

GAME OH06
MANUAL NO. OH06-00300-0100



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PRELIMINARY

Operating Manual

Bally
MIDWAY

10601 W Belmont Ave • Franklin Park, Illinois 60131 • U.S.A.
Telephone (312) 451-9200 • Fax No 312-451-4150
Cable Address MIDCO • Telex No 72-1596



DUNGEONS & DRAGONS - GAME REGISTERS & OPTIONS

BOOKKEEPING DATA

buchhaltung 1.

TOTAL COINS	Number Of Coins Thru Chutes 1, 2, & 3
GAME PERCENT	Percentage Of Replays
COINS CHUTE 1	# Of Coins Thru Chute 1
COINS CHUTE 2	# Of Coins Thru Chute 2
COINS CHUTE 3	# Of Coins Thru Chute 3
BONUS CREDITS	Number Of Bonus Credits Given
TOTAL PLAYS	Number Of Plays Both Paid And Replays
TOTAL REPLAYS	Number Of Awarded Games
SERVICE METER	Total # Of Service Credits
GAME CREDITS	Current Game Credits - Enter 0 thru 5. Credits are added to Service Meter. These credits are <u>NOT</u> added to current Game Credits.
SPECIAL METER	Total # of Playfield Specials Awarded
CLEAR BOOKING	To clear bookkeeping data, press "65" & then press "ENTER".

SELF-TESTING

self test.

SINGLE LAMP	Lights one lamp at a time and also displays SCR (Lamp Driver) number and connector ID. Press "A" to advance, "B" to back-up and "C" to cycle.
ALL LAMPS	All lamps light alternately; first displaying "A" phase and then "B" phase.
DISPLAY SOLENOID	Steps thru alphanumeric character set. Energizes one solenoid at a time, then displays solenoid driver number and connector ID.
SINGLE SOLENOID	Energizes one solenoid at a time. Press "A" for same solenoid. Press "B" for next solenoid.
SOUND	Plays game sounds.
GAME ROM ID	Displays ROM or ROM's ID.
SWITCH TEST	Displays stuck switch by description.
	NOTE: PRESS TEST BUTTON ON DOOR TO EXIT SWITCH TEST.

PRELIMINARY

PERCENT DATA VALUES

Buchhaltung 2

GAME PERCENT	Percentage Of Replays
TOTAL PLAYS	Number Of Plays Both Paid And Replays
GAME TIME	Total Number Of Minutes
TOTAL REPLAYS	Total Number Of Replays
THRESHOLD 1	# Of Times The Point Total Exceeded The First Threshold Level
THRESHOLD 2	# Of Times The Point Total Exceeded The Second Threshold Level
THRESHOLD 3	# Of Times The Point Total Exceeded The Third Threshold Level
HI-SCORE BEATEN	# Of Times The Point Total Exceeded The High Score
FREE BALLS	# Of Extra Balls Awarded
SPECIAL	Not Used
TIMES MULTI	# Of Times Multi-Ball Play Was Achieved

PERCENT OPTIONS

*frei Spiel punkte*FACTORY SETTINGS

THRESHOLD 1	Enter 0 thru 9,999,999 to set award level and display.	1,750,000
SELF PERCENT	Enter 0 or 1; 0 Disables Self-Percentaging Process and 1 Enables Self-Percentaging Process.	1
TARGET PERCENT	Enter desired percentage of replays awarded for reaching Threshold 1.	10
THRESHOLD 1 PERCENT	Displays actual percentage of replays awarded for reaching Threshold 1.	Unchanged
THRESHOLD 2	Enter 0 thru 9,999,999 to set award level and display.	4,500,000
THRESHOLD 3	Enter 0 thru 9,999,999 to set award level and display.	00
HIGHEST SCORE	Enter 0 thru 9,999,999 to set the Hi-Score replay level.	5,999,999

BASIC OPTION VALUES

grand ein stell.

CREDIT LIMIT	Enter 1 thru 40.	10
BALLS PER GAME	Enter 1 thru 5.	3
THRESHOLD MODE	Enter 0 thru 3; 0=0, 1=Points, 2=Extra Balls, & 3=Replays.	3
SPECIAL MODE	Enter 0 thru 3; 0=0, 1=Points, 2=Extra Balls, & 3=Replays.	3
HI-SCORE MODE	Enter 0 thru 3; 0=0, 1=1 Replay, 2=2 Replays, & 3=3 Replays.	3
SOUND MODE	Enter 0 thru 3; 0=Chimes W/O Background, 1=Chimes With Background, 2=Sounds W/O Background, & 3=Sounds With Background.	3
GERMAN PRIZE	German Meter	0
MATCH OPTION	Enter 0 or 1; 0 Disables Match and 1 Enables Match.	1
CREDIT DISPLAY	Enter 0 or 1; 0=No Credits Displayed & 1=Credits Displayed.	1
NO LIMIT REPLAYS	Enter 0 or 1; 0=Only 1 Award Per Game & 1=More Than 1 Per Game.	1
FREE PLAY	Enter 0 or 65; 0=Coins and 65=Free Play.	0
SLINGSHOT	Enter 0 or 1; 0=No Slingshots and 1=Slingshots.	1
TILT WARNING	Enter 0 thru 3; 0=No Warning, 1=1 Warning, 2=2 Warnings, & 3=3 Warnings.	1

DUNGEONS & DRAGONS - GAME REGISTERS & OPTIONS, CONT'D.

FEATURE OPTIONS

Spiel einstell

RESET FACTORY

Enter 65 for factory selected scores and features.

RECALL TARGETS

Enter 0 or 1; This entry recalls DUST targets, SHIELD targets & SWORD targets.

* 0 = No Memory 1 = Memory

X-BALL TIMER

Enter 0 thru 3; This entry controls length of time allowed to collect EXTRA BALL.

<u>ENTER</u>	<u>LENGTH OF TIME</u>
0	4 seconds
* 1	6 seconds
2	10 seconds
3	16 seconds

DUNGEON TIMER

Enter 0 thru 3; This entry controls the length of time a particular DUNGEON LEVEL (or playfield multiplier) value is held before reverting to next lower value.

<u>ENTER</u>	<u>LENGTH OF TIME</u>
0	10 seconds
* 1	20 seconds
2	40 seconds
3	60 seconds

RETAIN BALLS

Enter 0 thru 2; When game is over:

0 = One or both Teleport Drop Targets will eject held ball.

* 1 = One Teleport Drop Target retains ball & other Teleport Drop Target ejects ball.

2 = Both Teleport Drop Targets retain held balls.

MULTI-BALL SAVERS

Enter 0 or 1; This entry controls whether or not the AUTO SAVER feature, for both MAGIC-SAVE lanes is activated each time multi-ball is achieved.

0 = No AUTO SAVER * 1 = AUTO SAVER

* Factory Setting

FEATURE OPTIONS, Cont'd.

AUTO SAVER

Enter 0 thru 3; This entry controls level of game points beyond which AUTO SAVER feature is disabled.

ENTER	LEVEL OF GAME POINTS
0	None
1	100,000
* 2	200,000
3	300,000

GATE ON TIMER

Enter 0 thru 7; This entry sets initial length of time (for each player) either Ball Saver gate remains closed after being manually activated. During game, this time length is also controlled by Control Gate Timer Option. See note below.

ENTER	LENGTH OF TIME
0	0.83 Second
1	1.00 Second
2	1.16 Seconds
3	1.33 Seconds
* 4	1.50 Seconds
5	1.66 Seconds
6	1.83 Seconds
7	2.00 Seconds

CONTROL GATE TIMER

Enter 0 thru 7; For each player, this entry controls length of time (along with Gate On Timer Option), either Ball Saver gate remains closed after being manually activated. See note below.

ENTER	BALL SAVER GATE ACTIVATED
0	6 Times
1	8 Times
* 2	10 Times
3	12 Times
4	14 Times
5	16 Times
6	18 Times
7	20 Times

ATTRACT SOUND

ENTER 0 thru 1; After game is over, this entry enables or disables ATTRACT SOUND mode while displaying Hi-Scores and instructions.

0 = No Attract Sound * 1 = Attract Sound

* Factory Setting

NOTE: The Gate On Timer is initialized for each player at the beginning of the game (see the Gate On Timer Option above). The game counts the number of times the Ball Saver gates are activated by a particular player. If a match is found when compared to the number of times allowed, as set in the Control Gate Timer Option, the next lower time setting in the Gate Timer Option is selected.
This information does not apply to the AUTO SAVER feature.

DUNGEONS & DRAGONS - GAME REGISTERS & OPTIONS, CONT'D.

PRICING OPTIONS

Kredit answer

CHUTE 1 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 1 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits At Which
1 Bonus Credit Will Be Awarded

CHUTE 2 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 2 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits At Which
1 Bonus Credit Will Be Awarded

CHUTE 3 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 3 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits At Which
1 Bonus Credit Will Be Awarded

Example:

To set Coin Chute 1 for 3 credits/2 coins (with no credits delivered on the first coin):

1. CHUTE 1 OPTIONS: Enter 02 coin for 03 credit.
2. CHUTE 1 BONUS: Enter 00.

To set Coin Chute 1 for 3 credits/2 coins (with one credit delivered on the first coin and two credits delivered on the second coin):

1. CHUTE 1 OPTIONS: Enter 01 coin for 01 credit.
2. CHUTE 1 BONUS: Enter 02.

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

OH06 DUNGEONS & DRAGONS RECOMMENDED 3 & 5 BALL OPTIONS SETTINGS

FEATURE OPTIONS

REGISTER

RECALL TARGETS
X-BALL TIMER
DUNGEON TIMER
RETAIN BALLS
MULTI-SAVERS
AUTO SAVER
GATE ON TIMER
CONTROL GATE TIMER
ATTRACT SOUND

3-BALL

0
1
2
1
1
2
4
2
1

5-BALL

1
0
1
0
0
1
4
2
1

In Basic Options:

SLINGSHOT
TILT WARNING

1
1

1
1



I. INSTALLATION PROCEDURE

First, bolt the legs to the Cabinet. Second, feed the line cord between the Backbox and the Cabinet, then mount the Backbox and secure it with the bolts provided in the spare parts kit.

On all games, there are certain items that should be checked after shipment, and they are:

1. Check that all cable connectors are completely seated on printed circuit board assemblies.
2. Check that all cables are clear of moving parts.
3. Check for wires that may have come loose during shipment.
4. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of switches or lamp sockets.
5. Check coils for proper soldering. Cold solder connections may not show up in factory inspection, but vibration in shipment may break the contacts.
6. Check that fuses are firmly seated and making good contact.
7. Check and adjust the plumb bob tilt on the left side of the Cabinet.
8. Check wiring of the plug on the transformer to correspond to location voltage. FOR REFERENCE, SEE BACKBOX WIRING SCHEMATIC ON PAGE 2-5.

For 115 VAC, install jumper wires 2-8, 3-6 and 7-10.

For 120 VAC, install jumper wires 2-8, 4-6 and 7-11.

For 220 VAC, install jumper wires 4-8 and 7-9.

For 240 VAC, install jumper wires 4-8 and 7-11.

9. Place the four (4) game balls into the Playfield outhole.
10. Plug in the line cord.

II. GENERAL GAME OPERATION

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

Each time the credit button is pressed, it posts one player and the credits are reduced by one. Shooting the ball initiates play.

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

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

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

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

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

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

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

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

III. TAILORING & TESTING THE GAME

Introduction

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

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

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

Operation

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

1. Press the Test button located on the front door. This tells the processor to do the following;
 - A. It checks the switches wired in parallel with the keypad.
If any switches are closed, the game automatically jumps to the Stuck Switch Test and displays a stuck switch message.
 - B. If there were no stuck switches you will be welcomed with "Bally's Testing Is Easy As ABC".
2. When the appropriate heading appears on the backglass display, press "ENTER" on the keypad once.

Within each heading, there are categories which are operator selectable. When the appropriate category appears on the backglass display, press "ENTER" once to access that category.

3. Set your registers with the keypad.
4. Press "ENTER" again to advance to the next category setting. Press "CLR" to re-start the Self-Test routine. Press "GAME" to lock-in the option settings.

STEPPING THROUGH

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

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

SELF-PERCENTAGING

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

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

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

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

7. To activate the Self-Percentaging Process:

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

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

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

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

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

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

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

10. To manually check the current Replay Percentage of Threshold 1 only:

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

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

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

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

12. To check the current score level of Threshold 1, refer to step #6 on page 1-2.

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

WARRIORS & DRAGONS - GAME REGISTERS & OPTIONS

VIEWING DATA

TOTAL COINS
PERCENT
INS CHUTE 1
INS CHUTE 2
INS CHUTE 3
BONUS CREDITS
TOTAL PLAYS
TOTAL REPLAYS
SERVICE METER
GAME CREDITS

Number Of Coins Thru Chutes 1, 2, & 3
Percentage Of Replays
Of Coins Thru Chute 1
Of Coins Thru Chute 2
Of Coins Thru Chute 3
Number Of Bonus Credits Given
Number Of Plays Both Paid And Replays
Number Of Awarded Games
Total # Of Service Credits
Current Game Credits - Enter 0 thru 5. Credits are added
to Service Meter. These credits are
NOT added to current Game Credits.

SPECIAL METER
CLEAR BOOKING

Total # of Playfield Specials Awarded
To clear bookkeeping data, press "65" & then press "ENTER".

TESTING

SINGLE LAMP

Lights one lamp at a time and also displays SCR (Lamp
Driver) number and connector ID. Press "A" to advance, "B"
to back-up and "C" to cycle.

ALL LAMPS

All lamps light alternately; first displaying "A" phase and
then "B" phase.

DISPLAY
SOLENOID

Steps thru alphanumeric character set.
Energizes one solenoid at a time, then displays solenoid
driver number and connector ID.

SINGLE SOLENOID

Energizes one solenoid at a time. Press "A" for same
solenoid. Press "B" for next solenoid.

SOUND
GAME ROM ID
SWITCH TEST

Plays game sounds.
Displays ROM or ROM's ID.
Displays stuck switch by description.
NOTE: PRESS TEST BUTTON ON DOOR TO EXIT SWITCH TEST.

PERCENT DATA VALUES

GAME PERCENT	Percentage Of Replays
TOTAL PLAYS	Number Of Plays Both Paid And Replays
GAME TIME	Total Number Of Minutes
TOTAL REPLAYS	Total Number Of Replays
THRESHOLD 1	# Of Times The Point Total Exceeded The First Threshold Level
THRESHOLD 2	# Of Times The Point Total Exceeded The Second Threshold Level
THRESHOLD 3	# Of Times The Point Total Exceeded The Third Threshold Level
HI-SCORE BEATEN	# Of Times The Point Total Exceeded The High Score
FREE BALLS	# Of Extra Balls Awarded
SPECIAL	Not Used
TIMES MULTI	# Of Times Multi-Ball Play Was Achieved

PERCENT OPTIONS

FACTORY SETTINGS

THRESHOLD 1	Enter 0 thru 9,999,999 to set award level and display.	1,750,000
SELF PERCENT	Enter 0 or 1; 0 Disables Self-Percentaging Process and 1 Enables Self-Percentaging Process.	1
TARGET PERCENT	Enter desired percentage of replays awarded for reaching Threshold 1.	10
THRESHOLD 1 PERCENT	Displays actual percentage of replays awarded for reaching Threshold 1.	Unchanged
THRESHOLD 2	Enter 0 thru 9,999,999 to set award level and display.	4,500,000
THRESHOLD 3	Enter 0 thru 9,999,999 to set award level and display.	00
HIGHEST SCORE	Enter 0 thru 9,999,999 to set the Hi-Score replay level.	5,999,999

BASIC OPTION VALUES

CREDIT LIMIT	Enter 1 thru 40.	10
BALLS PER GAME	Enter 1 thru 5.	3
THRESHOLD MODE	Enter 0 thru 3; 0=0, 1=Points, 2=Extra Balls, & 3=Replays.	3
SPECIAL MODE	Enter 0 thru 3; 0=0, 1=Points, 2=Extra Balls, & 3=Replays.	3
HI-SCORE MODE	Enter 0 thru 3; 0=0, 1=1 Replay, 2=2 Replays, & 3=3 Replays.	3
SOUND MODE	Enter 0 thru 3; 0=Chimes W/O Background, 1=Chimes With Background, 2=Sounds W/O Background, & 3=Sounds With Background.	3
GERMAN PRIZE	German Meter	0
MATCH OPTION	Enter 0 or 1; 0 Disables Match and 1 Enables Match.	1
CREDIT DISPLAY	Enter 0 or 1; 0=No Credits Displayed & 1=Credits Displayed.	1
NO LIMIT REPLAYS	Enter 0 or 1; 0=Only 1 Award Per Game & 1=More Than 1 Per Game.	1
FREE PLAY	Enter 0 or 65; 0=Coins and 65=Free Play.	0
SLINGSHOT	Enter 0 or 1; 0=No Slingshots and 1=Slingshots.	1
TILT WARNING	Enter 0 thru 3; 0=No Warning, 1=1 Warning, 2=2 Warnings, & 3=3 Warnings.	1

FEATURE OPTIONS

RESET FACTORY Enter 65 for factory selected scores and features.

RECALL TARGETS Enter 0 or 1; This entry recalls DUST targets, SHIELD targets & SWORD targets.
* 0 = No Memory 1 = Memory

X-BALL TIMER Enter 0 thru 3; This entry controls length of time allowed to collect EXTRA BALL.

<u>ENTER</u>	<u>LENGTH OF TIME</u>
0	4 seconds
* 1	6 seconds
2	10 seconds
3	16 seconds

DUNGEON TIMER Enter 0 thru 3; This entry controls the length of time a particular DUNGEON LEVEL (or playfield multiplier) value is held before reverting to next lower value.

<u>ENTER</u>	<u>LENGTH OF TIME</u>
0	10 seconds
* 1	20 seconds
2	40 seconds
3	60 seconds

RETAIN BALLS Enter 0 thru 2; When game is over:
0 = One or both Teleport Drop Targets will eject held ball.
* 1 = One Teleport Drop Target retains ball & other Teleport Drop Target ejects ball.
2 = Both Teleport Drop Targets retain held balls.

MULTI-BALL SAVERS Enter 0 or 1; This entry controls whether or not the AUTO SAVER feature, for both MAGIC-SAVE lanes is activated each time multi-ball is achieved.
* 0 = No AUTO SAVER 1 = AUTO SAVER

* Factory Setting

TURE OPTIONS, Cont'd.

AUTO SAVER

Enter 0 thru 3; This entry controls level of game points beyond which AUTO SAVER feature is disabled.

ENTER	LEVEL OF GAME POINTS
0	None
1	100,000
* 2	200,000
3	300,000

GATE ON TIMER

Enter 0 thru 7; This entry sets initial length of time (for each player) either Ball Saver gate remains closed after being manually activated. During game, this time length is also controlled by Control Gate Timer Option. See note below.

ENTER	LENGTH OF TIME
0	0.83 Second
1	1.00 Second
2	1.16 Seconds
3	1.33 Seconds
* 4	1.50 Seconds
5	1.66 Seconds
6	1.83 Seconds
7	2.00 Seconds

CONTROL GATE TIMER

Enter 0 thru 7; For each player, this entry controls length of time (along with Gate On Timer Option), either Ball Saver gate remains closed after being manually activated. See note below.

ENTER	BALL SAVER GATE ACTIVATED
0	6 Times
1	8 Times
* 2	10 Times
3	12 Times
4	14 Times
5	16 Times
6	18 Times
7	20 Times

ATTRACT SOUND

ENTER 0 thru 1; After game is over, this entry enables or disables ATTRACT SOUND mode while displaying Hi-Scores and instructions.
0 = No Attract Sound * 1 = Attract Sound

* Factory Setting

OTE: The Gate On Timer is initialized for each player at the beginning of the game (see the Gate On Timer Option above). The game counts the number of times the Ball Saver gates are activated by a particular player. If a match is found when compared to the number of times allowed, as set in the Control Gate Timer Option, the next lower time setting in the Gate Timer Option is selected.
This information does not apply to the AUTO SAVER feature.

PRICING OPTIONS

CHUTE 1 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 1 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits At Which
1 Bonus Credit Will Be Awarded

CHUTE 2 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 2 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits at Which
1 Bonus Credit Will Be Awarded

CHUTE 3 OPTIONS

XX coin for yy credit; Coins (xx) will flash first. Enter 1 thru 99 coins. Next, the credits (yy) will flash. Enter 1 thru 10 credits. Then coins (xx) will flash again. Either press "ENTER", if the values are correct, or repeat the data entry.

CHUTE 3 BONUS;

Enter 0 thru 40; 0 = No Awarded Bonus Credit and
1 thru 40 = The Number Of Credits At Which
1 Bonus Credit Will Be Awarded

Example:

To set Coin Chute 1 for 3 credits/2 coins (with no credits delivered on the first coin):

1. CHUTE 1 OPTIONS: Enter 02 coin for 03 credit.

2. CHUTE 1 BONUS: Enter 00.

To set Coin Chute 1 for 3 credits/2 coins (with one credit delivered on the first coin and two credits delivered on the second coin):

1. CHUTE 1 OPTIONS: Enter 01 coin for 01 credit.

2. CHUTE 1 BONUS: Enter 02.

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

V. RECOMMENDED 3 & 5 BALL OPTION SETTINGS

REPLAYS

	3-BALL	5-BALL
Special Mode	3	3
Match Option	1	1
High Score Mode	3	3

1st replay at	1,750,000	3,500,000
2nd replay at	4,500,000	7,000,000

X-BALL

Special Mode	2	2
Match Option	0	0
High Score Mode	0	0

1st Extra Ball at	1,750,000	3,500,000
2nd Extra Ball at	4,500,000	7,000,000

NOVELTY

Special Mode	1	1
Match Option	0	0
High Score Mode	0	0

HIGH GAME TO DATE (reset periodically)

3-BALL	5,999,999	5-BALL	9,999,999
--------------	-----------	--------------	-----------

DUNGEONS & DRAGONS OPTION SETTINGS

FEATURE OPTIONS

	3-BALL	5-BALL
REGISTER		
RECALL TARGETS	0	1
X-BALL TIMER	1	0
DUNGEON TIMER	2	0
RETAIN BALLS	1	0
MULTI-BALL SAVERS	1	0
AUTO SAVER	2	1
GATE ON TIMER	4	4
CONTROL GATE TIMER	2	2
ATTRACT SOUND	1	1

In Basic Options:

SLINGSHOT	1	1
TILT WARNING	1	1

VI. TROUBLESHOOTING ON LOCATION

SYMPTOM: GAME WON'T POWER UP.

Game does not play power-up tune when power is turned on and the general illumination lamps are lit.

ACTION:

- A. Check fuses on Power Module.
- B. Turn power OFF. Open Backbox. Locate light emitting diode (LED) on 6803 Control Board.
- C. Turn power ON. LED must flash 9X to indicate that the Control Board is good. Correct sequence is flash-pause-flash and then seven more flashes and then, the LED goes out.
- D. If LED does not come on or does not flash, or flashes, but less than 9X, turn off power. Check fuses. If fuses are good, replace the 6803 Control Board.

CAUTION: Replacement Control Board must have same Part Number or incorrect operation will result! See Parts List for Control Board on pages 2-13 thru 2-15 and EPROM Listing on page 2-33.

Turn power ON.

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

SYMPTOM: LAMPS ARE ALWAYS ON OR ALWAYS OFF DURING GAME PLAY.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Lamp Tests with keyboard. If game is correct **all** feature lamps flash ON and OFF.
- B. Carefully raise playfield or open back box to gain access to lamps.
- C. Replace bulbs that do not flash.
- D. If game is correct, it is now ready for play.
- E. If game is not correct, turn power OFF. Replace 6803 Control Board. Turn power ON and repeat step A.
- F. If game is correct, it is now ready for play. If game is not correct, contact Bally-Midway Service Department.

