playfield K 18	Playfield O 26	Playfield Y 34	Not Used 42	Not Used 50	Not Used 58
3 WHT-ORN 1J10-7	Credit Button 3	Playfield B 11	Playfield H 19	Playfield N 27	Playfield X 35	Not Used 43	Not Used 51	Not Used 59
4 WHT-YEL 1J10-6	Right Coin Chute 4	Playfield A 12	Playfield AA 20	Playfield M 28	Playfield Back Row 36	Not Used 44	Not Used 52	Not Used 60
5 WHT-GRN 1J10-5	Center Coin Chute 5	Playfield D 13	Playfield G 21	Playfield W 29	Ticket Dispenser 37	Not Used 45	Not Used 53	Not Used 61
6 WHT-BLU 1J10-3	Left Coin Chute 6	Playfield C & D Series 14	Playfield S 22	Playfield V & W Series 30	Not Used 38	Not Used 46	Not Used 54	Not Used 62
7 WHT-VIO 1J10-2	Slam Tilt 7	Playfield J 15	Playfield R 23	Playfield T & U Series 31	Not Used 39	Not Used 47	Not Used 55	Not Used 63
8 WHT-GRY 1J10-1	High-Score Reset 8	Playfield I 16	Playfield Q 24	Playfield T 32	Not Used 40	Not Used 48	Not Used 56	Not Used 64

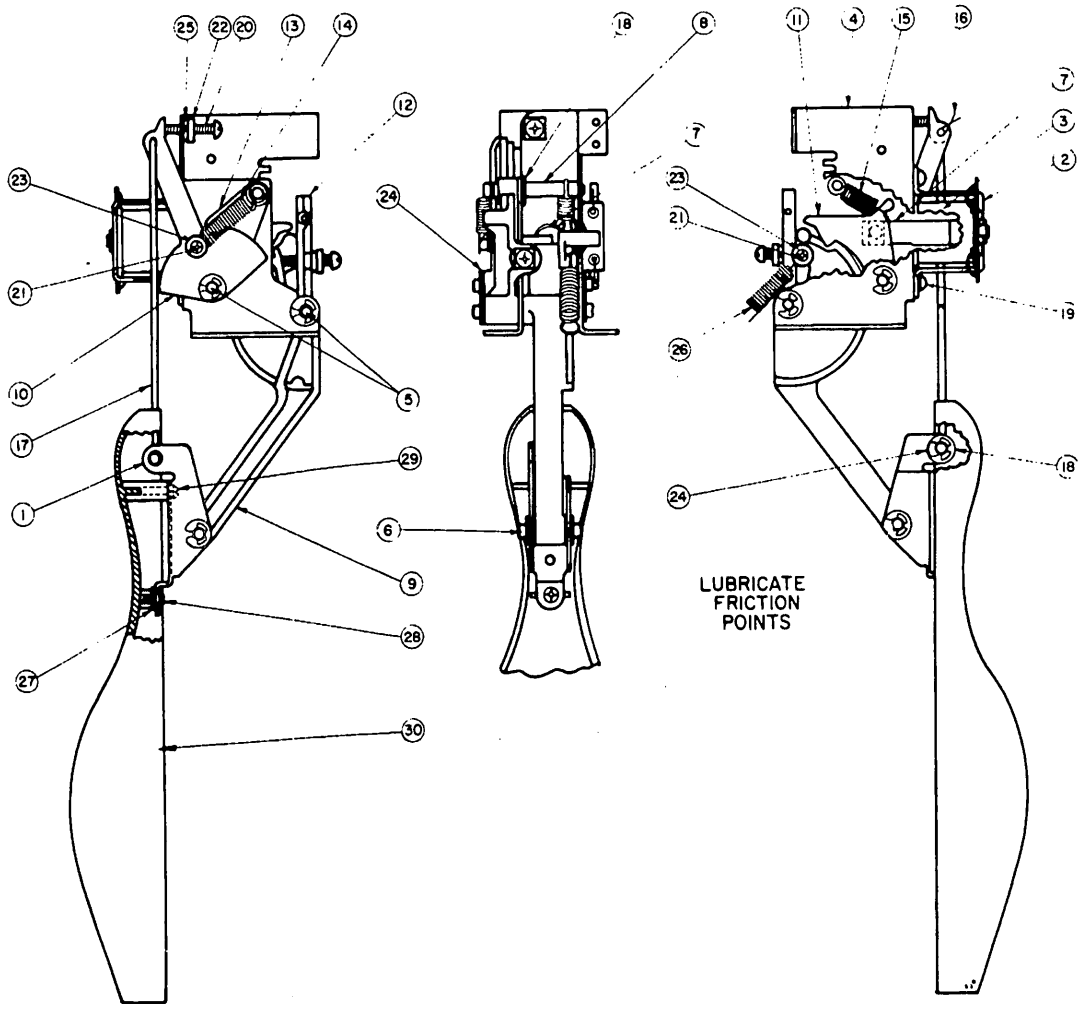




Typical Lamp Circuit

GOLD MINE Lamp-Matrix Table

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
Q80 1 RED-BRN 1J6-1	Left 100 Score 1	Right 100 Score 9	Right 200 Field 17	Player 2 Strike Two 25	Player 4 Strike Two 33	Player 6 Strike Two 41	Gold Mine Upr Cntr 600/400 49	Game #1 Regulation 57
Q81 2 RED-BLK 1J6-2	Left 200 Score 2	Left 100 Field 10	Right 100 Field 18	Player 2 Spare 26	Player 4 Spare 34	Player 6 Spare 42	Gold Mine Upr Right 400/200 50	Game #2 GOLD STRIKE 58
Q82 3 RED-ORN 1J6-3	Left 300 Score 3	Left 200 Field 11	Right 500 Field 19	Match 27	Credit Button 35	Bowl Again 43	Gold Mine Mid Left 600/400 51	Game #3 Super Strike 59
Q83 4 RED-YEL 1J6-5	Left 400 Score 4	Left 300 Field 12	Player 1 Strike One 20	Player 3 Strike One 28	Player 5 Strike One 36	10th Frame 44	Gold Mine Mid Cntr 800/600 52	Game #4 Strike 90 60
Q84 5 RED-GRN 1J6-6	Center 500 Score 5	Left 400 Field 13	Player 1 Strike Two 21	Player 3 Strike Two 29	Player 5 StrikeTwo 37	10th Frame Strike 1 45	Gold Mine Mid Right 700/500 53	Game #5 Flash 61
Q85 6 RED-BLU 1J6-7	Right 400 Score 6	Left 500 Field 14	Player 1 Spare 22	Player 3 Spare 30	Player 5 Spare 38	10th Frame Strike 2 46	Gold Mine Lwr Left 400/200 54	Not Used 62
Q86 7 RED-VIO 1J6-8	Right 300 Score 7	Right 400 Field 15	Beer Frame 23	Game-Over 31	High Score to Date 39	10th Frame Spare 47	Gold Mine Lwr Cntr 500/300 55	Not Used 63
Q87 8 RED-GRY 1J6-9	Right 200 Score 8	Right 300 Field 16	Player 2 Strike One 24	Player 4 Strike One 32	Player 6 Strike One 40	Gold Mine Upr Left 400/200 48	Gold Mine Lwr Right 300/100 56	Not Used 64

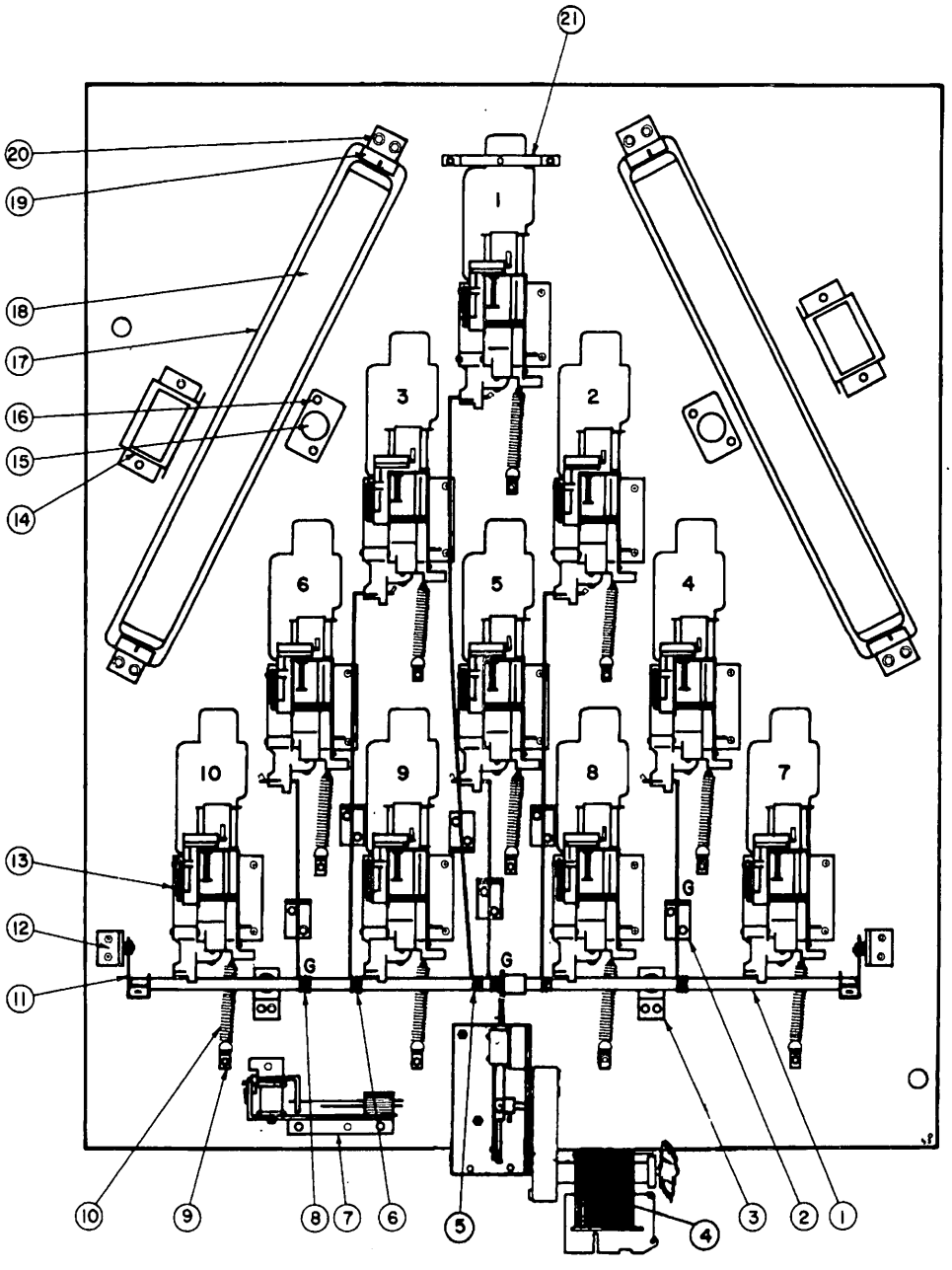


Pin Hanger Assy

p/n D-6588

Item	Part No.	Description	Item	Part No.	Description
1	A-6587	Pin Hanger Bracket Assy	16	12-6351	R O Wire Form
2	A-6867	Coil Stop Assy	17	12-6371	Pin Hanger Wire
3	SB-28-1450-DC	Coil Assy	18	20-8712-25	E-ring, 1/4 shaft
4	01-3869	Pin Reset Mounting Brket	19	4008-01017-04	Mach. Screw (8-32 x 1/4 P - RH)
5	02-3137	Main Lever Shaft	20	4010-01025-14	Mach. Screw (10-32 x 7/8 P - RH)
6	02-3138	Pin Suspension Shaft	21	4104-01001-06	Sh. Met. Screw (#4 x 3/8 P - PH -
7	02-3140	Solenoid Plunger	22	4410-01134-00	Nut 10-32 Sq A)
8	02-3141	Trip Actuator Shaft	23	4700-00011-00	Washer, 11/64 x 7/16 x 16 Ga.
9	03-7201	Pin Hanger	24	4700-00103-00	Washer, 17/64 x 1/2 x 0.15
10	03-7202	Pin Reset Lever	25	4701-00004-00	Lockwasher (#10 split)
11	03-7203	Pin Release Latch	26	10-295	Main Spring
12	03-7204	Reset Lever	27	12-6357	Reinforcing Clip A)
13	03-7205	Pin Trip Actuator	28	4106-01019-06	Sh. Met. Screw (#6 x 3/8 P - RH -
14	10-255	Secondary Lever Spring	29	4106-01022-12	Sh. Met. Screw (#6 x 3/4 P - RWT
15	10-321	Secondary Lever Spring	30	31-1445	Bowling Pin #4801 - A)

