



Commitment To Excellence

COUGAR HB

EL-A-AA-ENG

INSTALLATION AND OPERATION MANUAL

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TO ENTER PROGRAMMING MODE

- Press Test Switch on Controller.
- Scroll through programming options using red GAMES Button or blue OPTIONS I Button until PRg appears in Temp. Score LED on upper display.
- Press gray OPTIONS II Button to Enter.
- Enter security code if different from factory preset security code. Display will read **gA SEL**, and new menu will be in effect. Use red GAMES button or blue OPTIONS I button to scroll through options.

gA SEL (GAMES) This mode allows you to change the number of credits per game, the bullseye setting, and the round limit for any game.

LAN SEL (MESSAGE LANGUAGE) This mode allows you to change the language of the game, or to return to the factory language default setting.

CN SEL (COIN) This mode allows you to change the number of credits per coin, and to program counter advances values.

SEC SEL (SECURITY) This mode allows you to change the operator security code.

FACTORY DIP SWITCH SETTINGS

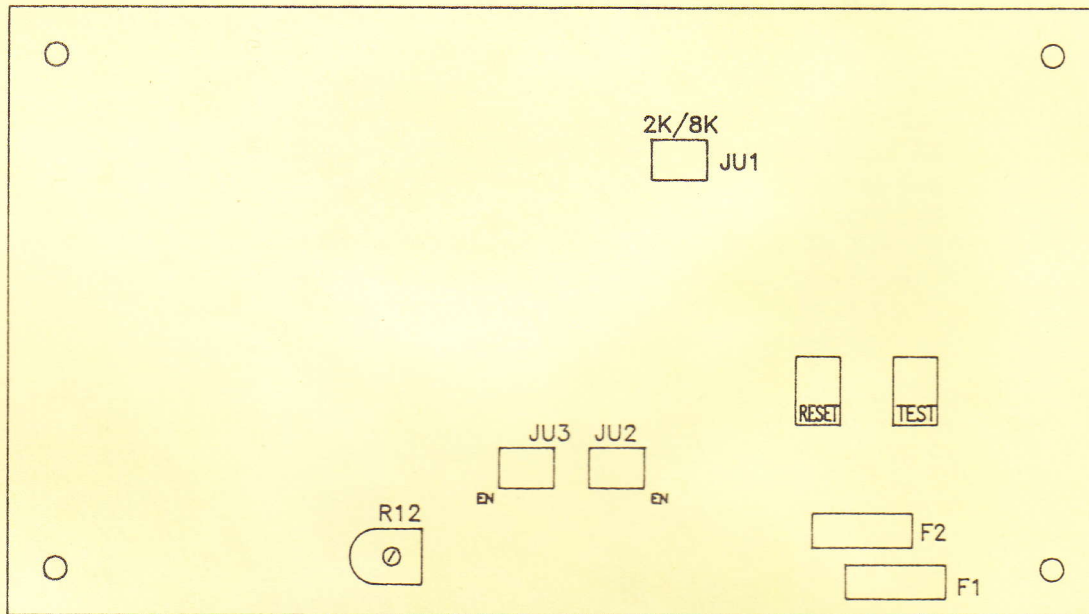
SW1

Does Not Accumulate Credit	ON	Accumulates Credit
One Dart Out Calculator Active		One Dart Out Calculator Inactive
Attract Sounds Enabled		Attract Sounds Disabled
Dart Alarm		No Dart Alarm
Power Fail Recovery		No Power Fail Recovery
Team Loses when player "FROZEN"		Player Busts when "FROZEN"
Starting Pos. Cannot be Changed		Starting Pos. Open
Single (50) BE Can't Start or Finish DI or DO		Single (50) BE May Start or Finish DI or DO

SW2

Switch 1 Not Used	ON	Speed Up Time
Normal Time		Free Play
No Free Play		Skips "FROZEN" Player
Does Not Skip "FROZEN" Player		IR Sensor Enabled
IR Sensor Disabled		Sends Wipe Out™ Player Score Back 103 Points
Sends Wipe Out™ Player Score Back to Start		

CONTROLLER BOARD



F1 5AMP FUSE

F2 5AMP FUSE

JU3 IR SENSOR

JU2 DART SENSOR

R12 VOLUME CONTROL

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LIMITED WARRANTY

This product is warranted against manufacturer defects or failure of electronic components for a period of one (1) full year. Valley Recreation Products, Inc. will repair or replace any component, assembly or subassembly that fails during normal operation, free of charge, for a period of one (1) year. Any modification unauthorized by Valley Recreation Products, Inc. made to any part of this product will void all existing warranties. This warranty does not apply to damage resulting from misuse, abuse, neglect, improper installation or maintenance.

The foregoing warranty is exclusive and in lieu of all other warranties of merchantability, fitness for purpose and of any other type, whether expressed or implied. Valley Recreation Products, Inc. neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said product and will not be liable for consequential damages.

Warranty service is available through your distributor.

SERVICE PHONE NUMBER: 1-800-331-5420
SERVICE FAX NUMBER: 1-815-895-2118

Please fill in the appropriate information for easy reference.

SERIAL NUMBER:

(Found on the upper right side of the lower cabinet near the hinge)

NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by VALLEY RECREATION PRODUCTS, INC. for compliance could void the user's authority to operate the equipment.

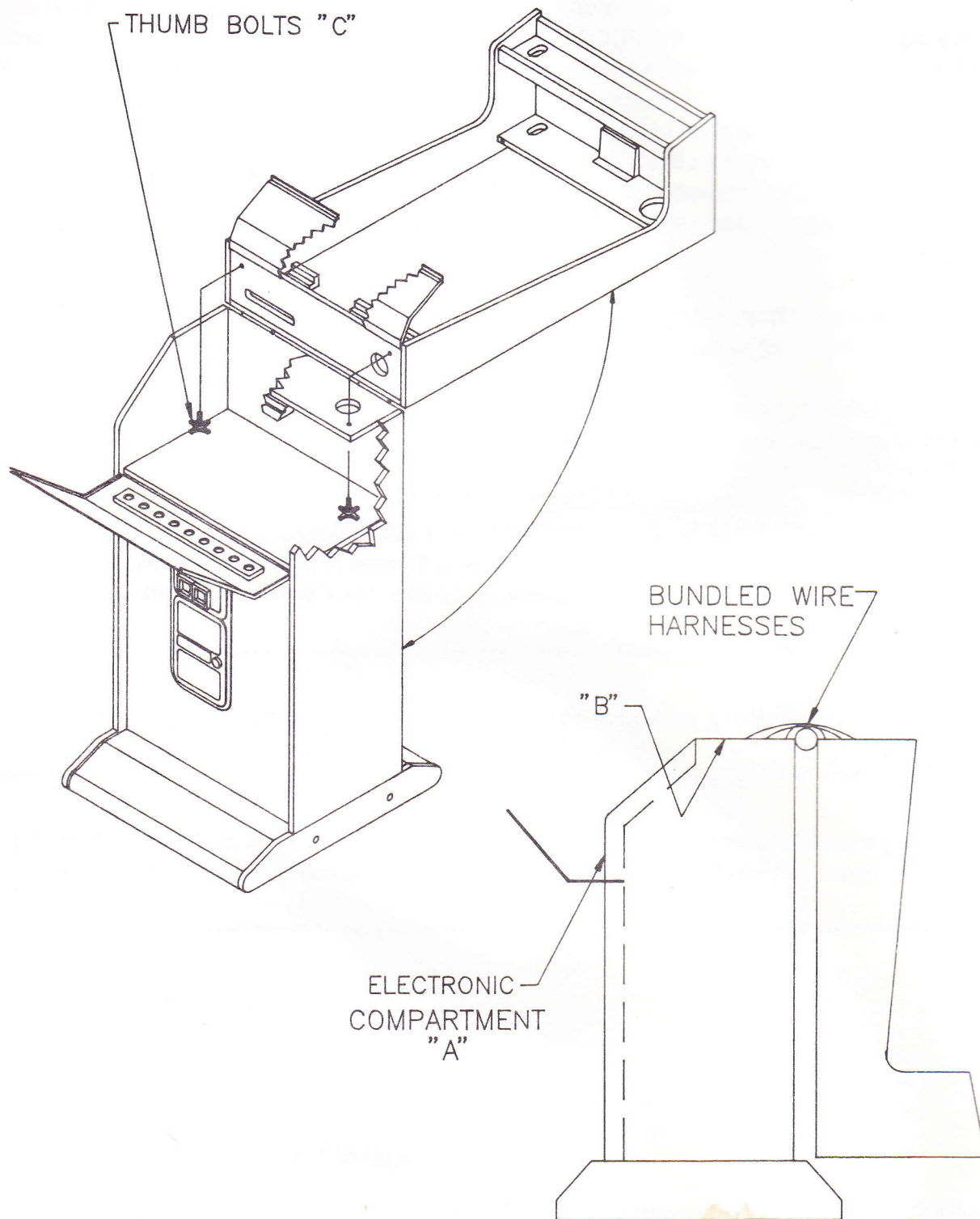
This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

To ensure safety, modification to any part of this game is prohibited.

The keys to this game should not under any circumstances be left in the locks or be accessible in any way to unauthorized service personnel.

This TECHNICAL MANUAL is subject to change. Supplement will be available upon request.



GAME SPECIFICATIONS AND INSTALLATION

Specifications:

THIS GAME IS SUITABLE FOR INDOOR USE ONLY.

Height: 86" upright
Weight: 203 lbs.

Width: 24"
Voltage: 120 Volts

NOTE: A working area of approximately 6' x 4' with a 90" ceiling clearance is needed to install this game.

Installation:

1. Unlock and open door "A" to access the electronics compartment.
2. Remove the washers and bolts "C" from the plastic bag which is stapled inside the electronics compartment and set them aside within easy reach.
3. Slowly and carefully swing the upper section of the game upright, **bracing the back until the game is securely fastened** (step 4).
4. Verify that the wires are not pinched. Replace the washers and bolts "C" in the inside top "B" of the electronics compartment and thread upward to secure the upper section of the game. **Tighten the bolts.**
5. This game is equipped with an easily replaceable power/line cord which is located inside the pedestal when shipped and must be routed through the opening at the back of the game prior to operation. Review FIG. 1 on page 2 before proceeding.
 - A. Open coin door.
 - B. Turn power cord cover latch counterclockwise until the power cord hole cover itself can be rotated counterclockwise. See FIG. 2.
 - C. Turn power cord hole cover to expose opening. See FIG. 3.
 - D. Locate power cord (inside pedestal) and route plug end through opening. Push the entire length of the cord through the opening.
 - E. Return power cord hole cover to its original position making sure cord is inserted through slot in cover. Be sure power cord cover latch falls back into position.

NOTE: If the cabinet top must be folded down for any reason, the power cord must be placed back inside the pedestal.

6. Move the game to its operation location without tilting it more than 10 degrees. Plug power cord into an appropriate outlet.

CAUTION

To ensure safety, it is recommended that the game be secured to the floor or to the wall using the Stability Assurance Kit provided. See instructions on the following pages.

GAME SPECIFICATIONS AND INSTALLATION

LINE CORD ROUTING FIGURES

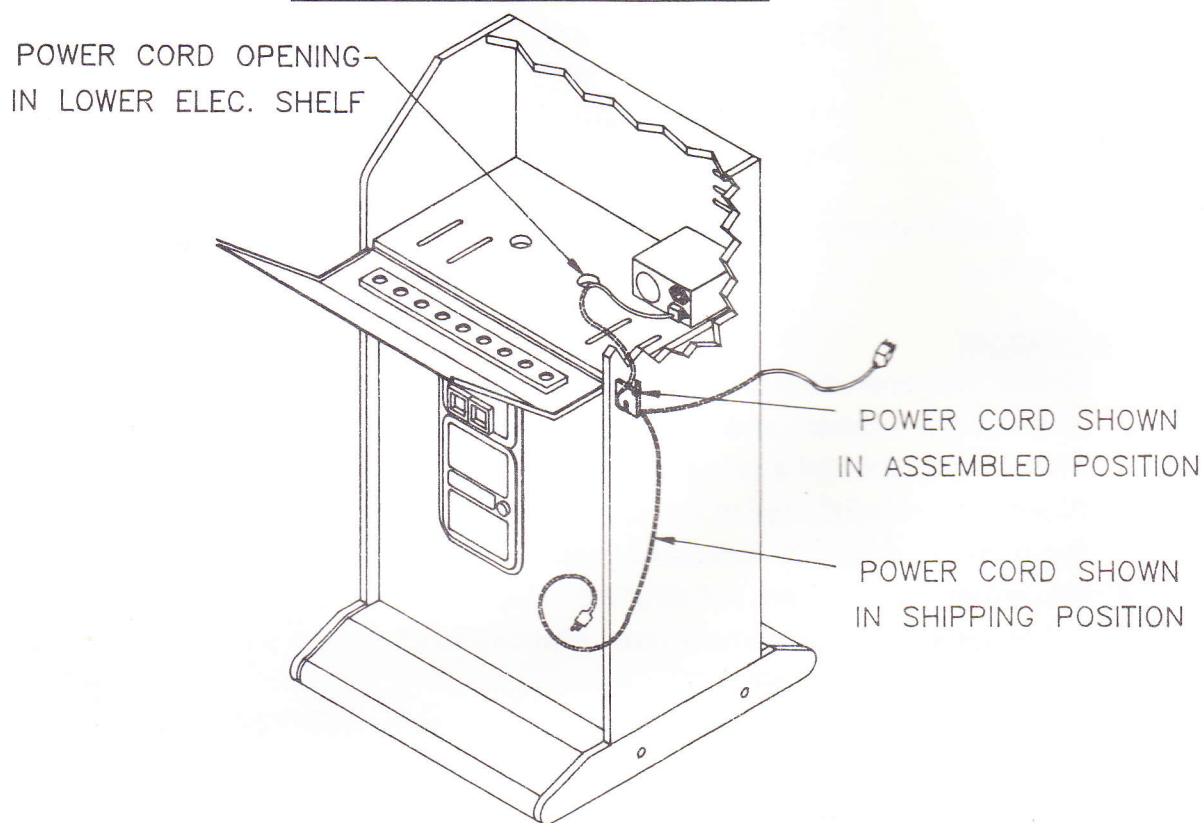


FIG. 1

3-D VIEW OF POWER CORD ROUTING

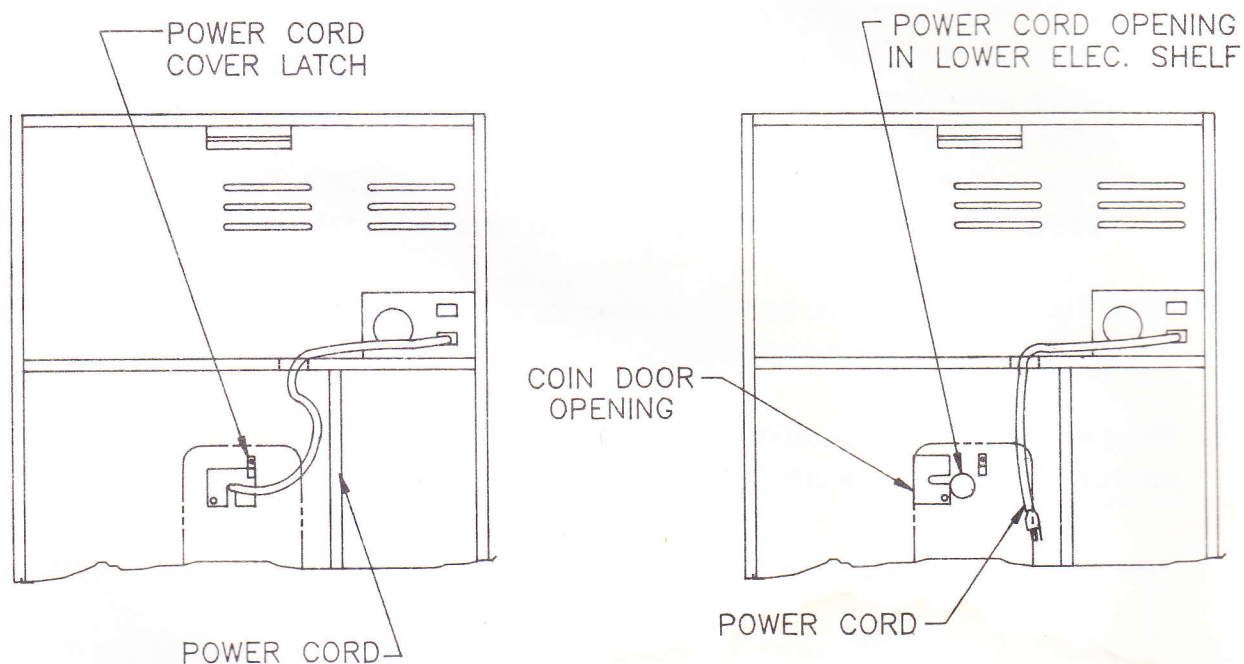


FIG. 2

FRONT VIEW OF POWER CORD
IN CLOSED POSITION

NOTE:

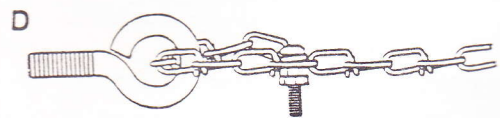
LOWER ELECTRONIC
AND PEDESTAL DOORS
NOT SHOWN.

FIG. 3

FRONT VIEW OF POWER CORD
IN OPEN POSITION

GAME SPECIFICATIONS AND INSTALLATION **STABILITY ASSURANCE KIT (SHIPPED IN CASH BOX)**

PARTS LIST



Eye bolt and chain fastened with hex nut and screw



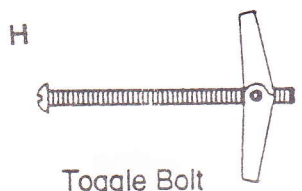
Machine Screw #8-32x3/4"



Hex Nut #8-32



Flat Washer #10



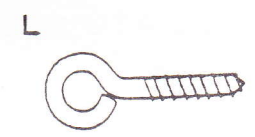
Toggle Bolt 3/16x3"



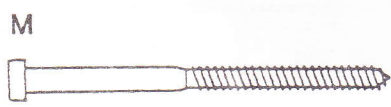
Wire Eye Bolt



Wall Anchor Expansion Shield 1/4x1-1/4"



Wood Eye Bolt



Lag Bolt, Hex 5/16 x 4.5"



Flat Washer 11/32" I.D. 11/16" O.D.



Floor Anchor 5/16x1-3/4"



Fender Washer

INSTALLATION INSTRUCTIONS

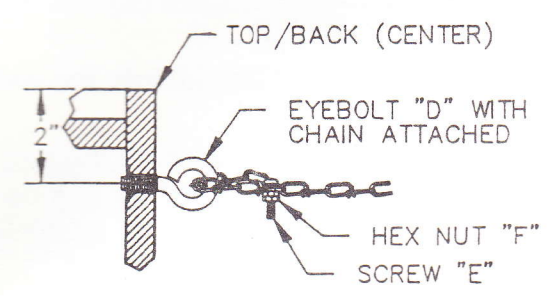
TOOLS NEEDED:

- Measuring tape
- Small screwdriver (Phillips and Flathead)
- Pliers or Crescent wrench
- Drill with:
 - 1/2" bit to secure the game to a hollow wall
 - 1/2" masonry bit to secure the game to a concrete, brick, or stone wall.

ATTACHMENT OF THE CHAIN TO THE WALL:

Step 1: Fasten eye bolt and chain to the game.

- Screw the eye bolt with chain (D) into the insert on the upper back wall of the game.



GAME SPECIFICATIONS AND INSTALLATION

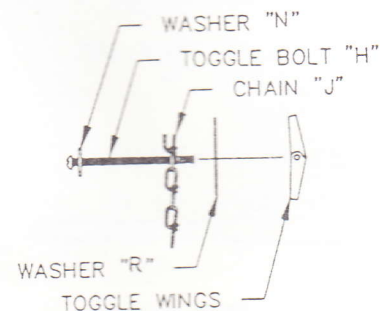
STABILITY ASSURANCE KIT

Step 2: Fasten to the wall according to the following instructions A, B, or C.