SYMPTOM: DISPLAYS

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

ACTION:

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

WARNING: High Voltage is supplied to the Display Driver Modules from the Power Module. Wait a minimum of 30 seconds for High Voltage to bleed off before servicing modules.

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

- II. All displays improper. Digit(s) are always ON or OFF/segment(s) are always ON or OFF on all displays.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Display Test with keyboard. If the game is correct, each digit on each Display displays the numbers 0 through 9 and the alphabet in all 7 digit positions. Note defective Display Driver Modules.
B. Replace 6803 Control Board. Turn power ON. Repeat step A.

CAUTION: Replacement Control Board must have same Part Number or incorrect operation will result! See Parts List for Control Board on pages 2-13 thru 2-15 and EPROM Listing on page 2-33.

- C. If game is correct, it is now ready to play. If game is not correct, contact Bally-Midway Service Department.

III. One or several displays always OFF.

ACTION:

- A. With power ON, open front door. Select SELF TEST-Display Test with keyboard. If the game is correct, each digit on each Display displays the numbers 0 through 9 and the alphabet in all 7 digit positions. Note defective Display Driver Modules.
B. Turn power OFF.
C. Replace Display Driver Module(s). Turn power ON. Repeat step A.
D. If game is correct, it is now ready for play. If game is not correct, contact Bally-Midway Service Department.

SYMPTOM: SOLENOIDS

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

ACTION:

- A. With power ON, open front door. Select SELF TEST-Solenoid Test with keyboard.
- B. If game is correct, each solenoid should be energized in sequence. The solenoid name appears with the Driver (Q) Number and connector jack with pin numbers. (NOTE: If most of the Playfield Solenoids DO NOT operate, check the Playfield Fuse to see if it is blown. It is generally found near the Flipper Assemblies on the bottom of the Playfield.)
- C. Carefully lift the Playfield to gain access to the solenoid. Turn power OFF. Inspect the solenoid.
- D. If a lead is broken off, repair. Repeat steps A & B. If game is correct, it is now ready for play. If solenoid wiring was correct, turn power OFF.
- E. Replace 6803 Control Board. See CAUTION NOTE on page 1-7.
- F. Repeat steps A & B. If game is correct, it is now ready to play. If game is not correct, turn power OFF.
- G. Replace Sound Module A8.
- H. Repeat steps A & B. If game is correct, it is now ready to play. If game is not correct, contact the Bally-Midway Service Department.

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

ACTION:

- A. With power ON, open front door. Select SELF TEST-Solenoid Test with keyboard.
- B. If game is correct, each solenoid should be energized in sequence. The solenoid name appears with the Driver (Q) Number and connector jack with pin numbers. **NOTE:** If most of the Playfield Solenoids DO NOT operate, check the Playfield Fuse to see if it is blown. It is generally found near the Flipper Assemblies on the bottom of the Playfield.
- C. Carefully lift the Playfield to gain access to the solenoid. Turn power OFF. Inspect the solenoid.
- D. If a lead is broken off, repair. Repeat steps A & B. If game is correct, it is now ready for play. If Solenoid wiring was correct, turn power OFF.

SOLENOID, CON'T.

- E. Replace 6803 Control Board. See CAUTION NOTE below.
- F. Repeat steps A & B. If game is correct, it is now ready to play. If game is not correct, turn power OFF.
- G. Replace Sound Module A8.
- H. Repeat steps A & B. If game is correct, it is now ready to play. If game is not correct, contact the Bally-Midway Service Department.

SYMPTOM: NO SOUND

ACTION:

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

SYMPTOM: SWITCHES

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

ACTION:

- A. With power ON, open front door. Select SELF TEST-Switch Test with the keyboard.
- B. If the game is correct, "All Switches Open" is displayed. Otherwise, the name of the switch(es) will be displayed with jack and pin numbers.
- C. Carefully lift the Playfield. Locate the switch assembly identified from the display. Visually inspect the switch assembly. If the contacts are stuck, re-gap them to 1/16". Repeat steps A & B. If the game is correct, it is now ready to play. If the game is not correct, turn power OFF.
- D. Replace the 6803 Control Board.
- E. Repeat steps A & B. If game is correct, it is now ready to play. If game is not correct, contact the Bally-Midway Service Department.

CAUTION: Replacement 6803 Control Board must have same Part Number or incorrect operation will result! See Parts List for Control Board on pages 2-13 thru 2-15.

SUBJECT: 6803 CONTROL BOARD POWER UP TEST SEQUENCE

The following is an abbreviated self-test routine for the 6803 Control Board.

- 1st Flash - Determines if the internal RAM U1 is good. (6803)
- 2nd Flash - Checks to see if the program ROM U2 is good. (27128)
- 3rd Flash - Checks to see if the program ROM U3 is good. (27128)
- 4th Flash - Checks the C-MOS RAM U4. (6116P-3)
- 5th Flash - Tests U8 PIA-0. (6821)
- 6th Flash - Tests U7 PIA-1. (6821)
- 7th Flash - Checks the internal display interrupt generator U1. (6803)
- 8th Flash - Verifies U12 and U8 operation of the phase B switched illumination voltage. NOTE: Fuse F5 on the Power Module provides the phase B signal to the Control Board for U12 and U8.
- 9th Flash - Verifies U1, U11, and U12 operation of the phase A switched illumination voltage. NOTE: Fuse F4 on the Power Module provides the phase A signal to the Control Board for U1, U11, and U12.

SUBJECT: SOUND BOARD SELF-TEST SEQUENCE

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

- 1st Flash - Determine if the external ROM U7 is good.
- 2nd Flash - Checks to see if the external RAM U6 is good.
- 3rd Flash - Checks the PIA U8.

The following is an abbreviated self-test routine for the Sounds Deluxe (68000) Board:

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



10601 W. Belmont Avenue
Franklin Park, Illinois 60131
U.S.A.

Phone: (312) 451-9200 Fax No.: 312-451-4150
Cable Address: MIDCO Telex No.: 72-1596

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VII
OH06 DUNGEONS & DRAGONS

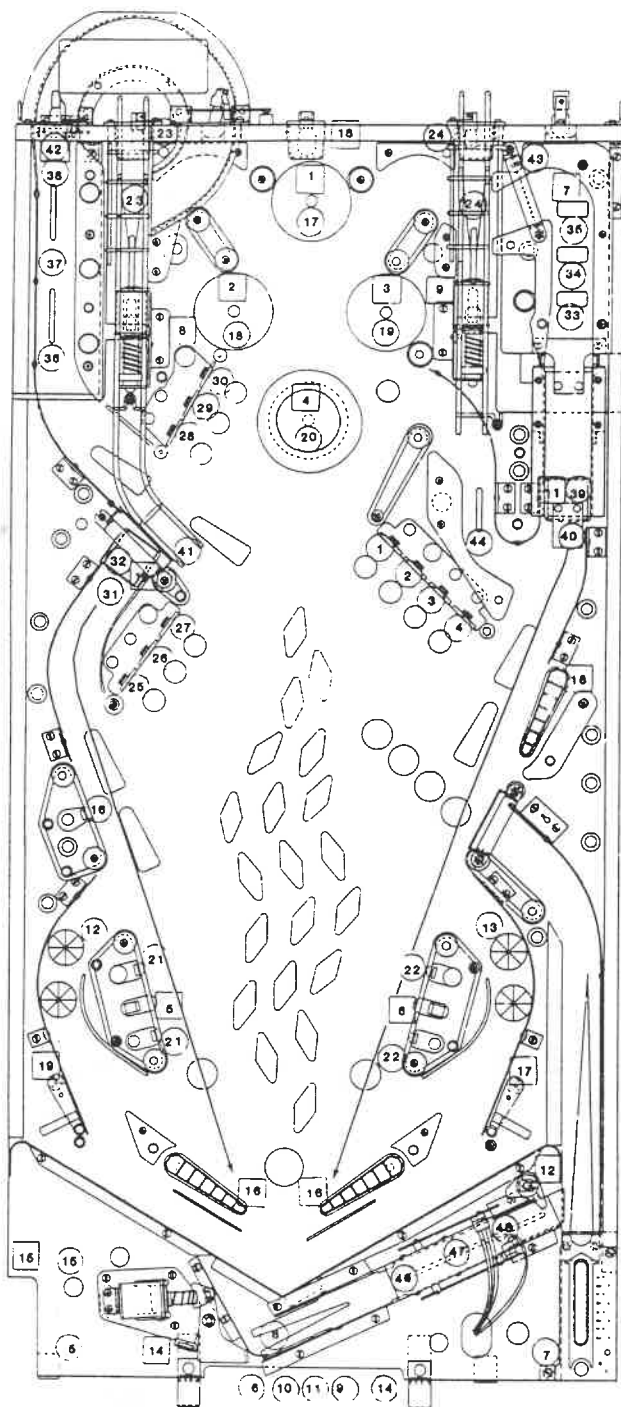


FIGURE II a

SELF TEST #

SOLENOID IDENTIFICATION TABLE

SEQUENCE	
1	TOP THUMPER BUMPER
2	LEFT THUMPER BUMPER
3	RIGHT THUMPER BUMPER
4	BOTTOM THUMPER BUMPER
5	LEFT SLINGSHOT
6	RIGHT SLINGSHOT
7	RESET DROP TARGET
8	KICKER LEFT
9	KICKER RIGHT
10	TELEPORT LEFT
11	TELEPORT RIGHT
12	KICK TO PLAYFIELD
13	RESERVED FOR GERMAN USE
14	OUTHOLE
15	KNOCKER
16	FLEXSAVE RIGHT (RIGHT GATE)
17	FLEXSAVE LEFT (LEFT GATE)
18	FLIPPER

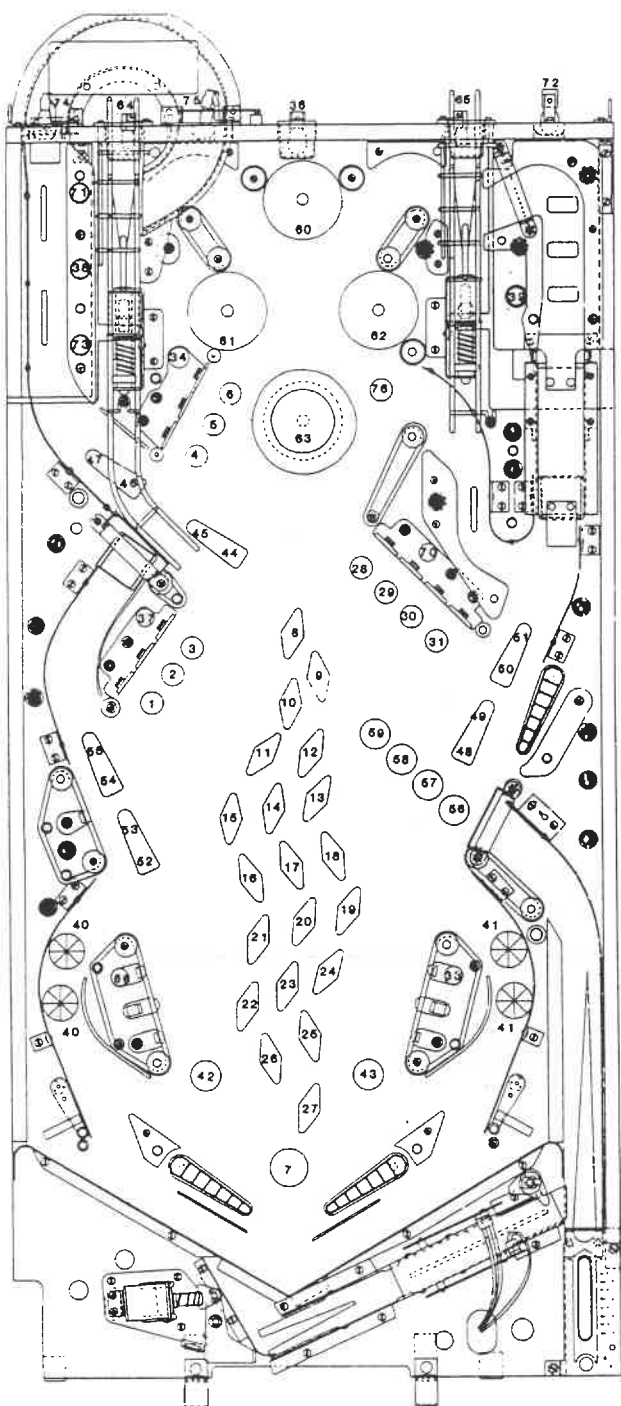
SELF TEST #

SWITCH ASSEMBLY IDENTIFICATION TABLE

SEQUENCE	
1	DUST 1 LEFT (TARGET)
2	DUST 2 (TARGET)
3	DUST 3 (TARGET)
4	DUST 4 RIGHT (TARGET)
5	CABINET LEFT
6	CREDIT (CABINET)
7	CABINET RIGHT
8	OUTHOLE
9	COINS RIGHT (DOOR)
10	COINS LEFT (DOOR)
11	COINS MIDDLE (DOOR)
12	LEFT RETURN LANE
13	RIGHT RETURN LANE
14	SLAM (DOOR)
15	TILT (CABINET)
16	REBOUND
17	TOP BUMPER
18	LEFT BUMPER
19	RIGHT BUMPER
20	BOTTOM BUMPER
21	LEFT SLINGSHOT (X2)
22	RIGHT SLINGSHOT (X2)
23	DRAGON LAIR LEFT
24	DRAGON LAIR RIGHT
25	SHIELD 1 LEFT (TARGET)
26	SHIELD 2 MIDDLE (TARGET)
27	SHIELD 3 RIGHT (TARGET)
28	SWORD 1 LEFT (TARGET)
29	SWORD 2 MIDDLE (TARGET)
30	SWORD 3 RIGHT (TARGET)
31	TELEPORT LEFT EMPTY
32	TELEPORT LEFT LOADED
33	DROP TARGET BOTTOM
34	DROP TARGET MIDDLE
35	DROP TARGET TOP
36	SKILL 1 BOTTOM
37	SKILL 2 MIDDLE
38	SKILL 3 TOP
39	TELEPORT RIGHT EMPTY
40	TELEPORT RIGHT LOADED
41	LEFT RETURN LANE
42	LEVEL SWITCH
43	MILLION SWITCH
44	RESTORE WEAPONS
45	NOT USED
46	OUTHOLE 1 LEFT
47	OUTHOLE 2 MIDDLE
48	OUTHOLE 3 RIGHT

*NOTE: SEQUENCE NUMBERS SHOWN HERE ARE USED AS AN AID IN LOCATING FAULTY SOLENOID OR SWITCH ON FIGURE IIa.

*NOTE: BALL EJECT VECTOR SHOWN FOR EACH TELEPORT DROP TARGET ASSEMBLY. BALL WILL EXIT AS INDICATED ON FIGURE IIa.



THESE FEATURE LAMPS 32 35 67 68 69
ARE LOCATED IN THE TOP BOX.

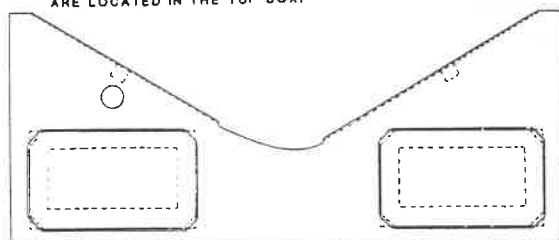


FIGURE II b

VIII SEQUENCE	FEATURE LITES IDENTIFICATION TABLE DESCRIPTION
1	SHIELD 1 LEFT
2	SHIELD 2 MIDDLE
3	SHIELD 3 RIGHT
4	SWORD 1 LEFT
5	SWORD 2 MIDDLE
6	SWORD 3 RIGHT
7	EXTRA LIFE (BACK PANEL)
8	FLAME 20K
9	FLAME 19K
10	FLAME 18K
11	FLAME 17K
12	FLAME 16K
13	FLAME 15K
14	FLAME 14K
15	FLAME 13K
16	FLAME 12K
17	FLAME 11K
18	FLAME 10K
19	FLAME 9K
20	FLAME 8K
21	FLAME 7K
22	FLAME 6K
23	FLAME 5K
24	FLAME 4K
25	FLAME 3K
26	FLAME 2K
27	FLAME 1K
28	DUST 1 LEFT
29	DUST 2
30	DUST 3
31	DUST 4 RIGHT
32	*BRITE LEFT FLASH (TOP BOX)
33	*BRITE RIGHT SLINGSHOT
34	*BRITE SWORD
35	*BRITE DRAGON 3 (TOP BOX)
36	*BRITE MILLION
37	*BRITE SHIELD
38	*BRITE MIDDLE SKILL
39	*BRITE DROP TARGETS
40	LEFT RETURN
41	RIGHT RETURN
42	FLAME 2X
43	FLAME 3X
44	RESTORE SWORD BOTTOM
45	RESTORE SWORD TOP
46	ADVANCE LEVEL BOTTOM
47	ADVANCE LEVEL TOP
48	RESTORE DUST BOTTOM
49	RESTORE DUST TOP
50	TELEPORT RIGHT BOTTOM
51	TELEPORT RIGHT TOP
52	RESTORE SHIELD BOTTOM
53	RESTORE SHIELD TOP
54	TELEPORT LEFT BOTTOM
55	TELEPORT LEFT TOP
56	DUNGEON LEVEL 2
57	DUNGEON LEVEL 3
58	DUNGEON LEVEL 4
59	DUNGEON LEVEL 5
60	BUMPER TOP
61	BUMPER LEFT
62	BUMPER RIGHT
63	BUMPER BOTTOM
64	DRAGONS LAIR LEFT
65	DRAGONS LAIR RIGHT
66	*BRITE LEFT SLINGSHOT
67	*BRITE RIGHT FLASH (TOP BOX)
68	*BRITE DRAGON 1 (TOP BOX)
69	*BRITE DRAGON 2 (TOP BOX)
70	*BRITE DUST
71	*BRITE TOP SKILL
72	*BRITE EXTRA BALL @ (EXTRA LIFE)
73	*BRITE BOTTOM SKILL
74	SKILL HELP LEFT
75	SKILL HELP RIGHT
76	RESTORE WEAPONS

GENERAL ILLUMINATION LITES IDENTIFICATION

NOTE: There are 27 locations identified by a "shaded circle" on illustration IIb.

IX. ROUTINE MAINTENANCE ON LOCATION:

After successful completion of the Self Diagnostic Test Procedure, set the game up for play. Exercise each roll-over, thumper bumper, slingshot, etc., with a game ball until each switch assembly on the Playfield has been checked for proper operation. If actuating a switch assembly results in intermittent or no response, clean contacts by gently closing them on a clean business card or piece of paper and wiping until the contacts are wiped clean. Re-gap, if necessary to 1/16". Do not burnish or file gold plated switch contacts.

X. SWITCH ASSEMBLY ADJUSTMENTS:

GENERAL:

All switch assemblies consist of leaf springs, contacts, separators, plastic tubing and screws to hold them to the mounting surface. Before attempting to adjust a switch assembly, make sure that these screws are tight. If not, tighten screw closest to the contact end of the leaf spring first. This will prevent the assembly from being secured in such a manner that the leaf springs tend to fan out. In general, all leaf springs are adjusted for a 1/16" gap between contacts in the open position and .010" over-travel or wipe in the closed position. All contacts should be free of dust and dirt. Contacts, with the exception of the flipper button switch assemblies, are plated to resist corrosion. Filing or burnishing breaks the finish and encourages corrosion. Clean contacts by gently closing them on a clean business card or piece of paper and wiping until the contacts are wiped clean.

For the flipper button switch assemblies **ONLY**: Tarnish can be removed with a contact file followed by a burnishing tool. Severely pitted contacts must be placed and adjusted only when they are found to be a source of game malfunction.

XI. SERVICE HINTS:

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

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

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

XII
OH06 DUNGEONS & DRAGONS
PANEL TOP PARTS

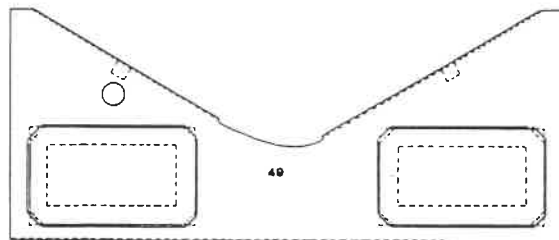
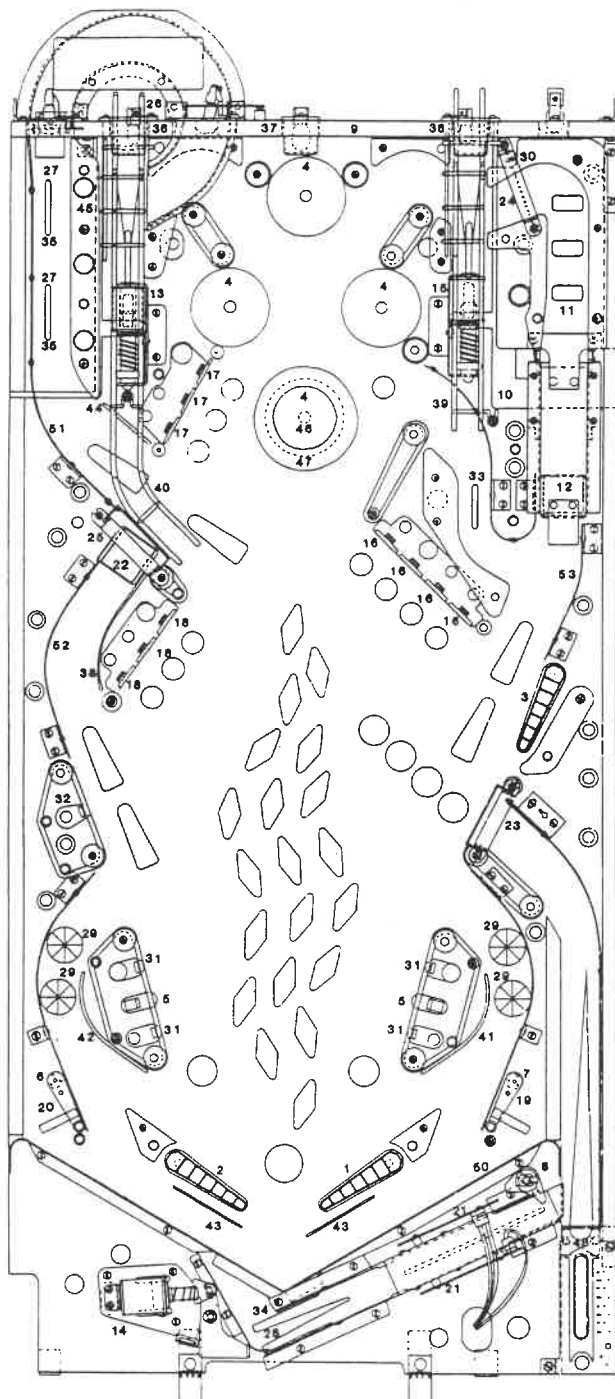