PIN PANEL ASSEMBLY



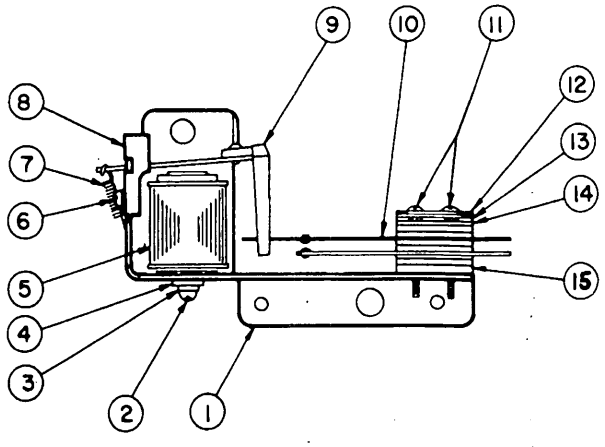
GOLD MINE PIN PANEL

p/n 1920-PP

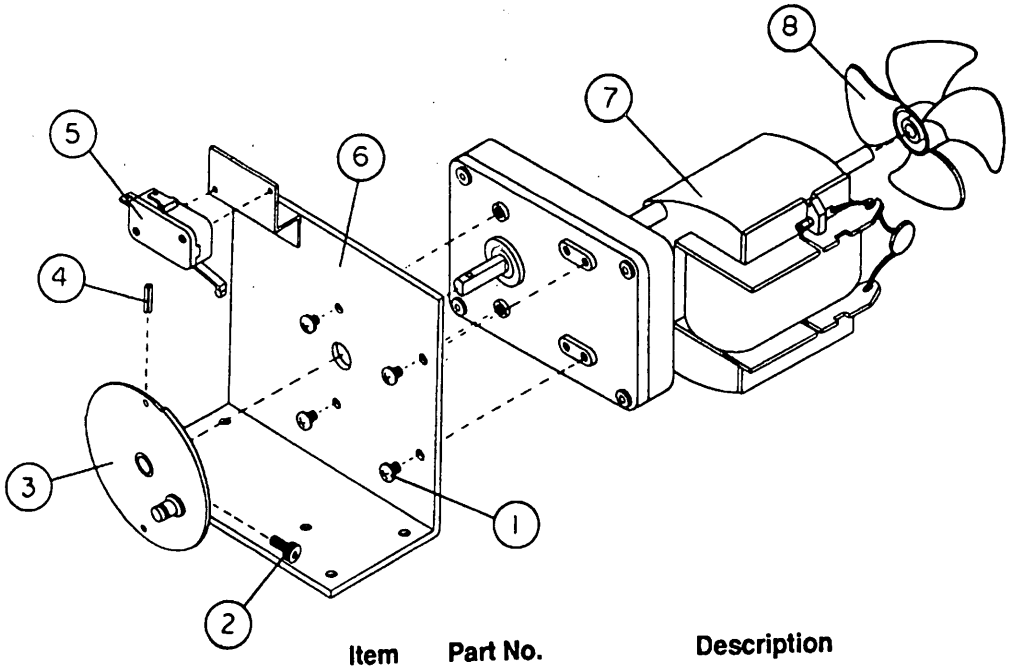
Item	Part No.	Description	Item	Part No.	Description
1	02-3325	Reset Bar - Rear	11	01-3710-A1	Arm - Reset Bar
2	01-3895	Guide, Pin Hanger	12	A-6821	Bracket & Stud Assy
3	a) 01-5325	Reset Bar Support	13	D-6588	Pin Hanger Assy
	b) 23-6313	Rubber Grommet	14	20-8749-8	Fluorescent Ballast
4	C-11013	Pin Panel Motor Assy	15	20-8748-1	Fluorescent Starter
5	12-6410	Reset Wire	16	20-8747	Starter Fixture
6	12-6394	Reset Wire	17	01-3822-2	Fluor. Reflector
7	B-9695	"L" Relay Assy	18	24-6597-5	Fluorescent Lamp
8	12-6393	Reset Wire	19	20-8746	Fluor. Lamp Holders
9	01-3896	Spring Hanger - Pin Panel	20	01-3827-5	Fluor. Mounting Bracket
10	10-295	Main Spring	21	01-6687	Pin Panel Front Brace

"L" Relay Assy

p/n B-9695



Item	Part No.	Description
1	A-6215	Frame Assy
2	4008-01053-06	Mach. Screw (8-32 x 3/8 SL - BHBR)
3	4701-00003-00	Lockwasher (#8 split)
4	4700-00089-00	0.172 x 7/16 16 Ga.
5	SZ-31-2000-DC	Coil Assy
6	4006-01003-03	Mach. Screw (6-32 x 3/16 P - PHS)
7	10-96	Spring
8	01-3839	Armature Retainer
9	A-6214-3	L Relay Armature Assy
10	SW-10-Z	Switch
11	4006-01005-12	Mach. Screw (6-32 x 3/4 P - PH)
12	01-3670	Switch Plate - Curved
13	01-3670-1	Switch Plate - Flat
14	01-5260	Tension Plate
15	01-916-H	Spacer, 3/32"



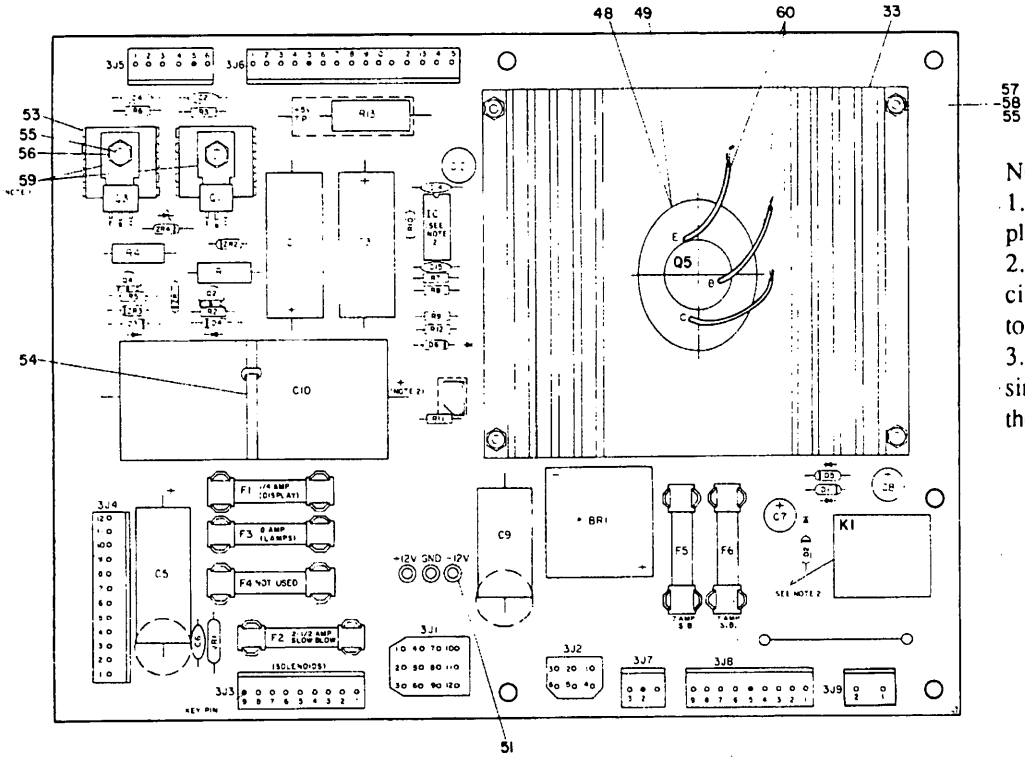
Pin Panel Motor Assy

p/n C-11013

Item	Part No.	Description
1	4008-01017-04	Mach. Screw (8-32 x 1/4 P - RH - S)
2	4008-01074-08	Cap Screw (8-32 x 1/2 SH-N)
3	B-11015	Cam Assy - Pin Motor
4	20-8716-2	Rollpin 3/32 x 5/8
5	5647-10915-00	Microswitch
6	B-11014	Motor Mounting Bracket Assy
7	14-7922	Motor 60 Hz, 110V
8	20-9246	Fan Blade

Associated Parts

A-7327	Drive Link Assy
20-8790	Nylined Bearing
20-8712-21	E-ring (7/32" shaft)
4004-01003-10	Mach. Screw (4-40 x 5/8 P-PH-S)
01-7543	Nut Plate



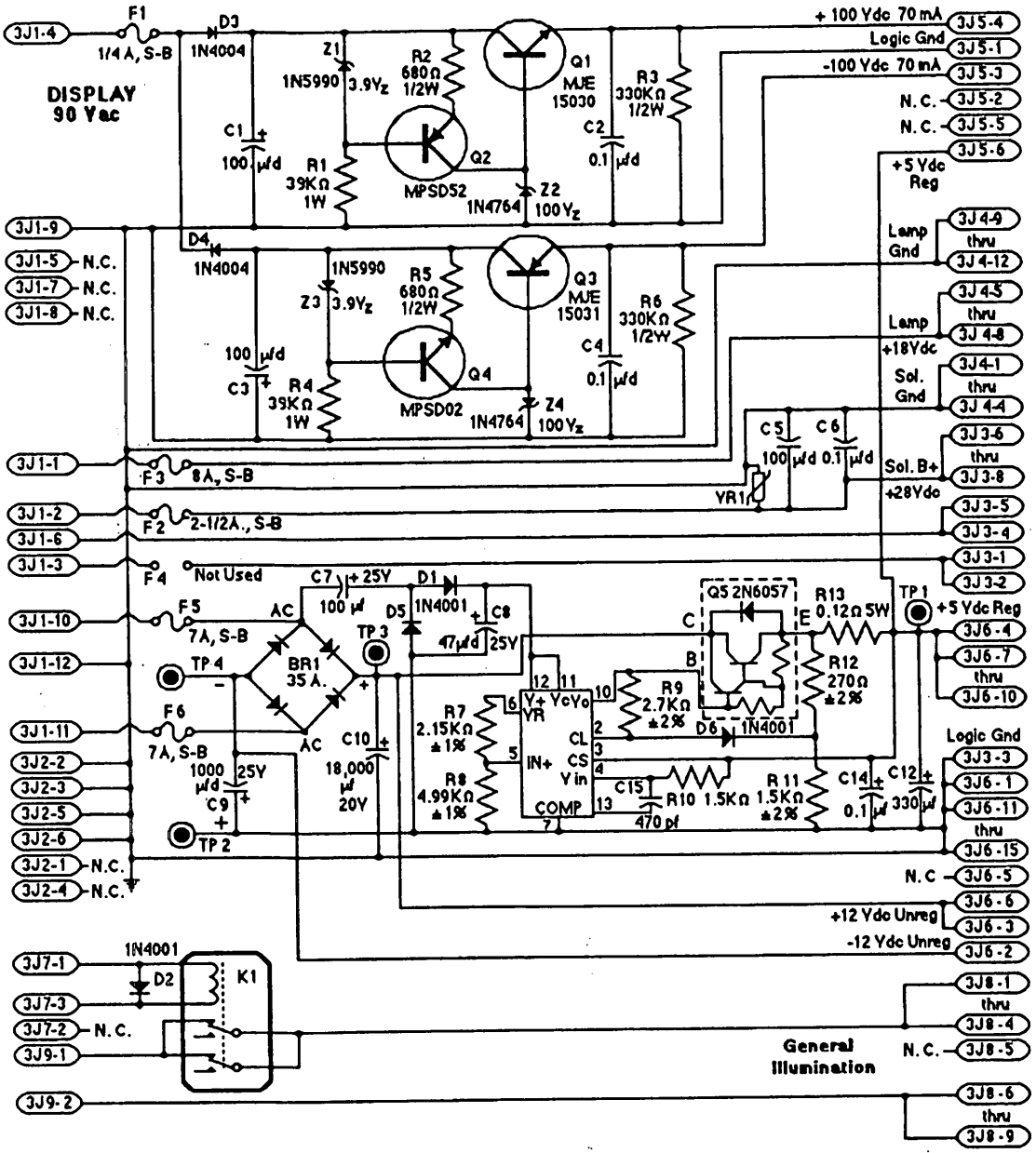
NOTES:

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

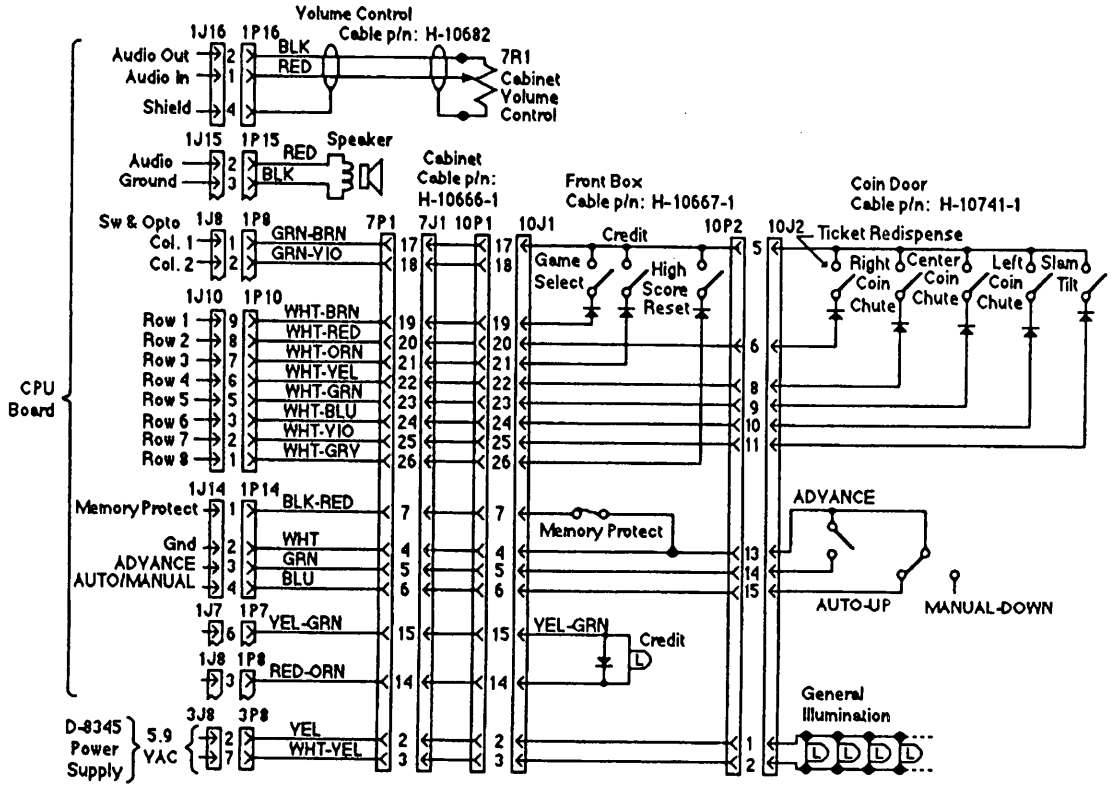
Power Supply

p/n D-8345-1914

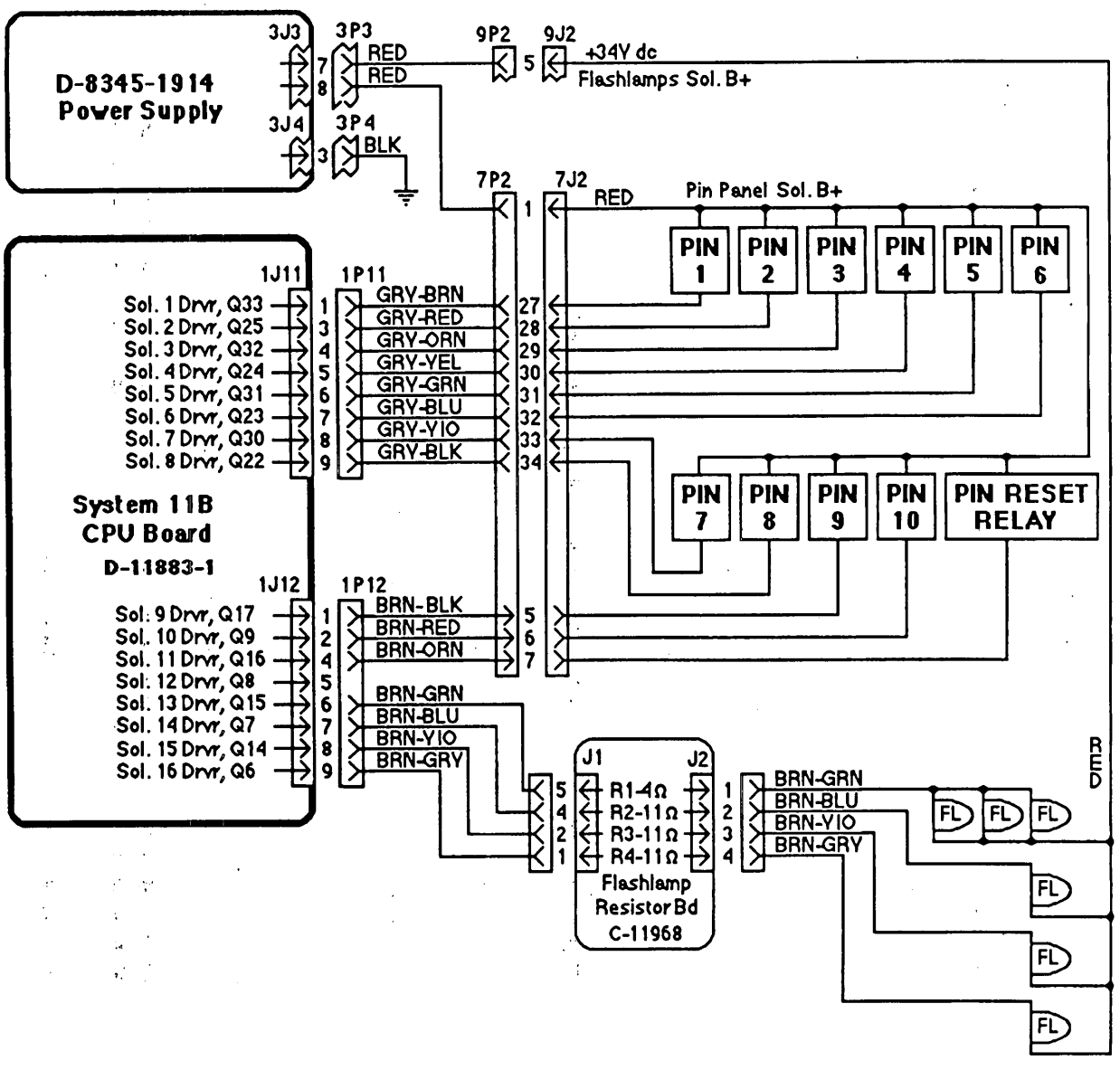
Item	Part No.	Ckt Designator	Description
1	5765-09466-01		Bare P. C. Board
2	5013-09426-00	R7	Resistor, 2.15K, 1%, 1/4w, Metal Film
3	5013-09427-00	R8	Resistor, 4.99K, 1%, 1/4w, Metal Film
4	5010-09428-00	R11	Resistor, 1.5K, 2%, 1/4w, C. Film
5	5010-09085-00	R10	Resistor, 1.5K, 5%,1/4w
6	5010-09541-00	R9	Resistor, 2.7K, 2%,1/4w
7	5010-09508-00	R12	Resistor, 270Ω, 2%, 1/4w, C. Film
8	5012-09429-00	R13	Resistor, 0.12Ω, 5%,5w
9	5010-09536-00	R1, R4	Resistor, 39K, 5%,1w
10	5010-09061-00	R2, R5	Resistor, 680Ω, 2w
11	5010-09069-00	R3, R6	Resistor, 330K, 5%,1/2w
12	5040-09419-00	C10	Capacitor, 18,000 mfd, electr, 20v, axial
13	5040-09420-00	C9	Capacitor, 1000 mfd, electr, 25v, axial or radial
14	5040-09423-00	C12	Capacitor, 330 mfd, electr, 10v,radial
15	5043-9065-00	C15	Capacitor, 470 pfd
16	5040-9053-00	C1, C3	Capacitor, 100 mfd, electr, 150v
17	5040-09070-00	C5	Capacitor, 100 mfd, electr, 100v, axial or radial
18	5043-09072-00	C2, C4	Capacitor, 0.1 mfd, 500v, disc
19	5043-09446-00	C14	Capacitor, 0.1 mfd, 50v, disc
20	5070-06258-00	D1, D2, D5, D6	Diode, 1N4001
21	5070-09054-00	D3, D4	Diode, 1N4004
22	5075-09059-00	ZR1, ZR3	Zener, 1N5990, 3.9v, 5%
23	5075-09060-00	ZR2, ZR4	Zener, 1N4764, 100v, 5%
24	5460-09424-00	IC1	IC, Volt. Reg., MC1723C
25	5043-09443-00	C6	Capacitor, 0.1 mfd, 200v, disc
26	5040-09421-00	C7	Capacitor, 100 mfd, 25v, radial
27	5040-09422-00	C8	Capacitor, 47 mfd, 50v, radial
28	5164-09057-00	Q1	Transistor, SDS201, NPN
29	5164-09056-00	Q4	Transistor, MPSD02, NPN
30	5194-09058-00	Q3	Transistor, SDS202, PNP
31	5194-09055-00	Q2	Transistor, MPSD52, PNP
32	5162-09425-00	Q5	Transistor, 2N6057, NPN
33	5705-09431-00		Heak Sink
34	5791-09074-00	3J6	Connector, 15 pin (Hdr)
35	5791-09027-00	3J3, 3J8	Connector, 9 pin (Hdr)
36	5791-09038-00	3J2	Connector, 6 pin (Hdr)
37	5791-09067-00	3J5	Connector, 6 pin (Hdr)
38	5791-09434-00	3J4	Connector, 12 pin (Hdr)
39	5791-09435-00	3J7	Connector, 3 pin (Hdr)
40	H-11065	3J9	Cable/Connector Assembly
a)	5791-09400-00		Connector shell
b)	5820-09080-00		Connector pin
41	5791-09068-00	3J1	Connector, 12 pin (Hdr)
42	5321-09178-00		Fuseholder
43	5731-06314-00	F2	Fuse, 4.0A, 250v, S-B
44	5731-09071-00	F3	Fuse, 8A, 32v
45		F4	Not Used
46	5731-08761-00	F1	Fuse, 1/4A, 250v, S-B
47	5017-09064-00	VR1	Varistor
48	5700-09445-00		Socket
49	5701-09652-00		Mica Insulator
50	5580-09555-00	K1	Relay, 24VDC, 10A, DPDT
51	5824-09428-00	TP1 - TP4	Terminal, #1502-1 (Test Post)
52	5100-09418-00	BR1	Bridge Rectifier, 35A, 100V
53	5705-09042-00		Heat Sink
54	03-7947		Tie Wrap
55	4005-01016-00		Mach. Screw, 5-40 x 7/16, RH
56	4700-00004-00		Flatwasher, 0.146 x 3/8, 21 Ga.
57	4701-00023-00		Lockwasher, #5, split
58	4405-01117-00		Hex Nut, 5-40
59	20-9229		Heat sink Thermal Compound
60	HW-30118-4		Lead wire, 18 AWG, 3"
61	5731-01003-00	F6, F5	Fuse, 7A, 250V, S-B



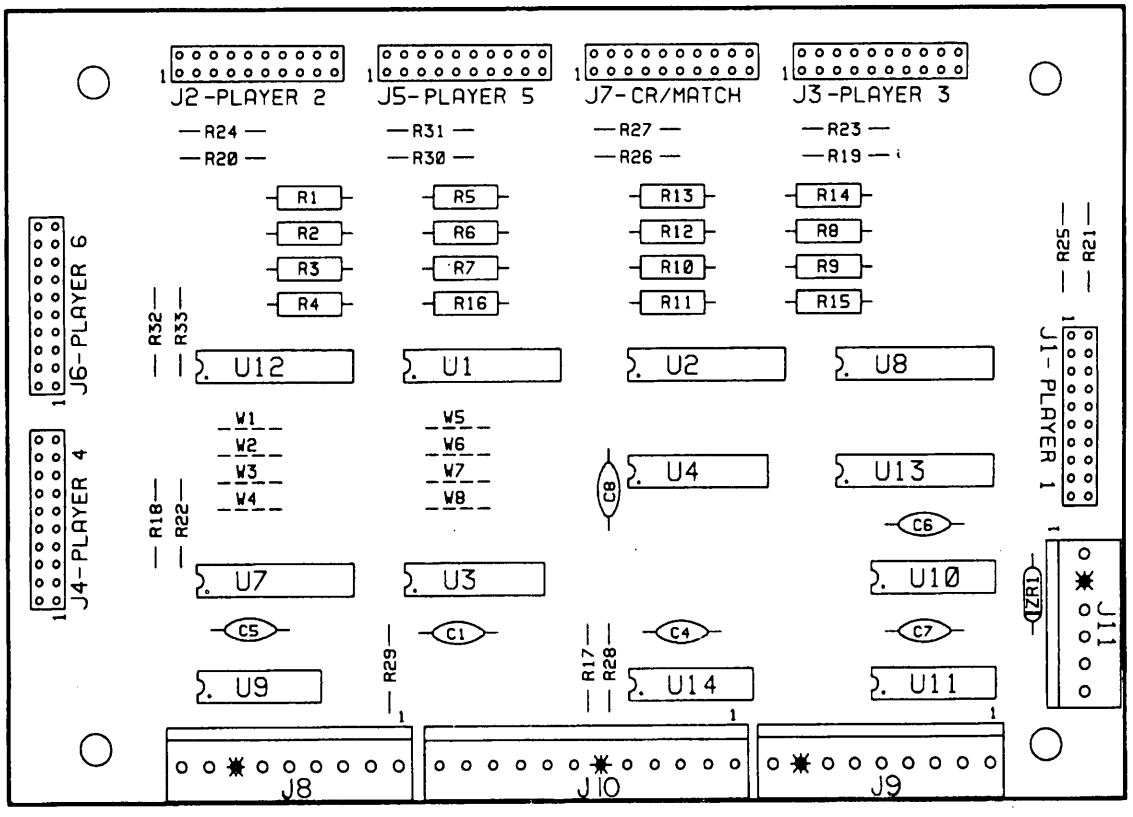
D-8345 Power Supply Schematic



GOLD MINE Cabinet Wiring Diagram



Pin Panel Solenoid & Insert Board Flasher Wiring Diagram



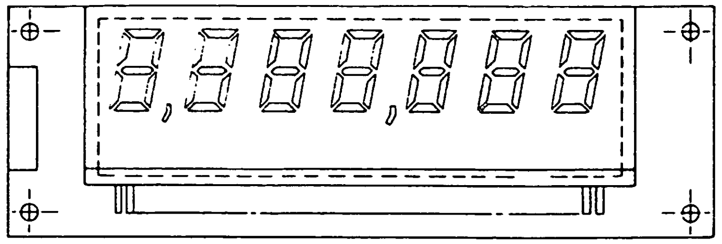
NOTE:

1. FOR MASTER DISPLAY SCHEMATIC REFER TO : 16-8938
2. (A) FOR SHUFFLE ALLEY GAMES, CUT JUMPERS W1 THRU W8.

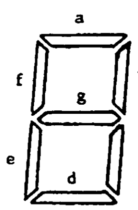
Master Display Board

p/n D-10749

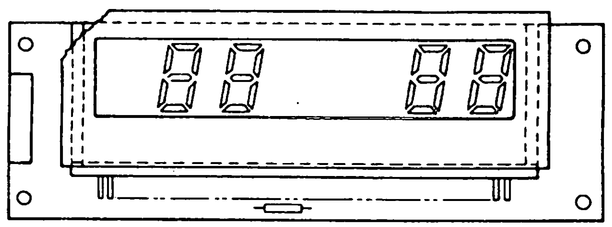
Item	Part No.	Ckt Designation	Description
1	5760-10846-00		Bare P. C. Board
2	5010-08981-00	R1 - R14	Resistor, 10KΩ, 1/2w, 5%, C. F.
3	5010-08982-00	R18-R27, R30-R33	Resistor, 3MΩ, 1/4w, 5%, C. F.
4	5010-09035-00	R28, R29	Resistor, 47KΩ, 1/4w, 5%, C. F.
5	5010-09086-00	R17	Resistor, 6.8KΩ, 1/4w, 5%, C. F.
6	5010-09149-00	R15, R16	Resistor, 15KΩ, 1/2w, 5%, C. F.
7	5043-08980-00	C1, C4 - C8	Capacitor, .01 µfd, 50v (+80, -20%)
8	5075-09135-00	ZR1	Zener Diode, 1N4740A, 10v, 1w
9	5310-08970-00	U3, U4	IC 4543B, 7-seg Decoder
10	5310-08971-00	U9 - U11	IC 4069B, Hex Inverter
11	5310-09450-00	U14	IC 4081, Quad AND
12	5680-08968-00	U7, U8, U12, U13	IC 6184, Anode Driver
13	5680-08969-00	U1, U2	IC 7180, Cathode Driver
14	5791-09437-00	4J1 - 4J7	Connector, 20 pin (Hdr) 2 x 10
15	5791-10862-06	4J11	Connector, 6 pin (Hdr)
16	5791-10862-09	4J8, 4J9	Connector, 9 pin (Hdr)
17	5791-10862-12	4J10	Connector, 12 pin (Hdr)



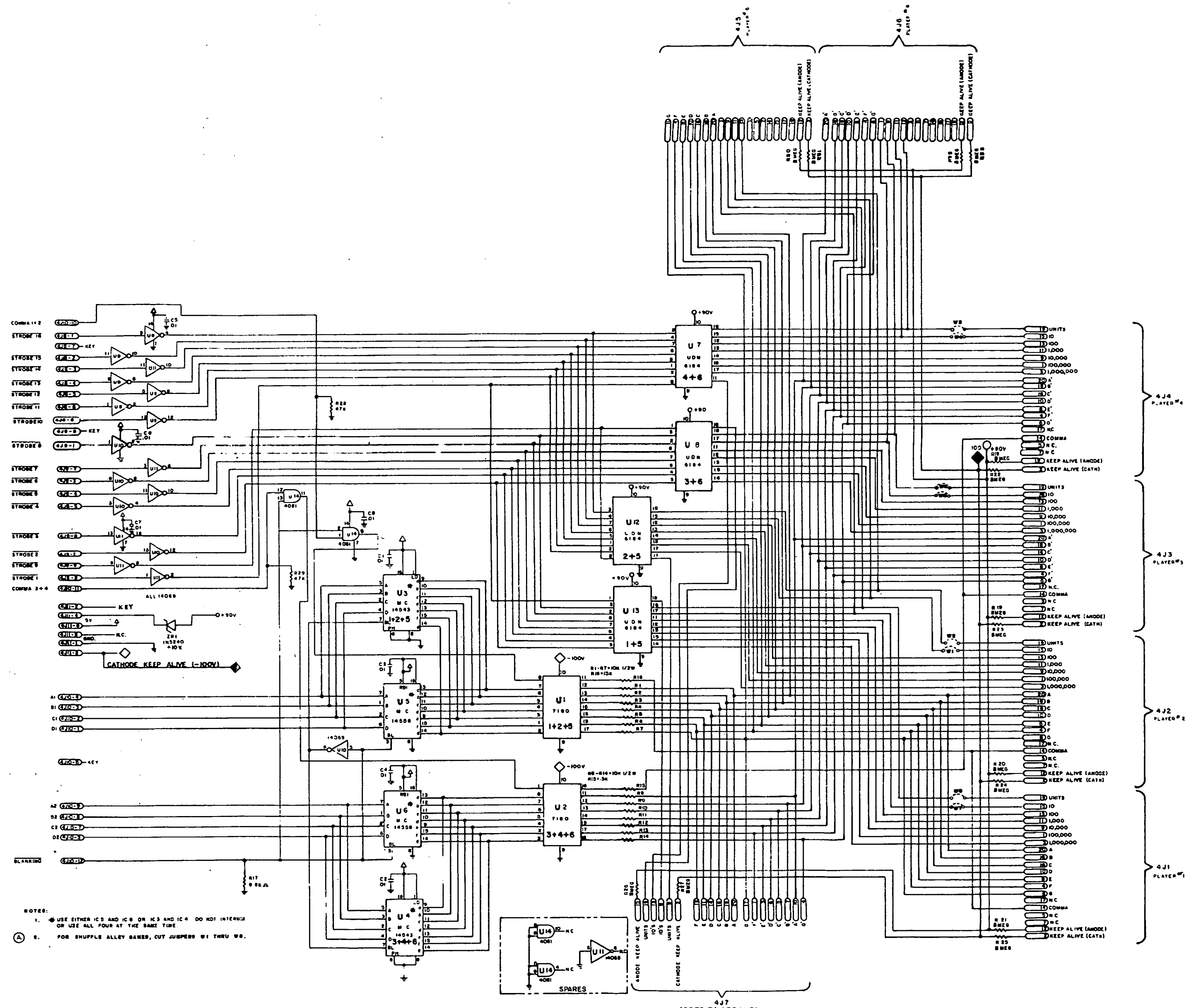
Ć-8364-1 Player Score Display Panel
(Display Glass, p/n 5670-09439-00)



Display Character Segment Designations



C-8365-1 (Credits)/Frames Display
(Display Glass, p/n 5670-09448-00)



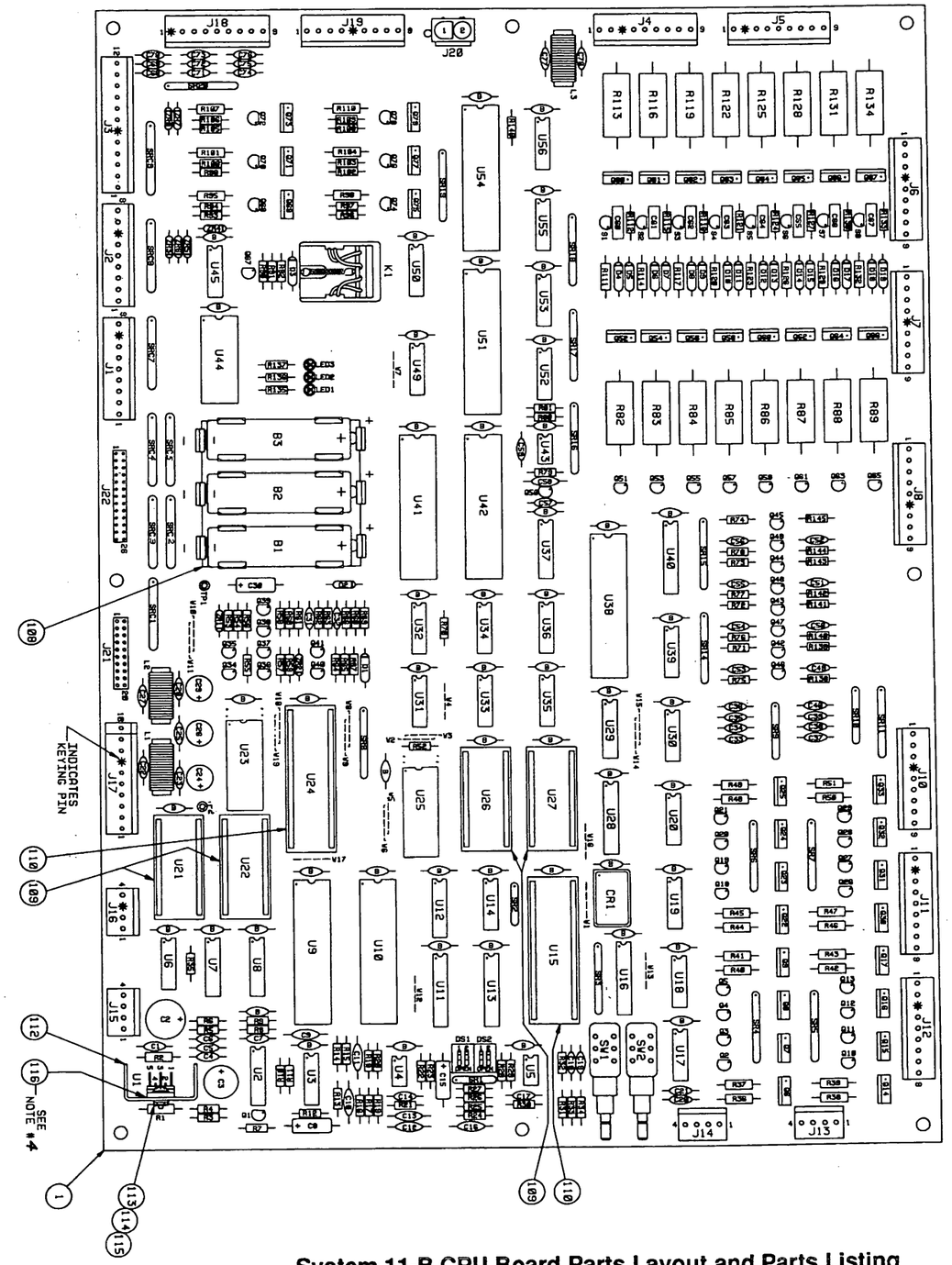
Master Display Board Schematic (16-8938)