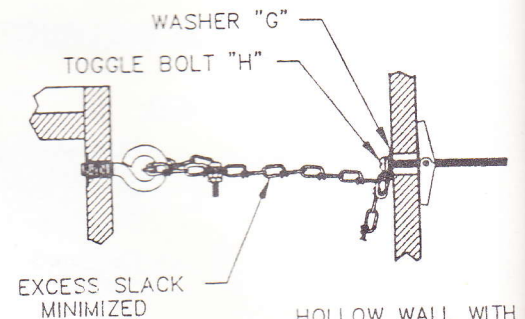
A. Hollow wall: plaster, drywall, etc.

1. With the game in the position where it will be played, mark a spot on the wall directly in line with the eye bolt and chain attachment on the back of the game.
2. Drill a 1/2" diameter hole at the marked spot.

3. Unscrew the wings from the toggle bolt (H).
4. Place a fender washer (R) on the toggle bolt.
5. Place the toggle bolt (H) through a loop in the chain a few inches from the end of the chain. The toggle bolt (H) may have to be threaded through the loop in the chain.
6. Slide a fender washer (R) on the toggle bolt (H) and screw the wings back on.

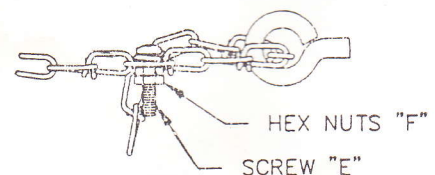
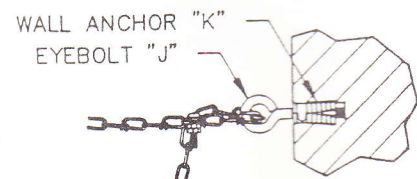


7. Push the toggle bolt (H) into the drilled hole in the wall.
8. Fasten the toggle bolt (H) tightly until the wings are snug against the back of the wall as shown. Keep the chain as taut as possible to minimize slack.



B. Concrete, brick, stone wall

1. With the game in the position where it will be played, mark a spot on the wall directly in line with the eye bolt and chain attachment on the back of the game.
2. Drill a 1/2" diameter hole, 1-1/4" deep at the marked spot.
3. Pound the wall anchor (K) into the hole until it is flush with the wall surface.
4. Screw the eye bolt (J) into the wall anchor (K) until it is tight.
5. Thread the chain through the eye bolt and attach it to itself with the screw (E) and the two hex nuts (F) as shown. Keep the chain as taut as possible to minimize slack.

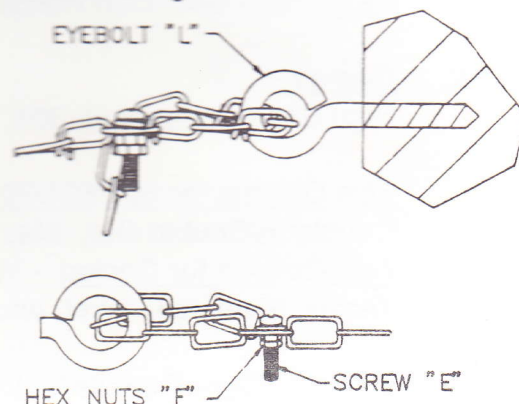


GAME SPECIFICATIONS AND INSTALLATION

STABILITY ASSURANCE KIT

C. Wood stud mounting

1. With the game in the position where it will be played, mark a spot on the wall directly in line with the eye bolt and chain attachment on the back of the game.
2. Screw the eye bolt into the stud at the marked spot.
3. Thread the chain through the eye bolt and attach it to itself with the screw (E) and the two hex nuts (F) as shown. Keep the chain as taut as possible to minimize slack.

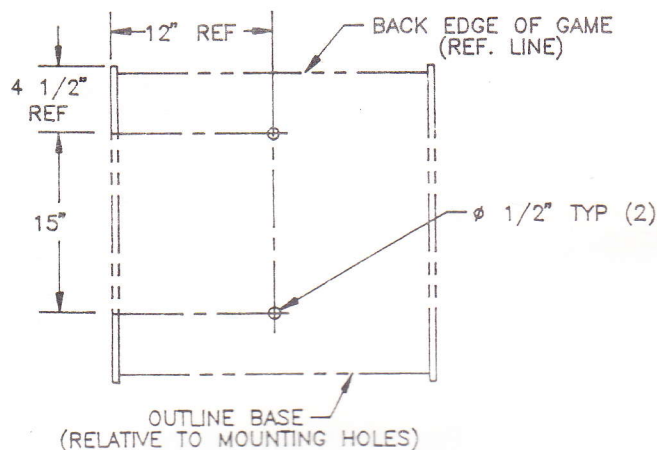


ATTACHMENT TO THE FLOOR:

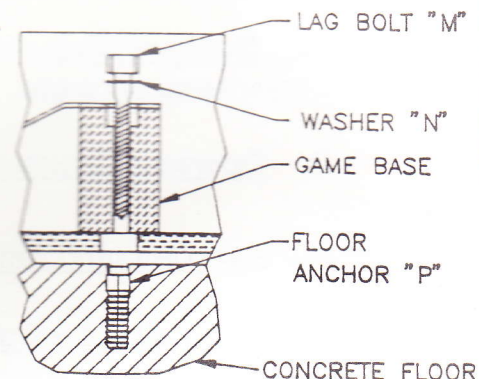
Fasten to the floor according to the following instructions A or B.

Concrete floor

1. Mark two spots on the floor according to the diagram.
2. Drill the two holes at the marked spots 1/2" diameter X 1-3/4" deep each.
3. Pound in the floor anchors (P).



4. Align the holes in the base of the game with floor anchors (P).
5. Secure the game with the flat washers (N) and lag bolts (M).
6. Tighten the lag bolts until flush with the bottom of the counterbored holes in the base.



Wood floor

1. Position the game in its selected location.
2. Secure the game with the washers (N) and lag bolts (M).
NOTE: If desired, a 1/8" diameter pilot hole maybe used to start the lag bolt.
3. Tighten the lag bolts (M) until flush with the bottom of the counterbored holes in the base.

GAME FEATURES

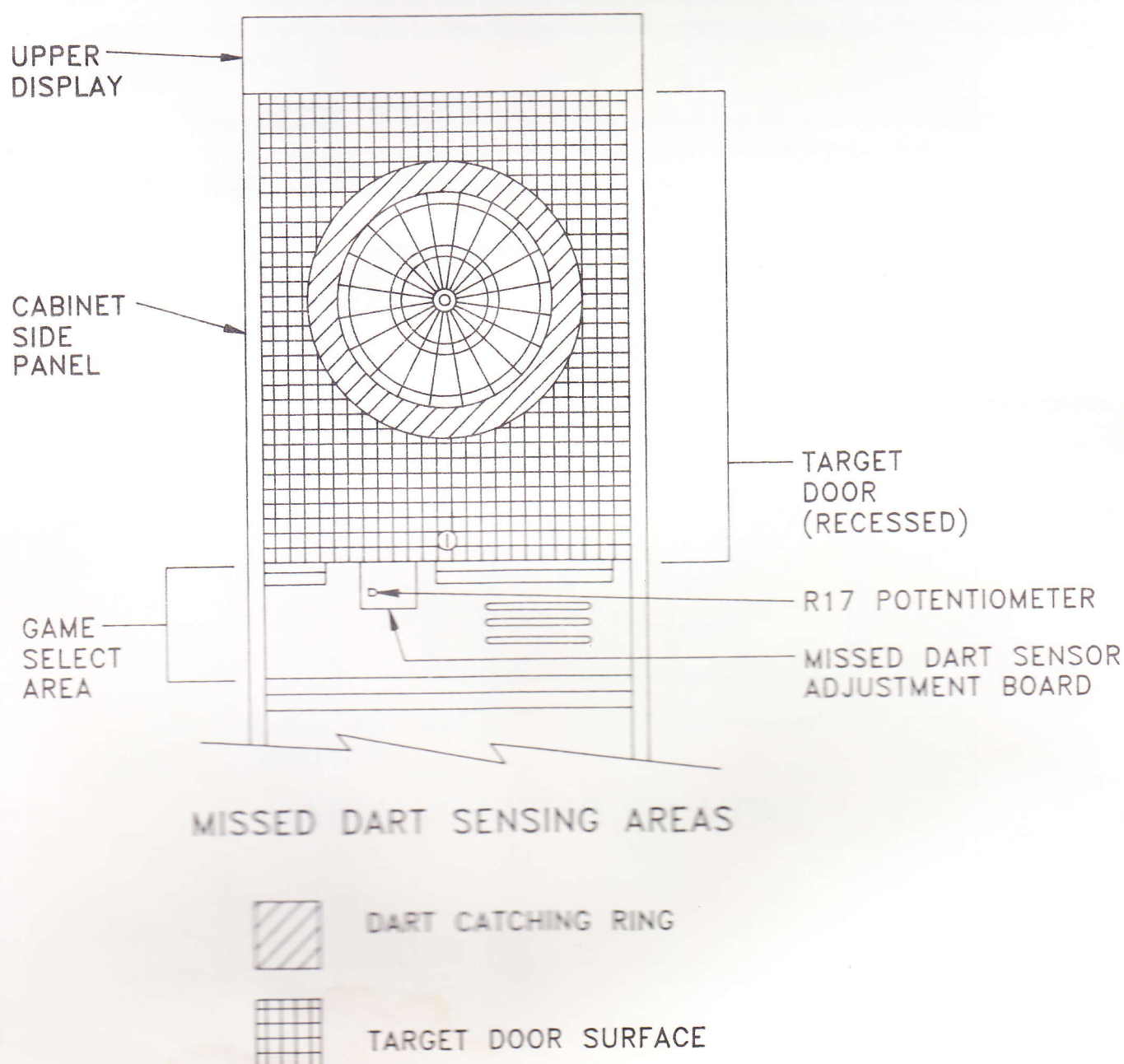
- A. NEW Menu driven Game Select Panel layout.
- B. NEW Versatile Upper Display with Variable Cricket Segment Numbers.
- C. NEW Player Programmable Bullseye.
- D. NEW NDA Spot Dart Handicapping.
- E. Games -
High Score, Shanghai, 301, 501, 701, 901, and Cricket

Five Options for 301/501/701/901- Wipe Out™, Wipe Out 103™, Double In, Double Out, Double In/Double Out, Masters Out, and League.
Five Options for Cricket - You Pick It and Chance It, all with the additional options of Cut Throat, Masters Cricket, and League.
- F. League Play - Permits 301, 501, 701, 901, Cricket or Cut-Throat team play.
- G. ERNIE Your favorite cyber competitor ERNIE available for all games. Price programmable.
- H. 301/501/701 and Cricket Feats Readout
- I. Diddle Time - 2 minute time allowed to practice or to establish starting positions. (See the General Playing Instructions section in this manual.)
- J. Price Preview in Attract Mode
- K. Tru-Score - Anti-Flighting Software and Missed Dart Detection.
- L. Programmable round Limit, Prices, and Bullseye Settings for Each Game
- M. Bookkeeping - Allows the operator to keep a record of total credits entered and credits entered per game.
- O. Operator Oriented Dip Switch Selectable Features
- P. Dart Catching Ring
- Q. Dormant Time Out - 30 minute inactivity time ends game.

TRU-SCORE II

Your Valley Dart Game is equipped with an impact sensor to detect darts which bounce off the door or hit the dart catching ring; the darts which do not hit the scoring area of the target are indicated by a short tone. By sensing all the darts which have been thrown, the game will alert the player to remove the darts.

This feature is factory adjusted and ready to use. If further adjustments are necessary, refer to the Dart Sensor Adjustment Procedure in this manual.

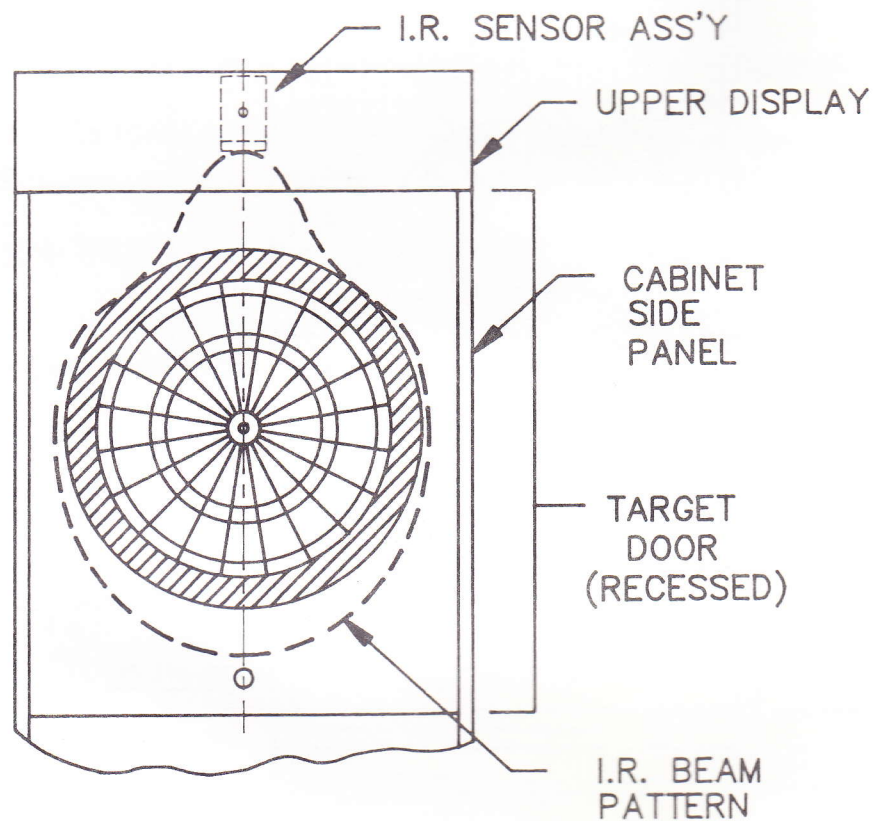


INFRARED BODY SENSOR

This dart game is equipped with an infrared sensor to detect a player removing darts from the target at the end of his turn.

The infrared sensor (IR) is activated after 3 darts have hit the target or the door and have been detected by the Tru-Score II Impact Sensor. Players do not need to push the Player Change button as the game will sense the player removing darts.

However, if all darts have not been counted, such as when a dart misses the game completely or when Tru-Score II is disengaged, the Infrared Body Sensor will not activate and it will be necessary to press the Player Change button.



INFRARED DETECTION AREA

INFRARED ADJUSTMENT PROCEDURE

1. Put the game in the TEST mode by pressing Test Switch on the inside of controller.
2. Select Test 8 (t08) using GAMES or OPTIONS I buttons. Press OPTIONS II to enter.
3. Access the potentiometer through the hole on the right side of the IR sensor housing with a small blade screwdriver. The sensitivity is decreased by turning the screwdriver in a clockwise direction and is increased by turning in a counter clockwise direction.

NOTE: Stand to the side of the game when performing the following steps. Be sure there are no darts in the target or dart catching ring and the target door is in place.

4. Turn the potentiometer back and forth to find the sensitivity threshold of the sensor. This is the point at which the "THROW DARTS" lamp goes out and the "DON'T THROW DARTS" lamp lights.
5. Slowly turn the potentiometer until the "THROW DARTS" lamp comes on.
6. Verify the adjustment:
Stand in front of the game at arms length from the target. Starting at the cougar logo below the target, move your hand upward towards the IR Sensor. The threshold point should be at a level where the hand passes between the dart catching ring and the bottom of the door.
7. Repeat steps 3 through 5 until IR is properly adjusted.

DART SENSOR ADJUSTMENT PROCEDURE

NOTE: Set up and test should be done on site.

- Put the game in the TEST mode by pressing TEST Switch on controller board.
- Select Test 9 (t09) using red GAMES or blue OPTIONS I buttons. Press OPTIONS II to enter.
- Open target door to open Game Select Panel cover to expose Missed Dart Sensor Adjustment Board (see p9 for diagram). Replace target door.
- Start with the lowest sensitivity setting on the potentiometer, R17 on the Dart Sensor Adjustment Board (see diagram), by turning fully clockwise to 7 o'clock.
- Turn the potentiometer, R17, counterclockwise to 6 o'clock setting.
- Temporarily place Game Select Panel cover in UP position before testing. Tap darts on target door or throw bar darts at all areas on the door. (Bar darts have the lightest weight.) Dart detection is indicated by a short tone and a flashing DON'T THROW lamp.

NOTE: Upper right corner of target door is least sensitive. Test here first, and then test rest of target door.

- Repeat this procedure, using small increments to turn up the potentiometer R17, counter clockwise until all darts thrown with reasonable force at the door are detected by the Missed Dart Sensor.
- Replace Game Select Panel cover so it is secured by target door. Retest by throwing bar darts from the throw line.

CAUTION: DO NOT OVERSENSITIZE!

Loud music will cause an oversensitive Dart Sensor to deduct darts. However, when properly adjusted, the Dart Sensor can operate at up to 110 decibels sound level.

FINAL NOTE: If you choose to disengage the Dart Sensor, LEAVE THE DART SENSOR PLUGGED IN and disengage the circuit by moving JU2 to the LOCKOUT position (see diagram at front of manual). If this method of disengaging this feature is not followed, the potential for game performance problems exists.

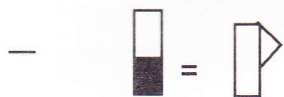
DIP SWITCHES

Dip Switches allow the operator to choose mode and option selection. The dip switch packages (SW1, SW2) are located on the Controller board.

Presently there are two types of dip switches found in our game. The switch is "open" when the SLIDE bar is opposite from "ON" or when the ROCKER is depressed toward the bottom of the switch.

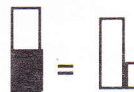
LEGEND FOR PAGES 12-14 DIP SWITCH SETTINGS

Rocker Dip Switch
Side View



Rocker Position (the side that is pushed in or down) is represented by darkened area

Slide Dip Switch
Side View

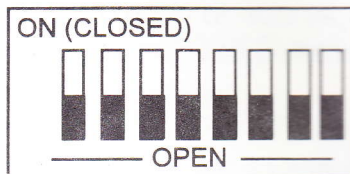


Position of Slide style dip switch is represented by the darkened area

DIP SWITCH SETTINGS

(FACTORY SETTINGS INDICATED)

SW1



SWITCH POSITION

- | | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| 1 | Allows the selection of accumulative/non-accumulative mode. |
| CLOSED | Allows the game to accumulate credit. |
| OPEN | Does not allow the game to accumulate credit. |
| | |
| 2 | One-Dart-Out Calculator. |
| CLOSED | No single-dart-out segment calculation is displayed. |
| OPEN | Displays the segment(s) to hit in order to win in 1 dart. |
| | |
| 3 | Attract-sounds disablement. |
| CLOSED | Tones are disabled during attract mode. |
| OPEN | Tones are enabled during attract mode. |
| | |
| 4 | Warning if the game is used before money is deposited. |
| CLOSED | No alarm whistle. |
| OPEN | Causes alarm whistle to sound when target is struck. |
| | |
| 5 | Power Failure Recovery |
| CLOSED | Does not allow the game to resume after an interruption in power |
| OPEN | Allows the game to resume after an interruption in power. |
| | |
| 6 | Option for "frozen" Player reaching zero during League. |
| CLOSED | Player will bust if "frozen" and reaches "0" during League, but the game will continue. |
| OPEN | The team loses the game when one of its players is "frozen" and reaches "0" during League. The game will end. |

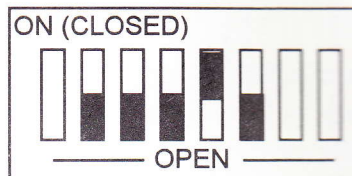
DIP SWITCH SETTINGS

SW 1

- 7 Option in the method of starting a game using the Player Change button.
CLOSED The player change button can be used to start a game at a position other than one after the Remove Darts Time is over (5 seconds). Ex. If Player 1 missed the target, the game can start with Player 2.
OPEN The player change button can only be used to change the number of players in the SELECT mode until the first dart scores.
- 8 Bullseye Start/Finish for Double In or Double Out
CLOSED May start or finish Double In or Double Out games on a single (50 point only) Bullseye.
OPEN Cannot start or finish Double In or Double Out games on a single (50 point only) Bullseye. Player will "bust" if player tries to win with a single Bullseye,

DIP SWITCH SETTINGS

SW2



SWITCH POSITION

- | | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1
CLOSED
OPEN | NOT USED |
| 2
CLOSED
OPEN | Option for shortened delay time between players.
Time between players set at 2 seconds after a player leaves the IR beam.
Time between players set at 3 seconds after a player leaves the IR beam. |
| 3
CLOSED
OPEN | Free Play Mode
All games are free. Signified by FP in temporary score.
Normal Mode - To return to Normal Mode, move switch to OPEN and press 'Reset' after returning from free play. |
| 4
CLOSED
OPEN | Skip Frozen Player in Team Cricket
Skip enabled.
Skip not enabled. |
| 5
CLOSED
OPEN | Automatic Player Change (IR Body Sensor)
Enabled--IR sensor will detect body
Disabled--must use Player Change Button. |
| 6
CLOSED
OPEN | Wipe Out™
Sends player score 103 points
Sends player score back to start |
| 7
CLOSED
OPEN | NOT USED |
| 8
CLOSED
OPEN | NOT USED |

GENERAL PLAYING INSTRUCTIONS

1. Insert coins. Press the GAMES button until the red LED next to the desired game is lit. At this time, price per player will be displayed. The number of coins entered will be shown in ROUNDS display. Deposit the required number of coins for each player.
2. Select options (i.e. Double In) by pressing the Options I or Options II button until desired option(s) is lit.