FIGURE II c

- | | |
|--|-----------------|
| 1. FLIPPER ASSEMBLY SINGLE SWITCH RIGHT | AC70-00022-0100 |
| 2. FLIPPER ASSEMBLY SINGLE SWITCH LEFT | AC70-00022-0200 |
| 3. FLIPPER ASSEMBLY DOUBLE SWITCH RIGHT | AC70-00023-0100 |
| 4. THUMPER BUMPER ASSEMBLY | A967-00053-0100 |
| 5. SLINGSHOT KICKER ASSEMBLY LEFT & RIGHT | A967-00059-0000 |
| 6. BALL SAVER ASSEMBLY LEFT | AE94-00040-0000 |
| 7. BALL SAVER ASSEMBLY RIGHT | AE94-00041-0000 |
| 8. MULTI-BALL KICKER ASSEMBLY | AH01-00027-0000 |
| 9. BACKBOARD ASSEMBLY | AH06-00009-0000 |
| 10. TOP PLATFORM ASSEMBLY | AH06-00024-0000 |
| 11. DROP TARGET ASSEMBLY 3 IN-LINE | AH06-00042-0000 |
| 12. TELEPORT DROP TARGET ASSEMBLY | A365-00374-0100 |
| 13. KNOCKER ASSEMBLY 2-LUG LEFT | AH06-00045-0000 |
| 14. TOP MOUNTED KICKER ASSEMBLY | A360-00234-0000 |
| 15. KNOCKER ASSEMBLY 2-LUG RIGHT | A360-00235-0000 |
| 16. TARGET, SWITCH, BRACKET, DIODE, & CAP: YELLOW; LUG RIGHT | A365-R0306-F113 |
| 17. TARGET, SWITCH, BRACKET, DIODE, & CAP: RED; LUG RIGHT | A365-R0307-F111 |
| 18. TARGET, SWITCH, BRACKET, DIODE, & CAP: BLUE; LUG RIGHT | A365-R0307-F112 |
| 19. SHAFT W/ARM & STUD ASSEMBLY: RIGHT | A365-00321-0100 |
| 20. SHAFT W/ARM & STUD ASSEMBLY: LEFT | A365-00321-0200 |
| 21. OPTICAL MULTI-BALL TROUGH ASSEMBLY | A365-00347-0100 |
| 22. TELEPORT DROP TARGET ASSEMBLY | A365-00374-0100 |
| 23. GATE, BRACKET & WIRE FORM ASSEMBLY | AA40-00034-0000 |
| 24. GATE, BRACKET & WIRE FORM ASSEMBLY | A360-00214-0000 |
| 25. GATE, BRACKET & WIRE FORM ASSEMBLY | AH06-00025-0000 |
| 26. WIRE-TO-MOUNTING BRACKET ASSEMBLY | AH06-00021-0000 |
| 27. BRACKET W/WIRE FORM ASSEMBLY: ROLLOVER LEFT | A331-00042-0000 |
| 28. BRACKET W/WIRE FORM ASSEMBLY: ROLLOVER LEFT | A350-00217-0000 |
| 29. SWITCH ASSEMBLY: ROLLOVER W/DIODE & CAP | A020-00095-0111 |
| 30. SWITCH ASSEMBLY: GATE W/DIODE & CAP | A020-00094-0111 |
| 31. SWITCH W/BRACKET & PLATE ASSEMBLY: SLINGSHOT | A360-00230-0000 |
| 32. SWITCHW/BRACKET & DIODE ASSEMBLY: REBOUND | A360-00239-0000 |
| 33. SWITCH W/DIODE & CAP ASSEMBLY | A360-00603-0002 |
| 34. SWITCH W/DIODE & PLATE ASSEMBLY | A365-00034-0000 |
| 35. SWITCH W/DIODE & PLATE ASSEMBLY | A365-00035-0000 |
| 36. LIGHT DOME: PLASTIC, BLUE | 0017-00042-0742 |
| 37. LIGHT DOME: PLASTIC, CLEAR | 0017-00042-0745 |
| 38. WIRE FORM: LEFT BALL CAPTURE | OH06-00905-0000 |
| 39. WIRE FORM RAMP UNIT: RIGHT | OH06-00910-00XF |
| 40. WIRE FORM RAMP UNIT: LEFT | OH06-00911-00XF |
| 41. WIRE FORM: INSIDE DRAIN RIGHT | OH06-00913-0100 |
| 42. WIRE FORM: INSIDE DRAIN LEFT | OH06-00913-0200 |
| 43. WIRE FORM: BALL GUIDE | 0360-00175-5300 |
| 44. WIRE FORM: BALL GUIDE | 0365-00151-2000 |
| 45. PLATE: LEFT RAMP ENTRANCE | OH06-00134-0000 |
| 46. CAP: THUMPER BUMPER, AMBER | 0017-00042-0520 |
| 47. COLLAR: THUMPER BUMPER, RED | 0017-00042-0566 |
| 48. SHOOTER GAUGE | OH06-00100-00XF |
| 49. BOTTOM ARCH | OH06-00921-0000 |
| 50. BOTTOM ARCH EXTENSION | 0370-00918-1000 |
| 51. LEFT RAMP ENTRANCE ASSEMBLY | AH06-00048-0000 |
| 52. SCOOP: LEFT BALL CAPTURE | OH06-00104-0000 |
| 53. RIGHT BALL CATCH ASSEMBLY | AH06-00029-0000 |

**XIII
OH06 DUNGEONS & DRAGONS
RAMP PARTS**

- | | |
|--|-----------------|
| 1. PLATE-TO-CIRCLE RAMP ASSEMBLY | AH06-00028-0000 |
| 2. STRAIGHT RAMP PIVOT ASSEMBLY | AH06-00022-0000 |
| 3. PLATES-TO-STRAIGHT RAMP ASSEMBLY | AH06-00023-0000 |
| 4. WOOD RAMP ASSEMBLY | AH06-00027-0000 |
| 5. THUMPER BUMPER EXIT, RAMP
ENTRANCE ASSEMBLY: RIGHT | AH06-00050-0000 |

RUBBER RINGS

- | | |
|-------------------|-----------------|
| A. RING | 0017-00041-0633 |
| B. RING: 5/16" | 0017-00041-0637 |
| C. RING: .23" | 0017-00041-0641 |
| D. RING: 3/4" | 0017-00041-0642 |
| E. RING: 1" | 0017-00041-0643 |
| F. RING: 1-1/2" | 0017-00041-0644 |
| G. RING: 2-1/2" | 0017-00041-0646 |
| J. RING: 3" (RED) | 0017-00041-0682 |

POST

- | | |
|--|-----------------|
| K. POST: (BLUE) PLASTIC 1" | 0017-00042-0586 |
| L. POST: (BLUE) PLASTIC 1-3/16" | 0017-00042-0594 |
| M. POST: METAL-MINI
(W/THREADS FOR 10/32 NUT) | 0365-00700-00XF |
| N. POST: 3/8" x 1-3/16" | 0365-00980-0000 |

RUBBER BUMPER USE

- | | |
|--------------------------------|-----------------|
| M. - POST: METAL-MINI | 0017-00041-0633 |
| K. & L. - POST: (BLUE) PLASTIC | 0017-00041-0637 |

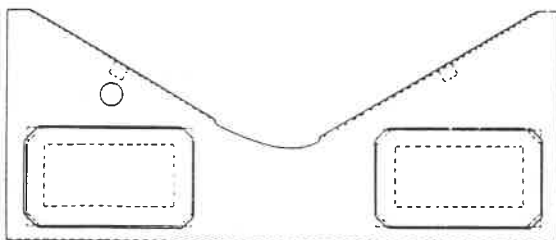
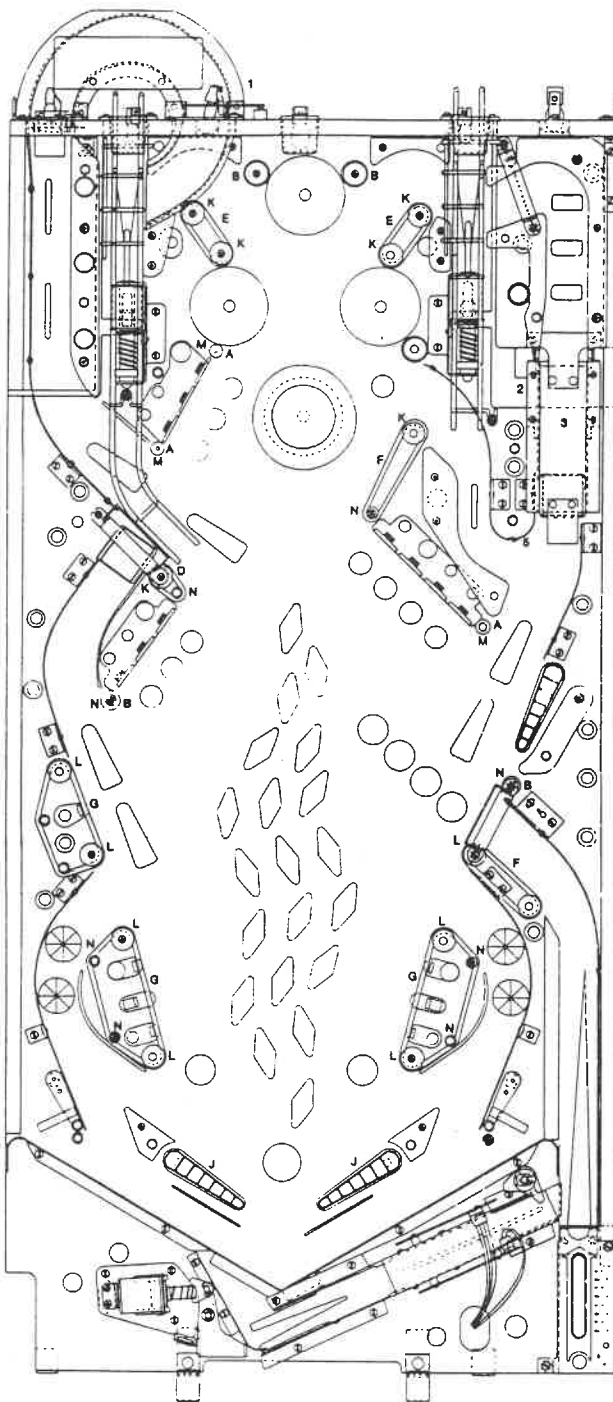


FIGURE II d

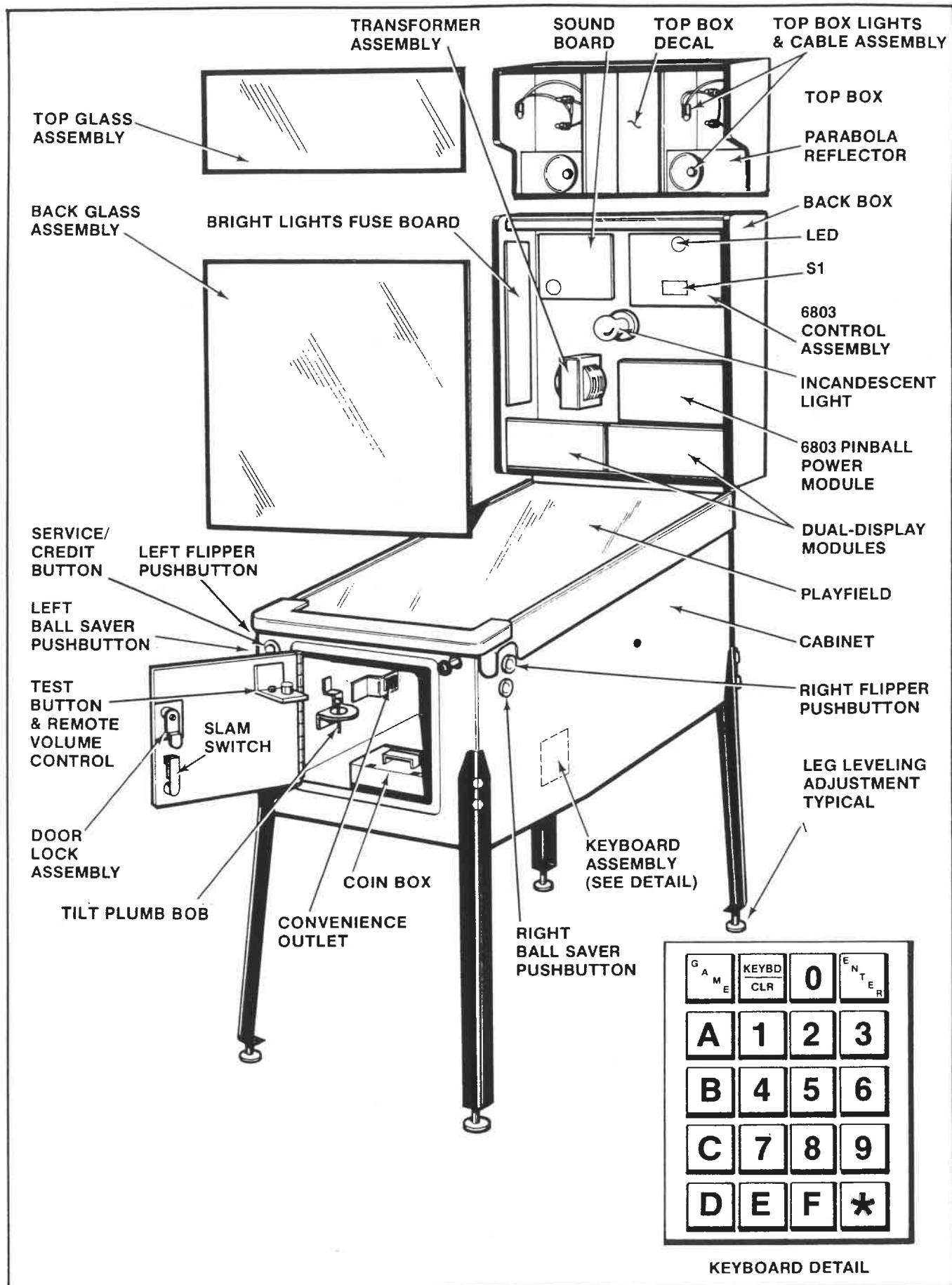


FIGURE III. DUNGEONS AND DRAGONS PINBALL GAME

XIV. DUNGEONS & DRAGONS FEATURE OPERATION & SCORING

1. SHOOTER LANE SKILL SHOT FEATURE

When a ball is delivered to the plunger in the shooter lane, a flashing "100 K" light at the left end of the backboard will turn on. The shooter lane SKILL SHOT, which awards 100,000 points, can be made as follows:

1. Shoot the ball with the plunger into the upper left inclined lane.
2. The ball **must** pass thru a backboard entrance gate (located under the "100 K" light) which makes a switch.
3. The ball must then roll back down the inclined lane.

However, if the ball continues to roll thru a circular plastic ramp (hidden behind the backboard) and then passes thru a backboard exit gate (which breaks a switch), the 100,000 points will not be awarded.

The inclined lane has two roll-over switches. Making each roll-over switch awards 5,000 points. Making the backboard entrance gate switch awards 5,000 points.

If the SKILL SHOT off the plunger is unsuccessful, the "100 K" light will continue to flash until points are scored anywhere on the playfield. At that time, the "100 K" light turns off.

2. DUNGEON LEVEL FEATURE

The DUNGEON LEVEL (playfield multiplier) value can be increased by hitting the ball with the upper right Flipper as follows:

1. The ball rolls up the left inclined lane making two (2) roll-over switches.
2. The ball makes the backboard entrance gate switch (located under the "100 K" light).
3. The ball passes thru the circular plastic ramp which is hidden behind the backboard.
4. The ball breaks the backboard exit gate switch with the ball rolling back to the playfield via the left DRAGON'S LAIR wire ramp.

Each time the above ramp shot is made, the playfield multiplier values and game points are awarded as follows:

FIGURE 1. DUNGEON LEVELS: COMPLETIONS & AWARDS

DUNGEON LEVEL RAMP COMPLETION	DUNGEON LEVEL LIGHT LIT	PLAYFIELD MULTIPLIER VALUE AWARD	ROLL-OVER SWITCHES AWARD	BACKBOARD GATE SWITCHES AWARD	TIME ALLOWED FOR RAMP COMPLETIONS ^o
1st time	2X	2X	10,000 points	10,000 points	20 seconds
2nd time	3X	3X	10,000 points	10,000 points	20 seconds
3rd time	4X	4X	10,000 points	10,000 points	20 seconds
4th time	5X	5X	10,000 points	10,000 points	20 seconds

* Adjustable - ^oSee REGISTER "DUNGEON TIMER" for adjustment times below.

NOTES:

1. If successive DUNGEON LEVEL ramp completions fall behind the set time limit, the playfield multiplier value will decrease in steps.
2. Making each roll-over switch in the left inclined lane awards 5,000 points.
3. Making the backboard entrance gate switch awards 5,000 points.
4. Breaking the backboard exit gate switch awards 5,000 points.
5. The maximum DUNGEON LEVEL (playfield multiplier) value awarded is 5X.
6. Each time the DUNGEON LEVEL ramp is completed (the first four times), the DUNGEON LEVEL (playfield multiplier) value appears on the display.

^o The time allowed to advance the DUNGEON LEVEL to the next higher value, before it reverts to the next lower value, is adjustable using one of the following settings:

REGISTER	SETTING	FUNCTION
DUNGEON TIMER	0	10 Seconds To Advance DUNGEON LEVEL
DUNGEON TIMER	1	20 Seconds To Advance DUNGEON LEVEL
DUNGEON TIMER	2	40 Seconds To Advance DUNGEON LEVEL
DUNGEON TIMER	3	60 Seconds To Advance DUNGEON LEVEL

3. DRAGON'S FLAME BONUS FEATURE

The DRAGON'S FLAME consists of twenty (20) diamond-shaped lights "1K" thru "20K" with respective bonus point values of 1,000 points thru 20,000 points. Each successive DRAGON'S FLAME "portion" is "extinguished" (each light turns off) by hitting a lit target in any of the three (3) Weapon Target groups. Weapon Target descriptions and points awarded are shown in Figure 2.

FIGURE 2. WEAPON TARGETS: DESCRIPTIONS & POINTS AWARDED

WEAPON EXTINGUISHES FLAME	WEAPON TARGET COLOR	NUMBER OF TARGETS	AWARD PER WEAPON TARGET HIT	
			LIT*	UNLIT
DUST	Yellow	4	5,000 points	3,000 points
SHIELD	Blue	3	5,000 points	3,000 points
SWORD	Red	3	5,000 points	3,000 points

* An extra 5,000 points is awarded when all of the lit targets are hit in any Weapon Target group.

When all of the targets are unlit in any one of the three (3) Weapon Target groups, the RESTORE ALL WEAPONS light, located on the right side of the bottom thumper bumper, turns on. Making the roll-over switch in the RESTORE ALL WEAPONS lane, located below the right DRAGON'S LAIR wire ramp, will re-light all unlit Weapon Targets.

When all of the DUST targets are completed (all are unlit), the "RESTORE DUST" light in front of the right TELEPORT lane flashes on. All unlit DUST targets are re-lit by:

1. Having the ball enter the right TELEPORT lane while the right "TELEPORT" light is flashing. See "TELEPORT FEATURE" on page 1-24.
2. Hitting the first, second or third BELL TOWER in-line drop target or by making its rear gate switch. See "BELL TOWER FEATURE" on page 1-20.

When all of the SHIELD targets are completed (all are unlit), the "RESTORE SHIELD" light in front of the the left TELEPORT flashes on. Entering the left TELEPORT lane will re-light all of the unlit SHIELD targets. See "TELEPORT FEATURE" on page 1-24.

When all of the SWORD targets are completed (all are unlit), the "RESTORE SWORD" light in front of the upper left inclined lane flashes on. Having the ball enter the inclined lane and make the first of two (2) roll-over switches will re-light all of the unlit SWORD targets.

3. DRAGON'S FLAME BONUS FEATURE, CONT'D.

By hitting the °Weapon Targets, the DRAGON'S FLAME can be repeatedly extinguished until regular game points, instead of bonus points, are earned. Each time all twenty (20) DRAGON'S FLAME lights are turned off, the DRAGON'S FLAME is completely extinguished. This ends the first completion round. All twenty (20) lights will then immediately re-light. At the same time, a "2X" FLAME" light turns on which tells the player to begin the second DRAGON'S FLAME completion round. Figure 3 shows the completion round sequence.

FIGURE 3. DRAGON'S FLAME COMPLETION ROUND SEQUENCE

DRAGON'S FLAME COMPLETELY EXTINGUISHED	NEXT FLAME COMPLETION ROUND IN PROGRESS	
	"2X FLAME" LIGHT	"3X FLAME" LIGHT
	Off	Off
1st time	On	Off
2nd time	Off	On
3rd time	Off	On
4th time	On	On
5th time	On	On

All of the DRAGON'S FLAME lights will re-light after every completion throughout the rest of the game.

For every DRAGON'S FLAME light turned off, its bonus point value accumulates until after the fifth completion and is awarded when:

1. The left DRAGON'S LAIR or the right DRAGON'S LAIR (see the DRAGON'S LAIR FEATURE on page 1-20) is entered, whether either DRAGON'S LAIR is lit or unlit.
2. The ball drains thru the outhole.

However, after the fifth completion of the DRAGON'S FLAME, the FLAME value points will accumulate **only** as regular game points and will be awarded each time immediately on completion of all twenty (20) DRAGON'S FLAME lights.

- ° The DUST targets, SHIELD targets and SWORD targets can be cleared or saved at the end of each ball using one of the following settings:

REGISTER	SETTING	FUNCTION
RECALL TARGETS	0	No, do not recall all Weapon Targets from ball to ball.
RECALL TARGETS	1	Yes, recall all Weapon Targets from ball to ball.

3. BELL TOWER FEATURE & EXTRA LIFE FEATURE

The BELL TOWER can be entered only when its movable ramp is in a lowered position. This happens only after the right Teleport Drop Target captures a ball. See the "TELEPORT FEATURE" on page 1-24.

Before the ball passes thru the rear gate which makes a switch, three (3) in-line drop targets must be hit in succession. Points and an EXTRA BALL are awarded as shown in Figure 4:

FIGURE 4. BELL TOWER AWARD SEQUENCE

BELL TOWER	1ST DROP TARGET HIT	2ND DROP TARGET HIT	3RD DROP TARGET HIT	REAR GATE SWITCH MADE
POINTS AWARDED	10,000 points	25,000 points	50,000 points	100,000 points
DURING 1ST BALL			Qualifies EXTRA LIFE & starts X-BALL TIMER	If within time limit, collects EXTRA LIFE*
DURING 2ND BALL		Qualifies EXTRA LIFE & starts X-BALL TIMER	If within time limit, collects EXTRA LIFE*	
DURING 3RD BALL	Qualifies EXTRA LIFE & starts X-BALL TIMER	If within time limit, collects EXTRA LIFE*		

* Adjustable - °See REGISTER "X-BALL TIMER" below.

NOTES:

1. "EXTRA LIFE" = EXTRA BALL
2. The "EXTRA LIFE" qualify light is located at the right end of the backboard.
3. The "EXTRA LIFE" collect light is located above the outhole.
4. If an EXTRA LIFE is earned at one ball level, the **same** EXTRA LIFE scoring requirements are repeated at the next higher ball level.

Passing the ball thru the BELL TOWER rear gate qualifies the MILLION SHOT. See the "MILLION SHOT FEATURE" on page 1-21.

- ° The length of time given to collect EXTRA LIFE is adjustable by using one of the following settings:

REGISTER	SETTING	FUNCTION
X-BALL TIMER	0	Length of time is 4 seconds.
X-BALL TIMER	1	Length of time is 6 seconds.
X-BALL TIMER	2	Length of time is 10 seconds.
X-BALL TIMER	3	Length of time is 16 seconds.

5. MILLION SHOT FEATURE

Passing the ball thru the BELL TOWER rear gate qualifies the MILLION SHOT (see the "BELL TOWER FEATURE & EXTRA LIFE FEATURE" on page 1-20). This activates a flashing "MILLION" light located at the center of the backboard. A timer is also activated allowing 3 seconds to make the MILLION SHOT. The ball must travel up the upper left inclined lane, thru the plastic ramp located behind the backboard) making the backboard entrance ramp gate switch and also breaking the backboard exit gate switch to collect 1,000,000 points. The MILLION SHOT is re-qualified each time the ball passes thru the BELL TOWER rear gate.