System 11B CPU Board

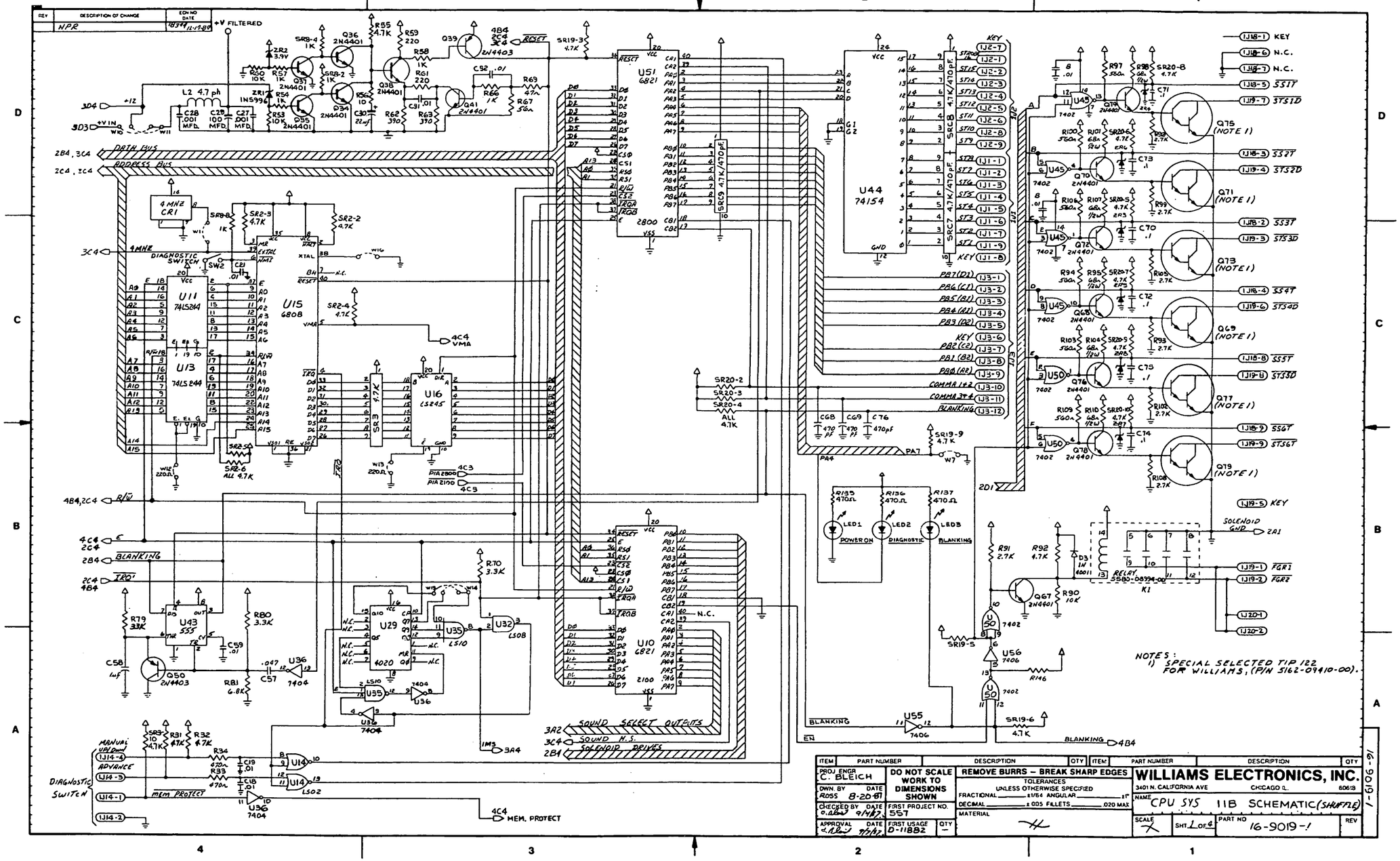
p/n D-11883-1-1920

Item	Part No.	Ckt Designator	Description
1	5764-12206-00		Bare P. C. Board
2	5370-09691-00	U3	IC, CVSD Mod., 55536
3	5370-09321-00	U4, U5	IC, Dual Op Amp, 1458
4	5281-09308-00	U16	IC, Octal Bus Xcvr, 74LS245
5	5430-08972-00	U9, U10, U38, U41, U42, U51, U54	IC, PIA, MC6820/6821
6	5340-10139-00	U25	IC, 2K x 8 CMOS Static RAM
7	5280-09010-00	U44	IC, 4-16 Decoder, 74154
8	5281-09246-00	U7, U8, U12	IC, 2-4 Decoder, 74LS139
9	5075-09406-00	ZR3 - ZR8	Diode, Zener, 6.2v, 0.5w
10	Not Used		
11	5281-09487-00	U6	IC, Dual D Flip-flop,74LS74
12	5431-09449-00	U43	IC, Timer, MC1455
13	5310-09236-00	U29	IC, 14-b Counter, 4020
14	5281-09743-00	U32	IC, Quad 2-Input AND, 74LS08
15	5281-09247-00	U14	IC, Quad 2-Input NOR, 74LS02
16	5281-09235-00	U35	IC, Triple 3-Input NAND, 74LS10
17	5280-09013-00	U36	IC, Hex Inverter, 7404
18	5281-09499-00	U31, U34	IC, Quad 2-Input NAND, 74LS00
19	5281-10014-00	U33	IC, Dual 4-Input NAND, 74LS20
20	5281-09486-00	U28	IC, Octal D Flip-flop, 74LS374
21	5371-09152-00	U2	IC, D/A Converter, MC1408
22	5281-09745-00	U37	IC, 3-8 Decoder, 74LS138
23	5340-09878-00	U23	IC, 2K x 8 Static RAM, 2016
24	5370-09156-00	U1	IC, Aud. Amp., TDA2002
25	5281-09867-00	U11, U13, U40	IC, Octal Buffer, 74LS244
26	5280-08973-00	U17-U20, U52, U53	IC, Quad 2-Input AND, 7408
27	5280-08974-00	U55, U56	IC, Hex Inverter, 7406
28	5310-09155-00	U30, U39	IC, Quad 2-Input NAND, MC14011
29	5280-08948-00	U45, U50	IC, Quad 2-Input NOR, 7402
30	5280-09309-00	U49	IC, Hex Buffer, 7407
31	5671-09019-00	LED1-LED3	LED, Red, Display
32	5521-10506-00	CR1	Oscillator, 4 MHz
33	5162-08976-00	Q51, Q53, Q55, Q57, Q59, Q61, Q63, Q65	Transistor, NPN Darl. 2N6427, TO-92
34	5191-08978-00	Q52, Q54, Q56, Q58, Q60, Q62, Q64, Q66	Transistor, PNP, TIP42, TO-220
35	5162-09410-00	Q6-Q9, Q14-Q17, Q22-Q25, Q30-Q33, Q69, Q71, Q73, Q75, Q77, Q79, Q80-Q87	Transistor, NPN, TIP122, TO-220
36	5160-08938-00	Q2-Q5, Q10-Q13, Q18-Q21, Q26-Q29, Q34-Q38, Q41, Q67, Q68, Q70, Q72, Q74, Q76, Q78	Transistor, NPN, 2N4401, TO-92
37	5160-10269-00	Q1, Q40, Q42-Q49	Transistor, NPN, 2N3904, TO-92
38	5190-09016-00	Q39, Q50	Transistor, PNP, 2N4403, TO-92
39	5130-09014-00	S1-S8	SCR, 30v, 0.8A, 2N5060
40	5070-06258-00	D3-D19	Diode, 1N4001
41	5070-08919-00	D2	Diode, 1N4148, 150mA
42	5070-09266-00	D1	Diode, 1N5817, 1.0A
43	5075-09018-00	ZR1	Diode, Zener, 1N5996A, 6.8v, 0.5w
44	5075-09059-00	ZR2	Diode, Zener, 1N5990, 3.9v, 0.5w
45	5010-08992-00	R94, R97, R100, R103, R106, R109	Resistor, 560Ω, 5%, 1/4w, C. F.
46	5010-09039-00	R56	Resistor, 10Ω, 5%, 1/4w, C. F.
47	5010-09534-00	W1, W2, W4, W5, W7, W8, W11, W14, W16, W17, W19	Resistor, 0Ω, 5%, 1/4w, C. F.
48	5010-08991-00	R31, R32, R35, R52 R55, R68, R92, R146	Resistor, 4.7KΩ, 5%, 1/4w, C. F.
49	5010-09358-00	R5, R6, R54, R57, R58, R64, R66, R138 - R145	Resistor, 1.0KΩ, 5%, 1/4w, C. F.
50	5010-09113-00	R79	Resistor, 33KΩ, 5%, 1/4w, C. F.
51	5010-08983-00	R7, R8, R10, R70, R80	Resistor, 3.3KΩ, 5%, 1/4w, C. F.
52	5010-09034-00	R11-R14, R25, R26, R53, R60, R65, R90	Resistor, 10KΩ, 5%, 1/4w, C. F.
53	5010-09086-00	R81	Resistor, 6.8KΩ, 5%, 1/4w, C. F.
54	5010-09363-00	R3	Resistor, 5.6KΩ, 5%, 1/4w, C. F.
55	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.
56[2]	5012-09037-00	R113, R116, R119, R122, R125, R128, R131, R134	Resistor, 0.4Ω, 5%, 3w, Wire-Wnd.
57	5010-08993-00	R36-R51, R95, R98, R101, R104, R107, R110	Resistor, 68Ω, 5%, 1/2w, C. F.
58[2]	5012-10860-00	R82-R89	Resistor, 27Ω, 5%, 2w, C. F.
59	5010-09361-00	R1	Resistor, 220Ω, 5%, 1/2w, C. F.
60	5010-09181-00	R2	Resistor, 1.0Ω, 5%, 1/2w, C. F.
61	5010-09161-00	R4	Resistor, 2.2Ω, 5%, 1/4w, C. F.
62	5010-10003-00	R62, R63	Resistor, 390Ω, 5%, 1/4w, C. F.
63	5010-10171-00	R67	Resistor, 56Ω, 5%, 1/4w, C. F.
64	5010-10170-00	R69	Resistor, 47Ω, 5%, 1/4w, C. F.
65	5010-09160-00	R59, R61, W12, W13	Resistor, 220Ω, 5%, 1/4w, C. F.
66	5010-09416-00	R33, R34, R135-137	Resistor, 470Ω, 5%, 1/4w, C. F.
67	5010-09179-00	R9	Resistor, 3.3MΩ, 5%, 1/4w, C. F.
68	5010-09085-00	R71-R78	Resistor, 1.5KΩ, 5%, 1/4w, C. F.
69	5010-10631-00	R111, R114, R117, R120, R123, R126, R129, R132	Resistor, 1.2KΩ, 5%, 1/2w, C. F.
70	Not Used		
71	5010-10987-00	R19	Resistor, 56KΩ, 5%, 1/4w, C. F.
72	5010-09120-00	R17	Resistor, 270KΩ, 5%, 1/4w, C. F.
73	5010-09333-00	R15, R16, R18	Resistor, 180KΩ, 5%, 1/4w, C. F.
74	5010-09324-00	R29, R30	Resistor, 27KΩ, 5%, 1/4w, C. F.
75	5010-09269-00	R20, R21	Resistor, 15KΩ, 5%, 1/4w, C. F.
76	5010-09356-00	R27, R28	Resistor, 820Ω, 5%, 1/4w, C. F.
77	5019-09783-00	SR18	SIP, 9R, 10-pin, 6.8KΩ, .125w/R, 5%
78	5019-09362-00	SR3, SR15, SR17, SR19, SR20	SIP, 9R, 10-pin, 4.7KΩ, .125w/R, 5%
79	5019-09808-00	SR4, SR6, SR11	SIP, 9R, 10-pin, 560Ω, .125w/R, 5%
80	5019-09785-00	SR16	SIP, 9R, 10-pin, 2.2KΩ, .125w/R, 5%
81	5019-10472-00	SR14	SIP, 9R, 10-pin, 3.3KΩ, .125w/R, 5%
82	5019-09669-00	SR8	SIP, 9R, 10-pin, 1.0KΩ, .125w/R, 5%
83	5019-09780-00	SR9,SR10	SIP, 4R, 8-pin, 1KΩ, 5%
84	5019-09786-00	SR1, SR2	SIP, 5R, 6-pin, 4.7KΩ, .125w/R, 5%
85	5019-09792-00	SR5, SR7	SIP, 9R, 10-pin, 2.7KΩ, .125w/R, 5%
86	5060-10396-00	SRC1-SRC5, SRC7-SRC9	SIP, 8R, 8C,10-pin, 4.7KΩ & 470pfd
87	5010-08774-00	R22	Resistor, 22KΩ, 5%, 1/4w, C. F.
88	5043-08980-00	C14, C17-C21, C31, C32, C49-C56, C59, + 54 Bypass, marked 8	Capacitor, 0.01 µfd, 50v(+80,-20%), Axial
89	5043-09845-00	C6, C22, C23, C25, C27, C28	Capacitor, 1K pfd, 50v(±20%), Axial
90	5043-08996-00	C1, C4, C5, C9 C70-75, C77, C78	Capacitor, 0.1 µfd, 50v(±20%), Axial
91	5040-09343-00	C8, C15	Capacitor, 10 µfd, Electr., 20v(±20%), Axial
92	5043-09844-00	C7	Capacitor, 47 pfd, 50v(±20%), Axial
93	5040-10974-00	C24, C26, C29	Capacitor, 100 µfd, Electr., 25v(+50,-10%), Axial
94	5040-12006-00	C2	Capacitor, 1000 µfd, Electr., 16v(+50,-10%), Radial
95	5045-09796-00	C60-C67	Capacitor, 0.1 µfd, Polycarbonate Rad., 100v(±10%)
96	5043-09065-00	C10, C12, C33-C40, C68, C69, C76	Capacitor, 470 pfd, 50v(±20%), Axial
97	5040-09545-00	C30	Capacitor, 22 µfd, Electr., 10v(+50,-10%), Axial
98	5041-09031-00	C58	Capacitor, 1 µfd, Tant., 25v(±20%), Axial
99	5043-09030-00	C16, C57	Capacitor, 0.047 µfd, 50v(±20%), Axial
100	5046-09776-00	C3	Capacitor, 470 µfd, Electr., 16v(+50,-10%), Radial
101	5043-09492-00	C	Capacitor, 100 pfd, 100v(±20%), Axial
102	Not Used		
103	5048-10992-00	C13	Capacitor, 4700 pfd, Ceramic,50v(±10%)
104	5551-09822-00	L1-L3	Inductor, 4.7 µH, 3A
105	5641-09312-00	SW1, SW2	Switch, Pushbutton, DPDT, 100v, 5A
106	5880-09022-00	B1-B3	Battery, Alkaline, 1.5v, AA
107	20-9491	W18, W19	Bus Wire, Jumper
108	5881-09021-00		Battery Holder, #171
109	5700-10176-00		IC Socket, 28 pin
	a) A-5343-1920-1	U27	IC, Game ROM 1, 27128
	b) A-5343-1920-2	U21	IC, Sound ROM 1, 27256
	c) A-5343-1920-2	U22	IC, Sound ROM 2, 27256
110	5700-08985-00		IC Socket, 40 pin
	a) 5400-09150-00	U15	IC, µProcessor, 6802
	b) 5400-09150-00	U24	IC, µProcessor, 6802
111	5824-09248-00	TP1, TP2	Test Point
112	5705-09199-00		Heatsink, #6030
113	4006-01003-06		Mach. Screw, 6-32 x 3/8", P-PH-S
114	4406-01117-00		Nut, Hex, 6-32
115	4703-00007-00		Lockwasher, #6
116	20-9229		Thermal Compound (see Note 4)
117	5580-08994-01	K1	Relay, 4-pole, 40Ω, 6v
118	5791-10862-09	1J1, 1J2, 1J4 -1J8, 1J10-1J12, 1J17-1J19	Connector, 9 pin (Hdr)
119	5791-10862-04	1J13-1J16	Connector, 4 pin (Hdr)
120	5791-10862-12	1J3	Connector, 12 pin (Hdr)
121	Not Used		
122	5791-10850-00	1J22	Connector, 26 pin Ribbon (Hdr)
123	5791-09437-00	1J21	Connector, 20 pin Ribbon (Hdr)