DIDDLE TIME

After coining up, but before pressing Player Change button, there will be two minutes for players to "diddle" for position without setting off the DART ALARM.

3. Select the Bullseye setting for your game. When the Double Bullseye button is pressed (it will light up), the outer bullseye ring scores 25 points and the inner ring scores 50 points. Press this button AFTER selecting game/options but before the first dart is thrown.
4. Press the PLAYER CHANGE button for the desired number of players if in the accumulative mode. In the non-accumulative mode, the number of players is determined by the amount of credits; press the PLAYER CHANGE button once to display the players' scores.
5. Wait for the green THROW DARTS lamp to light (about 5 seconds) before starting play. A dart thrown before THROW DARTS is lit will not receive a score.

To start the game:

- Throw the first dart, or
 - Select a different game by pressing the GAMES button and then the PLAYER CHANGE button, or
if SW1 position 7 is closed:
 - Press the PLAYER CHANGE button to start the game at a position other than Player 1.
6. Each player throws 3 darts per round from the throw-line, 8' from the Shoot Darts Label on the base of the game.
 7. After 3 darts have been thrown the player can remove the darts. If the Infrared Sensor feature is engaged, the DON'T THROW lamp will light until the player moves away from the game. The game will automatically change players.

NOTE: If the 3 darts have not been registered the player must press PLAYER CHANGE before removing darts.

PLAYING INSTRUCTIONS FOR EACH GAME

HIGH SCORE

- Each player throws three darts per round.
- Highest score at the end of the game wins.

SHANGHAI

- Player(s) begin by throwing three darts per turn.
- The object is to hit each segment in sequence beginning with segment #1, working up to segment #20, and ending with the bullseye. The player with the highest score after 7 rounds or a Shanghai wins the game.
- Game will prompt player for next segment at the beginning of each round except first round, first play.
- A "Shanghai" is an automatic win achieved by throwing 3 consecutive scoring darts consisting of a single, a double, and a triple segment in any order. [Ex. Player is shooting for 4, 5, 6 in round 4 of a game. Player hits a triple 4 segment, then a single 5 segment, then a double 6 segment: this qualifies as a "Shanghai."]

301

- Beginning with a score of 301, player(s) must score down to exactly 0. The first player to reach 0 wins.
- Any points scored exceeding the point total needed to reach 0 will result in a BUST. The Player loses turn and forfeits any remaining darts not thrown in that round. Player's score will return to the score at the beginning of the round.

501/701/901

- Same game as 301 except that the starting score is 501, 701, or 901 points.

301/501/701/901 OPTIONS

WIPE OUT™

Played the same way as other 01 games except that each player has the opportunity to send other players' scores back to the starting score or adds 103 points not to exceed starting score, depending on the position of DIP Switch No. 6. This is **WIPE OUT™**.

- Each player begins with 301, 501, 701, or 901.
- The first player to reach 0 exactly within the round limit or the player with the lowest score after the round limit is the winner.

PLAYING INSTRUCTIONS FOR EACH GAME

Wipe Out™ Cont.

- Each player can wipe out other players by matching their scores with any or all of the three darts thrown. Ex. Player 1 has score of 80 points, Player 2 has a score of 40 points, Player 3 has a score of 70 points, Player 4 has a score of 10 points.
 - Player 1 shoots a 10 with his first dart for a score of 70. This matches Player 3's score so Player 3's score returns to 301.
 - Player 1 shoots again and hits a Double 15 for a score of 40. This matches Player 2's score, and sends her to 301.
 - Player 1 shoots a third dart and hits another Double 15, bringing the score to 10 which matches Player 4's score. Player 4's score returns to 301.
- If the **Wipe Out™** 103 DIP Switch is set in the previous example, the players' scores will be as follows:
 Player 2 = 143, Player 3 = 173, and Player 4 = 113.

Double In:

- Each player must hit a double point value segment or an inner bullseye to begin play. **Darts thrown prior to the first scoring throw will not score points.** (See also p15 regarding Dip Switch SW1, position 8 for bullseye options for Double In).

Double Out:

- A player must reach 0 exactly by scoring a double point value segment or an inner Bullseye. A score of 1 will automatically bust a player in this position. (see also p15 regarding Dip Switch SW1, position 8 for bullseye options for Double Out.)

Double In/Double Out:

- This is a combination of the Double In and the Double Out games. (See also p15 regarding Dip Switch SW1, position 8 for bullseye options for Double In/Double Out.)

Masters Out:

- This is played the same way as Double Out, but the player can also go out by hitting a triple point value segment or an inner bullseye. (See also p 15 regarding Dip Switch SW1, position 8 for bullseye options for Masters Out.)

League:

- This option can only be chosen when there are enough credits to start a four player 301/501/701/901 game.
- Players 1 and 3 are Team "A." Players 2 and 4 are Team "B".
- The objective is for one player on a team to reach 0.
- the score of the other player on the team must be less than or equal to the combined score of the opposing team's players. A player may not be able to win the game if his

PLAYING INSTRUCTIONS FOR EACH GAME

partner's score is greater than the opposing team's combined score; this situation causes that player to be "frozen" (i.e. if the partner's score is 50 points and the combined score of the opposing team is 25 points.)

- If a player is "frozen" and reaches 0, the game will cause this player to bust when Dip Switch SW1, position 6 is closed. When Dip Switch SW1, position 6 is open, the game will cause the team to lose.

Wipe Out™ League Rules:

- Regular League rules apply.
- Players cannot wipeout a team member if they match their team member's score.
- Players on one team may eliminate players on the other team by matching their score as described previously.

Warning: If both members of a team have the same score, an opposing team member could knock both players' scores back to the starting score should he match their score.

- The team with the first player to reach 0 before the round limit is the winner as long as cumulative score of winning team is less than the cumulative score of the other team. A team player reaching 0 without having the lowest cumulative team score could
 1. cause the player to "Bust," and his score will return to that of the previous round or
 2. lose the game depending on how the DIP Switch SW1-6 is set.
- If the round limit is reached, the team with the lowest cumulative score is the winner.

TRADITIONAL CRICKET

Objective: In traditional Cricket, the object is to close numbered segments by hitting each one the equivalent of three times. [Ex. To close segment #20, a player must throw 3 darts in the single, 1 dart in the single and 1 dart in the double, or 1 dart in the triple #20.]

- This game is played using segments 20, 19, 18, 17, 16, 15, and the Bullseye.
- The player who closes a segment may score on that segment until it is closed by all other players.
- On the upper display, the number of a closed segment will be replaced by dashes (--). If the Bullseye is closed, Bullseye LEDs will go out.
- The game ends when one player has closed out all the segments from 20 through the Bullseye and has the highest score or is tied for it.

PLAYING INSTRUCTIONS FOR EACH GAME

CUT THROAT CRICKET:

Objective: Same as Cricket, except that players with closed numbers add points to players with those numbers still open.

- The player who has closed all numbers and who has the lowest score wins.

MASTERS CRICKET:

Objective: Same as Cricket, except that a player can only score when closing out a segment.

- Player can only score points on darts that also close out a segment
- Player can then score on any number opponents have open until all numbers and the Bullseye are closed
- Highest score wins.

YOU PICK IT CRICKET:

Objective: Same as Traditional Cricket.

- In this variation of Cricket, players pick 6 segments (and the Bullseye) which then they then close as in a normal Cricket game.
- To pick segments, wait for flashing 0 to appear in the Cricket number display. Press 6 segments on the target. Once 6 segments have been chosen, the numbers will appear on the display in descending order.
- All the usual Cricket rules apply.

CHANCE IT CRICKET:

Objective: Same as Traditional Cricket.

- In this variation of Cricket, Ernie picks 6 segments at random (and the Bullseye) which players then close as in a normal Cricket game.
- All the usual Cricket rules apply.

TEAM OPTION FOR CRICKET:

- This option can only be chosen when there are enough credits to start a 2 or 4 player game.
- After selecting a Cricket game, press Options II until "Team" LED is lit.
- Players 1 and 3 are Team "A," players 2 and 4 are Team "B."
- Teams are treated as single players.
- For Cricket and Cut-Throat, scoring on a number can only begin when both players on a team have closed the number. Scoring only occurs against opposing team members who have not closed the segment. [Ex. If Team B has #18 closed, and only Player 1 on Team A has #18 closed, Team B can score on #18 until Player 3 closes the number.]
- The game ends when both members on a team close all segments 20-15 and the Bullseye and have points according to each game's rules.

HANDICAPPING

National Dart Association (NDA) S.P.R.E. Handicapping

Each player is allowed 1-3 spot darts which are thrown during a handicap round.

To setup NDA handicapping:

1. Choose game and options using the Games and Options I buttons.
2. Use Options II button to highlight NDA S.P.R.E.
3. Press Player Change button. Player 1 display (0) will flash.
Press Segment 1, 2, or 3 to designate 1, 2, 3 spot darts for Player 1.
Press Player Change again. Spot darts designated will be displayed in Player 1.
Press Player Change to set up handicap for Player 2.
4. Repeat step 3 for Player 2, 3, and 4 (or however many players will be playing).
NOTE: If a player is not allowed spot darts (no handicap), press Player Change without pressing any target segment in order to skip over that player.
NOTE: To reset a players' handicap to 0, press the Bullseye.
5. When all players handicaps have been set up press Player Change to begin handicap round.
NOTE: To change from 2 position 4 player team play to 4 position 4 player team play, press Player Change again.
6. Rounds display will be "0". Each player throws his spot darts.
7. When all players have thrown their spot dart(s), the actual game will begin.

ADA HANDICAPPING

ADA HANDICAPPING IS ONLY AVAILABLE FOR 301 (2 PLAYER, NO OPTIONS)
AND CRICKET (4 PLAYER, 2 POSITION, NO OPTIONS).

The game automatically calculates ADA handicapping based on inputted Points Per Dart Average (PPD).

TO ENTER PPD AVERAGE:

1. Insert appropriate number of credits. Select ADA on Game Select Panel using gray Options II button.
2. Press Player Change. Player 1 LED will flash 0.
3. Enter PPD value using target segments 1-9 and the bullseye. Press Player Change for each PPD average to be entered.
Note: ADA valid range = 10-30. If player attempts to enter a number greater than 30 or less than 10, the game will default to 30 and 10 respectively

FOR CRICKET: The game automatically calculates the cumulative team PPD average, and awards marks to the team with the lowest PPD average. Number of awarded marks will be displayed in Player 1 or Player 2 LED. Enter marks using the target.

Note: No more than 2 marks per segment allowed.

FOR 301: The game automatically calculates a point advantage for the team with the lowest PPD average and will display adjusted starting scores in Player LEDs.

FEATS READOUT

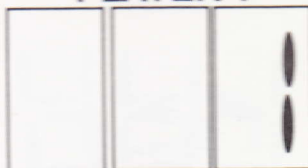
Each feat will be displayed at the end of the game for a period of 6 seconds. Pressing the "LEAGUE" button will speed the advance to the next feat. Feats will cycle for two minutes. The display will then return to the ATTRACT mode unless credits remain.

SAMPLE DISPLAY SHOWING A "WIN" FEAT

TEMP SCORE



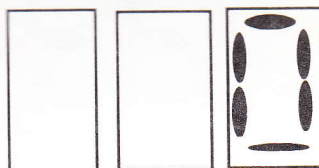
PLAYER 1



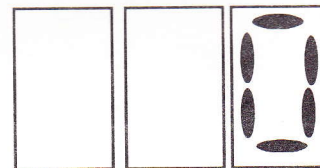
PLAYER 2






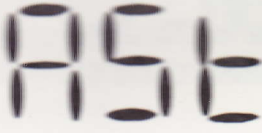
PLAYER 3



PLAYER 4










301/501/701/901 FEATS

FEAT	AS SHOWN ON TEMPORARY DISPLAY	DESCRIPTION
Points per Dart		Shows average points per dart for each player
Points per Round		Shows average points per round for each player. Calculated only during the first three rounds of play.
WIN		A Win
Assist		An assist while playing 'team' with a partner

FEATS READOUT

301/501/701/901 FEATS, CONTINUED

FEAT	AS SHOWN ON TEMPORARY DISPLAY	DESCRIPTION
6th Dart Out (301)		A win in 6 darts
7th Dart Out (301)		A win in 7 darts
8th Dart Out (301)		A win in 8 darts
9th Dart Out (301/501)		A win in 9 darts
10th Dart Out (501)		A win in 10 darts
11th Dart Out (501)		A win in 11 darts
12th Dart Out (501)		A win in 12 darts

FEATS READOUT








301/501/701/901 FEATS, CONTINUED

FEAT	AS SHOWN ON TEMPORARY DISPLAY	DESCRIPTION
4th Round Out (301)	4th	A win in the 4th round
5th Round Out (501)	5th	A win in the 5th round
Hat Trick	HAT	3 Bullseyes in one turn
TON	ton	A score of 100 to 150 in one turn
High TON	Hten	A score of 151 or greater in one turn
Total number of Darts Thrown	tdt	See Dip Switch Setting SW1 Position 6

NOTE: A bust situation will cancel any feat obtained in that player's round. The Hat Trick can be accomplished on an inner or an outer Bullseye. When 100 or more points are accumulated in a Hat Trick, the Hat Trick will be the only feat recorded.





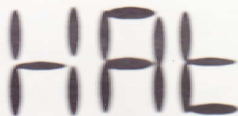
FEATS READOUT

CRICKET FEATS

FEAT	AS SHOWN ON TEMPORARY DISPLAY	DESCRIPTION
Marks per Round		Average Marks per Round
WIN		A Win
Assist		An Assist while playing 'team' with a partner
8 Dart Out		Finish in 8 darts
9 Dart Out		Finish in 9 darts
9 Mark		9 Marks in one round
8 Mark		8 Marks in one round

FEATS READOUT

CRICKET FEATS

FEATS	AS SHOWN ON TEMPORARY DISPLAY	DESCRIPTION
7 Mark		7 Marks in one round
6 Mark		6 Marks in one round
5 Mark		5 Marks in one round
White Horse		Marking 3 different unmarked triples in one round
Hat Trick		Marking 3 Bullseyes in one round

NOTE:

Darts thrown which hit numbered segments closed by all players do not count as marks.

PROGRAMMING MODE

WHILE IN PROGRAMMING MODE, PRESS--

GAMES or OPTIONS I buttons to scroll through options.

OPTIONS II button to enter any changes.

BULLSEYE button to toggle between credits per game and round limits, and for One Step Message Language Programming.

PLAYER CHANGE to exit present mode.

To Enter Programming Mode:

- Press Test Switch on Controller.
- Scroll through programming options using red GAMES Button or blue OPTIONS I Button until PRg appears in Temp.Score LED on upper display.
- Press gray OPTIONS II Button to Enter.
- Enter security code if different from factory preset security code. Display will read gA SEL, and new menu will be in effect. Use red GAMES button or blue OPTIONS I button to scroll through options.

gA SEL (GAMES) This mode allows you to change the number of credits per game, the bullseye setting, and the round limit for any game. To enter this mode, see gA SEL below.

LAN SEL (MESSAGE LANGUAGE) This mode allows you to change the language of the game, or to return to the factory language default setting. To enter this mode, see LAN SEL below.

CN SEL (COIN) This mode allows you to change the number of credits per coin, and to program counter advances values. To enter this mode, see CN SEL below.

SEC SEL (SECURITY) This mode allows you to change the operator security code. To enter this mode, see SEC SEL below.

gA SEL: Game programming mode.

- Select gA SEL by pressing gray OPTIONS II button to enter.
- To toggle between number of credits per game option and round limit option, use Bullseye button.
- To change number of credits per game (CPg), select game by pressing red

PROGRAMMING MODE

gA Programming cont.

GAMES button or blue OPTIONS I button. Game and option will be highlighted on Games Select Panel. The number of credits per game will appear in the Player 2 LED on Upper Display. To change current value, press any number from 1 to 9 on the target. New value is shown in Temp.Score LED on Upper Display. Press OPTIONS II to save. Game will beep to confirm.

- To change Bullseye/Double Bullseye setting, press segment 20 on target. The current setting (bE/ dbE) will be shown on the Bullseye button and in the Player 4 LED.
- To change current round limit, press Bullseye button to change mode from CPg to rL. Temp.Score will display game, Player 2 LED will display current round limit. Change round limit by pressing appropriate target segments using numbers 1-9 and bullseye segment for 0. (EX. If rL = 20, press 2 and bullseye segment.) Press gray OPTIONS II to enter. To enter unlimited rounds, press bullseye on the target. Temp.Score will display 0. Press OPTIONS II to enter.

NOTE: All games are programmed in the same way. Select another game by pressing GAMES button until desired game is highlighted on Games Select Panel.

- To exit GAMES programming, press red Player Change button. Temp.Score LED will return to gA SEL.

Programming the cost of ERNIE while in GAMES mode:

- Press red GAMES button to scroll through game options and highlight HIGH SCORE or SHANGHAI. Press blue OPTIONS I button.
- Press any number on target to advance through credit choices (0,1,2,3).
- Press gray OPTIONS II button to enter.
- To exit ERNIE programming and return to gA SEL, press red GAMES button, or to exit gA mode, press Player Change.

CN SEL: Credit per Coin/Counter Advances Programming mode.

- Select CN by scrolling through programming options using blue OPTIONS I button. Press gray OPTIONS II button to enter.
- Temp.Score LED on upper display will read DRP CN. Drop a coin to see current

PROGRAMMING MODE

CN SEL Programming cont.

values. Player 2 LED will show the number of credits per coin (CR). Player 4 LED will show coin channel number (CHN).

- To change the number of credits per coin, press a number from 0 to 9 on the target. The new credits per coin value will appear in Temp.Score LED. Press gray OPTIONS II button to confirm.
- To program counter advances, press BULLSEYE button.
- Player 2 LED will show number of counter advances per coin (CA), and Player 4 LED will show coin channel number (CHN).
- To change the number of counter advances per coin, press a number from 0 to 9 on the target. Press gray OPTIONS II button to confirm.
- To exit credit per coin/counter advances programming mode, press red Player Change button. Upper Display will return to CN SEL.

