JOKER POKER
USES PROM MARKED
"C"
INSERT PROM WITH
INDENT NOTCH UP
# JOKER POKER (SOLID STATE)
## GENERAL GAME OPERATING INSTRUCTIONS

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</table>
I. INSTALLATION

To assemble the game, first bolt the legs to the cabinet. Place the lightbox atop the pedestal and insert the four #10-32 truss-head screws into the back of the pedestal. Open the lightbox and secure it to the cabinet with the long lightbox bolts. Connect all cables and gently but fully insert the connectors onto the printed circuit boards. Be sure to touch only the edges of the boards.

NOTE: TOUCHING THE STATIC-SENSITIVE MOS COMPONENTS ON THE CPU CONTROL BOARD CAN DAMAGE THEM, MAKING THE GAME INOPERATIVE AND INVALIDATING THE WARRANTY.

CAUTION: IF GAME WAS SUBJECT TO EXTREME COLD, ALLOW GAME TO WARM UP TO ROOM TEMPERATURE BEFORE PLUGGING IN LINE CORD.

Inspecting the following items before plugging in the line cord may prevent future trouble:

1. Check that cables are clear of moving parts.
2. Look for any disconnected wires.
3. Check switches for loose solder or other foreign matter.
4. Check the soldering generally for cold joints.
5. Be certain all fuses are firmly seated.
6. Check the transformers for foreign matter across the terminals.
7. Be sure that the transformer wiring corresponds to the supply voltage.
8. Check the setting of the tilt switch on the underside of the playfield. One blade of this switch is free-floating with a weight on the end.

After levelling the machine, adjust the plumb-bob tilt (on left side of cabinet near front door) to the sensitivity desired.

II. GAME OPERATION

With the line cord unplugged drop a coin into one of the chutes. It should be rejected. Plug the line cord only into a properly-grounded 3-wire receptacle of the correct voltage. Turn on the game by pressing the main switch located on the cabinet bottom near the front right corner.

After a five-second delay all score displays will light and read zeros. The credit display will show the number of credits remaining and the ball in play display will show "70." If the credits fail to light, turn off the game and inspect the normally closed switch on the ball-roll tilt and on the front door. Turn on the game; if the problem remains, refer to Section VII. (Troubleshooting).

Five seconds after the score displays light, they will flash "High Game to Date" score for one second. This cycle continues until the game is started. All playfield lights controlled by the micro-processor will be off.
Insert one or more coins and note that the correct number of credits are added on the credit display according to the information on the coin entrance plate. Press the credit button to reset the game; the ball should now be at the shooter. The first player score reads "0" and flashes, indicating that that player is now scoring. The other player displays are blank and a "1" appears on the ball-in-play display.

Additional players are indicated by a "0" showing in each corresponding player display. Thus if there are three players, a "0" will show in the first three player displays. After the fourth player has been added (or when the credit display reads "0"), the credit button has no effect.

The game features are described in a later section. When the ball enters the outhole, the bonus is scored, the ball is kicked to the shooter, and the display of the player now scoring begins to flash and continues to flash until a score is made. All playfield features reset after each ball. When the "Shoot Again" light is lit, neither the player designation (the flashing display) nor the ball-in-play display changes when the ball enters the outhole. Only one extra ball per ball in play can be given.

The number of balls per game is adjustable. When the last ball enters the outhole, the "Game Over" and "Number to Match" lights come on. A random number appears in the ball-in-play display and if this number matches the last two digits in the player's score, a replay is added to the credit display. At this time a "High Game to Date" score is periodically flashed in all four player displays. When this score is achieved, three replays are given. This feature is adjustable.

Tilting the machine results in the loss of the ball in play or the entire game, depending upon the Tilt Reset adjustment. With this adjustment "on," the game comes on again when the ball enters the outhole, and play resumes. There is a normally-closed switch on the front door and one in the ball-roll tilt. If either of these switches opens from raising the front of the cabinet or pounding the front door, the entire game is ended. "The "Game Over" light comes on and for three seconds the coin chute switches and replay button are inactive. This prevents accidental closing of these switches from residual vibration.
III. JOKER POKER (SOLID STATE)

GAME FEATURES (5 BALL)
Completing spotted sequence lights 5x bonus light. The 1st ball in play spots “10” bonus, 2nd ball in play spots “J” bonus, 3rd ball in play spots “Q” bonus, 4th ball in play spots “K” bonus and 5th ball in play spots “A” bonus.
Completing groups of drop targets lights corresponding bonus. Completing “10” and both “J” targets or completing any other group of targets, score 5000 points and resets targets.
Drop targets score 500 points or 5000 points when corresponding bonus is lit.
Completing “A” group of drop targets or “A”-“B”-“C” rollovers lights “extra ball” target.
Completing “A” and “K” groups of targets lights “special” rollover. Completing “K” group and “A”-“B”-“C” rollovers also lights “special” rollover.
Pop bumpers score 100 points.