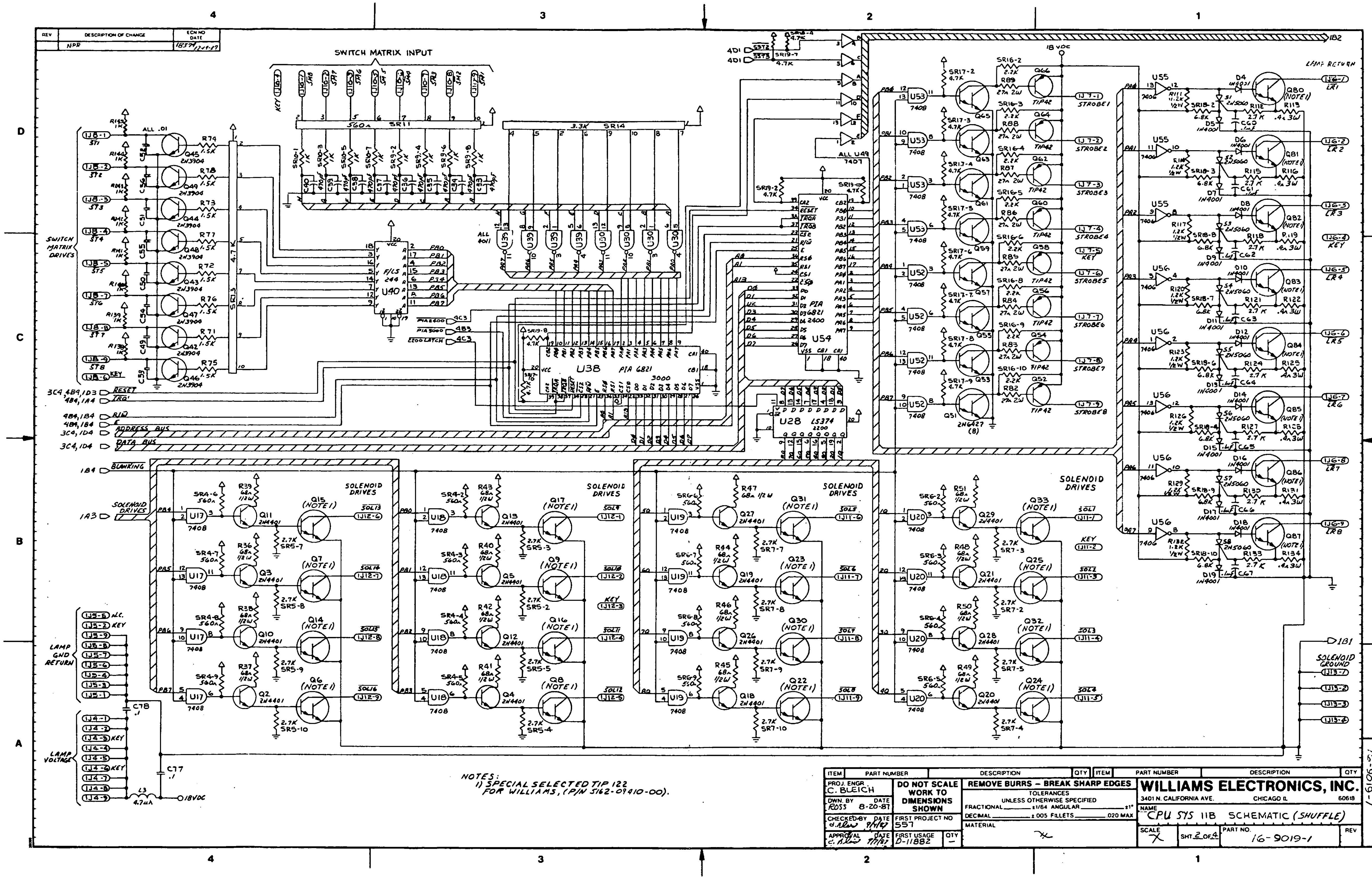
NOTES:
1. For Schematic, refer to drawing #16-9019-1.
2. Items 56 and 58 (resistors) must be mounted 1/8" above PCB surface.
3. Standard Jumpers: W1, W2, W4, W5, W7, W8, W11, W14, W16, W17, W19.
4. Use thermal compound (#116) between # 24 (U1) and #112 (heatsink).



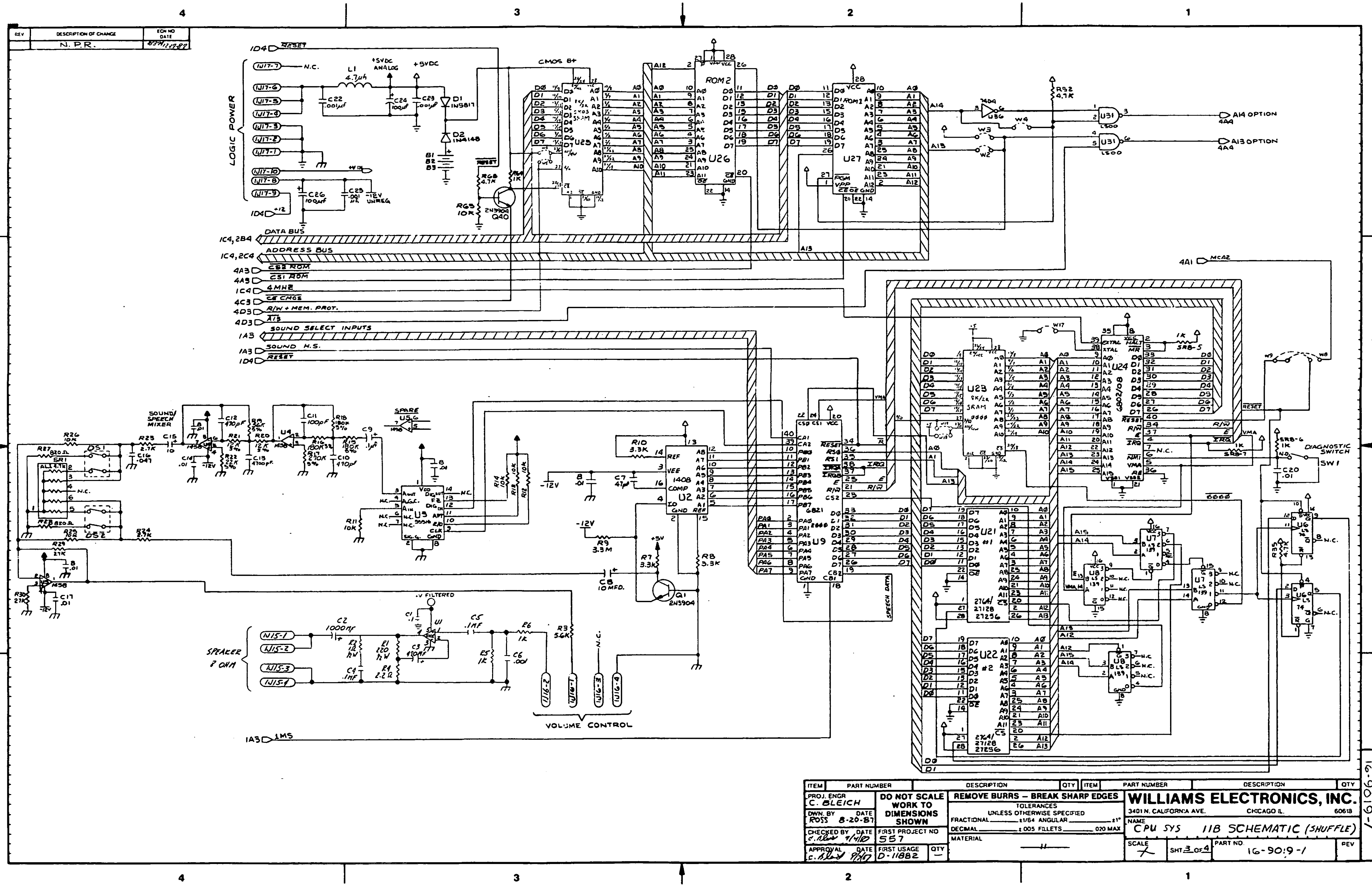
System 11-B CPU Board Parts Layout and Parts Listing



Schematic, System 11-B CPU Board (16-9019-1, Sheet 1 of 4)

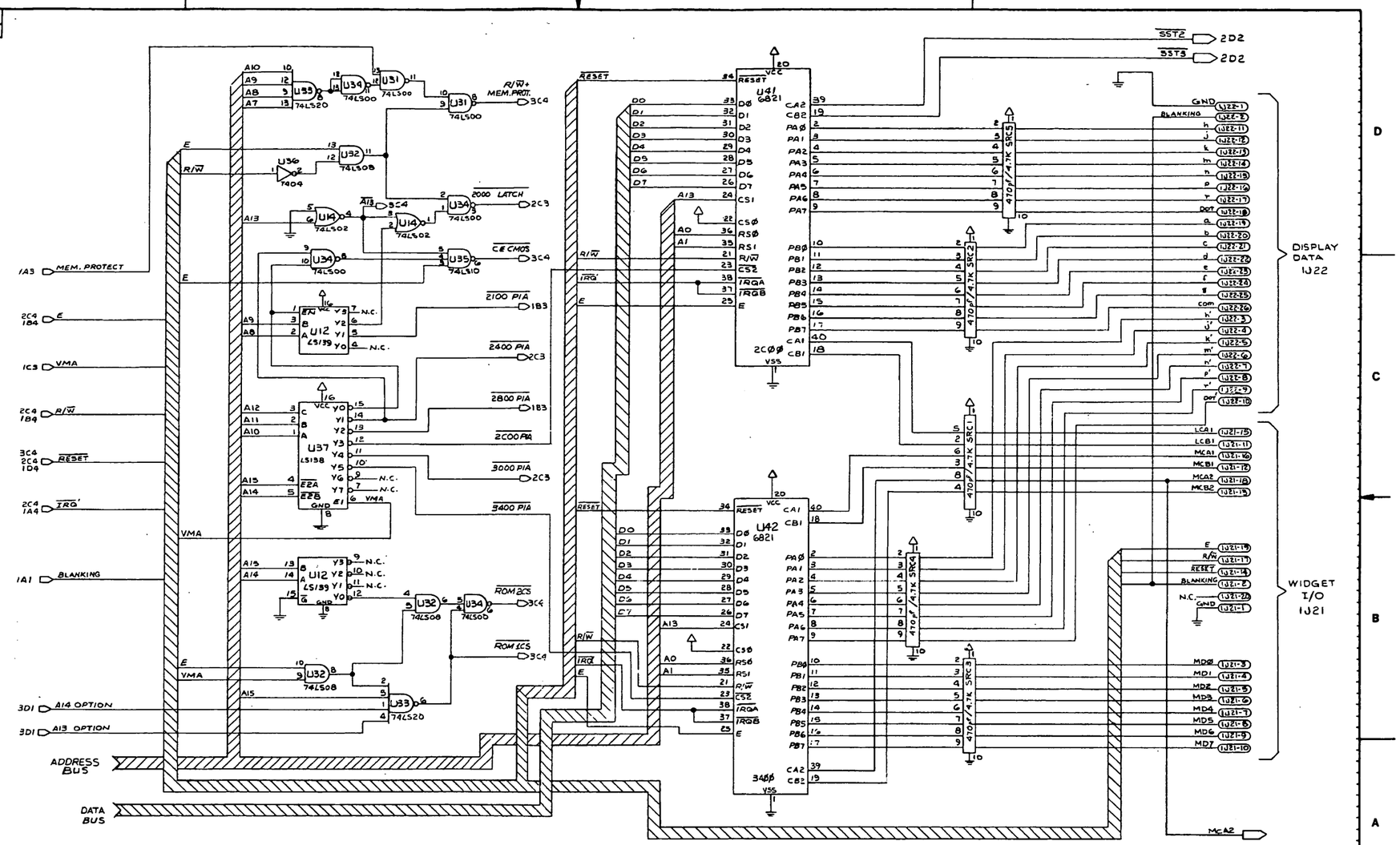


Schematic, System 11-B CPU Board (16-9019-1, Sheet 2 of 4)