LA n SEL: Message Language Programming.

Note: Your game has an English language factory setting. If you wish to retain the English version, omit the instructions below. If you would like to use a German, French, Italian, or Spanish version, follow the steps below.

- Select LA n SEL by scrolling through programming options using blue OPTIONS I button. Press gray OPTIONS II button to enter.
- Press blue OPTIONS I button to scroll through language options. When desired language is displayed in Temp.Score LED, press gray OPTIONS II button to confirm change.

• To return to One Step Factory Default Settings, select desired language. Press and hold BULLSEYE button. Press OPTIONS II to enter.

- To exit message language programming mode, press red Player Change button.

SEC SEL: To Change Operator Security Code.

- Select SEC SEL by scrolling through programming options using blue OPTIONS I button. Press gray OPTIONS II button to enter.
- Press and hold BULLSEYE.

PROGRAMMING MODE

SEC SEL Programming cont:

- While holding **BULLSEYE** button, enter current security code using target segments. If the correct current security code has been entered, upper display will read **ENT**.

- Enter new security code using target segments. As segments are pressed, new code will appear in Player LEDs on upper display.

NOTE: New security code must consist of four numbers.

- Press gray **OPTIONS II** button to enter new security code.

- To exit security code programming mode, press red **Player Change** button.

PROGRAMMING MODE STATISTICS

To Enter Statistics Mode:

- Press Test Switch on Controller.
- Scroll through programming options using red GAMES Button or blue OPTIONS I Button until STA SEL appears in Temp.Score LED on upper display.
- Press gray OPTIONS II button to enter.
- Enter security code if different from factory preset security code. Display will read CN SEL, and new menu will be in effect. Use red GAMES button or blue OPTIONS I button to scroll through options. Press gray OPTIONS II to enter.
 - CN SEL (COIN STATISTICS) This mode allows you to view number of coins per channel, and total number of coins for all channels. See Cn SEL below.
 - GA SEL (GAMES STATISTICS). This mode allows you to view game statistics. See GA SEL below.

Cn SEL: To View Coin Statistics.

- Upper display will appear as follows:

CHN	1 XX	XXX	X = number of coins per channel,
	2 XX	XXX	with 65535 being the maximum
- Use red GAMES button to cycle through all programmed channels. Channel number will appear in upper display.
- To see the total (TOT) count of coins for ALL channels, press blue OPTIONS I button.
- To zero coin totals, hit Test Switch (TST) on controller. Upper display will return to Cn SEL.
- To view game statistics, see gA SEL below, or press red Player Change button to exit.

PROGRAMMING MODE STATISTICS

GA SEL: To View Games Statistics.

- Select GA SEL by pressing gray OPTIONS II button.
- Press red GAMES button until desired game is highlighted on Games Panel. To select options on 301/501/701/901 and Cricket games, press blue OPTIONS I button. Statistics for games with options will appear in upper display.

Example: If 701 is selected, display will appear as follows:

PXX	XXX
CXX	XXX

(P = number of players, C = number of credits used, with 65535 as maximum.)

DIAGNOSTIC ROUTINES

Each game has built-in diagnostic software. The scope of this software is to test the electronic hardware, to verify that the game is functioning properly, and to indicate problem areas.

There are two push button switches located on the Controller board inside the electronics compartment:

SW4 Left switch is a RESET button. Pressing this switch resets the game.

SW5 Right switch is the TEST button. Pressing this switch puts the game in self-diagnostic mode.

To enter the TEST (tSt) mode, press the Test Switch ONCE for Tests Two through Ten. To enter Test One (Button Test) press test switch again. To exit Test One, press Test Switch once more.

To exit the TEST mode (tSt), press the PLAYER CHANGE button.

The following ten tests may be used while in the TEST mode (tSt):

Test One - Push Button Switch Test

Press test switch once to enter the TEST mode,

- Press red GAMES button until desired game is highlighted on Games Panel, and press it again to activate this test.

Temp.Score displays t01 until the first switch is pressed. This test checks the operation of all the front panel switches. As each switch is pressed, Temp.Score will display three (3) characters to identify it.

Double Bullseye Button

bull

Games (RED button)

951

Options I

091

DIAGNOSTIC ROUTINES

Test One - Push Button Switch Test, continued

Options II



Player Change



Test Two - t02 7-Segment Display and LED Test

To activate, press the GAMES button until t02 appears in temporary display. Press the Options II button. Each display will cycle through digits 0-9, and the decimal point. After all segments and LEDS have been checked, the game will automatically return to the TEST mode (tst). To exit test, press the PLAYER CHANGE button.

Test Three - t03 Audio Test

To activate, press the GAMES button until t03 appears in temporary display. Press the Options II button. A tone will be generated to check and adjust the volume of the audio circuit. The volume adjustment is located on the Controller board in the bottom right corner at location R12.

To exit this test press the PLAYER CHANGE button.

Test Four - t04 Target Segment Test

To activate, press the GAMES button until t04 appears in Temp.Score display. The temporary score display will show t04. This test checks that each segment of the target will register darts thrown at it. As each segment is depressed, its value or designation will be shown in the temporary score display. A double or triple will be shown as a "d" or "t" preceding the number of the segment [Ex. A double 20 is d20].

Test Five - t05 Lamp Test

To activate, press the GAMES button until t05 appears in temporary display. Press the Options II button. Each lamp will light individually in the following order: Double Bullseye, Don't Throw, Throw, Player Change. After each lamp has been checked, this test will automatically return to the TEST mode (tst).

DIAGNOSTIC ROUTINES

Test Six - t06 Cricket Display Test

To activate, press the **GAMES** button until **t06** appears in temporary display. Press **Options II** button to begin test. The LEDs will cycle through Cricket LEDs, Bullseye LEDs, Player Lamps, and Dart LEDs.

Test Seven - t07 Burn-In Test

To activate, press the **GAMES** button until **t07** appears in temporary display. Press the **Options II** button. This test is a production burn-in test used to cycle through all the lamps and LEDs and their associated circuitry.

Press the **PLAYER CHANGE** button. All lamps turn off.

Press the **PLAYER CHANGE** button again. All LEDs will light.

Press the **PLAYER CHANGE** button once again to return to **TEST** mode.

NOTE:

For Tests Eight and Nine to function properly, be sure that the jumpers at JU1 and JU2 are in the correct position to enable the circuitry. We suggest that Test Three and Test Five be completed before attempting these tests.

Your game is shipped to you with the **Tru-Score II (Dart Sensor)** and **Infrared Sensor** engaged.

The Dart Sensor selection jumper is located on the Controller board at location JU1. To disengage it, move the jumper clip to the right covering the middle and right pins.

To disengage the **Infrared Sensor Feature** open Position 5 of DIP Switch 2.

NOTE: Always disengage the Dart Sensor feature at the jumper clip and the Infrared Sensor feature at the DIP Switch. **DO NOT** disengage by unplugging the cords or ribbon cable - unplugging **WILL NOT** fully disengage the circuits.

Test Eight - t08 IR Sensor Test

To activate, press the **GAMES** button until **t08** appears in temporary display. Press **Options II** button to begin test. **t08** appears in the Temp.Score display and the **THROW DARTS** lamp will light signifying the test is active.

To test the IR Sensor, stand in front of the game at arm's length. The **THROW DARTS** lamp should be lit. Move your hand slowly upward towards the target. As your hand enters the IR sensor detection area (a few inches below the lower part of the dart catching ring), the **THROW DARTS** lamp should go out and the **DON'T THROW** lamp should light. Remove your hand and ensure that the **DON'T THROW** lamp goes out and the **THROW DARTS** lamp lights. If adjustments are necessary, refer to the Infrared Sensor Adjustment Procedure.

Press the **PLAYER CHANGE** button to exit this test..

DIAGNOSTIC ROUTINES

Test Nine - t09 Dart Sensor Test

To activate, press the GAMES button until t09 appears in temporary display. Press Options 2 button to begin test. t09 will appear in the Temp.Score display and the THROW DARTS lamp will flash signifying the test is active. To test the dart sensor and its circuitry, tap the front panel and listen for an audible "Beep" from the speaker. The DON'T THROW lamp will flash as the "Beep" is sounded.

If no "Beep" is heard, an increase to the sensitivity may alleviate the problem. The sensitivity adjustment is located in the Upper electronics panel below the target R12. (See Dart Sensor Adjustment Procedure.)

Press the PLAYER CHANGE button to exit.

Test Ten - Game Select Panel Test

To activate, press the GAMES button until t10 appears in temporary display. Press Options II button to begin test.

To Return to Attract Mode:

Press the "RESET" button on the Controller Board or the PLAYER CHANGE Button to return to the ATTRACT mode.

SELF-CHECKING SOFTWARE

The following self-checking tests are done automatically by the software in the game.

1. POWER-UP SWITCH TEST - Used to check the ten (10) front panel switches. If a switch is stuck closed, the three (3) character identification will be displayed and a tone will sound.
2. TARGET WATCHDOG - Used to check target switches. If a segment is stuck closed, a "beep" will be heard while "StUC tArgEt" scrolls in the display, alternating with location of stuck segment. Front panel lamps will also flash.
3. POWER-UP RAM TEST - Used to test RAM for valid data on power-up. If a problem with the data is found, the RAM will be reprogrammed with factory settings and the credit message will be blanked. In the attract mode, decimal points in the display will indicate reprogrammed RAM. If this condition occurs, replacing the RAM is recommended.

GENERAL MAINTENANCE

To replace Lamps in the Upper Display:

- Turn the game off and unplug from the wall outlet.
- Tools needed:
 - #1 Phillips screwdriver
 - #2 Phillips screwdriver
- Remove the four corner screws holding the Shroud and Display sub-assembly.
- Slowly pull the Shroud and Display sub-assembly and turn it over.
- Disconnect the in-line power connector and the ribbon cable.
- Remove the eight screws holding the marquee.
- Replace lamps as necessary.

To remove debris and tips from the target:

- Turn the game off.
- Open the lock on the Cabinet Top Dart Door.
- Remove the door.
- Flip down the right and left latches in the upper corners of the Spider DCR Board.
- Carefully lower the Spider DCR Board and remove debris and tips.

Replacing Fuses:

<u>Type of Fuse</u>	<u>Location</u>	<u>Replace With</u>
In line 5Amp	Upper Display Harness	250v, 3AG,
Autofuse	Controller Board F1 or F2	Autofuse (Tan) 32v 5Amp

TROUBLE SHOOTING

This troubleshooting section provides quick solutions to game problems and guides the more experienced technician in pinpointing possible trouble areas. This section is not intended to be a service guide.

GENERAL SYMPTOMS

GAME APPEARS DEAD

POSSIBLE CAUSE/SOLUTION

- Game unplugged
- Main power switch off
- Power cord not fully connected to the power supply.
- Check for Fan function on power supply
- Power cable disconnected
- Overhead power cable disconnected.
- Overhead power fuses blown
- F2 Fuse blown on Controller Board

UPPER DISPLAY DEAD OR GARBLED

- Check power cable from display.
- Refer to other symptoms in the Upper Display section.
- Check for overhead power fuses blown

GAME CONTINUALLY BEEPING AND LIGHTS FLASHING

- Segment jammed.
(Temporary Score shows the segment number
- Push on segment to release.
- Dart tip stuck in/or between segments.
- Lower DCR board and inspect for debris or tips.
- Matrix switch faulty - disconnect to see.

GAME CONTINUALLY BEEPING, NO LIGHTS FLASHING

- Stuck game switch.
(Temporary Score indicates which switch).
- Inspect switch for jamming.
- Disconnect switch harnesses to isolate controller board or the Game Select Board.

UPPER DISPLAY DEAD OR OVERHEAD LAMP OUT

- Make sure outlet cord is plugged into light fixture cord
- Light fixture power cord not fully connected to power supply
- Check fluorescent lamp and starter.

TROUBLE SHOOTING

GENERAL SYMPTOMS

THROW/DON'T THROW PANEL LAMPS OUT

POSSIBLE CAUSE/SOLUTION

- Check bulbs (Refer to part's list for proper replacement.)
- Check harnesses and connections.
- Controller board connection J6, IC U20

QUICK FIX: Swap Controller Board.

PLAYER CHANGE OR SELECT-A-BULL LAMP
NOT LIGHTING

- Light bulb blown (Refer to part's list for proper replacement
- Harnesses or connections J4 of the Controller board.
- Controller Board IC, U3, U9, Transistors Q3, Q7

WHEN TURNED ON, GAME DISPLAYS
SCORES FROM LAST GAME PLAYED

- Hit necessary segments to end game.
- Power failure recovery option.
 - See dip switch setting for power failure recovery.

GAME LOCKING UP; NO RESPONSE FROM COIN GAME
SWITCHES/TARGET, or GAME RESETTING AT RANDOM

- Grounding problem
 - Be sure game is plugged in a three-wire outlet (earth ground).
 - Make sure ground wire from coin mechanism frame is securely fastened to the power supply chassis.
 - Check power supply harness connections for a clean tight fit.
 - Check tightness of mounting hardware on all boards.
 - Make sure socket connections on Controller board are clean and tight.

QUICK FIX: Swap Controller board.

(See "Upper Display" in this troubleshooting section.)

- Turn off power supply for five seconds and reapply power

SOUND, IR, PIEZO, COIN LAMPS OR GAME SWITCH
LAMPS DEAD

- Check F1 fuse on Controller board

TROUBLE SHOOTING

GENERAL SYMPTOMS

GAME LOCKING UP AFTER FIRST THREE DARTS

POSSIBLE CAUSE/SOLUTION

- IR sensor disabled. Check IR Sensor calibration. Refer to IR Adjustment Procedure.
- Press Player Change to override
- Power failure recovery disengaged
- Check dip switch setting
- Check RAM.

WILL NOT RESUME GAME LOST IN PROGRESS AFTER POWER FAILURE

Re-enter security code. See "Security Code" in Programming section and reprogram RAM or install a preprogrammed factory RAM.

GAME FEATURES NOT WORKING

• Software related.

- Check EPROM for correct version. Version number printed on the "Table of Contents" page.
- Refer to "Dip Switch Settings" section.

DIP SWITCH FEATURES NOT WORKING

• Check EPROM for correct version.

- Debris in Dip Switch, bad connection.
 - Dip Switch settings
 - Refer to "Dip Switch Settings" section.
- QUICK FIX: Swap Controller Board.

NOT READING GAME SWITCHES

• Check corresponding switch for closure.

- Controller connectors. J4
 - Check if switch mechanism is snug in plastic housing.
- QUICK FIX: Swap Controller board.

301 AND/OR CRICKET GAME ENDING BEFORE FINISHED

• 301 round limits enabled.

- Check Round Limits in "Programming Mode" in Book keeping section.

TROUBLESHOOTING

TARGET SYMPTOMS

GAME NOT DEDUCTING NON-SCORING DARTS

POSSIBLE CAUSE/SOLUTION

- Dart Sensor circuit disabled by Jumper JU 2.
- Verify connections to Controller board J11.
- Sensitivity set too low.
 - Refer to "Dart Sensor Adjustment Procedure"
- Controller board IC U11
- Target door not tight against target.
 - Adjust lock cam.
- Piezo Board
- Piezo Dart Sensor

GAME DEDUCTING DARTS ERRATICALLY

- Sensitivity too high.
 - Refer to the Dart Sensor Adjustment Procedure (p. 12)
- Music or other noise is causing a malfunction.
- Target door not snug against target.
 - Adjust lock cam.
- Piezo Board
- Piezo Dart Sensor

TARGET "DEAD" DURING GAME AND TEST MODE (TEST 4 -DIAGNOSTIC ROUTINES)

NOTE: THE TERM "DEAD" IS USED WHEN TARGET SEGMENT DOES NOT REGISTER DARTS THROWN AT IT.

- Target unplugged at Controller board, J5.
- Target unplugged at matrix switch.
- Check Controller board U4, U12, U13, U14, U16, U17, U21.

A DART THROWN IN THE BULLSEYE DOES NOT SCORE PROPERLY.

- Game is not set at desired Bullseye setting.
 - Check the default setting in the Programming mode.
BE = single bull; dBE = double bull.
 - Change the setting using the Double Bullseye Button.

TROUBLESHOOTING

TARGET SYMPTOMS

POSSIBLE CAUSE/SOLUTION

TARGET "DEAD" DURING GAME ONLY

- Dart Sensor circuitry malfunction
 - Check U11 on the Controller board.
 - Check dart sensor connections.

ONE OR MORE QUADRANTS NOT SCORING

- Check Controller board harness at J5.
- Check Matrix Switch and connections.
- Controller board U4, U21

FOUR RELATED SEGMENTS OF TARGET NOT SCORING

- Check Controller Board harness at J5.
- Check Matrix Switch and connections.
- Check Controller board U4, U21

ONE SEGMENT OR SEVERAL UNRELATED SEGMENTS NOT SCORING

- Bad physical contact between target segment and Matrix Switch
 - Check for short on Controller board J5.
 - Bad switch pad.

BULLSEYE NOT SCORING CORRECT AMOUNT OF POINTS

- Bullseye Programming.
 - See "Programming Mode" in Programming section.

TARGET QUADRANTS

THERE ARE FOUR QUADRANTS DETERMINED BY THE

STROBE LINES:

- QUADRANT 1 PIN 19 2, 15, 10, 6, 13, BE
- QUADRANT 2 PIN 20 4, 18, 1, 20, 5
- QUADRANT 3 PIN 2 16, 7, 19, 3, 17, DBE
- QUADRANT 4 PIN 1 12, 9, 14, 11, 8

RELATED SEGMENTS IN GROUPS OF FOUR.

- d2 2 d15 d10 10 d6 6 d13
- d4 4 d18 d1 1 d20 20 d5
- d16 16 d7 d19 19 d3 3 d17
- d12 12 d9 d14 14 d11 11 d8
- 13 BE T2 T10 T15 T6 T13
- 5 T4 T1 T18 T20 T5
- 17 DBE T16 T19 T7 T3 T17
- 8 T12 T14 T9 T11 T8

TROUBLESHOOTING

UPPER DISPLAY SYMPTOMS

DISPLAYS GARBLED, RANDOM LAMPS,
NO COIN ACCEPTANCE TONE

POSSIBLE CAUSE/SOLUTION

- Controller board U3 or U12.
- QUICK FIX: Swap Controller board.

DISPLAYS GARBLED BUT COIN
ACCEPTANCE TONE OK

- Controller board J8, U19, U12.
- Check tightness of hardware

QUICK FIX: Swap Shroud assembly or Display board.

COIN MECHANISM CREDITS

GAME FUNCTIONING BUT NOT GIVING CREDIT

POSSIBLE CAUSE/SOLUTION

- Coin cable harness.
- Controller board J2, J3, U10, U5, U12.
- Coin switches not programmed -Refer to Cash/Play Programming in Programming section.

GAME NOT ACCUMULATING CREDITS OR APPEARING
TO BE LOSING CREDITS

- Dip Switch setting for Accumulative/Non Accumulative.
 - Check position 1 on SW1.
- See Dip Switch Settings section.

AUTOMATIC PLAYER CHANGE

GAME NOT CHANGING PLAYERS AUTOMATICALLY

POSSIBLE CAUSE/SOLUTION

- IR sensor's sensitivity set too low; not seeing the removal of darts.
 - Recalibrate IR sensor. See Test Eight, p.36
 - Check Dip Switch for IR sensor engaged.
 - Check Cable at J10 on Controller board.

GAME CHANGING PLAYERS, BUT NOT
SWITCHING TO "THROW DARTS"

- Dart still in the target.
- IR sensor's sensitivity set too high.
 - Recalibrate IR sensor. See Test Eight, p. 36

GAME CHANGING PLAYERS ERRATICALLY

- IR sensor's sensitivity is set on threshold point.
 - Recalibrate IR sensor. See Test Eight, p. 36

TROUBLESHOOTING

SOUND SYMPTOMS

NO SOUND

POSSIBLE CAUSE/SOLUTION

- Volume down.
 - Turn pot R12 clockwise.
- Speaker harness unplugged.
 - Check J9 on the Controller board.
 - Check Controller board Q6 or ICs U18, U3, U4.
- Check fuse on Controller board

QUICK FIX: Reconnect another speaker to J9 on Controller board

GAME CONTINUALLY BEEPING AND LIGHTS FLASHING/NOT FLASHING

- Refer to general symptoms section.