6. MAGIC SAVE FEATURE & AUTO SAVER FEATURE

Two "MAGIC-SAVE" (flex-save) lanes are in this game. Two rollover buttons are in each one of these combination return/out lanes. Each lane contains a flexible spring steel ball guide which can be moved to a closed position by a Ball Saver gate. This occurs when the lamps are lit under the roll-over button. The left Ball Saver gate is manually activated with a push-button located under the left Flipper push-button on the Cabinet. The right Ball Saver gate is manually activated with a push-button located under the right Flipper push-button. When either Ball Saver gate is manually activated, its respective lane changes from being an "outlane" to a "return lane" for a fixed length of time (adjustable - °see **REGISTER GATE ON TIMER** and **REGISTER "CONTROL GATE TIMER"**) after which it returns to being an "outlane".

Whenever the two rollover button lights are flashing in either Ball Saver lane and the ball passes over both buttons, the AUTO SAVER feature automatically activates the Ball Saver gate to close the lane's flexible ball guide, for a fixed length of time, returning the ball to the Flipper.

At the start of each ball, the °AUTO SAVER feature remains active (two flashing roll-over button lights in each Ball Saver lane) until the game score is greater than 200,000 points (adjustable - °see **REGISTER "AUTO SAVER"** below). The AUTO SAVER feature is then disabled for both Ball Saver lanes but the player can still earn one AUTO-SAVE per lane at a time. Completing all three (3) lit SHIELD targets activates the left MAGIC-SAVE lane's AUTO-SAVE. Completing all four (4) lit DUST targets activates the right MAGIC-SAVE lane's AUTO-SAVE. The player can retain either MAGIC-SAVE lane's AUTO-SAVE by manually activating the Ball Saver gate before the AUTO-SAVE is used.

Completing either MAGIC-SAVE lane, with its roll-over button lights flashing, awards 10,000 points. Completing either Ball Saver lane, with its roll-over button lights unlit, awards 5,000 points.

- ° The level of game points, beyond which the AUTO SAVER feature is disabled, is adjustable by using one of the following settings:

REGISTER	SETTING	FUNCTION
AUTO SAVER	0	Game point level is no points.
AUTO SAVER	1	Game point level is 100,000 points.
AUTO SAVER	2	Game point level is 200,000 points.
AUTO SAVER	3	Game point level is 300,000 points.

- ° The initial length of time (for each player) either Ball Saver gate remains closed after being manually activated is adjustable by using one of the following settings. During the game, this time length is also controlled by the **"CONTROL GATE TIMER"** REGISTER. See note on page 1-23.

REGISTER	SETTING	FUNCTION
GATE ON TIMER	0	Length of time is 0.83 second.
GATE ON TIMER	1	Length of time is 1.00 second.
GATE ON TIMER	2	Length of time is 1.16 seconds.
GATE ON TIMER	3	Length of time is 1.33 seconds.
GATE ON TIMER	4	Length of time is 1.50 seconds.
GATE ON TIMER	5	Length of time is 1.66 seconds.
GATE ON TIMER	6	Length of time is 1.83 seconds.
GATE ON TIMER	7	Length of time is 2.00 seconds.

6. MAGIC SAVE FEATURE & AUTO SAVER FEATURE, CONT'D.

- REGISTER "CONTROL GATE TIMER", for each player, controls the length of time (along with the "GATE ON TIMER" REGISTER) either Ball Saver gate remains closed after being manually activated. See note below.

REGISTER	SETTING	FUNCTION
CONTROL GATE TIMER	0	Ball Saver is manually activated 6 times.
CONTROL GATE TIMER	1	Ball Saver is manually activated 8 times.
CONTROL GATE TIMER	2	Ball Saver is manually activated 10 times
CONTROL GATE TIMER	3	Ball Saver is manually activated 12 times
CONTROL GATE TIMER	4	Ball Saver is manually activated 14 times
CONTROL GATE TIMER	5	Ball Saver is manually activated 16 times
CONTROL GATE TIMER	6	Ball Saver is manually activated 18 times
CONTROL GATE TIMER	7	Ball Saver is manually activated 20 times

NOTE: The Gate On Timer is initialized for each player at the beginning of the game. See REGISTER "GATE ON TIMER"). The game counts the number of times the Ball Saver gates are manually activated by a particular player. If a match is found when compared to the number of times allowed, as set in the "CONTROL GATE TIMER" REGISTER, the next lower time setting in the "CONTROL GATE TIMER" REGISTER is selected automatically.

7. DRAGON'S LAIR FEATURE

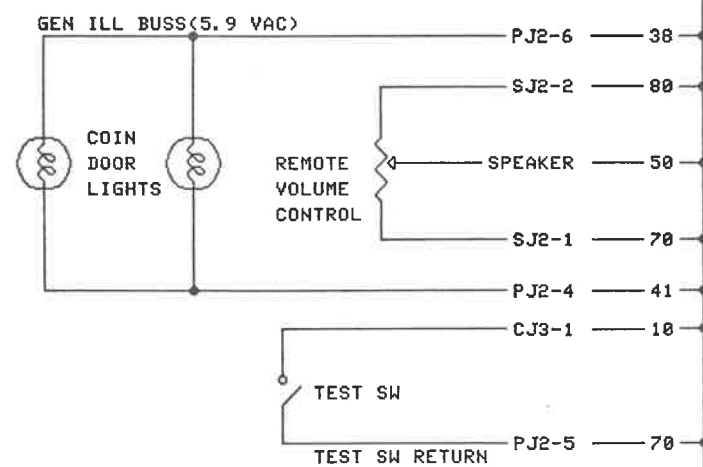
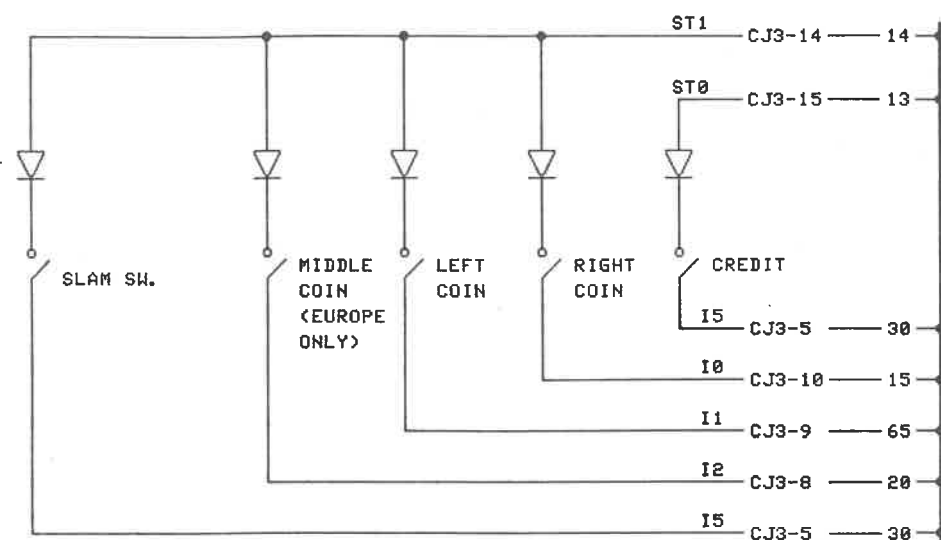
This game has two DRAGON'S LAIR lane and wire ramp combinations. One is located on the upper left side of the Playfield and the other is located on the upper right side. When a ball enters into either DRAGON'S LAIR lane, it rolls down against a Ball Kicker (Knocker) and also makes a rollover switch. This activates the Ball Kicker's solenoid so that its plunger kicks the ball up the DRAGON'S LAIR lane, around and thru the wire ramp back onto the Playfield.

A ball captured in the left TELEPORT lane flashes the left DRAGON'S LAIR light. This qualifies two-ball multi-ball play which begins after the ball enters the left DRAGON'S LAIR. See the "MULTI-BALL PLAY" feature on pages 1-25 & 1-26. A ball captured in the right TELEPORT lane begins the same sequence involving the right DRAGON'S LAIR and its light.

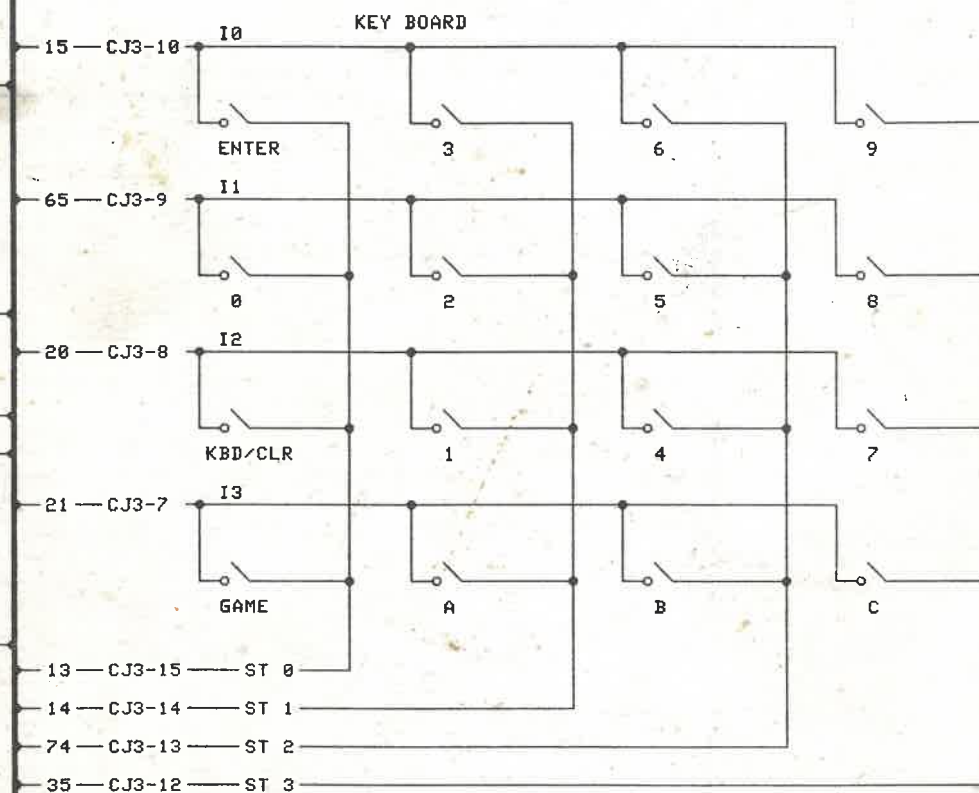
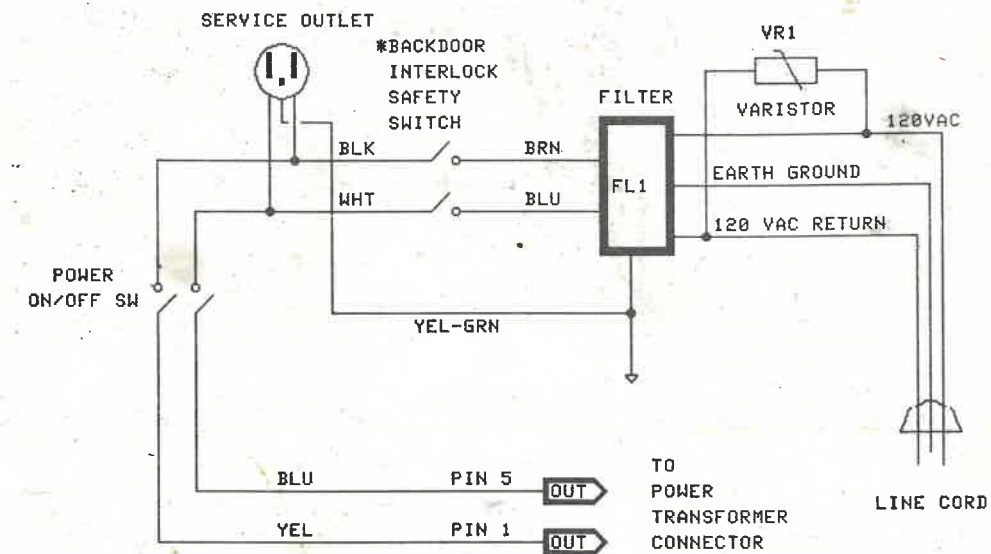
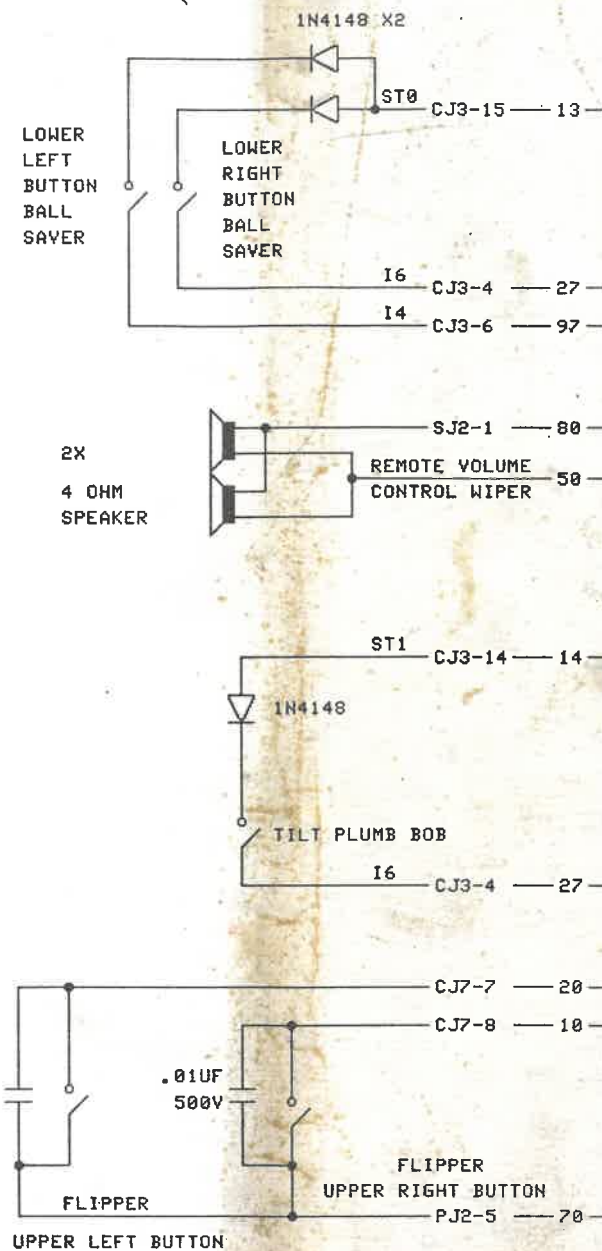
Completing either DRAGON'S LAIR, regardless of whether its light is lit or unlit, awards 10,000 points and also awards the accumulated points in the DRAGON'S FLAME BONUS. See the "DRAGON'S FLAME BONUS" feature on pages 1-18 & 1-19.

SECTION 2
**Component Layouts,
Schematics & Wiring Diagrams**





KEYBOARD		
PIN	DESIG	COLOR
1		
2		
3	I3	21
4	KEY	
5	ST3	35
6	I2	20
7		
8	ST2	74
9		
10	I1	65
11	ST1	14
12		
13	I0	15
14		
15	ST0	13

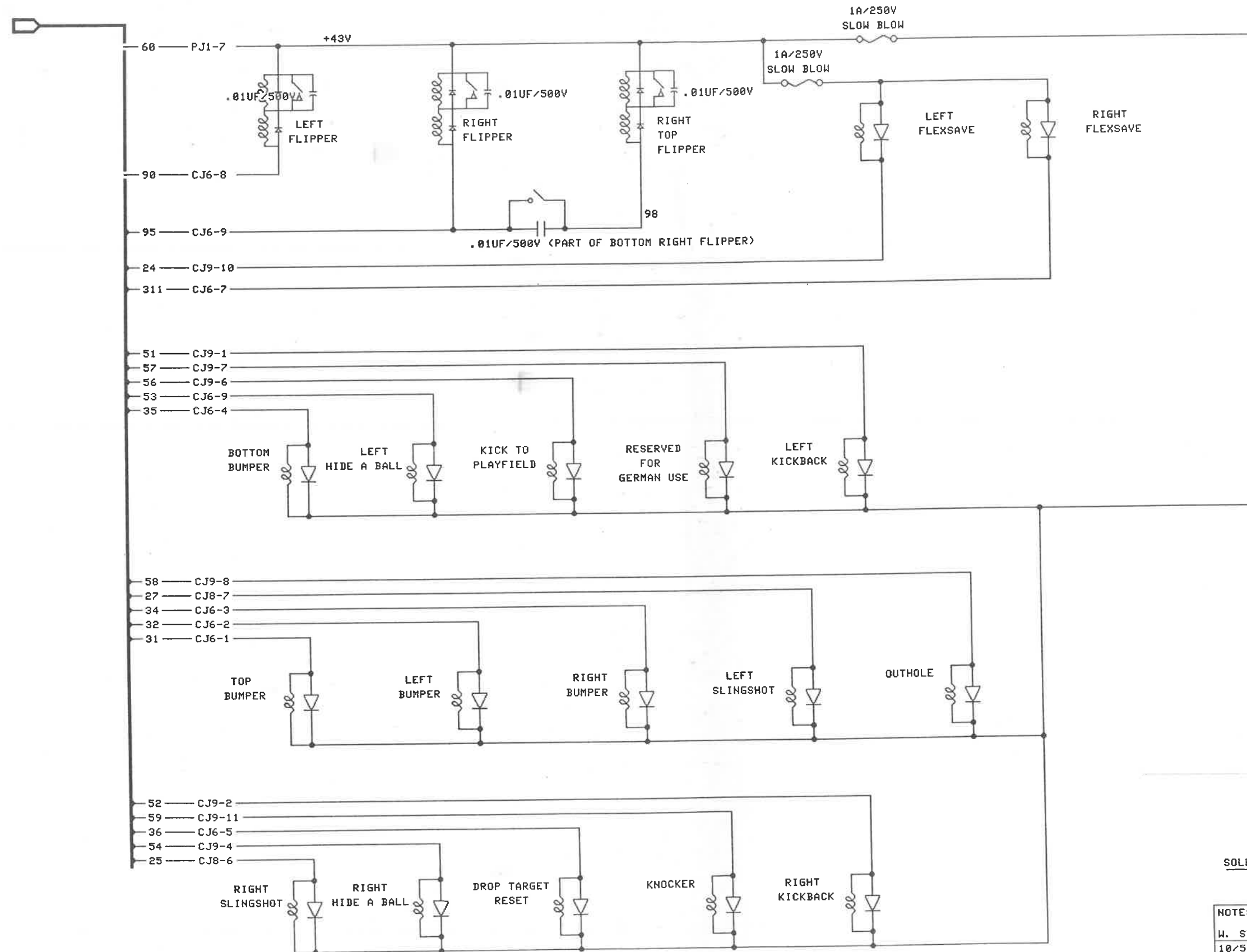


* OPTIONAL- NOT USED IN ALL GAMES

COLOR CODE

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

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	
10/5/87	DUNGEONS AND DRAGONS
	CABINET DIAGRAM
	M051-00H06-A003
	SHEET 1 OF 1
	REV A

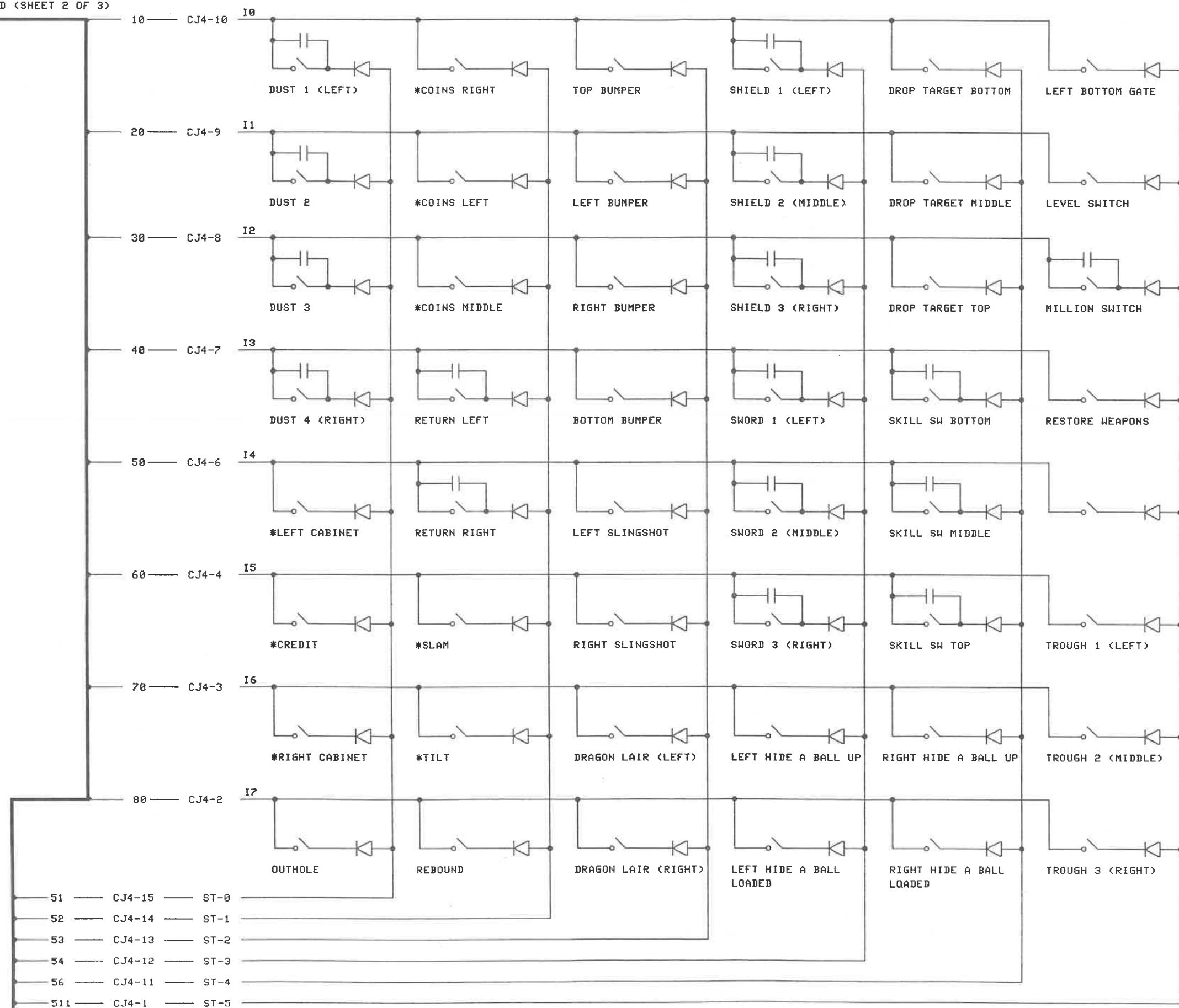


COLOR CODE

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

SOLENOIDS

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	DUNGEONS AND DRAGONS
10/5/87	PLAYFIELD DIAGRAM
	M051-00H06-A005
	SHEET 1 OF 3
	REV A



TO J5 PIN 3	BLK	1 GND
KEY	2	A084-91895-B000
	4	POS EMITTER PCB
	3	N/U
TO J5 PIN 1	RED	4 5V

OPTIC BALL SENSOR BD.