Schematic, System 11-B CPU Board (16-9019-1, Sheet 3 of 4)

REV	DESCRIPTION OF CHANGE	ECN NO DATE
	N. P. R.	18371 12-4-87

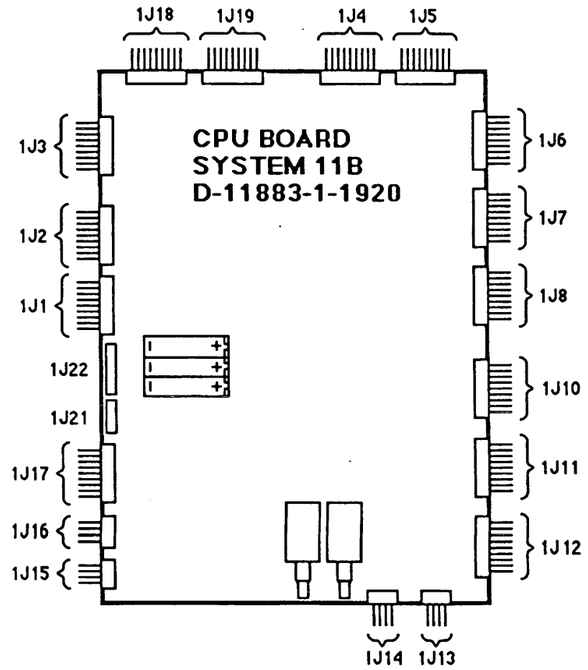


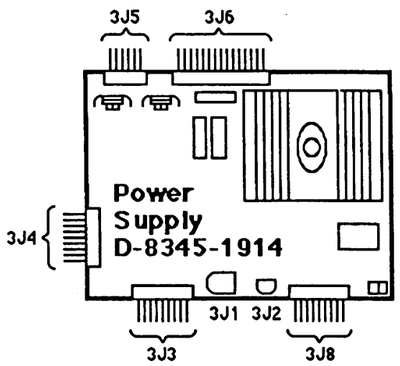
ITEM	PART NUMBER	DESCRIPTION	QTY

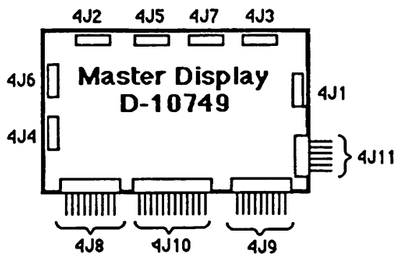
PROJ. ENGR. C. BLEICH	DO NOT SCALE WORK TO DIMENSIONS SHOWN	REMOVE BURRS – BREAK SHARP EDGES	WILLIAMS ELECTRONICS, INC.
DWN. BY ROSS DATE 8-20-87		TOLERANCES UNLESS OTHERWISE SPECIFIED	3401 N. CALIFORNIA AVE. CHICAGO IL. 60618
CHECKED BY DATE	FIRST PROJECT NO. 557	FRACTIONAL ±1/64 ANGULAR ±1°	NAME CPU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

16-9019-1

Schematic, System 11-B CPU Board (16-9019-1, Sheet 4 of 4)







CPU INTERBOARD SIGNALS

Connector	Wire Color	Signal Designation/Description	Connector	Wire Color	Signal Designation/Description
1J1-1	BRN-GRY	ST-8 / Display Digit Strobe	1J2-1	VIO-GRY	ST-16 / Display Digit Strobe
1J1-2	BRN-VIO	ST-7 / Display Digit Strobe	1J2-2	VIO-BLK	ST-15 / Display Digit Strobe
1J1-3	BRN-BLU	ST-6 / Display Digit Strobe	1J2-3	VIO-BLU	ST-14 / Display Digit Strobe
1J1-4	BRN-GRN	ST-5 / Display Digit Strobe	1J2-4	VIO-GRN	ST-13 / Display Digit Strobe
1J1-5	BRN-YEL	ST-4 / Display Digit Strobe	1J2-5	VIO-YEL	ST-12 / Display Digit Strobe
1J1-6	BRN-ORG	ST-3 / Display Digit Strobe	1J2-6	VIO-ORG	ST-11 / Display Digit Strobe
1J1-7	BRN-RED	ST-2 / Display Digit Strobe	1J2-7	Key Pin	No Connection
1J1-8	Key Pin	No Connection	1J2-8	VIO-RED	ST-10 / Display Digit Strobe
1J1-9	BRN-BLK	ST-1 / Display Digit Strobe	1J2-9	VIO-BRN	ST-9 / Display Digit Strobe
1J3-1	BLU-BRN	D1 / Display BCD	1J4-1	BLU	Lamp +18V dc Power
1J3-2	BLU-RED	C1 / Display BCD	1J4-2	BLU	"
1J3-3	BLU-ORG	B1 / Display BCD	1J4-3	Key Pin	No Connection
1J3-4	BLU-YEL	A1 / Display BCD	1J4-4	BLU	Lamp +18V dc Power
1J3-5	BLU-GRN	D2 / Display BCD	1J4-5	BLU	"
1J3-6	Key Pin	No Connection	1J4-6		No Connection
1J3-7	BLU-BLK	C2 / Display BCD	1J4-7	BLU	Lamp +18V dc Power
1J3-8	BLU-VIO	B2 / Display BCD	1J4-8	BLU	"
1J3-9	BLU-GRY	A2 / Display BCD	1J4-9	BLU	"
1J3-10		No Connection			
1J3-11		No Connection			
1J3-12	BLU-WHT	Blanking			
1J5-1	BLK	Ground (Lamp Ckt)	1J6-1	RED-BRN	Lamp Row 1 (Q80)
1J5-2	Key Pin	No Connection	1J6-2	RED-BLK	Lamp Row 2 (Q81)
1J5-3	BLK	Ground (Lamp Ckt)	1J6-3	RED-ORG	Lamp Row 3 (Q82)
1J5-4	BLK	Ground (Lamp Ckt)	1J6-4	Key Pin	No Connection
1J5-5		No Connection	1J6-5	RED-YEL	Lamp Row 4 (Q83)
1J5-6	BLK	Ground (Lamp Ckt)	1J6-6	RED-GRN	Lamp Row 5 (Q84)
1J5-7	BLK	Ground (Lamp Ckt)	1J6-7	RED-BLU	Lamp Row 6 (Q85)
1J5-8	BLK	Ground (Lamp Ckt)	1J6-8	RED-VIO	Lamp Row 7 (Q86)
1J5-9	BLK	Ground (Lamp Ckt)	1J6-9	RED-GRY	Lamp Row 8 (Q87)
1J7-1	YEL-BRN	Lamp Col 1 (Q65/66)	1J8-1	GRN-BRN	Switch Col 1 (Q45)
1J7-2	YEL-RED	Lamp Col 2 (Q63/64)	1J8-2	GRN-RED	Switch Col 2 (Q49)
1J7-3	YEL-ORG	Lamp Col 3 (Q61/62)	1J8-3	GRN-ORG	Switch Col 3 (Q44)
1J7-4	YEL-BLK	Lamp Col 4 (Q59/60)	1J8-4	GRN-YEL	Switch Col 4 (Q48)
1J7-5	Key Pin	No Connection	1J8-5	GRN-BLK	Switch Col 5 (Q43)
1J7-6	YEL-GRN	Lamp Col 5 (Q57/58)	1J8-6	Key Pin	No Connection
1J7-7	YEL-BLU	Lamp Col 6 (Q55/56)	1J8-7		No Connection
1J7-8	YEL-VIO	Lamp Col 7 (Q53/54)	1J8-8	GRN-VIO	
1J7-9	YEL-GRY	Lamp Col 8 (Q51/52)	1J8-9		No Connection
1J9	Not Applicable				
1J10-1	WHT-GRY	Switch Row 8	1J11-1	GRY-BRN	Solenoid 1 (Q33)
1J10-2	WHT-VIO	Switch Row 7	1J11-2	Key Pin	No Connection
1J10-3	WHT-BLU	Switch Row 6	1J11-3	GRY-RED	Solenoid 2 (Q25)
1J10-4	Key Pin	No Connection	1J11-4	GRY-ORG	Solenoid 3 (Q32)
1J10-5	WHT-GRN	Switch Row 5	1J11-5	GRY-YEL	Solenoid 4 (Q24)
1J10-6	WHT-YEL	Switch Row 4	1J11-6	GRY-GRN	Solenoid 5 (Q31)
1J10-7	WHT-ORG	Switch Row 3	1J11-7	GRY-BLU	Solenoid 6 (Q23)
1J10-8	WHT-RED	Switch Row 2	1J11-8	GRY-VIO	Solenoid 7 (Q30)
1J11-9	WHT-BRN	Switch Row 1	1J11-9	GRY-BLK	Solenoid 8 (Q22)
1J12-1	BRN-BLK	Solenoid 9 (Q17)	1J13-1	BLK	Solenoid Ground
1J12-2	BRN-RED	Solenoid 10 (Q9)	1J13-2	BLK	"
1J12-3	Key Pin	No Connection	1J13-3	BLK	"
1J12-4	BRN-ORG	Solenoid 11 (Q16)	1J13-4	BLK	"
1J12-5		No Connection (Q8)			
1J12-6	BRN-GRN	Solenoid 12 (Q15)	1J14-1	BLK-RED	Memory Protect
1J12-7	BRN-BLU	Solenoid 13 (Q7)	1J14-2	WHT	Ground
1J12-8	BRN-VIO	Solenoid 14 (Q14)	1J14-3	GRN	ADVANCE Switch
1J12-9	BRN-GRY	Solenoid 15 (Q6)	1J14-4	BLU	AUTO/MANUAL Switch
1J15-1		No Connection	1J17-1	BLK	Ground
1J15-2	RED	Sound Output to Speaker	1J17-2	BLK	"
1J15-3	BLK	Speaker Return Line	1J17-3	BLK	"
1J15-4		No Connection	1J17-4	GRY	Power: +5V dc
			1J17-5	GRY	"
1J16-1	RED	Volume Control Input	1J17-6	GRY	"
1J16-2	BLK	Volume Control Output	1J17-7	Key Pin	No Connection
1J16-3	Key Pin	No Connection	1J17-8	GRY-YEL	Power: -12V dc Unreg
1J16-4	Shield	Signal Ground - CPU	1J17-9	GRY-WHT	Power: +12V dc Unreg