GARBLED SOUND

- Speaker.
- Controller board ICs U18 or Q6.

CONSTANT HUMMING SOUND

- Grounding problem.
 - Refer to game locking up or resetting at random.
 - Check Controller board U18, Q6.
- QUICK FIX: Swap Controller board.
Swap Power supply.

PLAYER LAMPS

1 PLAYER LAMP OUT

ALL PLAYER LAMPS OUT

- Replace Bulb
- In fuse blown 12v line

TROUBLESHOOTING

BOOKKEEPING-CASH/PLAY SYMPTOMS

POSSIBLE CAUSE/SOLUTION

CREDITS PER GAME NOT MATCHING FACTORY SETTING

- RAM programmed improperly
 - Refer to Programming Mode.

CREDITS PER PLAYER MESSAGE NOT IN PROPER LANGUAGE

- Programmed incorrectly.
 - Refer to Messages in the Programming section.

TOTALS ARE NOT STORED FOR EACH GAME

- RAM not initialized.
 - Refer to Changing Security Code in Programming section.
- Change RAM,
 - Re-enter security code (see SEC SEL in the programming section) and reprogram the RAM or install a pre-programmed factory RAM.

GAME RETURNING TO ATTRACT MODE WHEN SECURITY CODE IS ENTERED

- Invalid security code.
 - Enter 4 bullseyes.
 - If successful, check cash/play programming and enter a new security code.
 - If unsuccessful, change RAM to a factory initialized RAM. Refer to "Security Code" in the Bookkeeping section

"CREDITS PER PLAYER" MESSAGE BLANK

- Problem with the battery backed-up RAM not retaining data.
 - Replace with a factory initialized RAM.

TROUBLESHOOTING

GAME SELECT BOARD SYMPTOMS

LED(s) NOT LIT

certain games in Options II column (i.e. High Score - Team.)

POSSIBLE CAUSE/SOLUTION

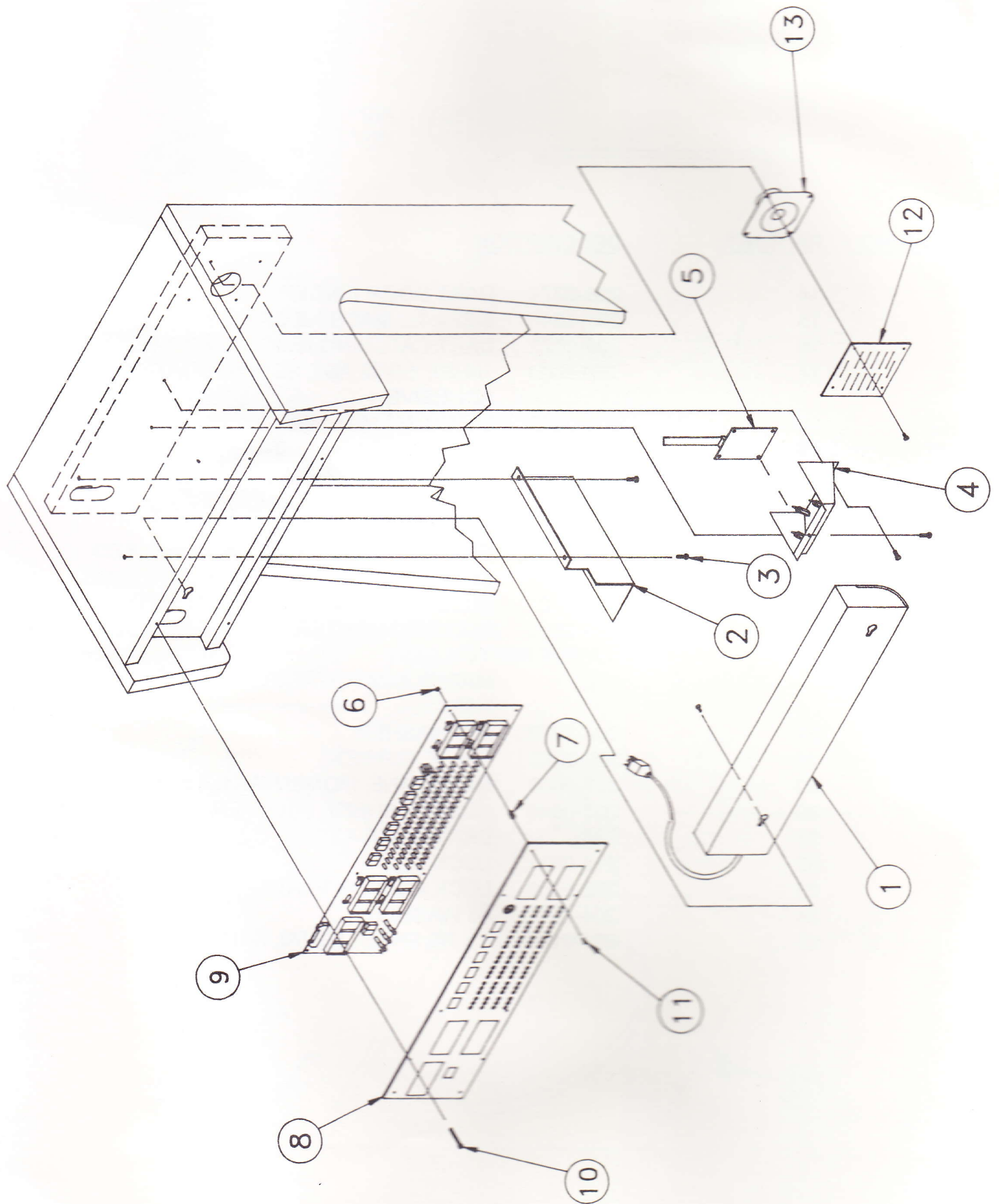
- LEDs in Games and Options II columns may be off if no options were selected.
- Certain options in Games column will not light with certain games in Options I column (i.e. 301 - Cut Throat.)
- Certain options in Games column will not light with

PARTS' LIST

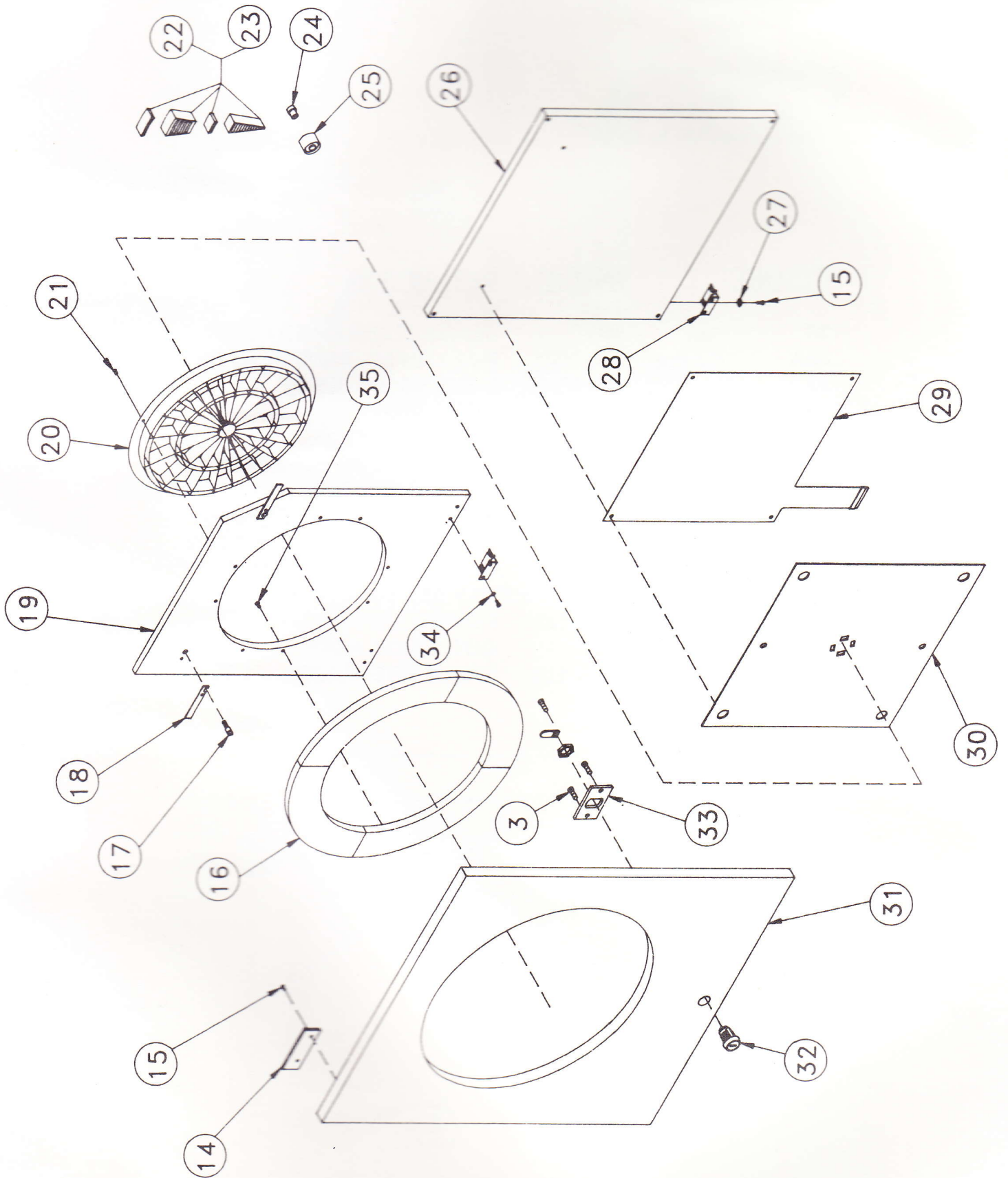
SCHEMATICS

DIAGRAMS

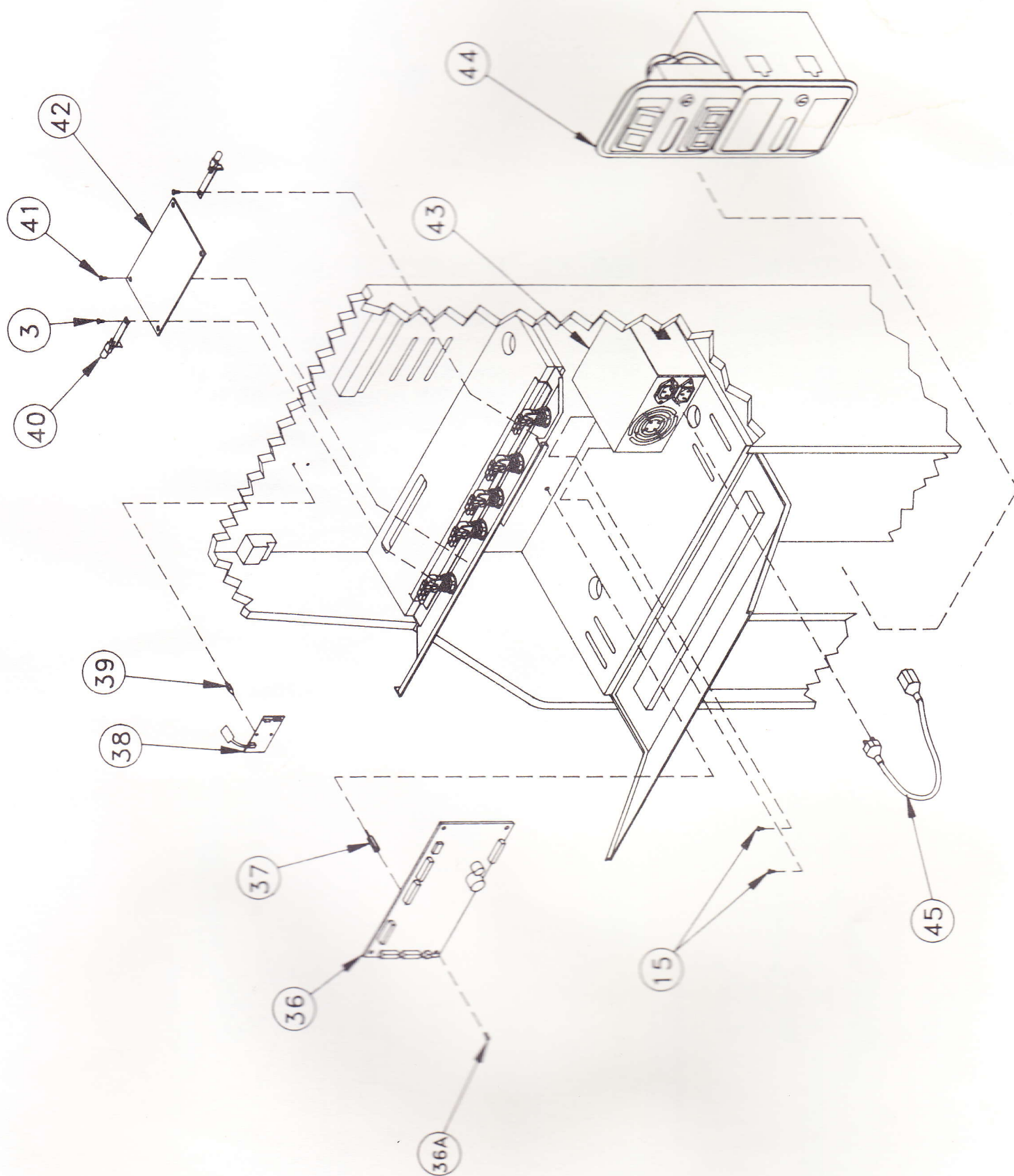
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	217-0507	LIGHT FIXTURE
2	J42	WIRE COVER
3	201-0213	#8 x 1/2 PARTICLE BD SCREW
4	R06	IR SENSOR
5	A55	PCB IR SENSOR
6	203-1001	4-40 KEP NUT
7	206-0253	4-40 x 3/8 STANDOFF
8	205-0805	MARGUE PANEL
9	A93	UPPER DISPLAY
10	201-0056	8-32 x 5/8 MACHINE SCREW
11	201-0114	4-40 x 3/8 MACHINE SCREW
12	206-0593	SPEAKER GRILL
13	GB7	SPEAKER ASSY



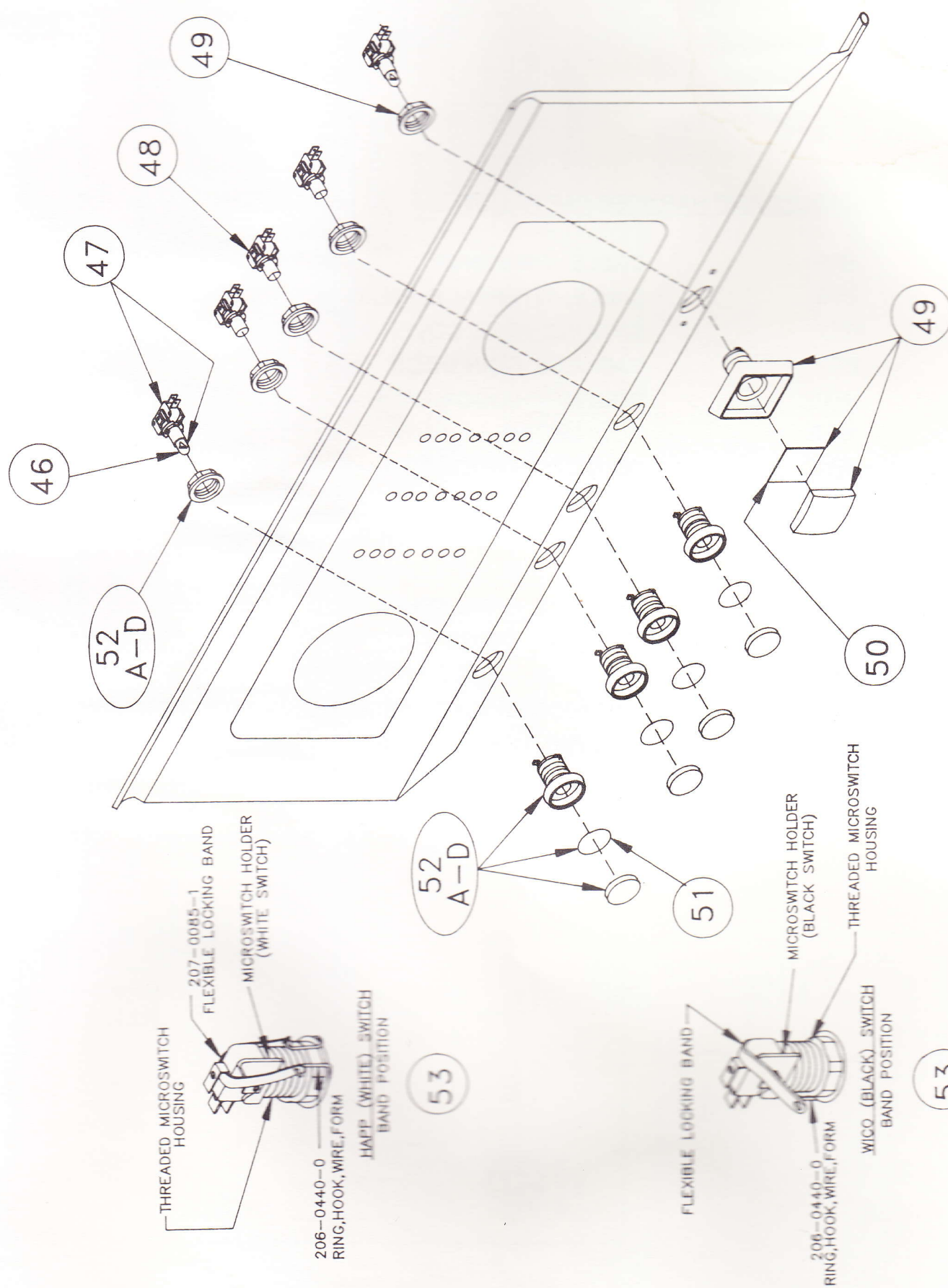
<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
14	206-0274	DART DOOR FINGER
15	201-1046	8-32 x 1/2 MACHINE SCREW
16	205-1022	DART CATCHING RING, AMER T-R
17	201-0111	1/4-20, 1-9/32 ADJ. SCREW COATED ADHESIVE
18	206-0279	LATCH, MATRIX SWITCH
19	DCR BD ASSY	
	Q51	TARGET ASSY, T-R AMER (KIT N73)
20	205-1222	SPIDER, AMER T-R
21	201-1052	8-32 x 3/8 MACHINE SCREW
22	Q28	SEGMENT SET, 4 PCS, T-R AMER, RED
23	Q29	SEGMENT SET, 4 PCS, T-R AMER, BLUE
24	205-1221	BULLSEYE, INNER, T-R AMER, RED
25	205-0340	BULLSEYE, OUTER, T-R AMER, BLUE
26	MATRIX SWITCH ASSY	
	Q52	MATRIX SWITCH ASSY, T-R AMER, (KIT N65)
27	204-1003	#10 WASHER
28	206-0272	HINGE TARGET
29	227-0003	MEMBRANE, MOMENTARY, 4 x 16 AMER
30	207-0048	RUBBER SHEET, T-R AMER
31	F04	DART DOOR ASSY
32	212-0031	LOCK
33	206-0008	LOCK ANCHOR PLATE
34	204-1017	#8 WASHER
35	201-0100	8 x 7/8 SHEET METAL SCREW