TO J4 PIN 1	WHT-VIO	1 STROBE
		2 N/U
TO J4 PIN 4	BRN	3 TROUGH 1 (LEFT)
		A084-91894-B000
		4POS. DETECTOR PCB
KEY	4	
TO J4 PIN 3	ORN	5 TROUGH 2 (MIDDLE)
TO J4 PIN 2	BLK	6 TROUGH 3 (RIGHT)

COLOR CODE

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

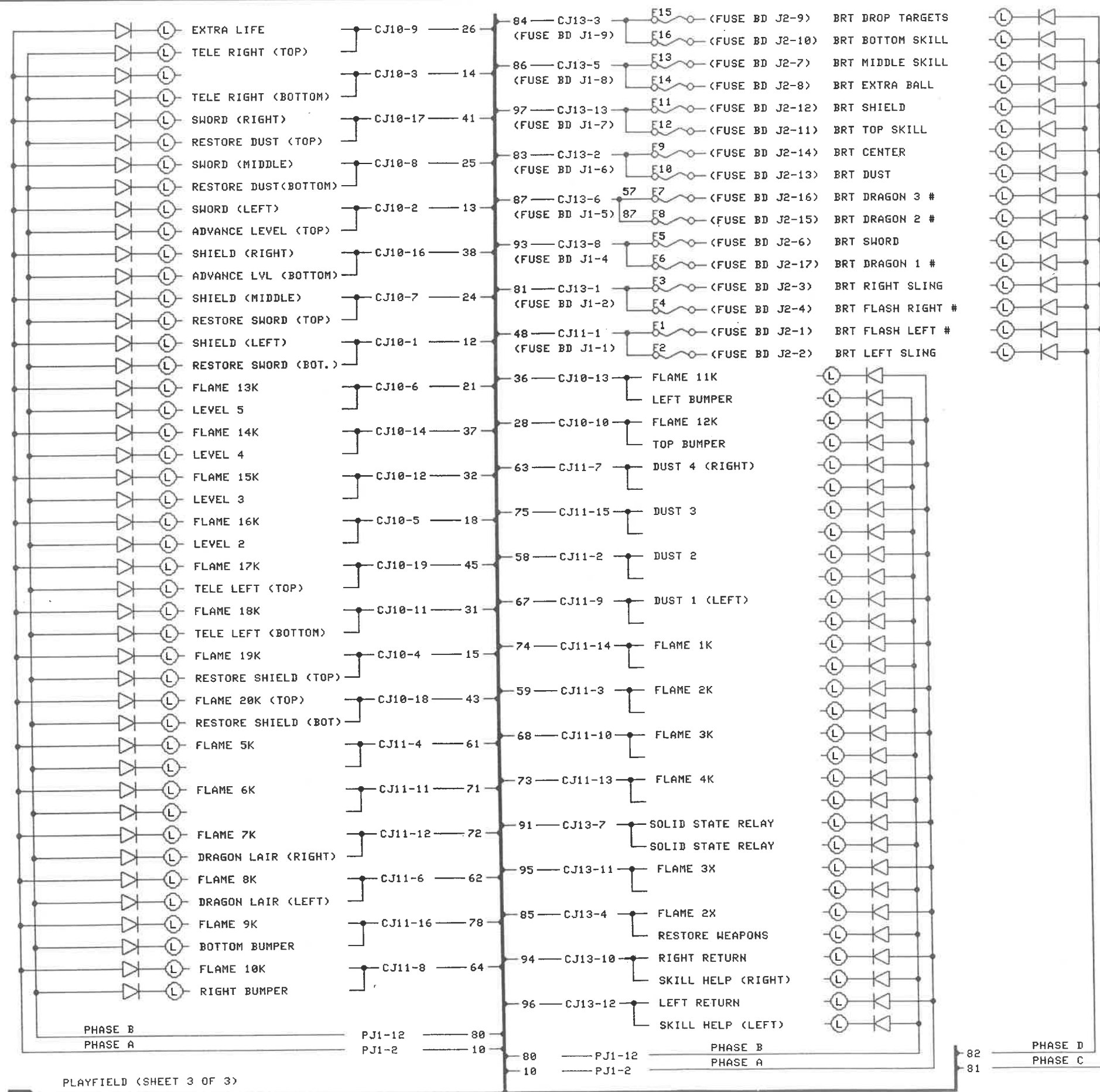
NOTE 1. ALL SWITCH DIODES ARE 1N4148

NOTE 2. * INDICATES NOT USED ON PLAYFIELD. DRAWING ONLY TO SHOW RESPECTIVE CABINET SWITCH POSITION IN SWITCH MATRIX.

NOTE 3. ALL CAPACITORS ARE .05MF, 25V

PLAYFIELD SWITCHES

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	
10/5/87	
	DUNGEONS AND DRAGONS
	PLAYFIELD DIAGRAM
	M051-00H06-A005
	SHEET 2 OF 3
	REV A



NOTE: # = LOCATED IN TOP BOX (PART OF BACKBOX)

COLOR CODE

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

NOTE: DIODES ARE 1N4004

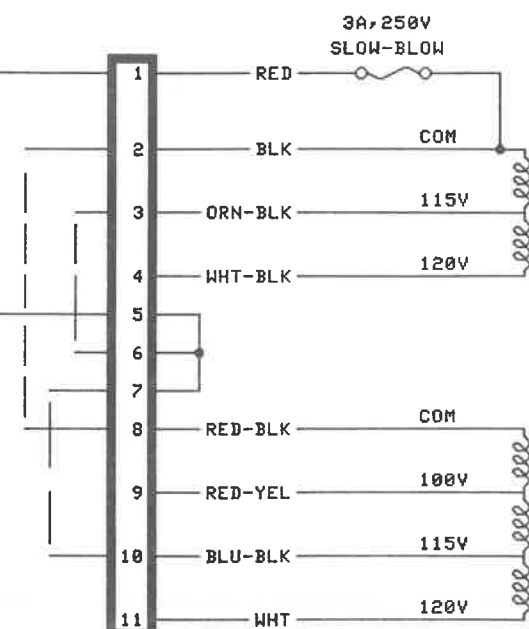
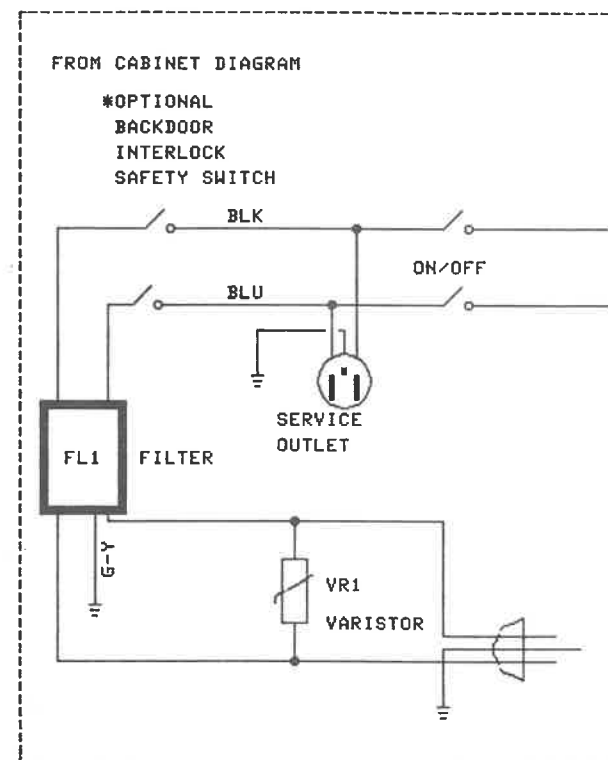
ALL FUSES IN FUSEBOARD ARE
3/4A MDQ, 250V AND LOCATED
IN THE BACKBOX

FEATURE LIGHTS AND BRIGHT LIGHTS

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	
10/5/87	DUNGEONS AND DRAGONS
	PLAYFIELD DIAGRAM
	M051-00H06-A005
	SHEET 3 OF 3 REV A

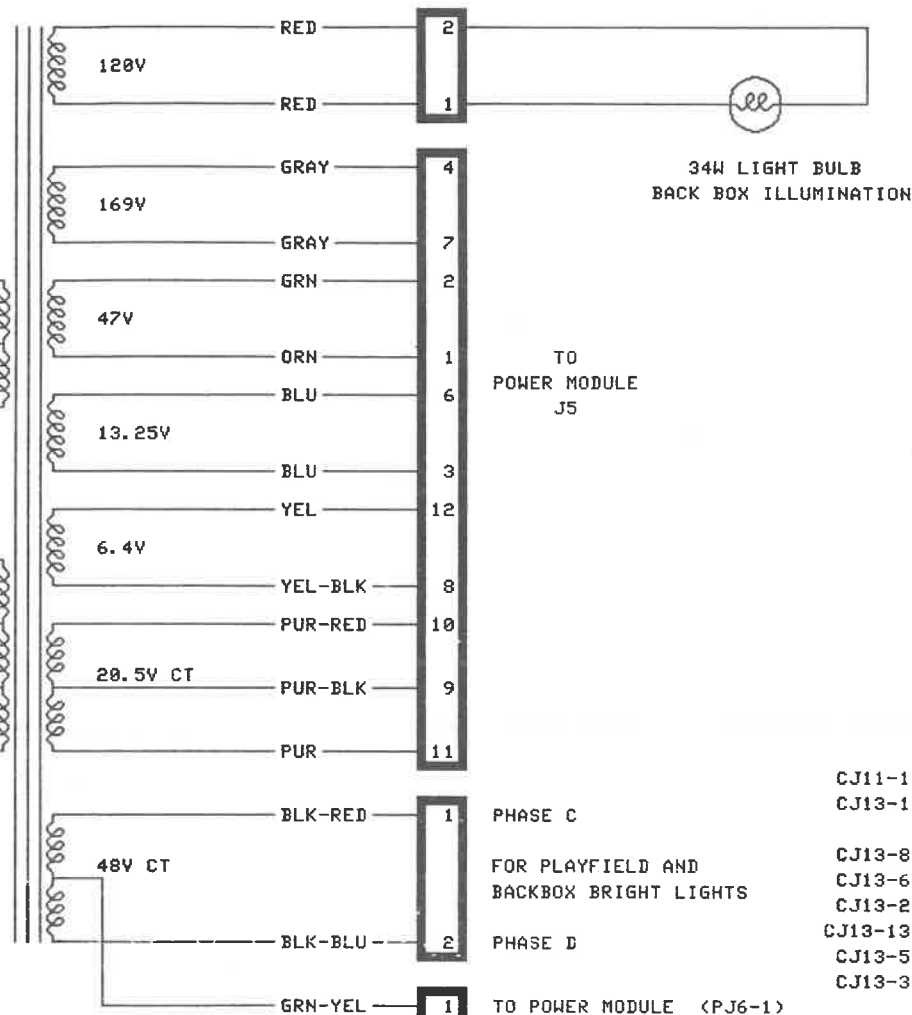
FROM PLAYFIELD
(SHEET 2 OF 3)

PLAYFIELD (SHEET 3 OF 3)



SHOWN JUMPED FOR 115V

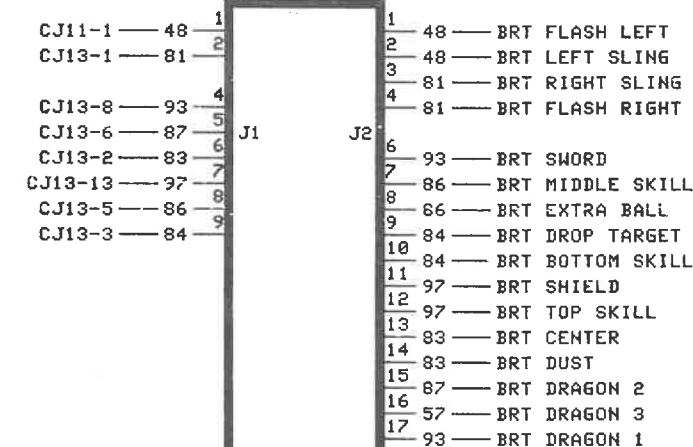
NOTE: SEE TABLE "A" FOR
JUMPER OPTIONS.



TO
POWER MODULE
J5

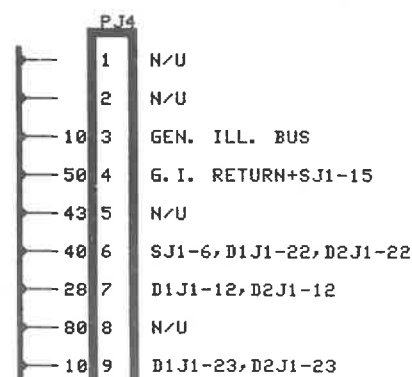
PHASE C
FOR PLAYFIELD AND
BACKBOX BRIGHT LIGHTS

PHASE D
TO POWER MODULE (PJ6-1)



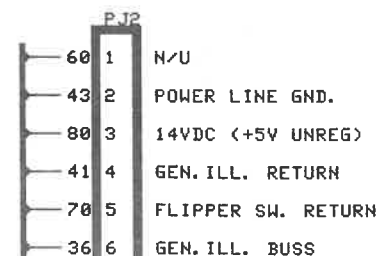
FUSE BOARD

NOTE: PJ1-PJ4 ARE PART OF
POWER MODULE.

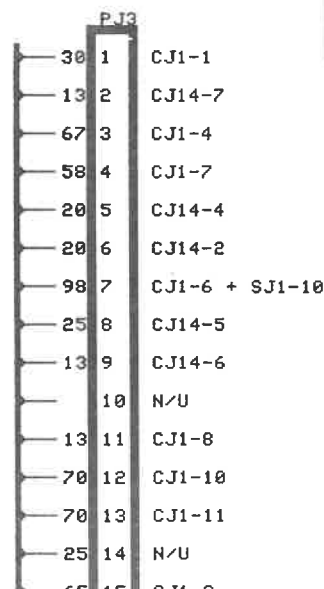


WITHIN BACKBOX
(SHEET 3 OF 3)

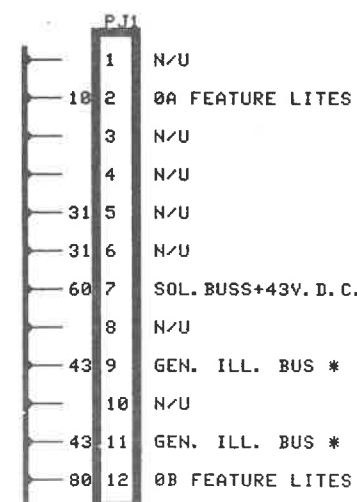
BACKBOX (SHEET 1 OF 3)



TO CABINET



TO CONTROLLER (IN BACKBOX)
(SHEET 2 OF 3)



TO PLAYFIELD

* = 32 GI LAMPS

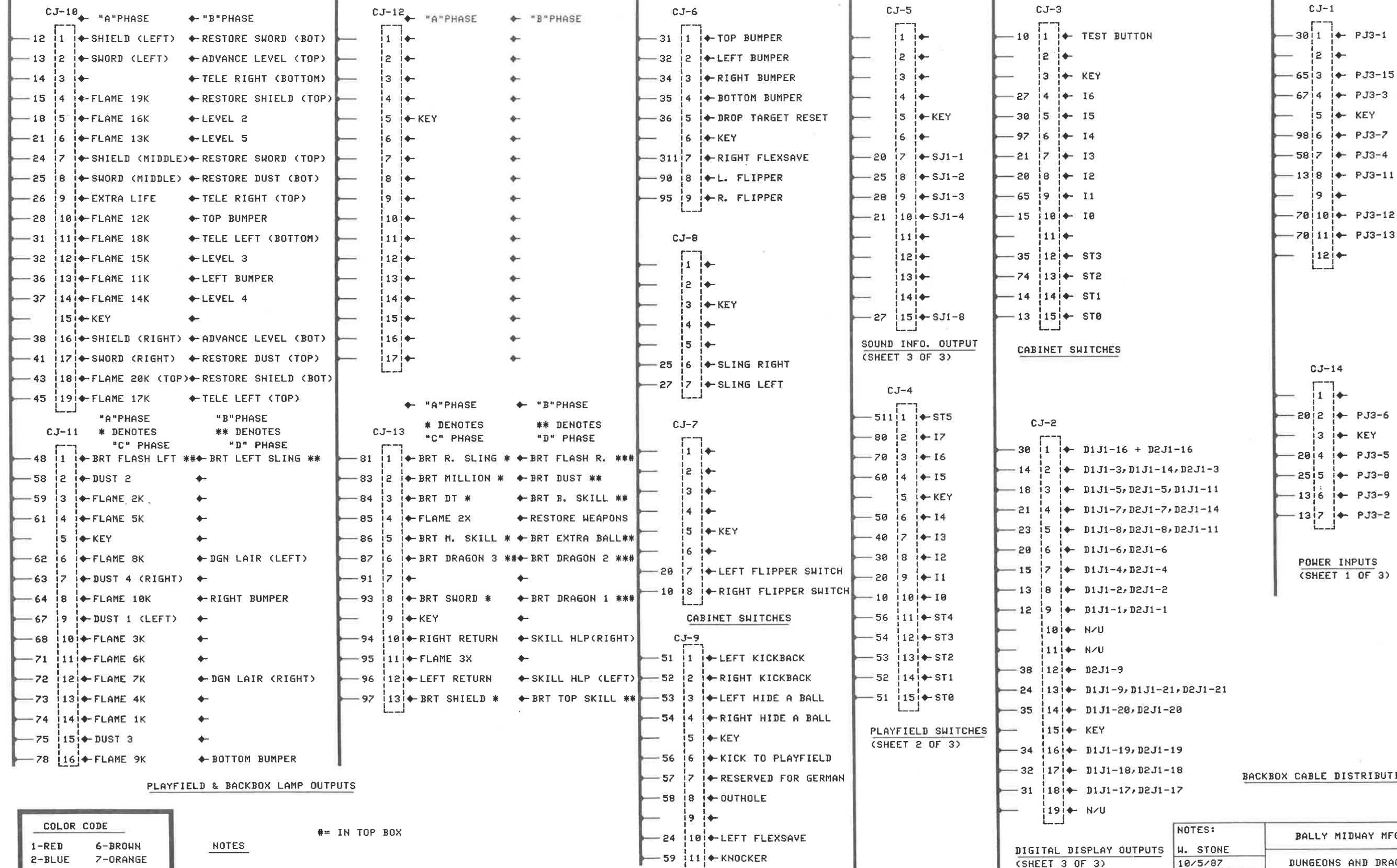
TABLE "A"	
115VAC, 2-8, 3-6, 7-10	
120VAC, 2-8, 4-6, 7-11	
220VAC, 4-8, 7-9	
240VAC, 4-8, 7-11	

COLOR CODE

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

POWER DISTRIBUTION

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	DUNGEONS AND DRAGONS BACKBOX
10/5/87	M051-00H06-A006
	SHEET 1 OF 3 REV A



COLOR CODE

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

NOTES

#= IN TOP BOX

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

NOTES:

W. STONE
10/5/87

BALLY MIDWAY MFG. CO.

DUNGEONS AND DRAGONS
BACKBOX
M051-00H06-A006

SHEET 2 OF 3 REV A

DIGITAL DISPLAY MODULES-D1 & D2

PLYR 1&2

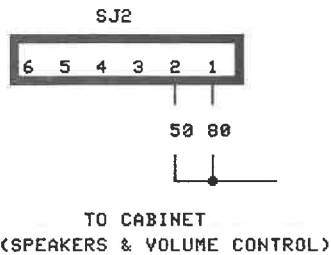
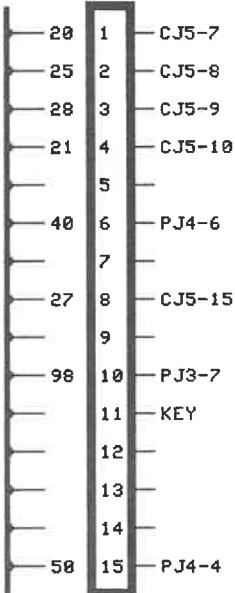
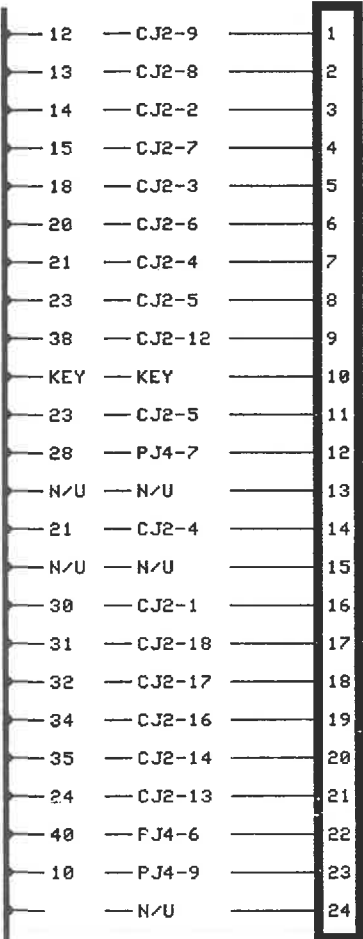
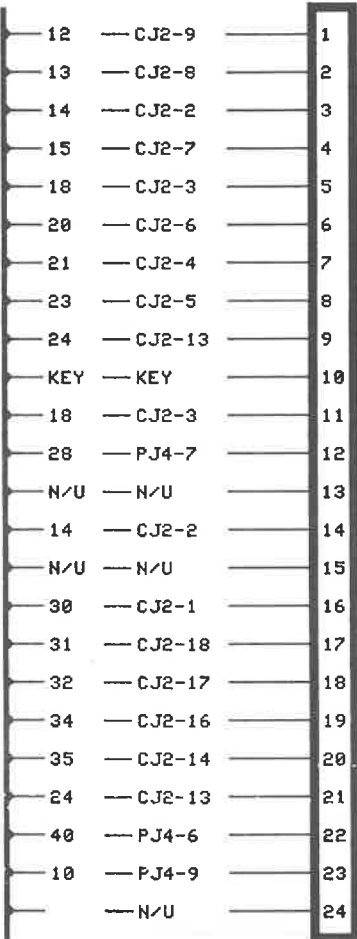
PLYR 3&4

SOUND MODULE

D1J1

D2J1

SJ1



BACKBOX (SHEET 3 OF 3)

TO BACKBOX (PAGE 2 OF 3)

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

DISPLAY MODULES & SOUND MODULE

NOTES:	BALLY MIDWAY MFG. CO.
W. STONE	DUNGEONS AND DRAGONS
10/5/87	BACKBOX
	M051-00H06-A006
	SHEET 3 OF 3
	REV A



10601 W. Belmont Avenue
Franklin Park, Illinois 60131
U.S.A.

Phone: (312) 451-9200 Fax No.: 312-451-4150
Cable Address: MIDCO Telex No.: 72-1596

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6803 PINBALL POWER MODULE
A084-91785-0000
M051-00C53-0001