1J21 & 1J22 Ribbon Cables to Master Display Board

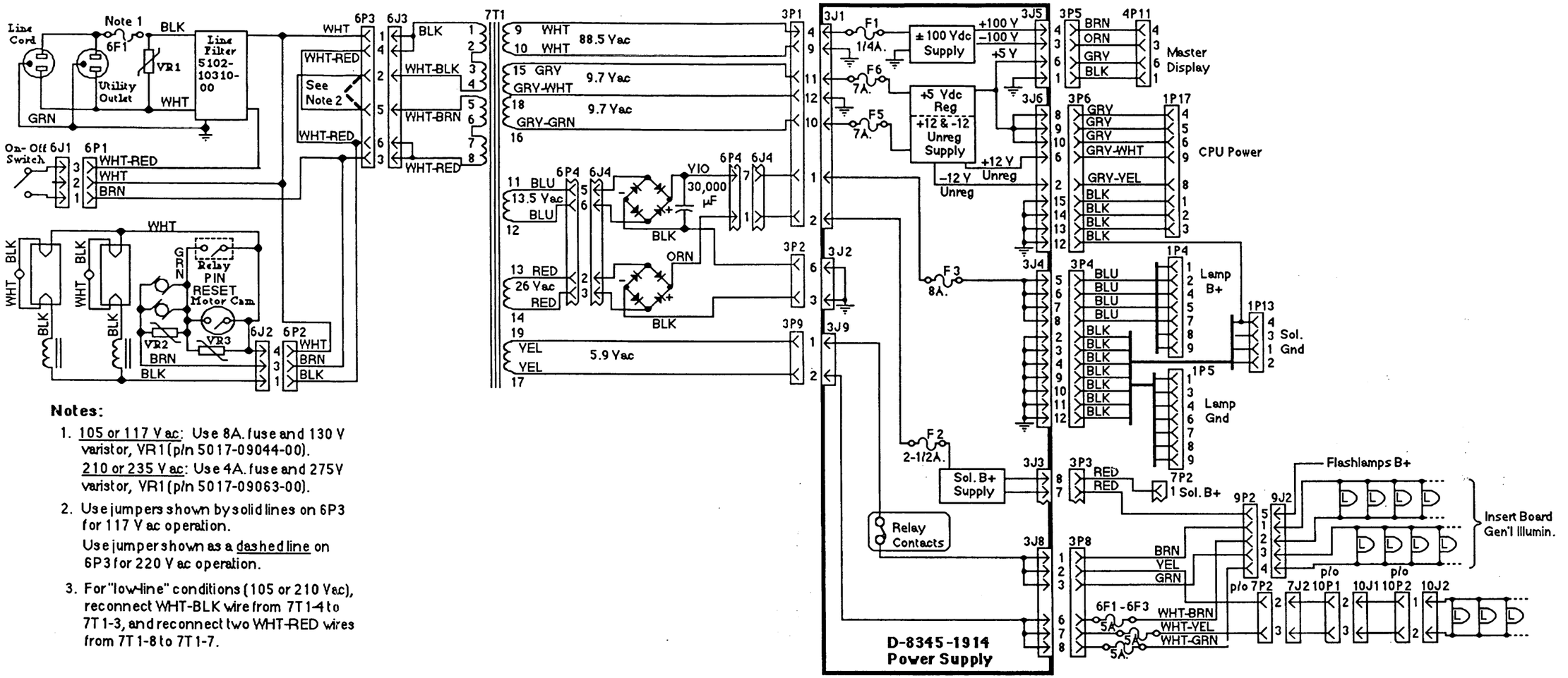
POWER SUPPLY INTERBOARD SIGNALS

Connector	Wire Color	Signal Designation/Description	Connector	Wire Color	Signal Designation/Description
3J1-1	VIO	Lamp Rectifier: +18V dc	3J2-1 & -2		No Connection
3J1-2	ORG	Solenoid Rectifier: +34V dc	3J2-3	BLK	Ground (Lamp Rectifier ckt)
3J1-3	ORG	Solenoid Rectifier: +34V dc	3J2-4 &-5		No Connection
3J1-4	WHT	Transformer: 88.5V ac	3J2-6	BLK	Ground (Lamp Rectifier ckt)
3J1-5 - 3J1-8		No Connection			
3J1-9	WHT	Transformer: 88.5V ac	3J3-1 - 3J3-6		No Connection
3J1-10	GRY-GRN	Transformer: 19.4V ac, 1Ø, C. T.	3J3-7	RED	Flasher +34V dc
3J1-11	GRY	Transformer: 19.4V ac, 1Ø, C. T.	3J3-8	RED	Solenoid +34V dc
3J1-12	GRY-WHT	Transformer: 19.4V ac, C.T. com	3J3-9	Key Pin	No Connection
3J4-1	Key Pin	No Connection	3J5-1	BLK	Ground (Display ckt)
3J4-2	BLK	Solenoid ckt Ground	3J5-2		No Connection
3J4-3	BLK	"	3J5-3	ORG	Display Power: -100V
3J4-4	BLK	"	3J5-4	BRN	Display Power: +100V
3J4-5	BLU	Lamp Power: +18V dc	3J5-5		No Connection
3J4-6	BLU	"	3J5-6	GRY	Display Power: +5V dc
3J4-7	BLU	"			
3J4-8	BLU	"	3J6-1		No Connection
3J4-9	BLK	Lamp ckt Ground	3J6-2	GRY-YEL	CPU Power: -12V dc Unreg
3J4-10	BLK	"	3J6-3		No Connection
3J4-11	BLK	"	3J6-4		No Connection
3J4-12	BLK	"	3J6-5	Key Pin	No Connection
			3J6-6	GRY-WHT	CPU Power: +12V dc Unreg
3J7-1		No Connection	3J6-7		No Connection
3J7-2	Key Pin	No Connection	3J6-8	GRY	CPU Power: +5V dc
3J7-3		No Connection	3J6-9	GRY	"
			3J6-10	GRY	"
3J8-1	BRN	Gen'l Illumination Power: 6V ac	3J6-11		No Connection
3J8-2	YEL	"	3J6-12	BLK	Ground
3J8-3	GRN	"	3J6-13	BLK	Ground
3J8-4		No Connection	3J6-14	BLK	Ground
3J8-5	Key Pin	No Connection	3J6-15	BLK	Ground
3J8-6	WHT-BRN	Gen'l Illumination Power: 6V ac			
3J8-7	WHT-YEL	"	3J9-1	YEL	Transformer: 6V ac
3J8-8	WHT-GRN	"	3J9-2	YEL	Transformer: 6V ac
3J8-9		No Connection			

MASTER DISPLAY INTERBOARD SIGNALS

Connector	Wire Color	Signal Designation/Description	Connector	Wire Color	Signal Designation/Description
4J1 thru 4J7 Ribbon Cables to Displays					
4J8-1	VIO-GRY	ST-16 / Digit Display Strobe	4J9-1	BRN-GRY	ST-8 / Digit Display Strobe
4J8-2	VIO-BLK	ST-15 / Display Digit Strobe	4J9-2	BRN-VIO	ST-7 / Display Digit Strobe
4J8-3	VIO-BLU	ST-14 / Display Digit Strobe	4J9-3	BRN-BLU	ST-6 / Display Digit Strobe
4J8-4	VIO-GRN	ST-13 / Display Digit Strobe	4J9-4	BRN-GRN	ST-5 / Display Digit Strobe
4J8-5	VIO-YEL	ST-12 / Display Digit Strobe	4J9-5	BRN-YEL	ST-4 / Display Digit Strobe
4J8-6	VIO-ORG	ST-11 / Display Digit Strobe	4J9-6	BRN-ORG	ST-3 / Display Digit Strobe
4J8-7	Key Pin	No Connection	4J9-7	BRN-RED	ST-2 / Display Digit Strobe
4J8-8	VIO-RED	ST-10 / Display Digit Strobe	4J9-8	Key Pin	No Connection
4J8-9	VIO-BRN	ST-9 / Display Digit Strobe	4J9-9	BRN-BLK	ST-1 / Display Digit Strobe
4J10-1	BLU-BRN	D1 / Display BCD	4J11-1	BLK	Ground
4J10-2	BLU-RED	C1 / Display BCD	4J11-2	Key Pin	No Connection
4J10-3	BLU-ORG	B1 / Display BCD	4J11-3	ORG	Display Power: -100V dc
4J10-4	BLU-YEL	A1 / Display BCD	4J11-4	BRN	Display Power: +100V dc
4J10-5	BLU-GRN	D2 / Display BCD	4J11-5		No Connection
4J10-6	Key Pin	No Connection	4J11-6	GRY	Power: +5V dc
4J10-7	BLU-BLK	C2 / Display BCD			
4J10-8	BLU-VIO	B2 / Display BCD			
4J10-9	BLU-GRY	A2 / Display BCD			
4J10-10		No Connection			
4J10-11		No Connection			
4J10-12	BLU-WHT	Blanking			

Interboards Signals Diagrams

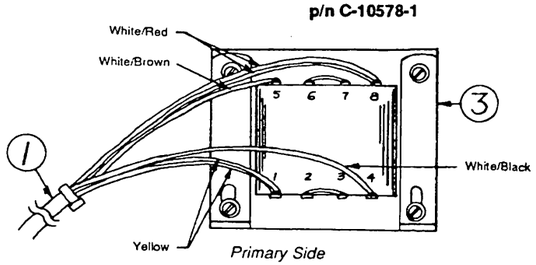


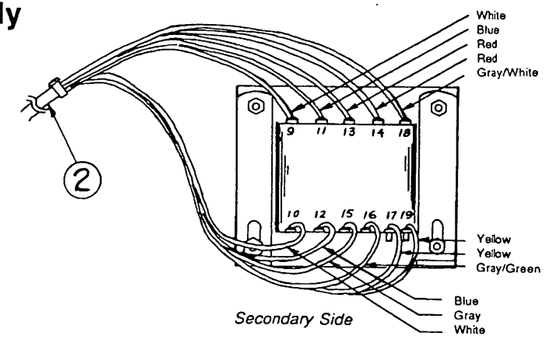
Notes:

1. 105 or 117 V ac: Use 8A. fuse and 130 V varistor, VR1 (p/n 5017-09044-00).
   210 or 235 V ac: Use 4A. fuse and 275V varistor, VR1 (p/n 5017-09063-00).
2. Use jumpers shown by solid lines on 6P3 for 117 V ac operation.
   Use jumper shown as a dashed line on 6P3 for 220 V ac operation.
3. For "low-line" conditions (105 or 210 Vac), reconnect WHT-BLK wire from 7T1-4 to 7T1-3, and reconnect two WHT-RED wires from 7T1-8 to 7T1-7.

Power Transformer Assembly

p/n C-10578-1





Item	Part No.	Description
1	H-8695	Cable Assembly, Pri.
2	H-10674	Cable Assembly, Sec. (Shuffle Alley)
3	A-5610-09563	Transformer & Leg Assembly

Power Wiring Diagram

GOLD MINE Lamp-Matrix Table

ROW \ COLUMN	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
Q80 1 RED-BRN 1J6-1	Left 100 Score 1	Right 100 Score 9	Right 200 Field 17	Player 2 Strike Two 25	Player 4 Strike Two 33	Player 6 Strike Two 41	Gold Mine Upr Cntr 600/400 49	Game #1 Regulation 57
Q81 2 RED-BLK 1J6-2	Left 200 Score 2	Left 100 Field 10	Right 100 Field 18	Player 2 Spare 26	Player 4 Spare 34	Player 6 Spare 42	Gold Mine Upr Right 400/200 50	Game #2 GOLD STRIKE 58
Q82 3 RED-ORN 1J6-3	Left 300 Score 3	Left 200 Field 11	Right 500 Field 19	Match 27	Credit Button 35	Bowl Again 43	Gold Mine Mid Left 600/400 51	Game #3 Super Strike 59
Q83 4 RED-YEL 1J6-5	Left 400 Score 4	Left 300 Field 12	Player 1 Strike One 20	Player 3 Strike One 28	Player 5 Strike One 36	10th Frame 44	Gold Mine Mid Cntr 800/600 52	Game #4 Strike 90 60
Q84 5 RED-GRN 1J6-6	Center 500 Score 5	Left 400 Field 13	Player 1 Strike Two 21	Player 3 Strike Two 29	Player 5 StrikeTwo 37	10th Frame Strike 1 45	Gold Mine Mid Right 700/500 53	Game #5 Flash 61
Q85 6 RED-BLU 1J6-7	Right 400 Score 6	Left 500 Field 14	Player 1 Spare 22	Player 3 Spare 30	Player 5 Spare 38	10th Frame Strike 2 46	Gold Mine Lwr Left 400/200 54	Not Used 62
Q86 7 RED-VIO 1J6-8	Right 300 Score 7	Right 400 Field 15	Beer Frame 23	Game-Over 31	High Score to Date 39	10th Frame Spare 47	Gold Mine Lwr Cntr 500/300 55	Not Used 63
Q87 8 RED-GRY 1J6-9	Right 200 Score 8	Right 300 Field 16	Player 2 Strike One 24	Player 4 Strike One 32	Player 6 Strike One 40	Gold Mine Upr Left 400/200 48	Gold Mine Lwr Right 300/100 56	Not Used 64

GOLD MINE Switch-Matrix Table

ROW \ COLUMN	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 GRN-BLK 1J8-5	6 Q47 GRN-BLU 1J8-7	7 Q42 GRN-VIO 1J8-8	8 Q46 GRN-GRY 1J8-9
WHT-1 BRN 1J10-9	Select Game 1	Playfield E & F Series 9	Playfield L 17	Playfield P 25	Playfield Z 33	Not Used 41	Not Used 49	Not Used 57
WHT-2 RED 1J10-8	Ticket Redispense 2	Playfield E 10	Playfield K 18	Playfield O 26	Playfield Y 34	Not Used 42	Not Used 50	Not Used 58
WHT-3 ORN 1J10-7	Credit Button 3	Playfield B 11	Playfield H 19	Playfield N 27	Playfield X 35	Not Used 43	Not Used 51	Not Used 59
WHT-4 YEL 1J10-6	Right Coin Chute 4	Playfield A 12	Playfield AA 20	Playfield M 28	Playfield Back Row 36	Not Used 44	Not Used 52	Not Used 60
WHT-5 GRN 1J10-5	Center Coin Chute 5	Playfield D 13	Playfield G 21	Playfield W 29	Ticket Dispenser 37	Not Used 45	Not Used 53	Not Used 61
WHT-6 BLU 1J10-3	Left Coin Chute 6	Playfield C & D Series 14	Playfield S 22	Playfield V & W Series 30	Not Used 38	Not Used 46	Not Used 54	Not Used 62
WHT-7 VIO 1J10-2	Slam Tilt 7	Playfield J 15	Playfield R 23	Playfield T & U Series 31	Not Used 39	Not Used 47	Not Used 55	Not Used 63
WHT-8 GRY 1J10-1	High-Score Reset 8	Playfield I 16	Playfield Q 24	Playfield T 32	Not Used 40	Not Used 48	Not Used 56	Not Used 64

WARNINGS & NOTICES

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TO MAINTAIN THESE LEVELS, reposition harnesses and reconnect ground straps to their original placements, if they become disconnected during maintenance.

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