<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
36	A91	CONTROLLER CARD ASSY
36A	201-1004	8-32 x 1/4 MACHINE SCREW
37	206-1092	8-32 x 3/8 STANDOFF
38	AA1	PIEZO ASSY
	217-0273	PIEZO ELEMENT
39	205-0419	3/8 CIRCUIT BD SUPPORT
40	GB5	THROW/DON'T THROW HARNESS & BRACKET ASSY
41	201-1083	6 x 1/2 SHEET METAL SCREW
42	A88	GAME SELECT DISPLAY ASSY
43		POWER SUPPLY ASSY
	217-0533	POWER SUPPLY
44	GC5	COIN DOOR ASSY
45	242-0113	CABLE INTERFACE

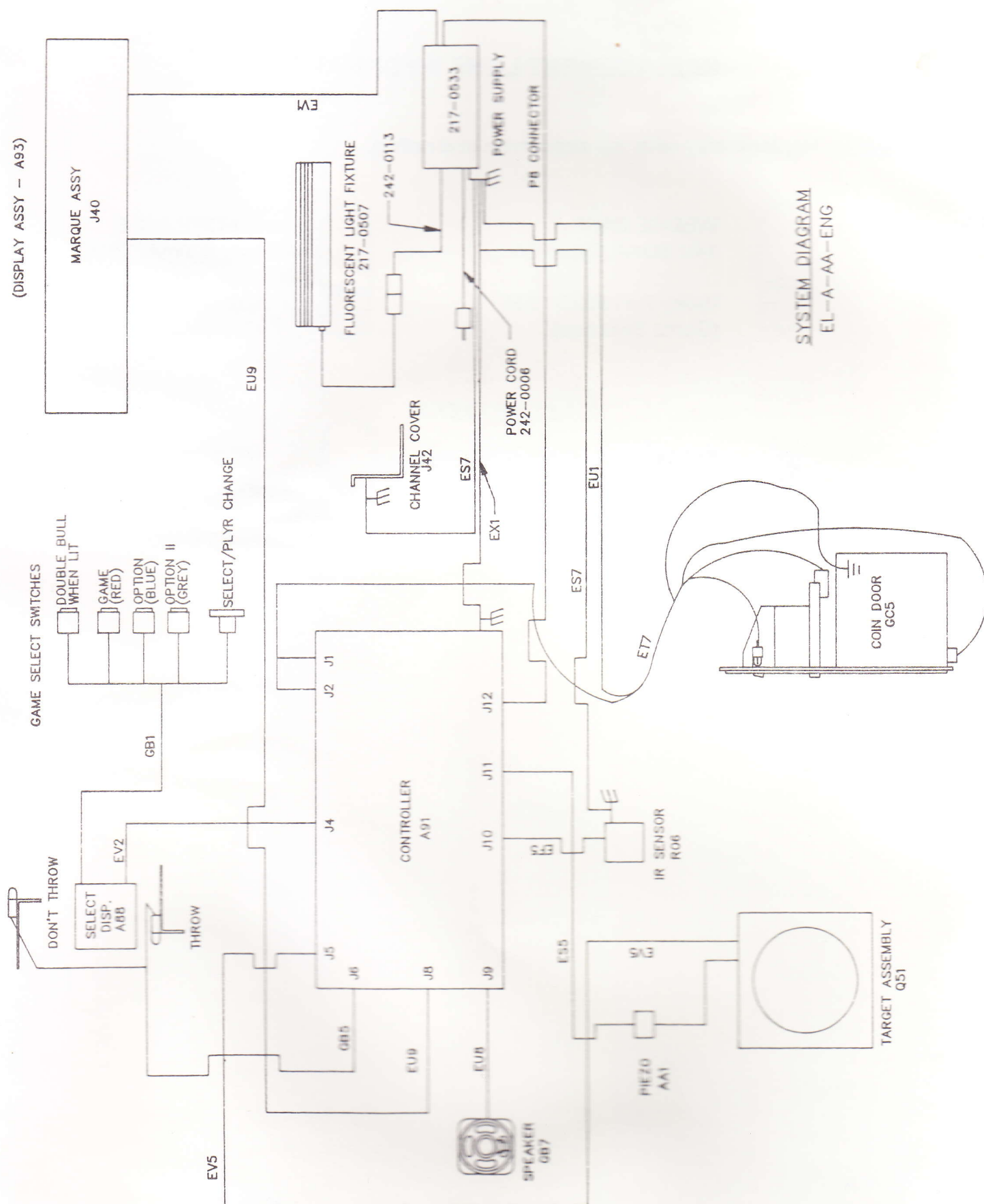


<u>ITEM NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
46	223-1006	LAMP (GE658)
47	227-0016	MICROSWITCH W/#658 LAMP
48	227-0046	MICROSWITCH W/O LAMP
49	205-0807	BUTTON HOUSING, 2" SQ W/LEGEND
50	205-0812	LEGEND, PLAYER CHANGE SELECT
51	205-0813	LEGEND, BULLSEYE
52		<u>BUTTON HOUSING, SMALL ROUND</u>
A	205-0780	RED PANTONE, 485C
B	205-0781	PROCESS BLUE
C	205-0788	GREY PANTONE, 429C
D	205-0789	BULL SELECT
53	J35	PLAYER CHANGE RETAINER ASSY



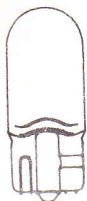
CABLES AND HARNESS PARTS LIST

EF5	CABLE , RIBBON IR
ES5	CABLE, INTERFACE, PIEZO
ES7	GROUND WIRE, COVER/IR
ET7	HARNESS, COIN DOOR
*ET9	COIN MECH/DOOR LAMP
*ET8	COIN METER
*EUI	COIN DOOR GROUND
EU8	HARNESS, SPEAKER
EU9	CABLE, RIBBON, UPPER DISPLAY
EV1	HARNESS, POWER UPPER DISPLAY
EV2	HARNESS, GAME SELECT
EV5	HARNESS, TARGET
GB1	HARNESS, GAME SWITCH ASSY
GB5	HARNESS/BRACKET ASSY, THROW/DON'T THROW
EX1	GROUND, CONTROLLER



REPLACEMENT LAMP INFORMATION

LAMPS: Replace only with the same type and rating.



WEDGE BASE
14V, 80mA, Type 658

Valley Part #223-1006
(Game Switches)



WEDGE BASE
14V 270mA, T31/4
Type 194
Valley Part #223-0014
(Throw/Don't Throw)

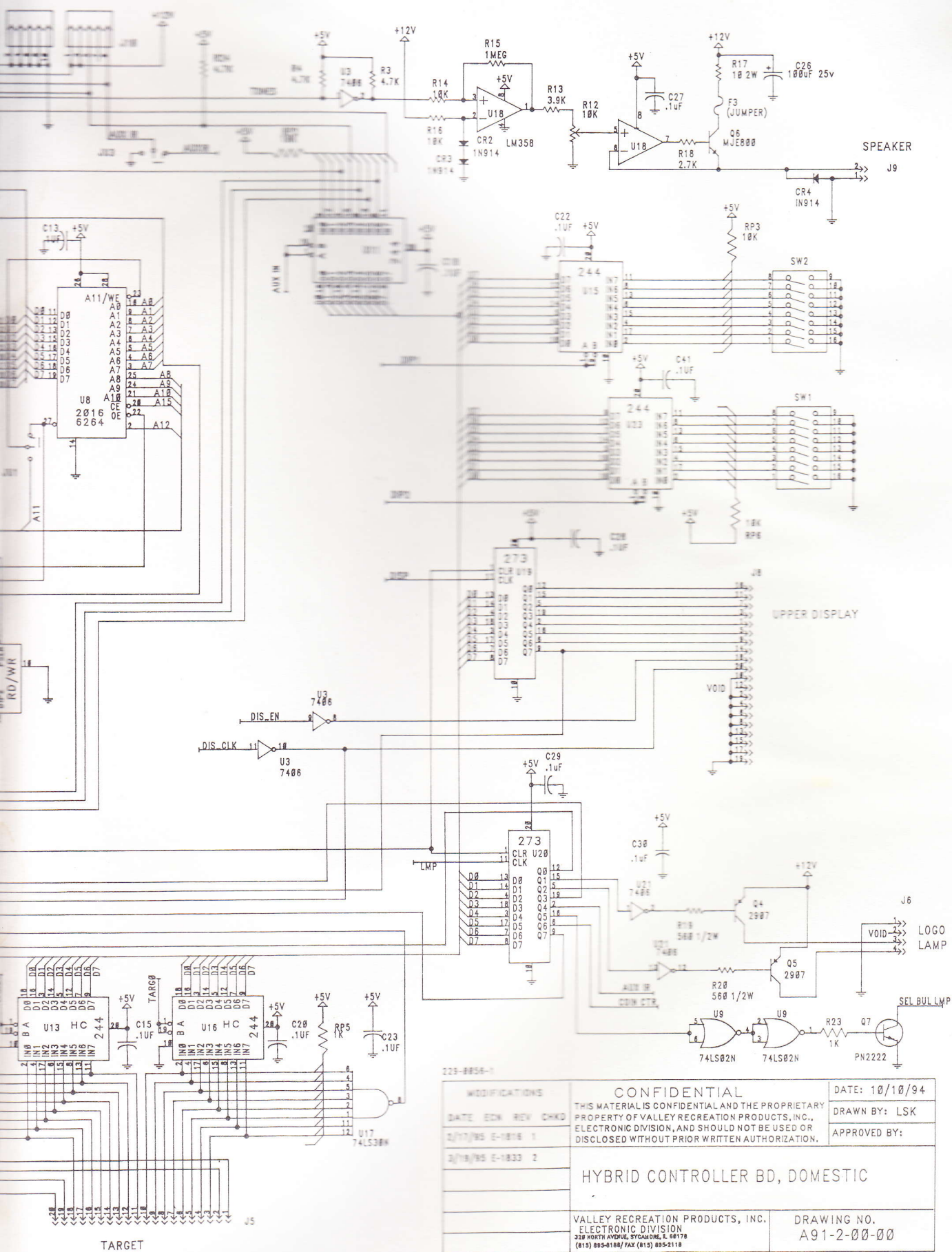


BI-PIN
14V 80mA, Type 5810
Valley part #223-0006
(Upper Display)



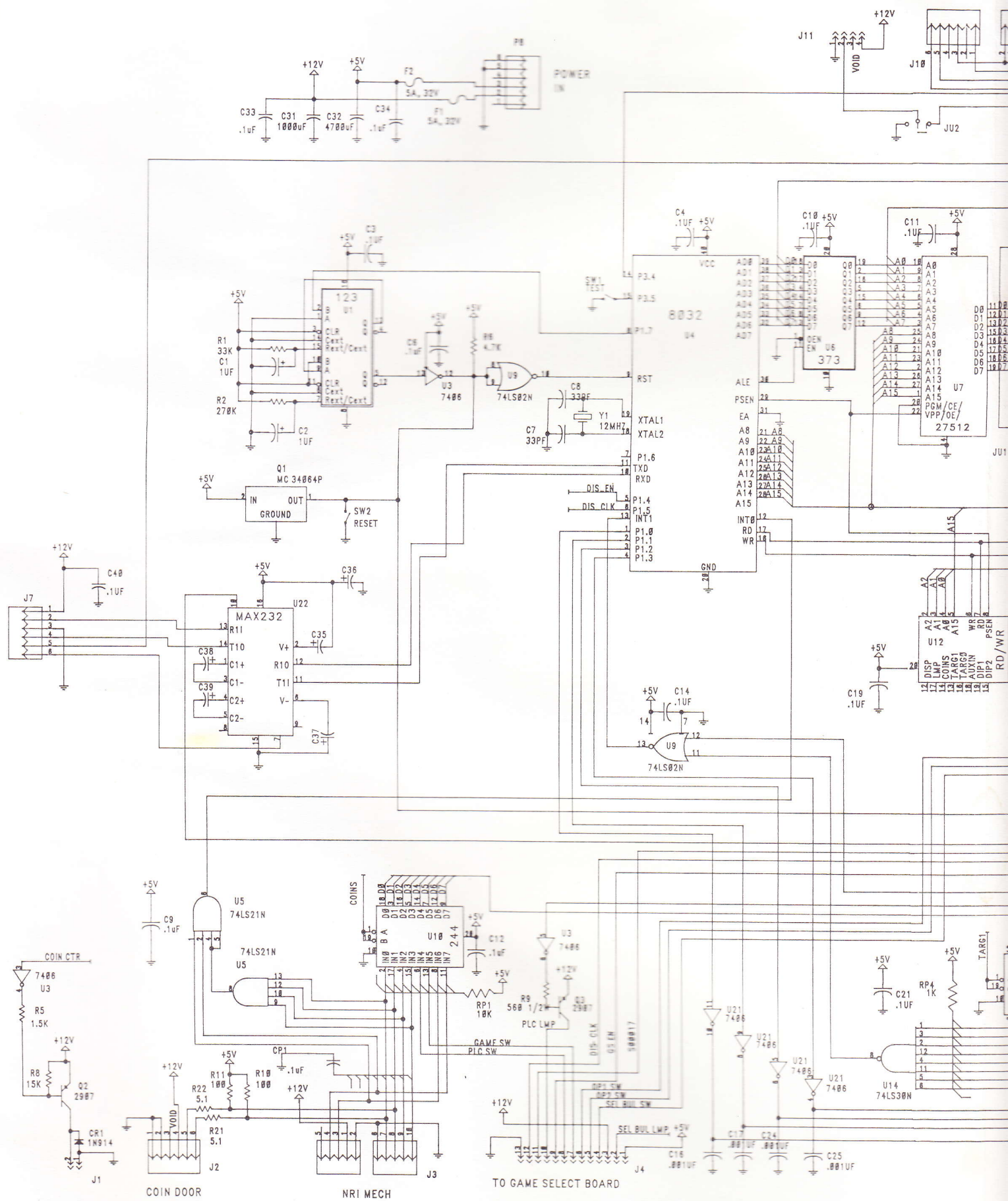
WEDGE BASE
28V, 60mA Type 656
Valley Part #223-1008
(Coin Door)

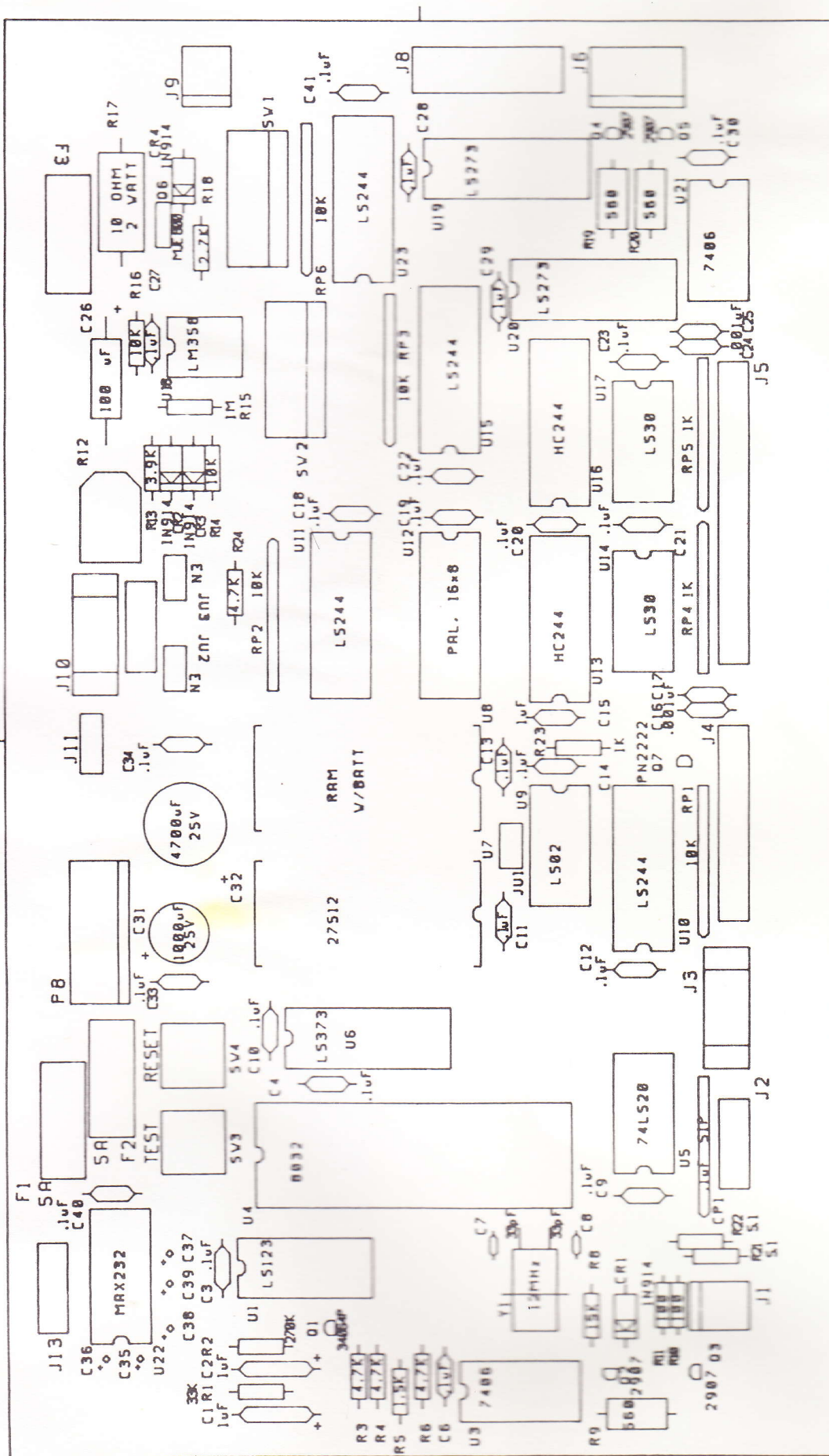
CONTROLLER



225-8856-1

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3/17/95 E-1816 1				DRAWN BY: LSK			
3/18/95 E-1833 2				APPROVED BY:			
				HYBRID CONTROLLER BD, DOMESTIC			
				VALLEY RECREATION PRODUCTS, INC. ELECTRONIC DIVISION 320 NORTH AVENUE, SYCAMORE, IL 60178 (815) 895-8188 / FAX (815) 895-2118		DRAWING NO. A91-2-00-00	