DESIGNATION LIST

DESIGNATION

DESCRIPTION

DESIGNATION

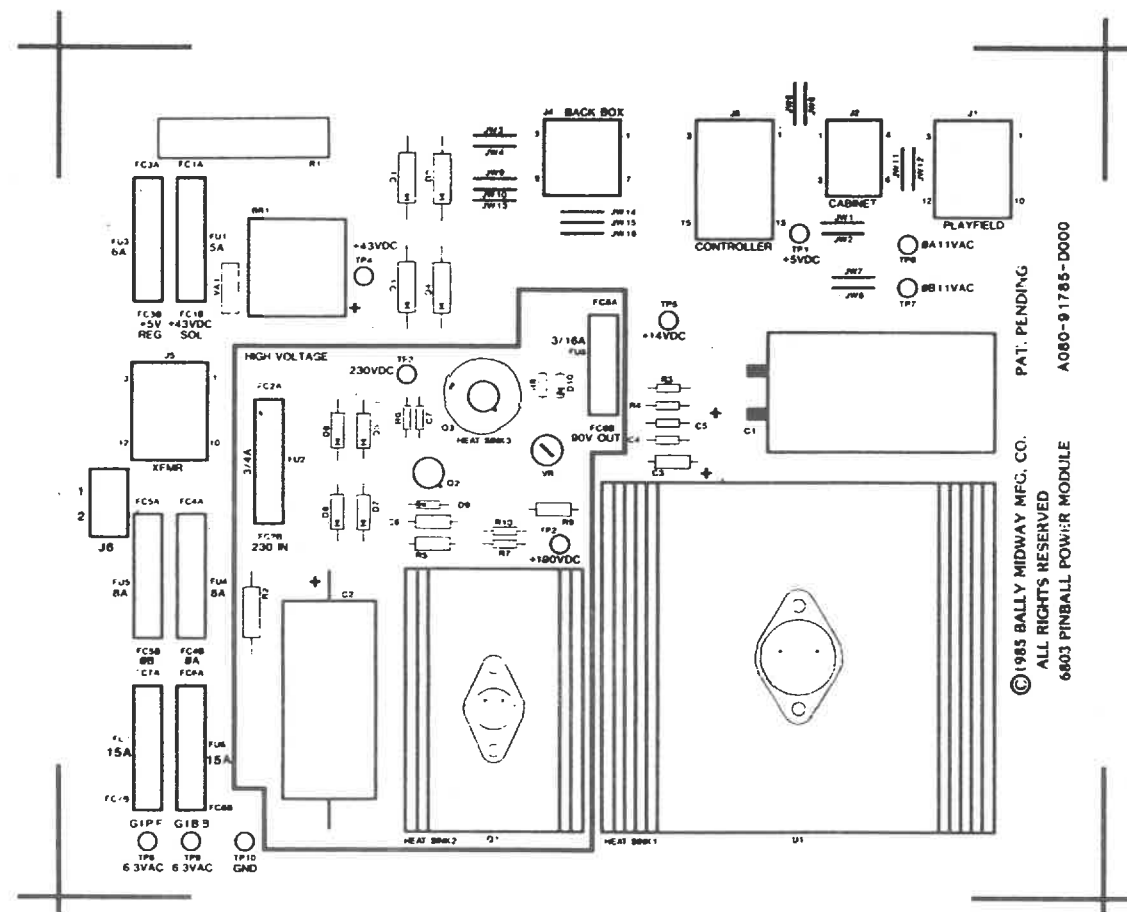
DESCRIPTION

C1 11,000uf 20V ELEC.
P/O C1 TY-WRAP
P/O C1 SOLDER LUG
P/O C1 WIRE 20AWG
C2 160uf 350V ELEC.
P/O C2 TY-WRAP
C3 2uf 25V ELEC.
C4, C5 .1uf 25V CER.
C6, C7 .01uf 500V CER.
R1 600 OHM 10W
R2 100K 1W 5%
R3 2.2 OHM 1/4W 5%
R4 100 OHM 1/2W 5%
R5 22K 1/2W 5%
R6 100K 1/4W 5%
R7 390 OHM 1/4W 5%
R8 1.2K 1/4W 5%
R9 82K 1/2W 5%
R10 8.2K 1/4W 5%
VR1 0 - 25K 1/4W POT.
D1 - D4 MR751
D5 - D9 IN4004
D10 IN5275A ZENER
BR1 KRPC-35-02-W
P/O BR1 BRIDGE SPACER
O1 2N3584
P/O O1 SHIELD
P/O O1 HEX SPACER
P/O O1 6-32 X 5 SCREW
P/O O1 6-32 X 12 SCREW
P/O O1 LOCKWASHER EXT.
P/O O1 LOCKWASHER INT.
P/O O1 FLAT WASHER
P/O O1 6-32 HEX NUT
P/O O1 LABEL - CAUTION HIGH VOLT.
P/O O1 HEATSINK 2
P/O O1 INSULATOR TO-66
Q2, Q3 2N3440
P/O Q2, Q3 INSULATOR TO-5
P/O Q3 HEATSINK 3
U1 78H05C REG.
P/O U1 6-32 X 12 SCREW
P/O U1 6-32 HEX NUT
P/O U1 LOCKWASHER EXT.
P/O U1 FLAT WASHER
P/O U1 HEATSINK 1
P/O U1 INSULATOR TO-3
VA1 VARISTOR

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

4-23-86 REV. 1.0 FIXED R2, R6

* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC



THIS DWG IS CONFIDENTIAL & PROPERTY OF MIDWAY MFG CO					
DIM. TOLERANCES UNLESS OTHERWISE SPEC. CONCENTRICITY T1/R .002 FRACTIONAL .002 DECIMAL .002 HOLE DIA .002 - .003 ANGLE .002 - .003 DO NOT SCALE DWG.		PART USED ON CL DATE 04/08/86 SCALE MFG DATE SCALE		M MIDWAY MFG. CO. FRANKLIN Pk., IL 60121 A BALLY CO.	
ASSY DRAWING 6803 PINBALL PWR MODULE A084-91785-0000				PART NO M05-1-0-0-C-5-3-D-0-0	
				REVISIONS	

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

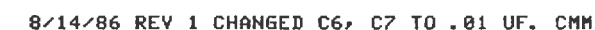
CROSS REFERENCE LIST

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

CROSS REFERENCE LIST

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

* TWO FLIPPER GAMES ONLY - SEE SCHEMATIC



* WHEN 3FLIPPERS ARE USED FU1 SHOULD BE 6AMP
WHEN 4FLIPPERS ARE USED FU1 SHOULD BE 7AMP

92 49133 / USER / NON / POWER / 1 / 1000

6803 CONTROL BOARD
A084-91786-G000
M051-00C53-G003

CROSS REFERENCE LIST

CROSS REFERENCE LIST

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

DESCRIPTION	QTY.	DESIGNATION NO.	PART NOS.
7.5 1/4W 5%	1	R5	100E-00005-0085
9.1 1/4W 5%	1	R4	100E-00005-0087
10K 1/4W 5%	4	R12, R13, R30, R33	100E-00005-0088
15K 1/4W 5%	2	R31, R34	100E-00005-0092
39K 1/4W 5%	1	R7	100E-00005-0102
47K 1/4W 5%	2	R10, R11	100E-00005-0104
56K 1/4W 5%	14	R62, R64, R66, R68	100E-00005-0106
		R70, R125-R132, R229	
62K 1/4W 5%	1	R15	100E-00005-0107
82K 1/4W 5%	1	R14	100E-00005-0112
100K 1/4W 5%	2	R26, R237	100E-00005-0115
270K 1/4W 5%	1	R77	100E-00005-0126
82 OHM 1W 10%	1	R27	100E-00007-0014
IN958R ZENER	1	D1	103E-00001-0002
IN4004	20	D19-D38	103E-00003-0005
IN4148	13	D3, D6, D9-D18, D39	103E-00002-0005
IN4606	5	D2, D4, D5, D7, D8	103E-00002-0006
2N3904	3	Q2, Q4, Q6	104E-00001-0006
2N4403	2	Q3, Q5	104E-00002-0006
2N5060	35	Q23-Q33, Q37, Q41-Q50,	104E-00015-0001
		Q54-Q64, Q69, Q70	
2N5305	1	Q1	104E-00007-0003
MCR106-1	10	Q34-Q36, Q51-Q53	0360-00802-0009
		Q65-Q68	
SE9302	19	Q7-Q22, Q38-Q40	0360-00802-0008
4011	1	U11	0360-00803-0010
4502	1	U13	0360-00803-0005
4514B	3	U15-U17	0360-00803-0013
4584	1	U12	0066-090RX-XXDX
6116 RAM	1	U4	0365-00803-0013
6803 MPU	1	U1	0360-00803-0048
6821 PIA	2	U7, U8	0360-00803-0017
74LS04	1	U10	0A15-00803-0010
74LS10	1	U9	0A89-00803-0007
75LS154	1	U14	0360-00803-0024
74HCT245	1	U5	0365-00803-0014
74LS373	1	U6	0A89-00803-0006
CA3081	3	U18-U20	0360-00803-0007
3.580 MHz CRYSTAL	1	XTAL-1	109E-00001-0003
LED GREEN	1	LED 1	0017-00007-0131
TEST POINTS	7	TP1-TP7	0017-00007-0131
SWITCH P.R.	1	SW1	0017-00032-0038
BATTERY 3.6V	1	BATT-1	0017-00003-0172
ZERO OHM RES. JUMPER	5	JW2, JW4, JW6, JW8,	117E-00001-0001
		JW10	
RELAY 48VDC	1	K1	114E-00001-0011
40 PIN I.C. SOCKET	3	XU1, XU7, XU8	110E-00001-0011
28 PIN I.C. SOCKET	2	XU2, XU3	110E-00001-0010
24 PIN I.C. SOCKET	1	XU4	110E-00001-0007
FERRITE BEAD	4	FR1-FR4	0316-00804-0002

DESIGNATION LIST

6803 CONTROL BOARD A084-91786-G000 M051-00C53-G003

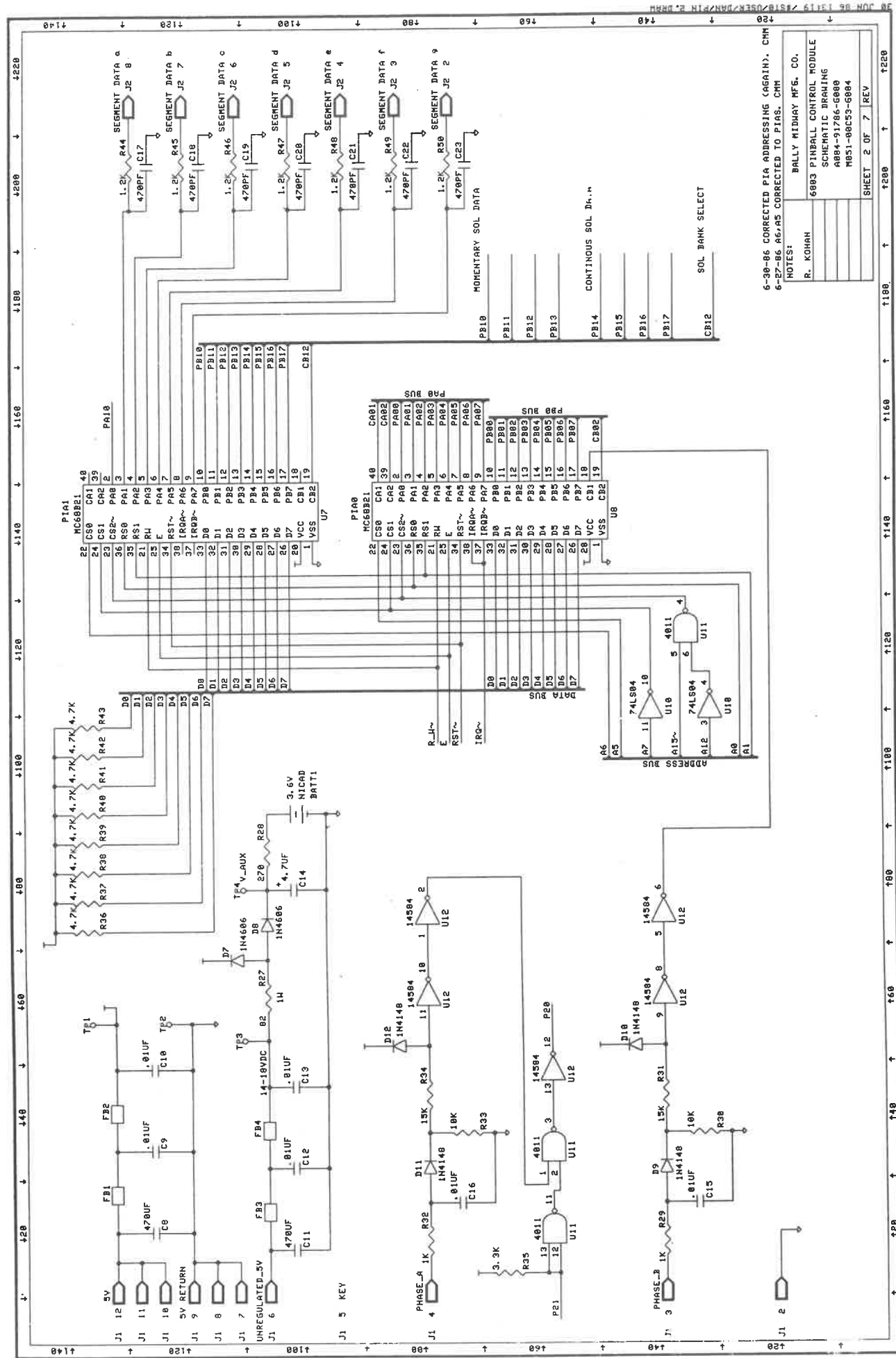
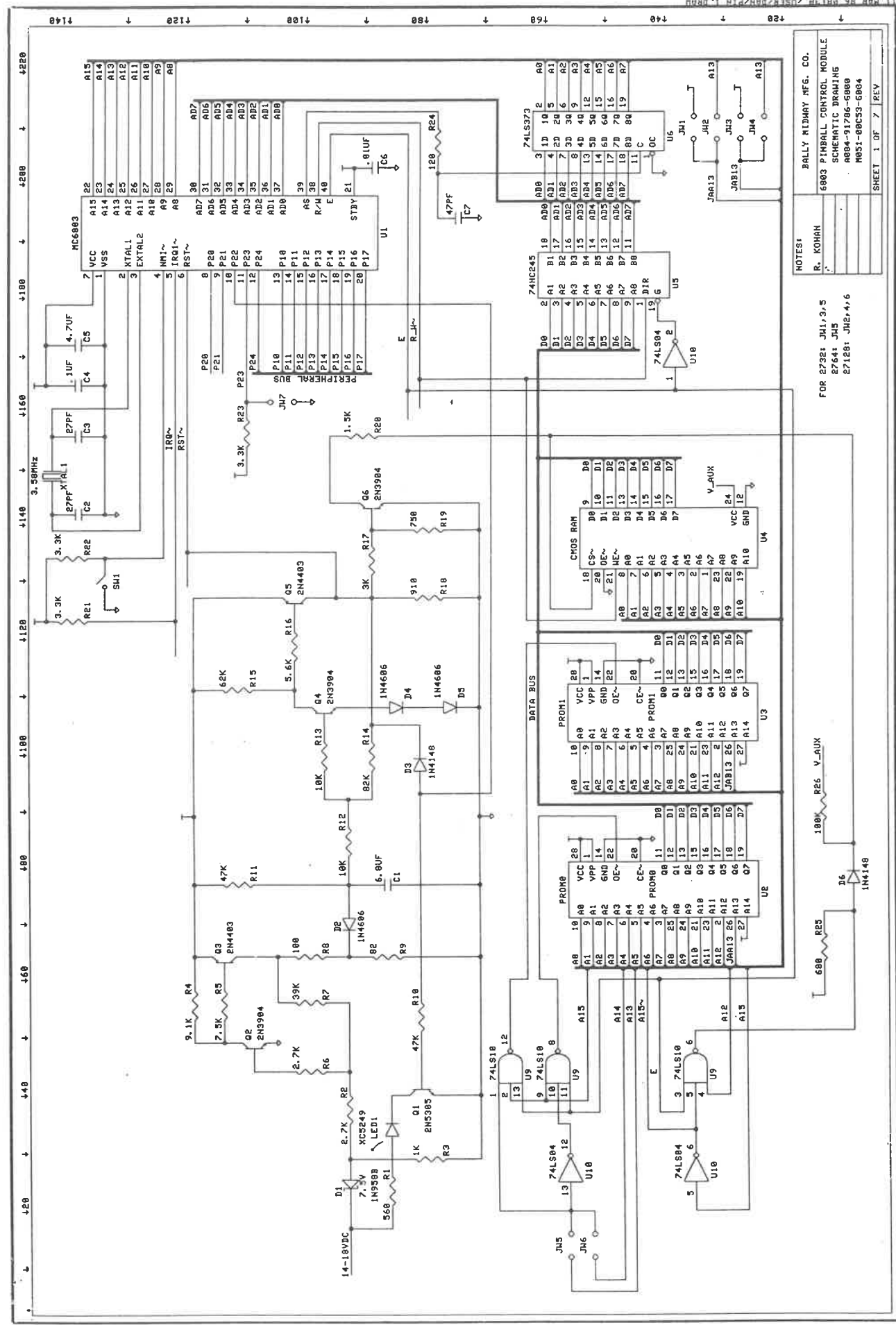
<u>DESIGNATION</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>	<u>DESIGNATION</u>	<u>DESCRIPTION</u>
C1	6.8UF 25V TANT.	R28	270 OHM 1/4W 5%	R165 - R168	120 OHM 1/4W 5%	U15 - U17	4514B
C2,C3	27PF 50V CER.	R29	1K 1/4W 5%	R169 - R172	330 OHM 1/4W 5%	U18 - U20	CA3081
C4	.1UF 50V CER.	R30	10K 1/4W 5%	R173 - R187	2K 1/4W 5%	XTAL-1	3.580 MHZ CRYSTAL
C5	4.7UF 25V TANT.	R31	15K 1/4W 5%	R188 - R190	1.2K 1/4W 5%	LED 1	LED GREEN
C6	.01UF 50V CER.	R32	1K 1/4W 5%	R191 - R193	120 OHM 1/4W 5%	TP1 - TP7	TEST POINTS
C7	47PF 50V CER.	R33	10K 1/4W 5%	R194 - R196	330 OHM 1/4W 5%	SW1	SWITCH P.B.
C8	470UF 16V FLEC.	R34	15K 1/4W 5%	R197 - R226	2K 1/4W 5%	BATT-1	BATTERY 3.6V
C9,C10	.01UF 50V CER.	R35	3.3K 1/4W 5%	R227,R228	1.2K 1/4W 5%	JW2	ZERO OHM RES. JUMPER
C11	470UF 25V FLEC.	R36 - R43	4.7K 1/4W 5%	R229	56K 1/4W 5%	JW4	ZERO OHM RES. JUMPER
C12,C13	.01UF 50V CER.	R44 - R50	1.2K 1/4W 5%	R230	1.2K 1/4W 5%	JW6	ZERO OHM RES. JUMPER
C14	4.7UF 25V TANT.	R51 - R58	3.3K 1/4W 5%	R231 - R234	330 OHM 1/4W 5%	JW8	ZERO OHM RES. JUMPER
C15,C16	.01UF 50V CER.	R59 - R61	1.2K 1/4W 5%	R235	3.3K 1/4W 5%	JW10	ZERO OHM RES. JUMPER
C17 - C23	470PF 1KV CER.	R62	56K 1/4W 5%	R236	1.2K 1/4W 5%	K1	RELAY 48V DC
C24 - C30	390PF 50V CER.	R63	1.2K 1/4W 5%	R237	100K OHM 1/4W 5%	XU1,XU7,XU8	40 PIN IC SOCKET
C31 - C36	470PF 1KV CER.	R64	56K 1/4W 5%	D1	1N958B	XU2, XU3	28 PIN IC SOCKET
C37	.05UF 16V CER.	R65	1.2K 1/4W 5%	D2	1N4606	XU4	24 PIN IC SOCKET
C38 - C41	470PF 1KV CER.	R66	56K 1/4W 5%	D3	1N4148	FB1 - FB4	FERRITE BEAD
C42	.01UF 50V CER.	R67	1.2K 1/4W 5%	D4,D5	1N4606	J1	11 - .045 SQ. PINS
C43	.003UF 1KV CER.	R68	56K 1/4W 5%	D6	1N4148	J2	18 - .025 SQ. PINS
C44 - C47	.002UF 1KV CER.	R69	1.2K 1/4W 5%	D7,D8	1N4606	J3	14 - .025 SQ. PINS
C48 - C56	470PF 1KV CER.	R70	56K 1/4W 5%	D9 - D18	1N4148	J4	14 - .025 SQ. PINS
C57 - C71	390PF 50V CER.	R71 - R76	1.2K 1/4W 5%	D19 - D38	1N4004	J5	14 - .025 SQ. PINS
C73 - C87	.002 1KV CER.	R77	270K 1/4W 5%	D39	1N4148	J6	8 - .045 SQ. PINS
C88 - C90	390PF 50V CER.	R78 - R82	1.2K 1/4W 5%	Q1	2N5305	J7	7 - .045 SQ. PINS
C91	470PF 1KV CER.	R83	110 OHM 1/4W 5%	Q2	2N3904	J8	6 - .045 SQ. PINS
CP1 - CP16	.01 50V CER.	R84	3.9K 1/4W 5%	Q3	2N4403	J9	10 - .045 SQ. PINS
R1	560 OHM 1/4W 5%	R85	120 OHM 1/4W 5%	Q4	2N3904	J10	18 - .025 SQ. PINS
R2	2.7K 1/4W 5%	R86	3.9K 1/4W 5%	Q5	2N4403	J11	17 - .025 SQ. PINS
R3	1K 1/4W 5%	R87	120 OHM 1/4W 5%	Q6	2N3904	J12	16 - .025 SQ. PINS
R4	9.1K 1/4W 5%	R88	3.9K 1/4W 5%	Q7 - Q22	SF9302	J13	12 - .025 SQ. PINS
R5	7.5K 1/4W 5%	R89	120 OHM 1/4W 5%	Q23 - Q33	2N5060	J14	5 - .045 SQ. PINS
R6	2.7K 1/4W 5%	R90	3.9K 1/4W 5%	Q34 - Q36	MCR 106-1	P/O BATT-1	TY-WRAP
R7	39K 1/4W 5%	R91	120 OHM 1/4W 5%	Q37	2N5060	6803 CONTROL BD.	P.C. BOARD
R8	100 OHM 1/4W 5%	R92 - R95	330 OHM 1/4W 5%	Q38 - Q40	SF9302		
R9	82 OHM 1/4W 5%	R96 - R104	470 OHM 1/4W 5%	Q41 - Q50	2N5060		
R10,R11	47K 1/4W 5%	R105 - R119	1.2K 1/4W 5%	Q51 - Q53	MCR 106-1		
R12,R13	10K 1/4W 5%	R121	120 OHM 1/4W 5%	Q54 - Q64	2N5060		
R14	82K 1/4W 5%	R122	1.2K 1/4W 5%	Q65 - Q68	MCR 106-1		
R15	62K 1/4W 5%	R123	2K 1/4W 5%	Q69,Q70	2N5060		
R16	5.6K 1/4W 5%	R124	3.3K 1/4W 5%	U1	6803		
R17	3K 1/4W 5%	R125 - R132	56K 1/4W 5%	U4	6116 RAM		
R18	910 OHM 1/4W 5%	R133 - R135	1.2K 1/4W 5%	U5	74HCT245		
R19	750 OHM 1/4W 5%	R136 - R138	120 OHM 1/4W 5%	U6	74LS373		
R20	1.5K 1/4W 5%	R139 - R141	330 OHM 1/4W 5%	U7,U8	6821		
R21 - R23	3.3K 1/4W 5%	R142 - R145	3.3K 1/4W 5%	U9	74LS10		
R24	120 OHM 1/4W 5%	R146 - R150	1.2K 1/4W 5%	U10	74LS04		
R25	680 OHM 1/4W 5%	R151 - R155	120 OHM 1/4W 5%	U11	4011		
R26	100K 1/4W 5%	R156 - R160	330 OHM 1/4W 5%	U12	4584		
R27	82 OHM 1W 10%	R161 - R164	1.2K OHM 1/4W 5%	U13	4502		
				U14	74LS154		

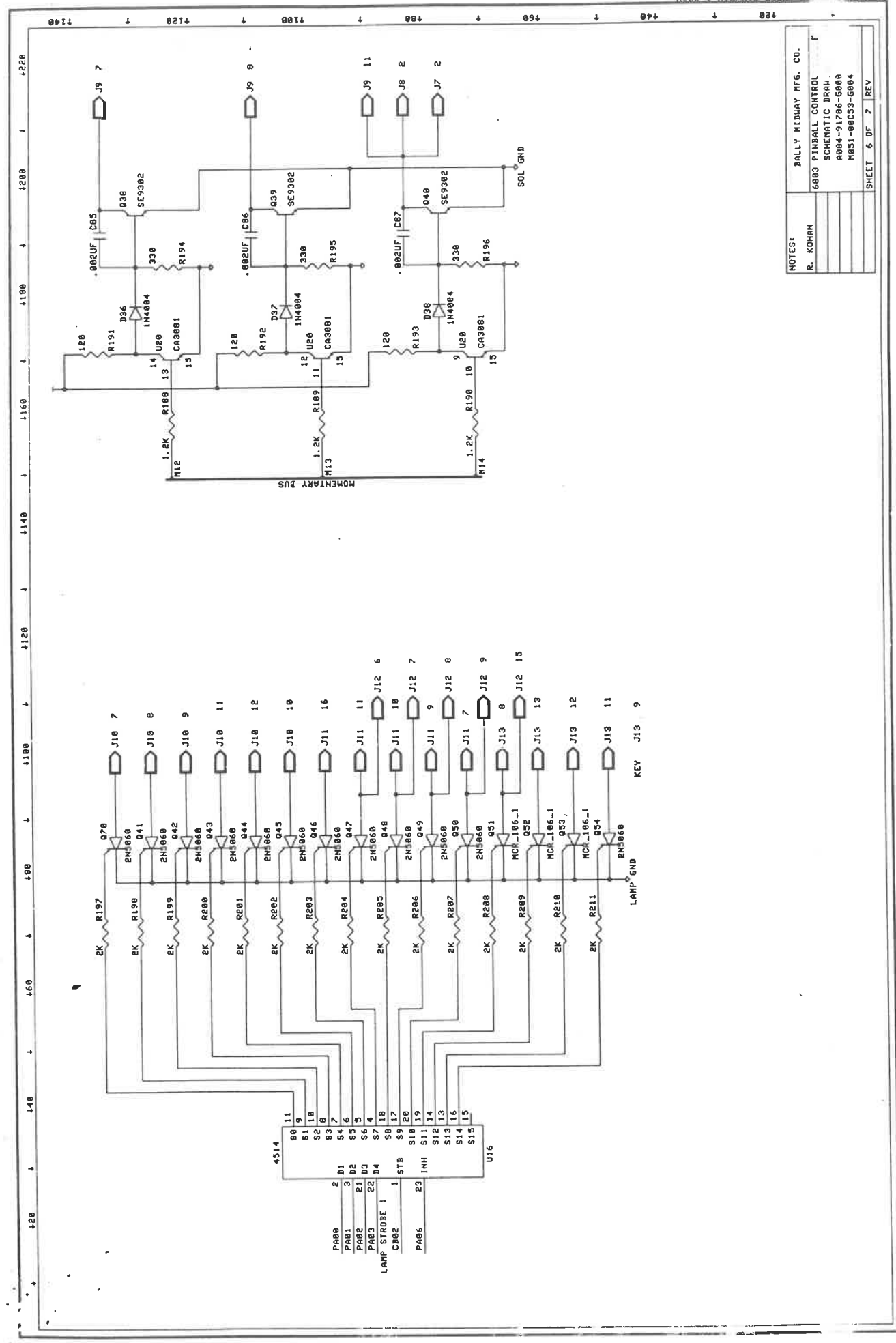
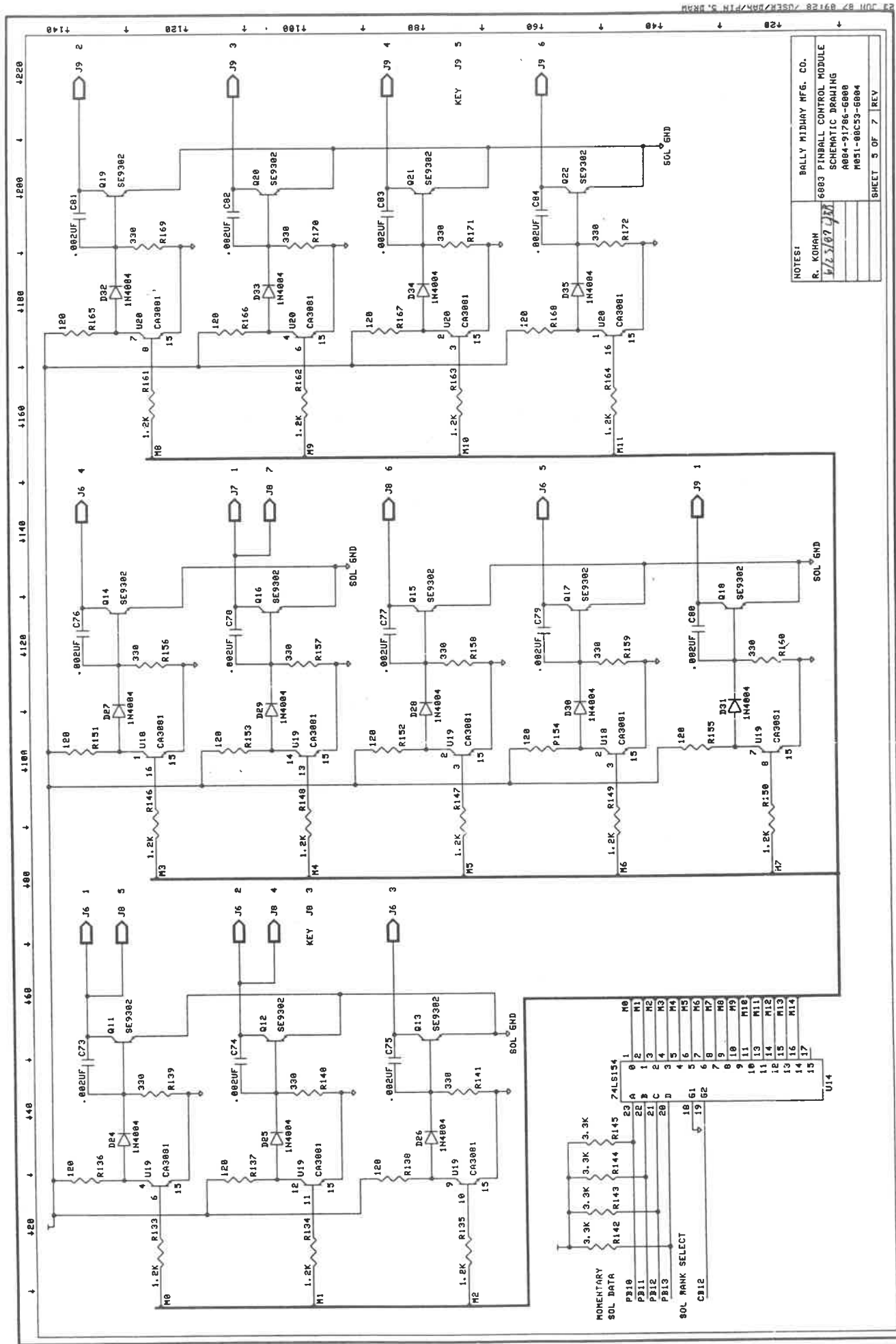
6803 CONTROL BOARD
A084-91786-G000
M051-000C53-G003

CROSS REFERENCE LIST

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

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





DUNGEONS & DRAGONS LAMP & SOLENOID DRIVER LOCATIONS LISTING
M051-00H06-A012

LAMP DRIVER LOCATIONS

DRIVER	CONNECTOR	PIN	PHASE	WIRE	DESCRIPTION
Q55	J10	16	B	38	ADVANCE LEVEL BOTTOM
Q24	J10	2	B	13	ADVANCE LEVEL TOP
Q36	J13	3	D	84	BRT BOTTOM SKILL
Q35	J13	2	C	83	BRT MILLION
Q51	J13	8	D	93	BRT DRAGON 1
Q66	J13	6	D	87	BRT DRAGON 2
Q66	J13	6	C	87	BRT DRAGON 3
Q36	J13	3	C	84	BRT DROP TARGET
Q35	J13	2	D	83	BRT DUST
Q67	J13	5	D	86	BRT EXTRA BALL
Q65	J11	1	C	48	BRT FLASH LEFT
Q34	J13	1	D	81	BRT FLASH RIGHT
Q65	J11	1	D	48	BRT LEFT SLING
Q67	J13	5	C	86	BRT MIDDLE SKILL
Q34	J13	1	C	81	BRT RIGHT SLING
Q52	J13	13	C	97	BRT SHIELD
Q51	J13	8	C	93	BRT SWORD
Q52	J13	13	D	97	BRT TOP SKILL
Q46	J11	16	B	78	BUMPER BOTTOM
Q60	J10	13	B	36	BUMPER LEFT
Q29	J11	8	B	64	BUMPER RIGHT
Q45	J10	10	B	28	BUMPER TOP
Q61	J11	6	B	62	DRAGON LAIR LEFT
Q30	J11	12	B	72	DRAGON LAIR RIGHT
Q49	J11	9	A	67	DUST 1
Q64	J11	2	A	58	DUST 2
Q33	J11	15	A	75	DUST 3
Q50	J11	7	A	63	DUST 4
Q42	J10	9	A	26	EXTRA LIFE
Q32	J11	14	A	74	FLAME 1K
Q63	J11	3	A	59	FLAME 2K
Q37	J13	4	A	85	FLAME 2X
Q48	J11	10	A	68	FLAME 3K
Q54	J13	11	A	95	FLAME 3X
Q31	J11	13	A	73	FLAME 4K
Q62	J11	4	A	61	FLAME 5K
Q47	J11	11	A	71	FLAME 6K
Q30	J11	12	A	72	FLAME 7K
Q61	J11	6	A	62	FLAME 8K
Q46	J11	16	A	78	FLAME 9K
Q29	J11	8	A	64	FLAME 10K
Q60	J10	13	A	36	FLAME 11K
Q45	J10	10	A	28	FLAME 12K
Q28	J10	6	A	21	FLAME 13K
Q59	J10	14	A	37	FLAME 14K
Q44	J10	12	A	32	FLAME 15K

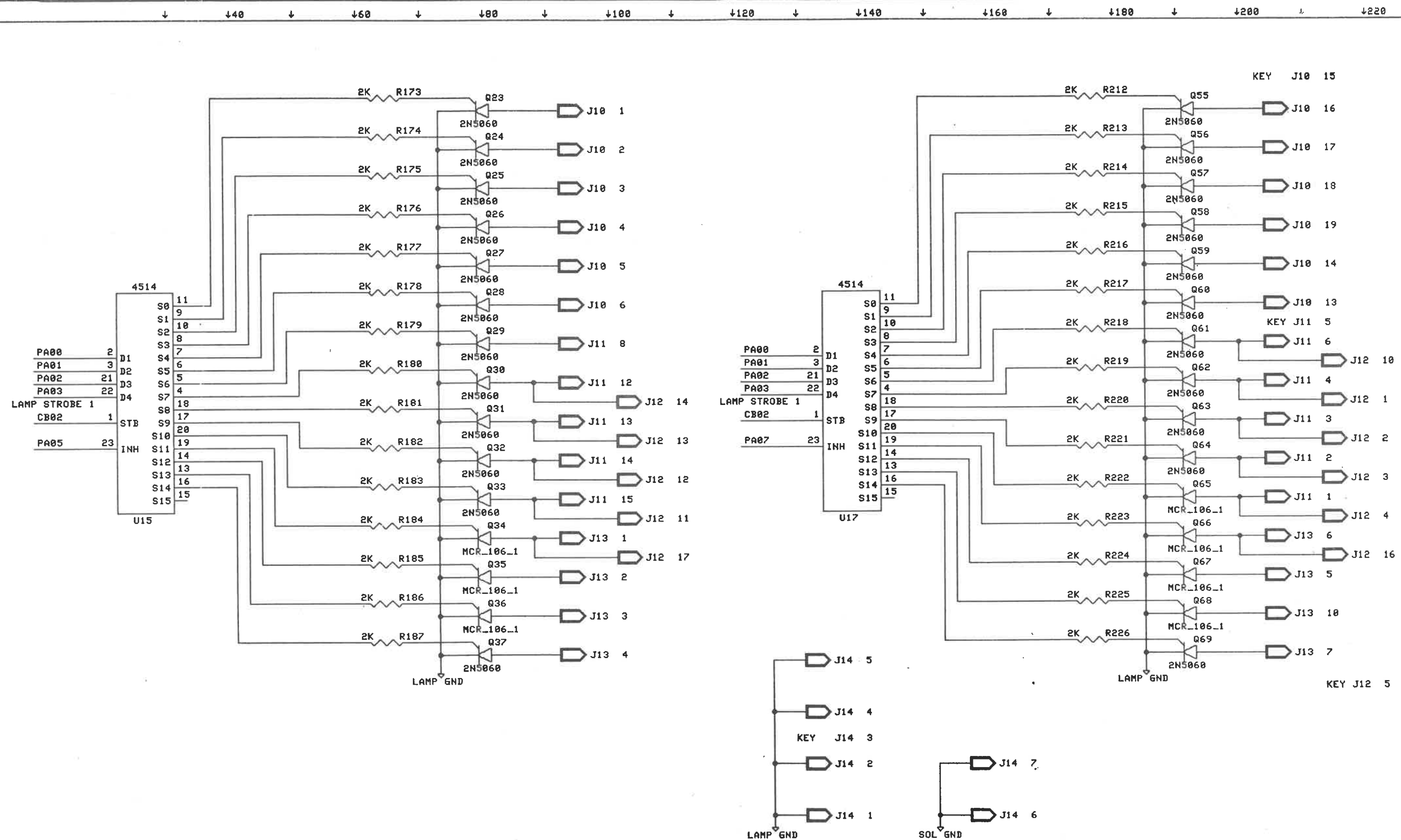
LAMP DRIVER LOCATIONS

DRIVER	CONNECTOR	PIN	PHASE	WIRE	DESCRIPTION
Q27	J10	5	A	18	FLAME 16K
Q58	J10	19	A	45	FLAME 17K
Q43	J10	11	A	31	FLAME 18K
Q26	J10	4	A	15	FLAME 19K
Q57	J10	18	A	43	FLAME 20K
Q27	J10	5	B	18	LEVEL 2
Q44	J10	12	B	32	LEVEL 3
Q59	J10	14	B	37	LEVEL 4
Q28	J10	6	B	21	LEVEL 5
Q41	J10	8	B	25	RESTORE DUST BOTTOM
Q56	J10	17	B	41	RESTORE DUST TOP
Q57	J10	18	B	43	RESTORE SHIELD BOTTOM
Q26	J10	4	B	15	RESTORE SHIELD TOP
Q23	J10	1	B	12	RESTORE SWORD BOTTOM
Q70	J10	7	B	24	RESTORE SWORD TOP
Q37	J13	4	B	85	RESTORE WEAPONS
Q53	J13	12	A	96	RETURN LEFT
Q68	J13	10	A	94	RETURN RIGHT
Q23	J10	1	A	12	SHIELD LEFT
Q70	J10	7	A	24	SHIELD MIDDLE
Q55	J10	16	A	38	SHIELD RIGHT
Q53	J13	12	B	96	SKILL HELP LEFT
Q68	J13	10	B	94	SKILL HELP RIGHT
Q24	J10	2	A	13	SWORD LEFT
Q41	J10	8	A	25	SWORD MIDDLE
Q56	J10	17	A	41	SWORD RIGHT
Q43	J10	11	B	31	TELE LEFT BOTTOM
Q58	J10	19	B	45	TELE LEFT TOP
Q25	J10	3	B	14	TELE RIGHT BOTTOM
Q42	J10	9	B	26	TELE RIGHT TOP

SOLENOID DRIVER LOCATIONS

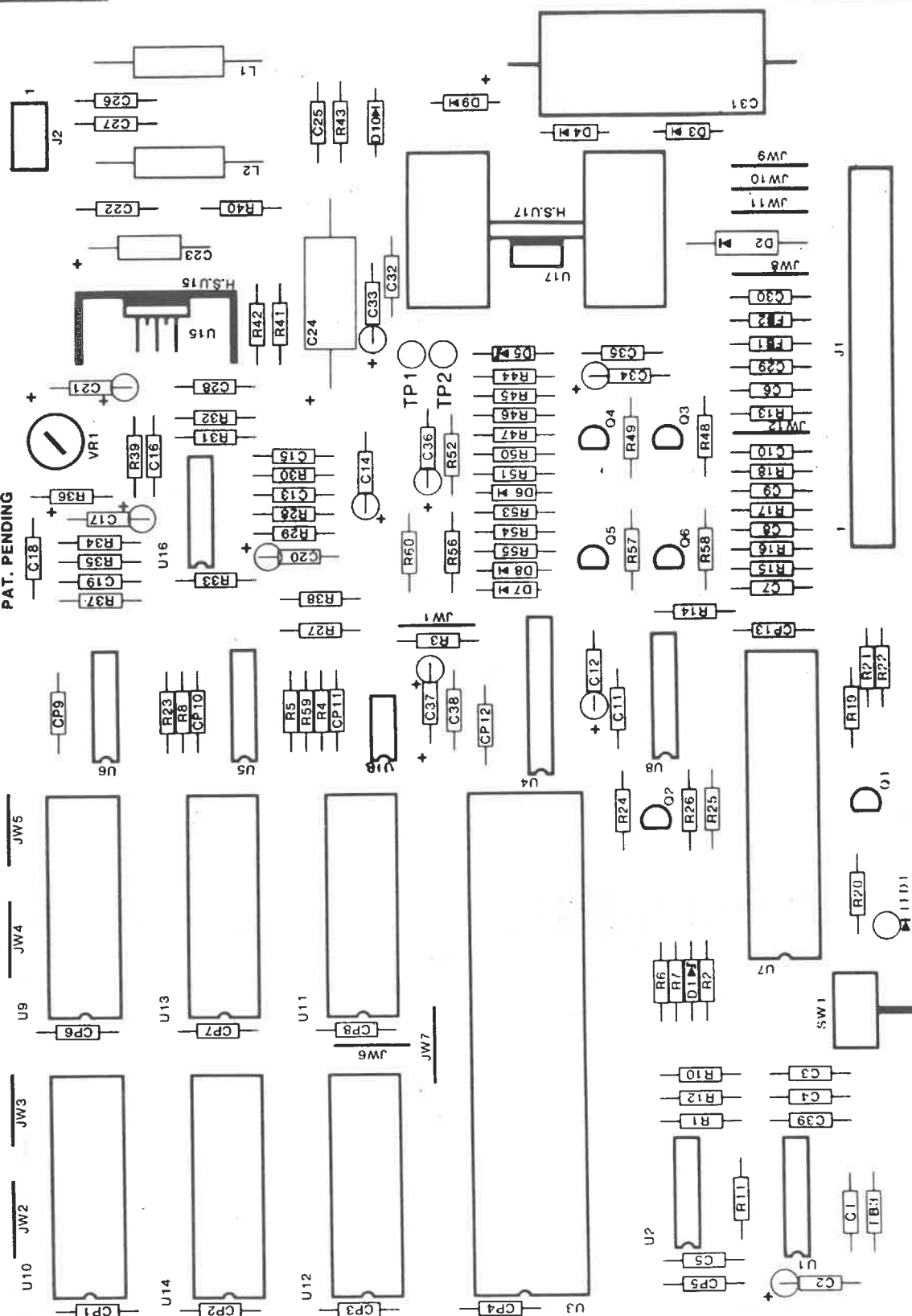
TRANSISTOR	CONNECTOR	PIN	WIRE	DESCRIPTION
Q11	J6	1	31	BUMPER TOP
Q12	J6	2	32	BUMPER LEFT
Q13	J6	3	34	BUMPER RIGHT
Q14	J6	4	35	BUMPER BOTTOM
Q16	J8	7	27	SLING LEFT
Q15	J8	6	25	SLING RIGHT
Q17	J6	5	36	RESET DTS
Q18	J9	1	51	KICKER LEFT
Q19	J9	2	52	KICKER RIGHT
Q20	J9	3	53	TELEPORT LEFT
Q21	J9	4	54	TELEPORT RIGHT
Q22	J9	6	56	OUTHOLE CONTROLLER
Q38	J9	7	57	RESERVED FOR GERMAN USE
Q39	J9	8	58	OUTHOLE
Q40	J9	11	59	KNOCKER
Q10	J6	7	311	RETURN RIGHT
Q7	J6	8	90	LEFT FLIPPER
Q7	J6	9	95	RIGHT FLIPPER
Q8	J9	10	24	RETURN LEFT

WIRE COLOR CODE	
1-RED	6-BROWN
2-BLUE	7-ORANGE
3-YELLOW	8-BLACK
4-GREEN	9-GREY
5-WHITE	0-NO TRACE
J-JUMPER	11-VIOLET
1-FIRST NUMBER-BODY COLOR	
2-SECOND NUMBER-TRACER COLOR	
EXAMPLE: 50-WHITE	
51-WHITE/RED	



NOTES:	BALLY MIDWAY MFG. CO.
R. KOHAN	6803 PINBALL CONTROL MODULE
	SCHEMATIC DRAWING
	A084-91786-G000
	M051-00C53-G004
	SHEET 7 OF 7 REV

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



7/25/86 REL FOR PRODUCTION		CM-1
REVISIONS		
USED ON Pinball	Bally / MIDWAY MFG. CO.	
NO. REQ'D	FRANKLIN PK. ILL.	
ASSEMBLY DRAWING		PART NO.
SOUNDS DELUXE P.C.B.D.		M051-00114-C153
A084-91864-C000		

SOUNDS DELUXE
A084-91864-C000
M051-00114-C154

Rev. 4

DESIGNATION LIST

DESIGNATION

CP1,CP2
CP3-CP13
C1
C2
C3-C5
C6
C7-C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26,C27
C28-C30
C31
C32
C33,C34
C35
C36
C37
C38
C39

D1
D2
D3,D4
D5-D8
D9,D10

FB1-FB3

HS U15
HS U17

ICS U3
ICS U4
ICS U7
ICS U8
ICS U9-U14

DESCRIPTION

.1 UF AX CER
.01 UF AX CER
.1 UF AX CER
10 UF RD TANT
NOT INSERTED
470 PF AX CER
100 PF AX CER
.01 UF AX CER
47 UF AX ELEC
470 PF AX CER
1 UF AX TANT
.01 UF AX CER
68 PF AX CER
.1 UF AX TANT
.001 UF AX CER
82 PF AX CER
10 UF AX TANT
1 UF AX TANT
.05 UF RD CER
470 UF AX ELEC
1000 UF AX ELEC
.1 UF AX CER
.22 UF AX CER
.1 UF AX CER
4700 UF AX ELEC
.01 UF AX CER
4.7 UF RD TANT
.01 UF AX CER
NOT INSERTED
10 UF AX TANT
.01 UF AX CER
.1 UF AX CER

NOT INSERTED
VR330
1N4004
NOT INSERTED
1N4004

FERRITE BEAD

HEATSINK TO-220
HEATSINK TO-220

64 PIN I.C. SOCKET
20 PIN I.C. SOCKET
40 PIN I.C. SOCKET
16 PIN I.C. SOCKET
28 PIN I.C. SOCKET

SOUNDS DELUXE
A084-91864-C000
M051-00114-C154

Rev. 4

DESIGNATION LIST

DESIGNATION

INS U15, INS U17
J1,J2
JW1-JW12
L1,L2
LED 1

MH U15
MH U15
MH U15
MH U17
MH U17
MH U17

Q1,Q2
Q3-Q6

R1-R8
R9
R10-R12
R13
R14
R15-R18
R19
R20
R21-R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
R33
R34
R35
R36
R37
R38
R39
R40
R41
R42