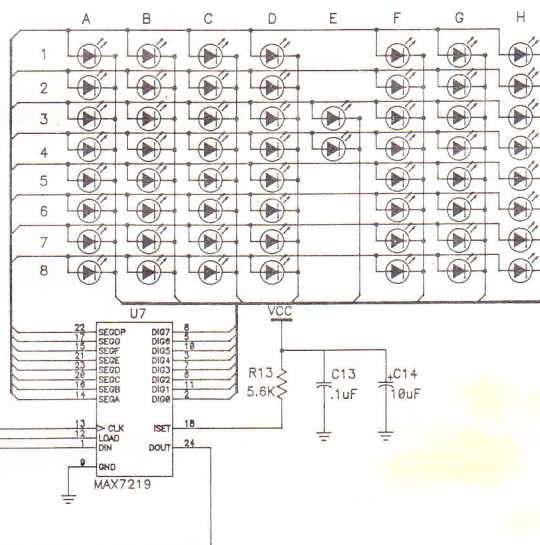
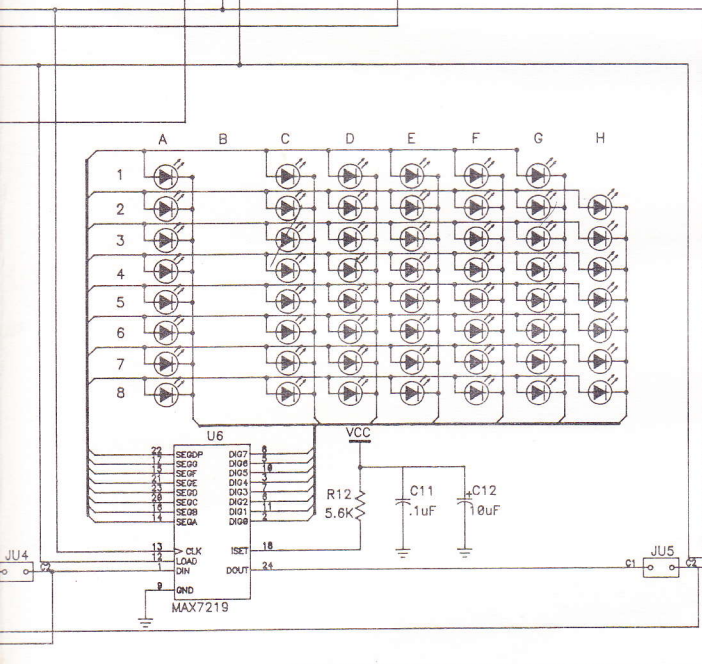
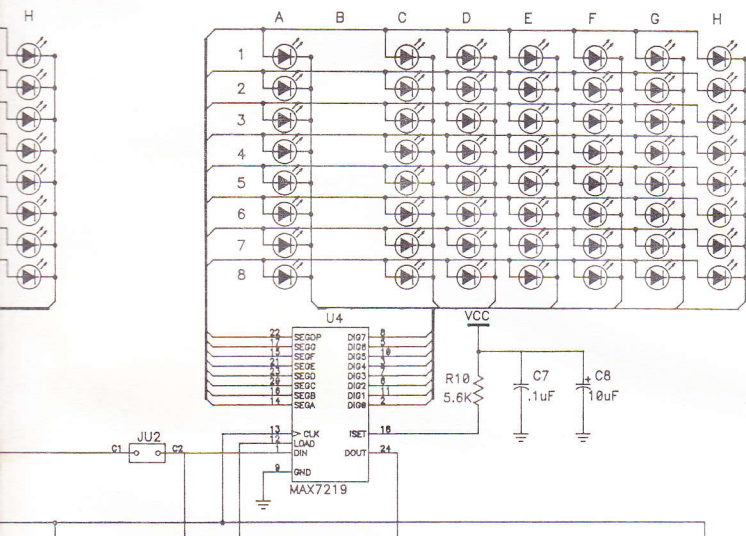




COMPONENT LAYOUT

A91-2-00-00

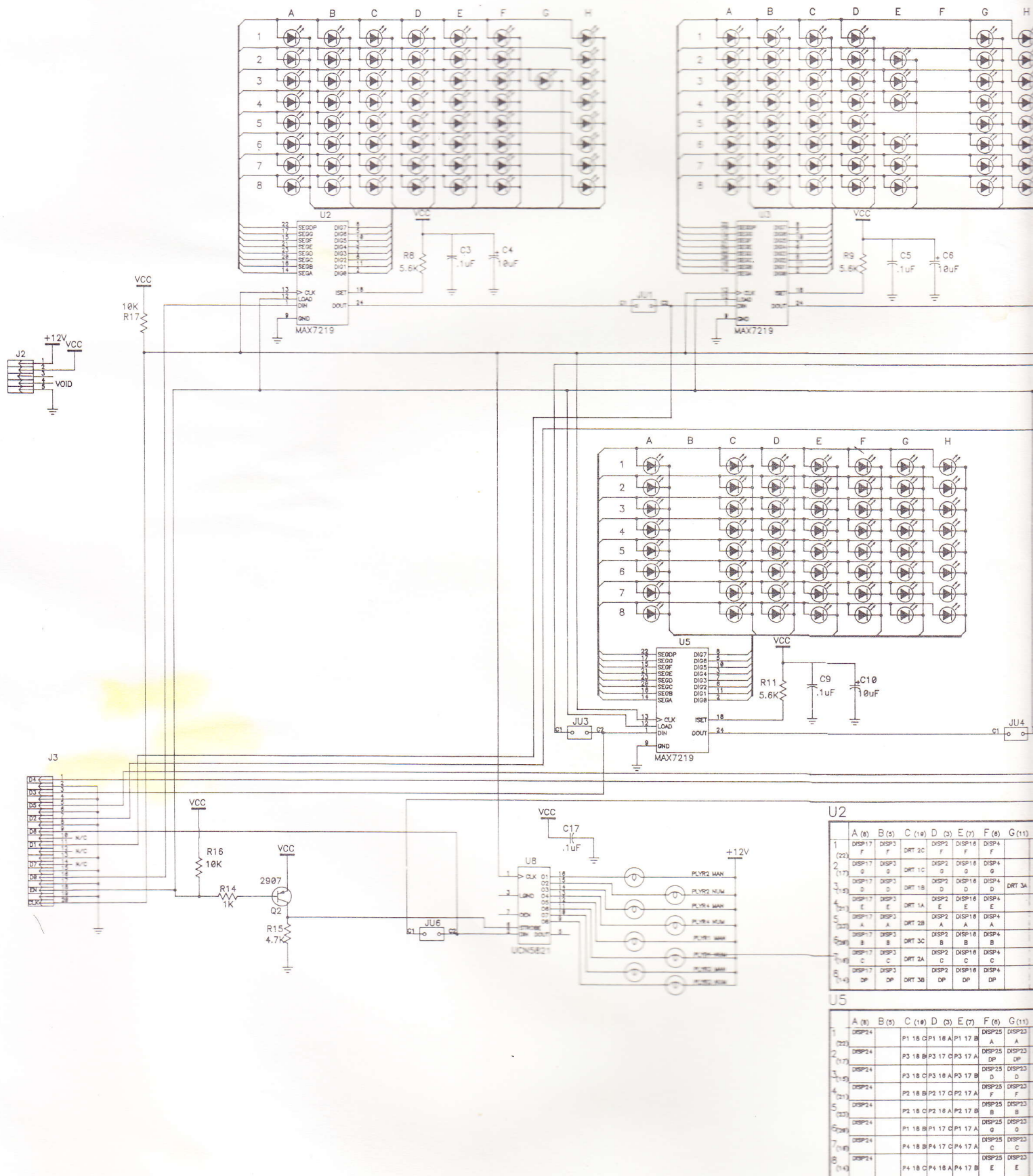
UPPER DISPLAY



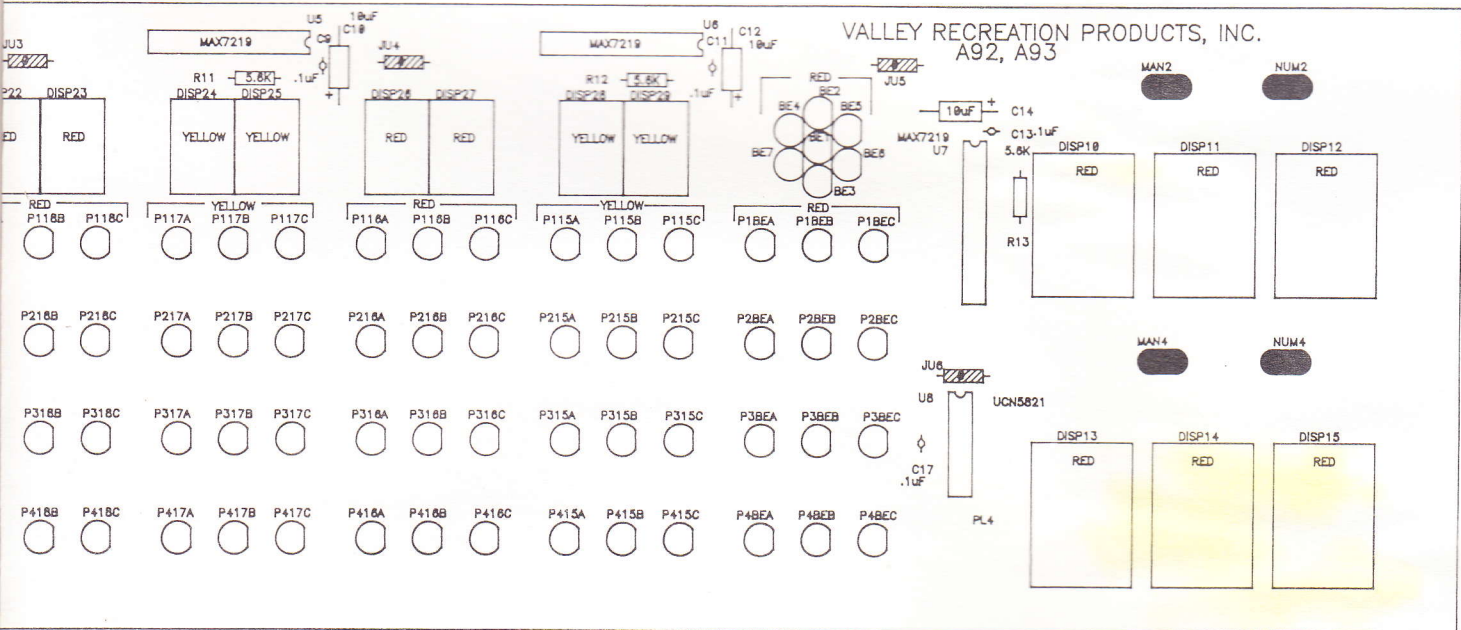
U3		U4	
G(11)	H(2)	A(8)	B(5)
1 (22)	DISP1 F	1 (22)	P4 19 B
2 (17)	DISP1 D	2 (17)	P1 19 B
3 (15)	DISP1 E	3 (15)	P4 19 A
4 (21)	DISP1 A	4 (21)	P2 19 A
5 (23)	DISP1 B	5 (23)	P3 19 B
6 (20)	DISP1 C	6 (20)	P2 19 B
7 (16)	DISP1 DP	7 (16)	P3 19 A
8 (14)	DISP1 DP	8 (14)	P1 19 A
U6		U7	
G(11)	H(2)	A(8)	B(5)
1 (22)	DISP28 A	1 (22)	DISP13 F
2 (17)	DISP28 DP	2 (17)	DISP13 G
3 (15)	DISP28 D	3 (15)	DISP13 D
4 (21)	DISP28 F	4 (21)	DISP13 B
5 (23)	DISP28 B	5 (23)	DISP13 A
6 (20)	DISP28 G	6 (20)	DISP13 E
7 (16)	DISP28 C	7 (16)	DISP13 C
8 (14)	DISP28 E	8 (14)	DISP13 DP

229-0659-1

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2/18/95	E-1822	1				Approved by	
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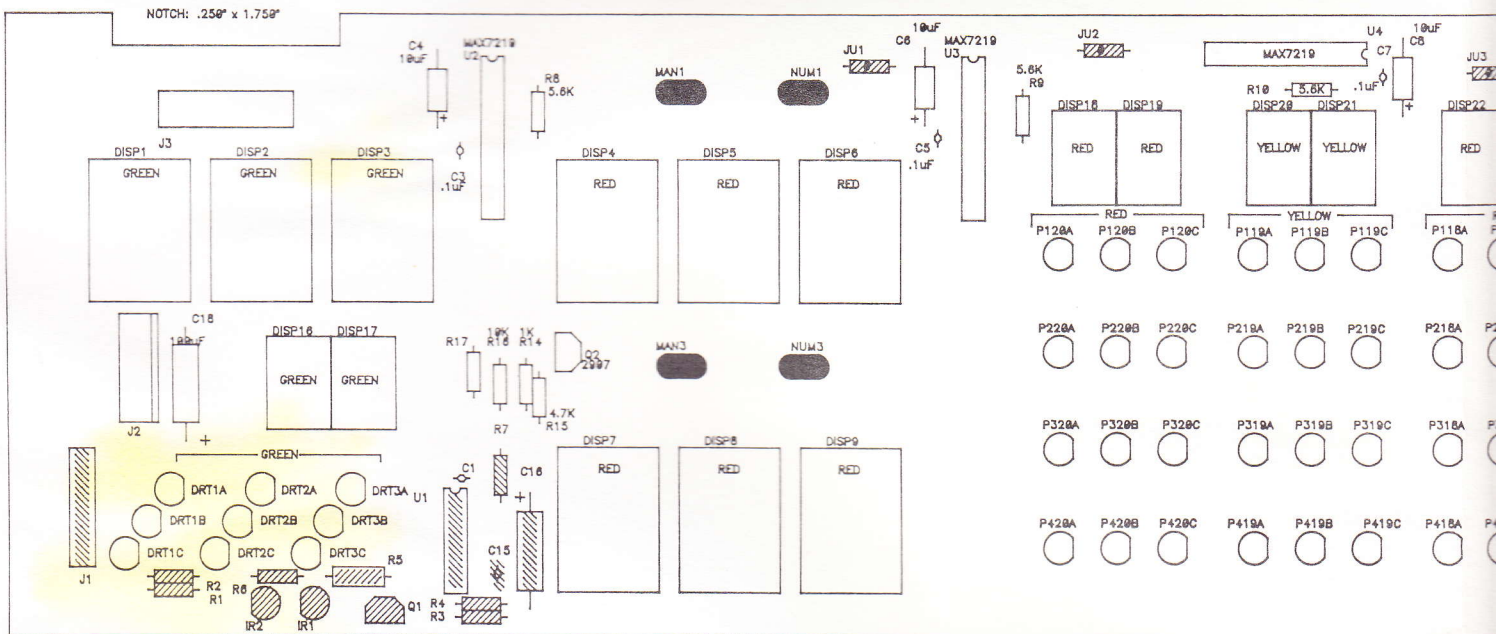


UPPER DISPLAY COMPONENT LAYOUT

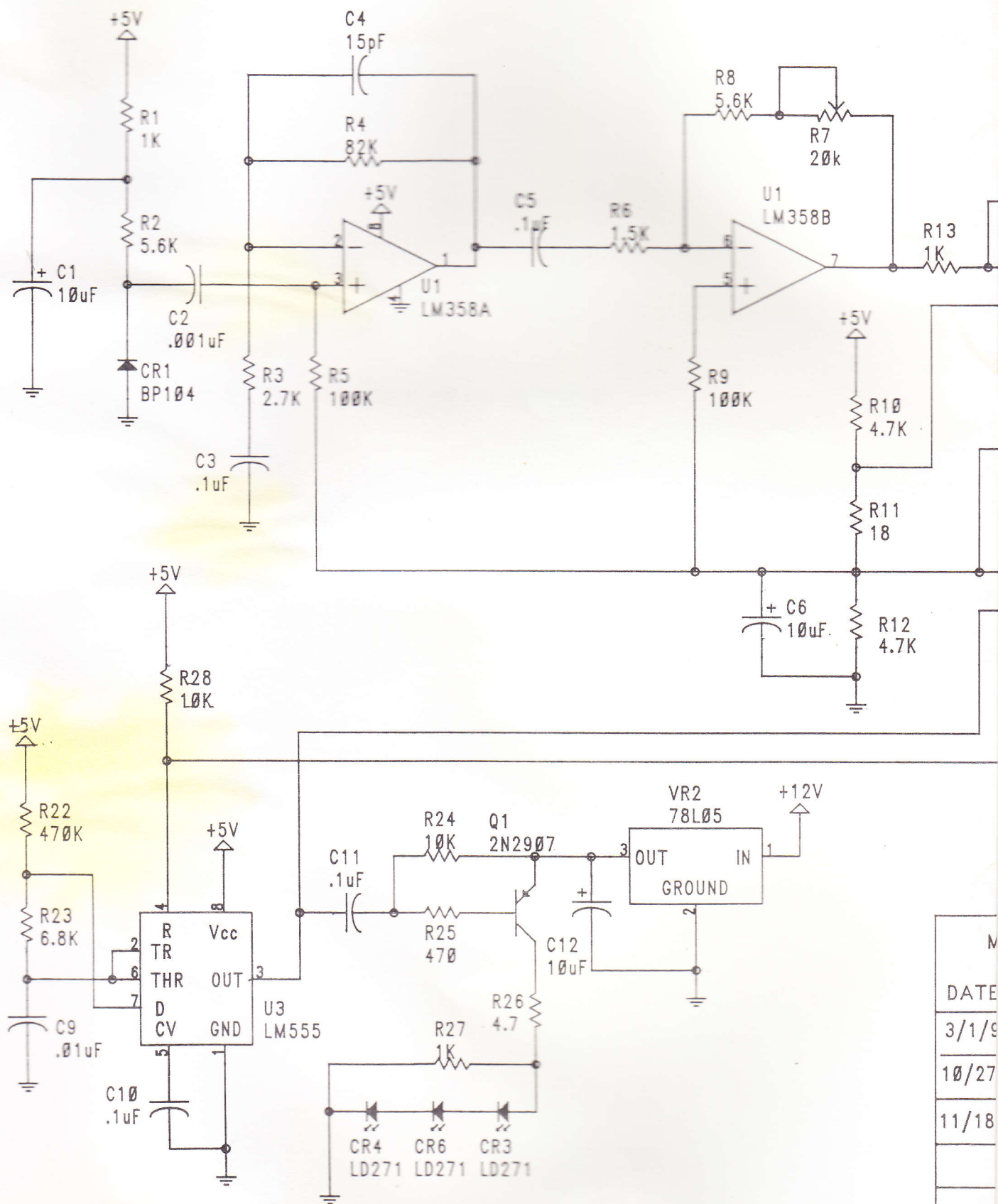


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A93-1-00-00

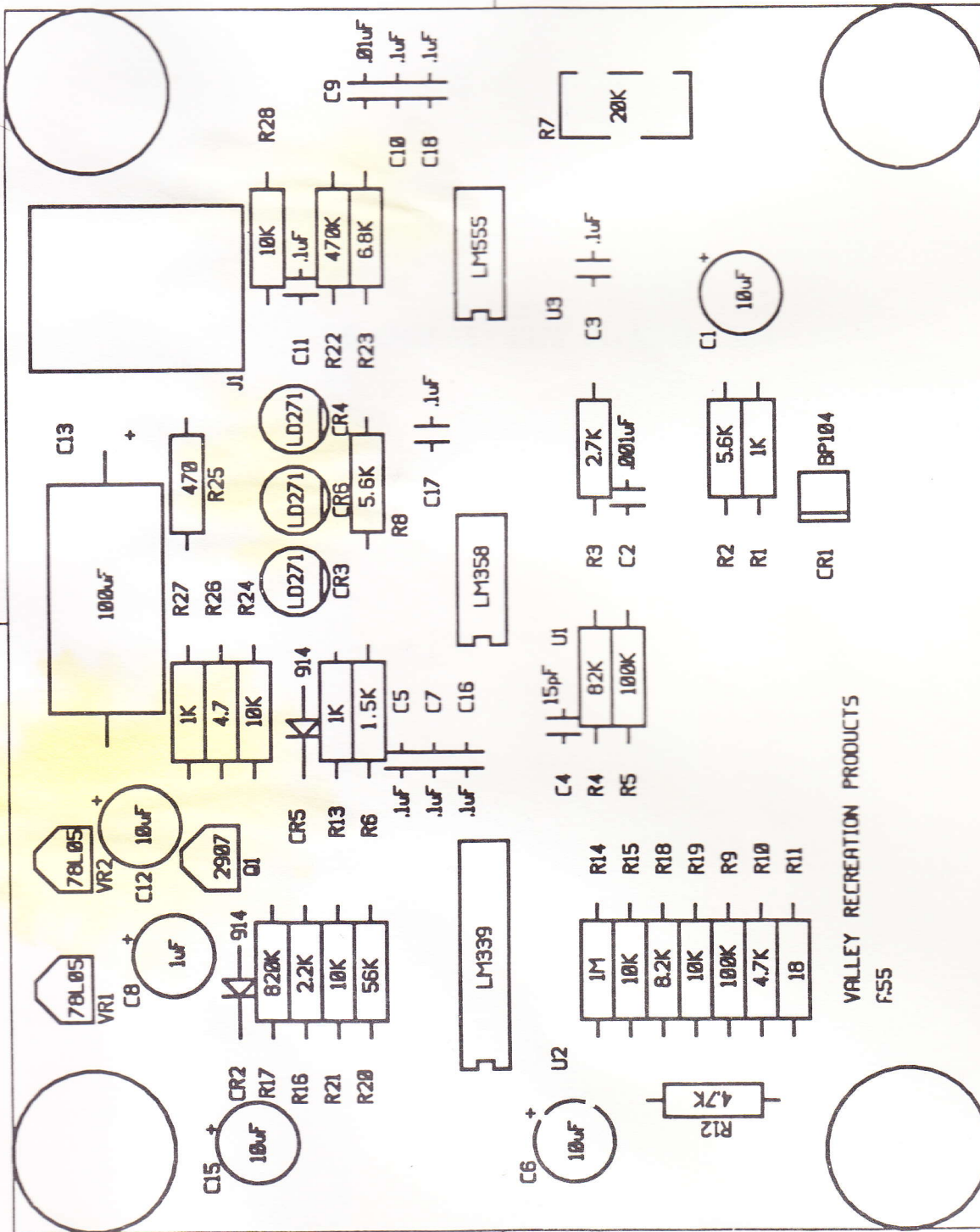
NOTCH: .250" x 1.750"