DESCRIPTION

SIL PAD THERMAL WASHER
AUTO INSERT PIN TIN .045 SQ.
JUMPER WIRE
10 UH INDUCTOR
GREEN LED

SCREW, 6-32
NUT, 6-32
WASHER, #6 STAR
SCREW, 4-40
NUT, 4-40
WASHER, #4 STAR

2N5305
NOT INSERTED

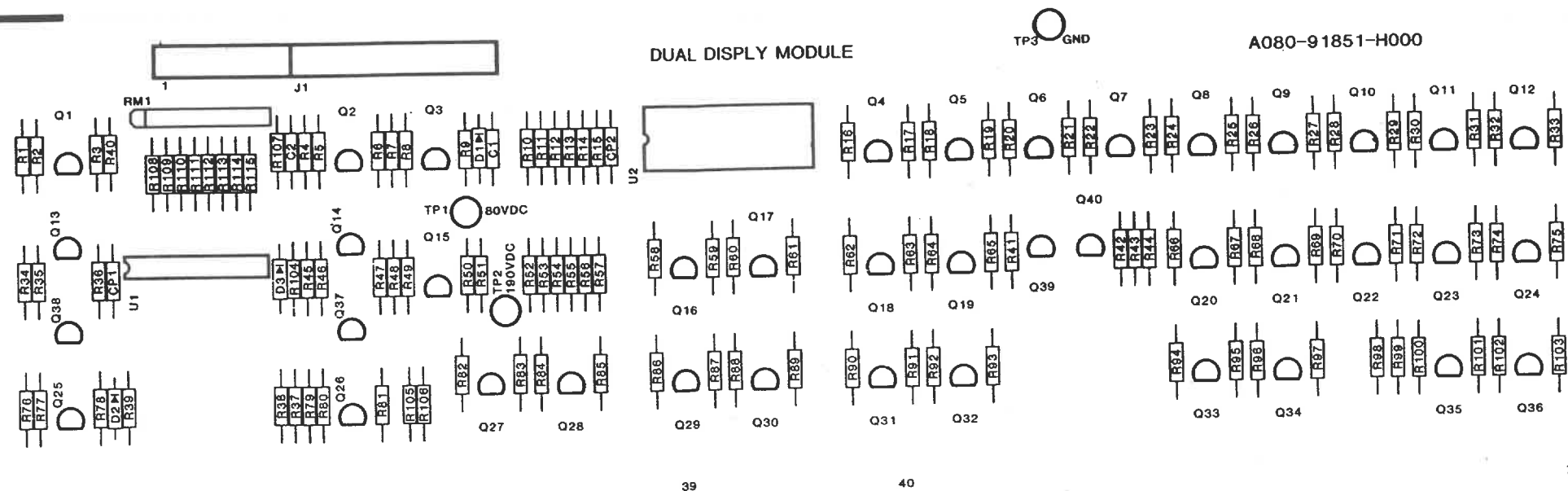
4.7K OHM 1/4W CRBN
NOT USED
NOT INSERTED
10K OHM 1/4W CRBN
100K OHM 1/4W CRBN
10K OHM 1/4W CRBN
47K OHM 1/4W CRBN
100 OHM 1/4W CRBN
4.7K OHM 1/4W CRBN
2.7K OHM 1/4W CRBN
180 OHM 1/4W CRBN
68 OHM 1/4W CRBN
62K OHM 1/4W CRBN
120K OHM 1/4W CRBN
75K OHM 1/4W CRBN
33K OHM 1/4W CRBN
18K OHM 1/4W CRBN
33K OHM 1/4W CRBN
47K OHM 1/4W CRBN
150K OHM 1/4W CRBN
82K OHM 1/4W CRBN
150K OHM 1/4W CRBN
200K OHM 1/4W CRBN
1K OHM 1/4W CRBN
33K OHM 1/4W CRBN
430 OHM 1/4W CRBN
220 OHM 1/4W CRBN
2.2 OHM 1/4W CRBN

DESIGNATION LIST

<u>DESIGNATION</u>	<u>DESCRIPTION</u>
R43	1 OHM 1/4W CRBN
R44-R58	NOT INSERTED
R59	4.7K OHM 1/4W CRBN
R60	10K OHM 1/4W CRBN
SW1	PC MTG. SWITCH
TP1,TP2	TEST POINT
U1	16 MHZ COSC
U2	74LS74
U3	MC68000G8 CPU
U4	PAL16L8A-2 SDOORO
U5	74LS05
U6	74F32
U7	MC6821
U8	AD7533 DAC
U9,U10	RAM 2K X 8
U11-U14	ROM/EPROM
U15	TDA2002
U16	LM3900
U17	MC7805 REG.
U18	TL7705
VR1	10K POT.

CROSS REFERENCE

<u>DESCRIPTION</u>	<u>QTY.</u>	<u>DESIGNATION</u>	<u>PART NUMBER</u>
68 PF AX CER 5%	1	C16	0360-00800-0028
82 PF AX CER 5%	1	C19	0E47-00800-0002
100 PF AX CER	4	C7-C10	0360-00800-0046
470 PF AX CER 10%	2	C6,C13	0307-00800-0008
.001 UF AX CER 10%	1	C18	0E47-00800-0003
.01 UF AX CER 10%	1	C15	0E47-00800-0001
.01 UF AX CER	15	CP3-CP13,C11,C32	0360-00800-0005
		C35,C38	
.05 UF RD CER	1	C22	0360-00800-0006
.1 UF AX CER	8	CP1,CP2,C1,C25,	0360-00800-0058
		C28-C30,C39	
.22 UF AX CER	2	C26,C27	0360-00800-0057
1 UF AX TANT	3	C14,C17,C21	0986-00800-1400
4.7 UF RD TANT	2	C33,C34	0360-00800-0008
10 UF AX TANT	3	C2,C20,C37	0986-00800-0700
47 UF AX ELEC	1	C12	0360-00800-0042
470 UF AX ELEC	1	C23	0360-00800-0021
1000 UF AX ELEC	1	C24	0360-00800-0044
4700 UF AX ELEC	1	C31	0360-00800-0023
1 OHM 1/4W CRBN	1	R43	100E-00005-0002
2.2 OHM 1/4W CRBN	1	R42	100E-00005-0003
68 OHM 1/4W CRBN	1	R26	100E-00005-0029
100 OHM 1/4W CRBN	1	R20	100E-00005-0033
180 OHM 1/4W CRBN	1	R25	100E-00005-0039
220 OHM 1/4W CRBN	1	R41	100E-00005-0041
430 OHM 1/4W CRBN	1	R40	100E-00005-0050
1K OHM 1/4W CRBN	1	R38	100E-00005-0061
2.7K OHM 1/4W CRBN	1	R24	100E-00005-0071
4.7K OHM 1/4W CRBN	12	R1-R8,R21-R23,R59	100E-00005-0079
10K OHM 1/4W CRBN	6	R13,R15-R18,R60	100E-00005-0088
18K OHM 1/4W CRBN	1	R31	100E-00005-0093
33K OHM 1/4W CRBN	3	R30,R32,R39	100E-00005-0100
47K OHM 1/4W CRBN	2	R19,R33	100E-00005-0104
62K OHM 1/4W CRBN	1	R27	100E-00005-0107
75K OHM 1/4W CRBN	1	R29	100E-00005-0110
82K OHM 1/4W CRBN	1	R35	100E-00005-0112
100K OHM 1/4W CRBN	1	R14	100E-00005-0115
120K OHM 1/4W CRBN	1	R28	100E-00005-0118
150K OHM 1/4W CRBN	2	R34,R36	100E-00005-0120
200K OHM 1/4W CRBN	1	R37	100E-00005-0123
10K POT	1	VR1	0360-00804-0024
1N4004	4	D3,D4,D9,D10	103E-00003-0005
VR330	1	D2	0360-00801-0007



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

DIM. TOLERANCES UNLESS OTHERWISE SPEC. CONCENTRICITY T.I.R.002 FRACTIONAL±.1/64 DECIMAL±.005 HOLE DIA.+.002-.000 ANGLE± 1/2° DO NOT SCALE DWG.		FIRST USED ON DRN <i>QBB</i> DATE <i>5/15/87</i> SCALE <i>FULL</i> MEC/CHK. MAT'L. <i>[Signature]</i> ELEC CHK. <i>QBB</i> FINISH <i>[Signature]</i>		Bally/MIDWAY MFG. CO. FRANKLIN PARK, IL 60131 ASSEMBLY DRAWING DUAL DISPLAY MODULE A084-91851-H000		REL. FOR PRODUCTION <i>5/15/87</i> REVISIONS PART NO. M-0-5-1-0-0-3-6-5-H-0-3-3	
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DUAL DISPLAY MODULE
A084-91851-H000
M051-00365-H042 (Page 1 of 5) REV.1

DESIGNATION LIST

DESIGNATION NO.

R1
R2
R3
R4
R5
R6
R7
R8
R9
R10 - R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
R32
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R34
R35
R36
R37
R38
R39
R40
R41
R42
R43
R44
R45
R46
R47
R48
R49
R50
R51
R52 - R57
R58

DESCRIPTION

1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
510 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
20K 1/4W 5% CARBON
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
1K 1/4W 5% CARBON
100K 1/4W 5% CARBON
100K 1/4W 5% CARBON
1K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
2.2M 1/4W 5% CARBON
9.1K 1/4W 5% CARBON

DESIGNATION LIST

DESIGNATION NO.

R59
R60
R61
R62
R63
R64
R65
R66
R67
R68
R69
R70
R71
R72
R73
R74
R75
R76
R77
R78
R79
R80
R81
R82
R83
R84
R85
R86
R87
R88
R89
R90
R91
R92
R93
R94
R95
R96
R97
R98
R99
R100
R101
R102
R103
R104
R105
R106
R107
R108-R115
RM1

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

DESCRIPTION

100K 1/4W 1% METAL FILM
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
1.5K 1/4W 5% CARBON
820 OHM 1/4W 5% CARBON
300K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
10M 1/4W 5% CARBON
1M 1/4W 5% CARBON
300K 1/4W 5% CARBON
2.2K 1/4W 5% CARBON
100K 1/4W 1% METAL FILM
9.1K 1/4W 5% CARBON
150K 1/4W 5% CARBON
10M 1/4W 5% CARBON
1M 1/4W 5% CARBON
10K 1/4W 5% CARBON
20K 1/4W 5% CARBON
100K 10 PIN SIP

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

DESIGNATION LIST

DESIGNATION NO.

C1
C2
CP1, CP2
D1
D2,D3
Q1 - Q4
Q5
Q6
Q7
Q8
Q9
Q10 - Q21
Q22 - Q24
Q25
Q26
Q27
Q28
Q29 - Q35
Q36 - Q40
U1
U2
DISPLAY 1
J1
TP1, TP2, TP3

M051-00365- A041
A080-91851-H000

DESCRIPTION

.01UF 500V CER.
100PF 50V AX. CER.
.01UF 50V CER.
1M110ZS10 110V ZENER DIODE
1N4148 DIODE
MPS-A-42 NPN XSTR
2N5401 PNP XSTR
MPS-A-42
2N5401
MPS-A-42
2N5401
MPS-A-42
2N5401
MPS-A-42
2N5401
MPS-A-42
74HC373 CMOS OCTAL LATCH
14514 1-16 DECODER
14 DIGIT, 9 SEGMENT GAS DISCHARGE DISPLAY
.025 SQ. PINS
TEST LOOPS
FOAM TAPE
BUMPER
DISPLAY MTG. CLIPS
SCREWS
DISPLAY MTG. PROCEDURE
DUAL DISPLAY MODULE P.C.B.

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

CROSS REFERENCE LIST

DESCRIPTION	QTY.	DESIGNATION NO.	PART NOS.
510 OHM 1/4W 5% CARBON	1	R5	100E-00005-0053
820 OHM 1/4W 5% CARBON	7	R2,R8,R35,R46 R49,R77,R80	100E-00005-0058
1K 1/4W 5% CARBON	2	R39,R42	100E-00005-0061
1.5K 1/4W 5% CARBON	10	R1,R4,R7,R34,R38 R43,R45,R48 R76,R79	100E-00005-0065
2.2K 1/4W 5% CARBON	14	R18,R22,R26,R71 R73,R75,R83,R87 R88,R91,R93,R95 R97,R101	100E-00005-0069
9.1K 1/4W 5% CARBON	14	R16,R20,R24,R28 R30,R32,R58,R61 R62,R64,R66,R68 R85,R103	100E-00005-0087
10K 1/4W 5% CARBON	1	R107	100E-00005-0088
20K 1/4W 5% CARBON	14	R10-R15,R108-R115	100E-00005-0095
100K 1/4W 5% CARBON	2	R40,R41	100E-00005-0115
100K 1/4W 1% METAL FILM	15	R17,R21,R25,R29 R31,R33,R51,R59 R60,R63,R65,R67 R69,R84,R102	100E-00001-0046
150K 1/4W 5% CARBON	1	R104	100E-00005-0120
300K 1/4W 5% CARBON	24	R3,R6,R9,R19,R23 R27,R36,R37,R44, R47,R50,R70,R72, R74,R78,R81,R82, R86,R89,R90,R92, R94,R96,R100	100E-00005-0127
1.0M OHM 1/4W 5% CARBON	2	R99,R106	100E-00005-0140
2.2M OHM 1/4W 5% CARBON	6	R52 - R57	100E-00005-0147
100K 10 PIN SIP	1	RM1	102E-00004-0045
10.0M OHM 1/4W 5% CARBON	2	R98,R105	100E-00005-0162
100PF AX. CER.	1	C2	0639-00800-0003
.01UF	2	CP1,CP2	0360-00800-0005
.01UF 500V	1	C1	0360-00800-0013
1N4148	2	D2,D3	103E-00002-0005
1M110ZS10 110V ZENER DIODE	1	D1	103E-00001-0028
2N5401 PNP XSTR	14	Q5,Q7,Q9,Q22,Q23 Q24,Q27,Q29,Q30 Q31,Q32,Q33,Q34 Q35	0360-00802-0006
MPS-A-42 NPN XSTR	26	Q1-Q4,Q6,Q8,Q10- Q21,Q25,Q26,Q28 Q36-Q40	0360-00802-0007
14514 1-16 DECODER	1	U2	0360-00803-0013
74HC373 OCTAL LATCH	1	U1	0365-00803-0015
.025SQ. PINS	23	J1	0304-00804-0009
14 DIGIT, 9 SEGMENT GAS DISCHARGE DISPLAY	1	DISPLAY 1	119E-00002-0006
TEST LOOPS	3	TP1 - TP3	0017-00007-0131

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

CROSS REFERENCE LIST

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

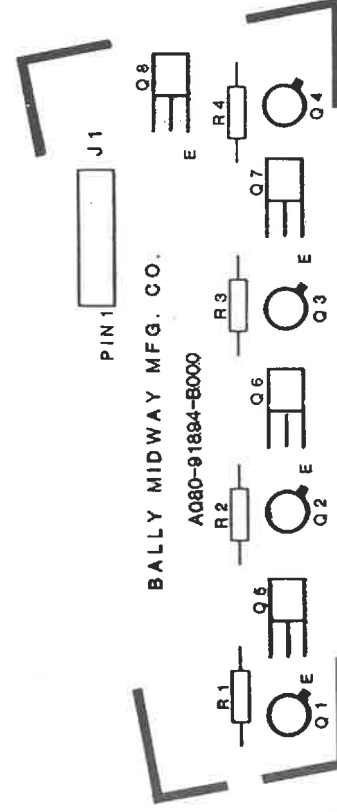
5/20/87 REV. 1 - CORRECTION TO DISPLAY MTG. PROCEDURE PART NO. *QBB*

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

CROSS REFERENCE LIST

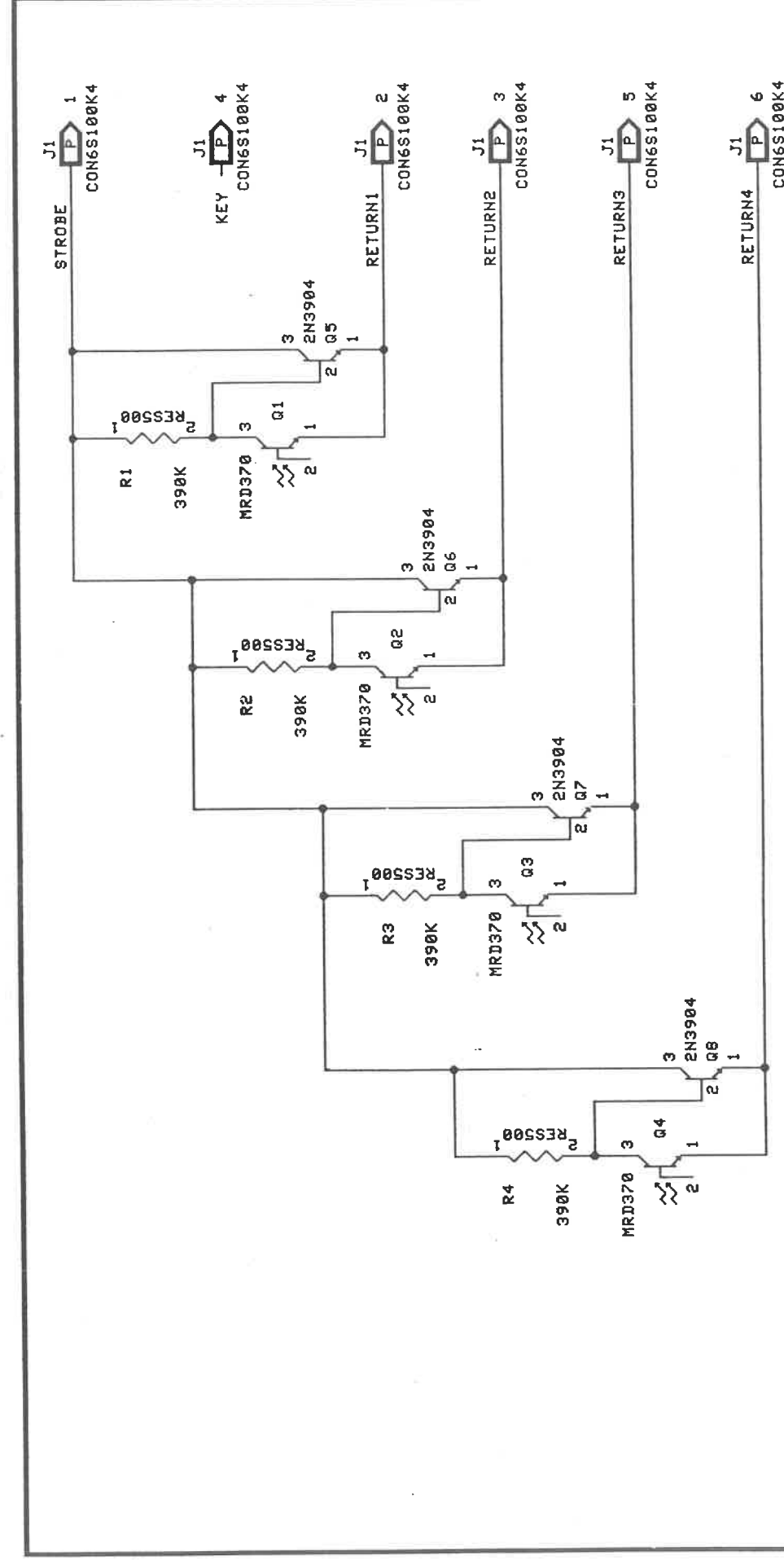
DESCRIPTION	QTY.	DESIGNATION	PART NOS.
390K OHM 1/4W 5%	4	R1-R4	100E-00005-0130
2N3904 NPN XSTR	4	Q5-Q8	104E-00001-0006
MRD370 PHOTO XSTR	4	Q1-Q4	119E-00003-0001
HEADER KK100 6 PIN OMIT #4	1	J1	0017-00021-1848
4-POS. DETECTOR PCB	1		A080-91894-B000

8/3/87 - RELEASED FOR PRODUCTION JBB
088 8/6/87 - REV. 1 Conn. Chng. JBB



13	New Release	988	4/3/50

PROJECT ENG: J. BOYDSTON				USED ON OHO6		<i>Bally / MIDWAY MFG. CO.</i>	
DO NOT SCALE DWG.				HEAT TREAT		SCALE	
FULL				NO. REQ'D		1 PER	
ASSEMBLY DRAWING				PART NO.		M051-00114-B201	
4-POS. DETECTOR PCB							
(A084-91894-B000)							
DIM. TOLERANCES UNLESS SPECIFIED		DRILL		NAT'L.			
CONCENTRICITY T.I.R. .003		CKD.		FINISH			
FRACTIONAL..... 3/64							
DECIMAL..... 1.005							
HOLE DIA..... +.002-.000		DATE		4/13/87			



Released for Production JPB

NOTES:	BALLY MIDWAY MFG. CO.	
8/3/87		
J. BOYDSTON	4 POSITION DETECTOR PCB	
	A084-91894-B000	
	M051-00114-B203	
	SHEET 1	REV

BALLY/MIDWAY'S DUNGEONS & DRAGONS
#H06
ROM/EPROM PART NUMBERS

UNPROGRAMMED CONTROL BOARD A084-91786-G000
PROGRAMMED CONTROL BOARD A084-91786-AH06

POS.	MIDWAY PART NUMBER
U2	H06A-12601-0000
U3	H06A-12602-0000

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

UNPROGRAMMED SOUNDS DELUXE A084-91864-C000
PROGRAMMED SOUNDS DELUXE A084-91864-AH06

POS.	MIDWAY PART NUMBER
U11	H06A-12603-0000
U12	H06A-12604-0000
U13	H06A-12605-0000
U14	H06A-12606-0000

JUMPERS	IN	OUT
JW1	X	
JW2	X	
JW3		X
JW4	X	
JW5		X
JW6		X
JW7	X	
JW8-JW12	X	

M051-00H06-A008	REVISIONS
9-30-87	RELEASE FOR PRODUCTION

GLOSSARY OF UNIQUE TERMS AND ABBREVIATIONS

The following list of unique terms and abbreviations are used in the DUNGEONS & DRAGONS Operating Manual. Service Technicians and Operators should note that more than one description may apply to a particular term or abbreviation. Also, more than one term or abbreviation may apply to a particular description. Either way, the Technician or Operator need only be concerned with correctly matching the term or abbreviation with the corresponding description.

TERM/ABBREVIATION	DESCRIPTION
A, AD, ADDR	Address
AX	Axial
BATT	Battery
BD, BRD	Board
BR	Bridge Spacer
C, CAP, CP	Capacitor, Common
CER	Ceramic
COM	Common
CON, CONN	Connector
CPURST	CPU Reset
CR	Diode
CRBN	Carbon
D	Data, Digital Display Module, Diode, Zener Diode
DISPLAY	Gas Discharge Display
F, FU	Fuse
FB	Ferrite Bead
FC	Fuse Clips
FL	Filter
HS	Heatsink
ICS, XU	I.C. Socket
INS	Silicon Pad Thermal Washer
J	Connector, Plug
JW	Jumper Wire
K	Relay
L	Inductor
LED	Infrared Light Emitting Diode
MH	Mechanical Hardware
MTG	Mounting
MTR	Meter
N.C.	Normally Closed
N.O.	Normally Open
PB	Push Button
PWR	Power
Q	Transistor, Silicon Controlled Rectifier (SCR), Darlington
R, RES, RM	Resistor
RTN	Return
S	Sound Module
SND	Sound
SW	Switch
T	Transformer
TP	Test Point, Test Loop
VA	Varistor
VR	Potentiometer, Varistor
XSTR	Transistor
XTAL, Y	Crystal