INFRARED SENSOR



M
DATE
3/1/9
10/27
11/18

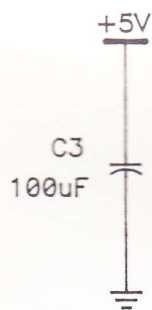
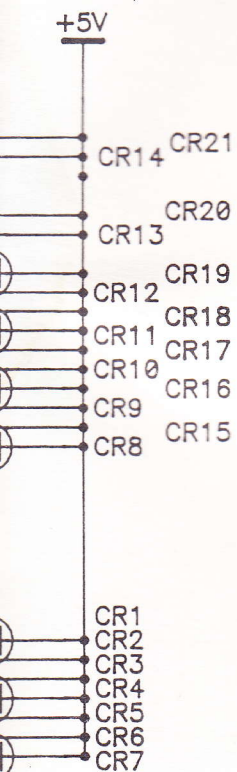


VALLEY RECREATION PRODUCTS
 A55-7-00-00
 COMPONENT LAYOUT

11-18-93

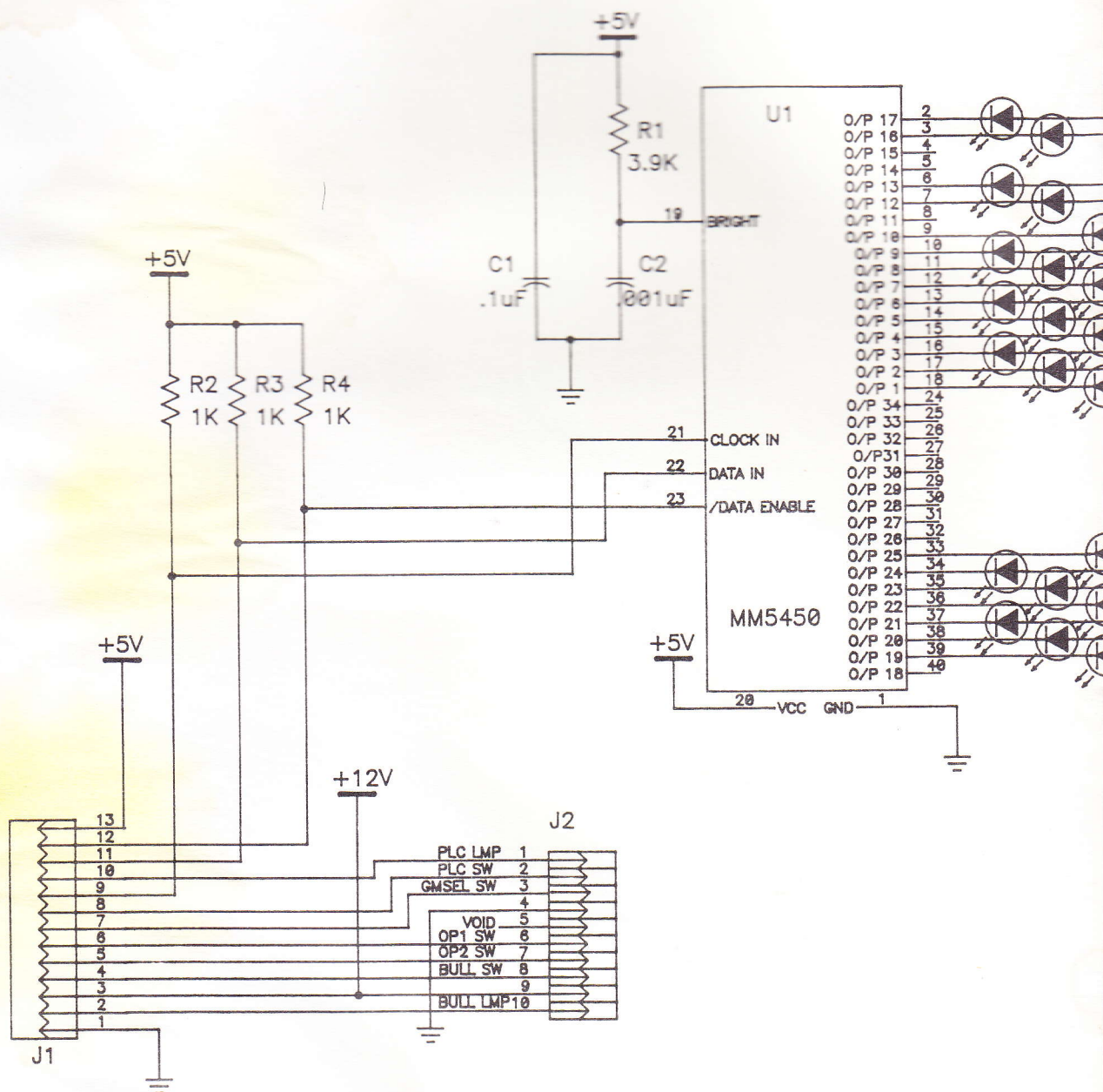
VALLEY RECREATION PRODUCTS
 F55

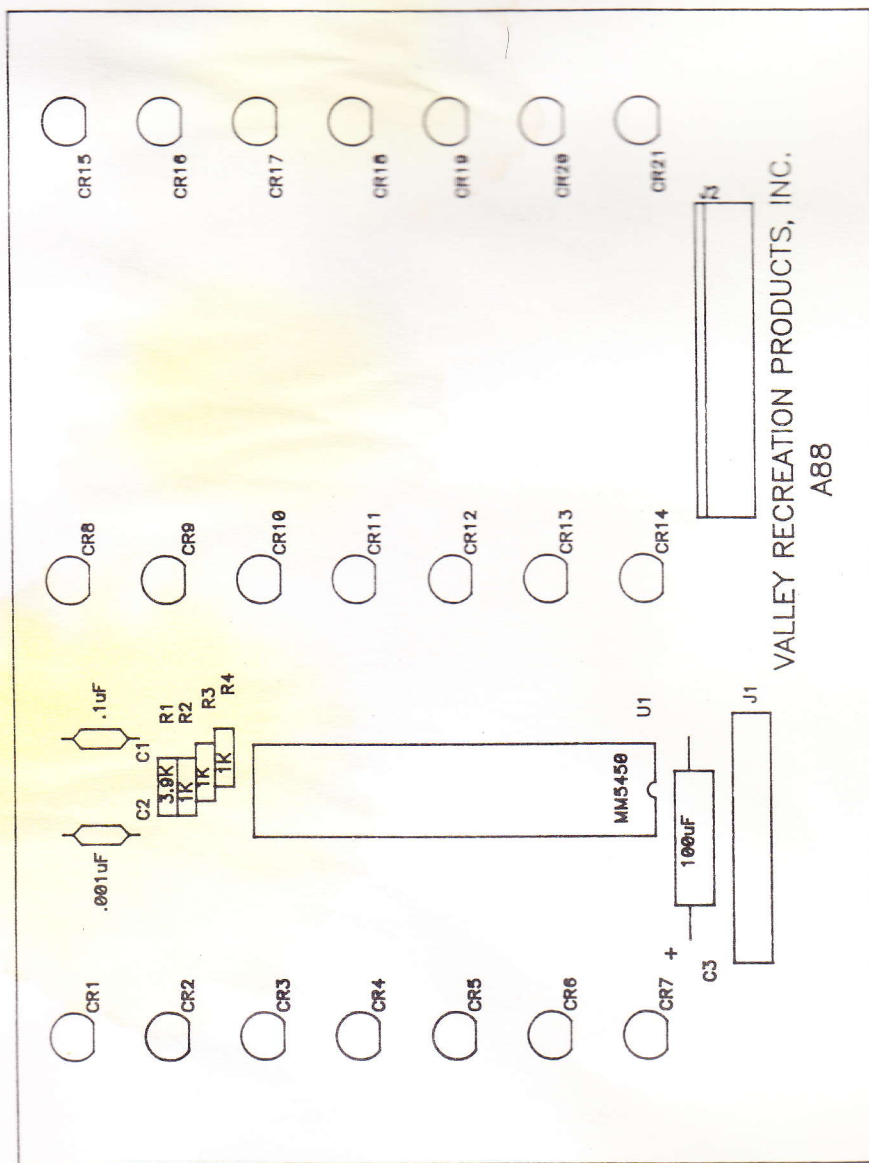
GAME SELECT BOARD ASSY



229-0055-0

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				VALLEY RECREATION PRODUCTS, INC. ELECTRONIC DIVISION 320 North Avenue, Bloomington, IL 61708 (815) 895-8188 / FAX (815) 895-2118		Number A88-0-00-00	
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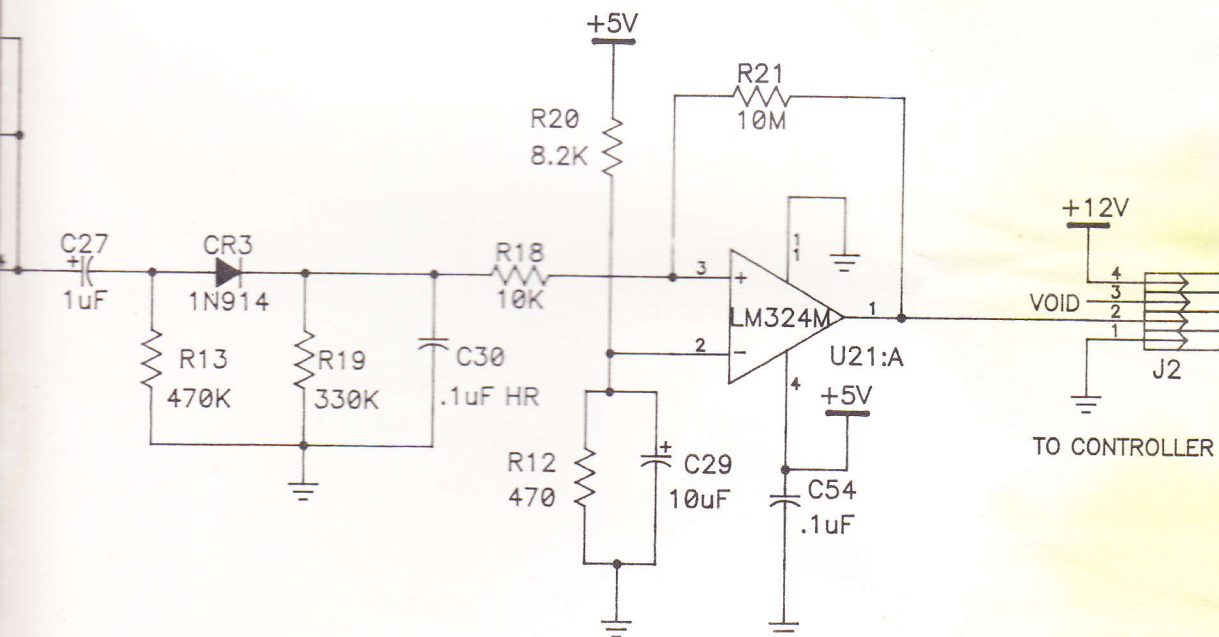


VALLEY RECREATION PRODUCTS, INC.
A88

COMPONENT LAYOUT

A88-0

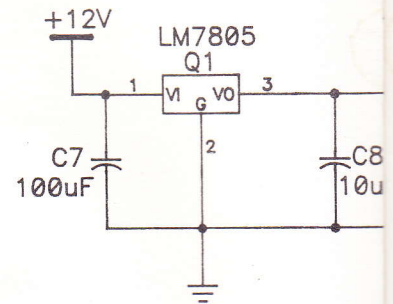
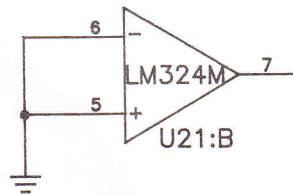
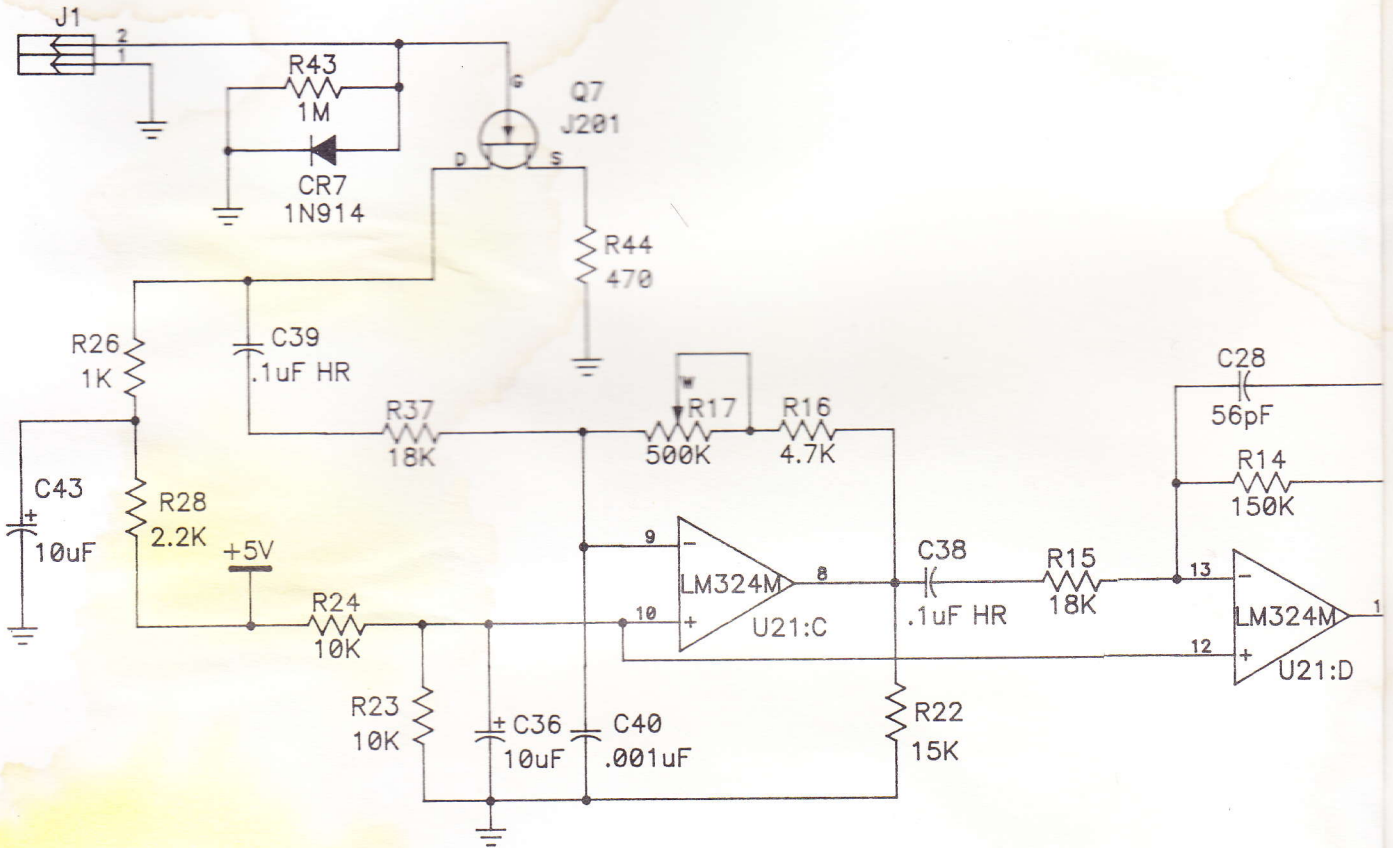
PIEZO ASSY

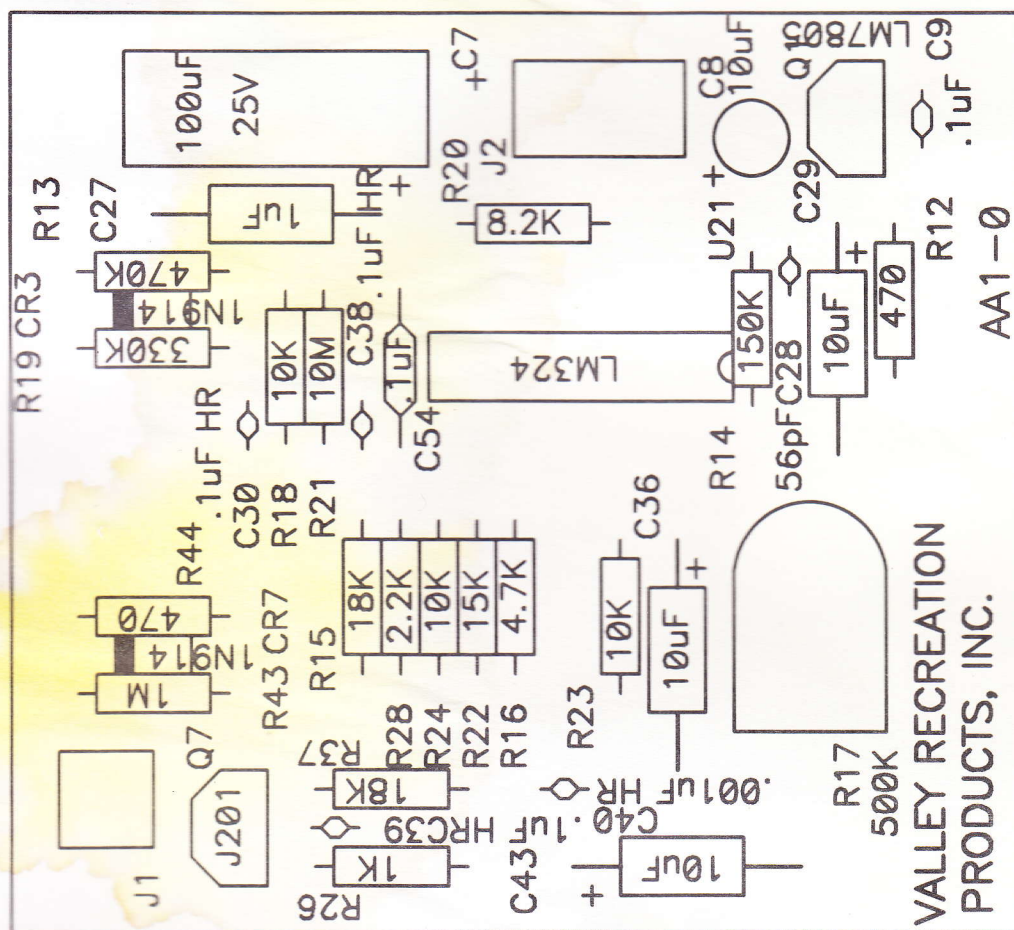


229-0063-0

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Date	ECN	Rev	CHK		4/20/95
				This material is confidential and the proprietary property of Valley Recreation Products, Inc., Electronic Division, and should not be used or disclosed without prior written authorization.	Drawn by LSK
					Approved by
				Title	
				PCB, SM PIEZO CKT	
				VALLEY RECREATION PRODUCTS, INC. ELECTRONIC DIVISION 328 North Avenue, Sycamore, IL 60178 (815) 895-8188 / FAX (815) 895-2118	Number
					AA1-0-00-00
				Size	Sheet
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				SMPIEZ0.S01	

TO PIEZO ELEMENT





COMPONENT LAYOUT

AA1-0