FEATURE CHANGES FOR 3 BALL OPERATION
2nd ball in play spots “Q” bonus and 3rd ball in play spots “A” bonus.
Completing “A” group of targets or “A”-“B”-“C” rollovers lights “extra ball” and “special” features.
Pop bumpers score 1000 points.
IV. BOOKKEEPING FUNCTIONS AND SELF-TESTING

The circuitry in this game helps the operator perform many bookkeeping functions. The information is shown one step at a time on the first player score display while the step number is shown in the credit display. Pressing the button on the inside of the front door (the play/test button) begins the bookkeeping and advances it to the next step each time the button is pressed. If the button is not pressed within sixty seconds of each step, the machine returns to normal playing condition.

The data in any bookkeeping step may be reset to zero while it is displayed by pressing Switch Button #25 on A1, the CPU control board in the lightbox. Then the play/test button must be pressed to enter the zero.

<table>
<thead>
<tr>
<th>STEP (Credit Display)</th>
<th>INFORMATION SHOWN (First Player Display)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Total coins through #1 coin chute (left chute).</td>
</tr>
<tr>
<td>1</td>
<td>Total coins through #2 coin chute.*</td>
</tr>
<tr>
<td>2</td>
<td>Total plays.</td>
</tr>
<tr>
<td>3</td>
<td>Total replays given.</td>
</tr>
<tr>
<td>4</td>
<td>Number of times anti-cheat switches on front door and on ball-roll tilt have opened.</td>
</tr>
<tr>
<td>5</td>
<td>Total extra balls.</td>
</tr>
<tr>
<td>6</td>
<td>Number of tilts.</td>
</tr>
<tr>
<td>7</td>
<td>First high score replay.</td>
</tr>
<tr>
<td>8</td>
<td>Second high score replay.</td>
</tr>
<tr>
<td>9</td>
<td>Third high score replay.</td>
</tr>
<tr>
<td>10</td>
<td>Current &quot;High Game to Date&quot; score.</td>
</tr>
<tr>
<td>11</td>
<td>Display test: All digits in first and third player displays step &quot;0&quot; through &quot;9.&quot;***</td>
</tr>
<tr>
<td>12</td>
<td>Display test: All digits in second and fourth player displays step &quot;0&quot; through &quot;9.&quot;***</td>
</tr>
<tr>
<td>13</td>
<td>Self-test: All CPU-controlled lights come on for five seconds. Each solenoid is energized one at a time. All closed switches noted by a code number in ball-in-play display.</td>
</tr>
</tbody>
</table>

*If chutes are adjusted to be the same, coins deposited in either chute add only to the #1 chute total.

**If button is not pressed within two 0-9 cycles, machine returns to normal playing condition.
TO CHANGE REPLAY SCORES OR "HIGH GAME TO DATE" SCORE:

1) Press the play/test button on the front door at one-second intervals to advance to step 7 (first high score replay).

2) Reset the display by pressing Switch Button #25 on A1, the CPU control board.

3) Press the replay button. This causes the display to advance by 10,000's. Hold in the replay button until the desired replay score is shown.

4) The new score is entered by advancing to the next function by pressing the play/test button.

To eliminate entirely one or more replay scores, set step 7, 8, or 9 at zero (as in #2 above), then press the play/test button to enter the value.

The switches and solenoids are checked in Step 13 in the order given in the following lists. A faulty solenoid or a closed switch that should be open will not stop the test sequence; the code number of the component will be shown in the ball-in-play display. The machine returns to the normal playing condition at the end of the test. It will do so also if a tilt switch is closed, if an anti-cheat switch is opened, or if the power is interrupted.

**SOLENOID NUMBER**

<table>
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<tr>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
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<th>8</th>
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<td>Outhole</td>
<td>Knocker</td>
<td>Tens Chime</td>
<td>Hundreds Chime</td>
<td>Thousands Chime</td>
<td>&quot;10-J&quot; Drop Target Bank Reset</td>
<td>&quot;Q&quot; Target Bank Reset</td>
<td>&quot;A&quot; Drop Target Bank Reset</td>
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<td>SWITCH NUMBER</td>
<td>SWITCH CODE LIST</td>
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</table>
V. GAME ADJUSTMENTS

A. Playfield Adjustments

Posts controlling access to the left and right outlanes can be adjusted. See page 35. The “conservative” (easier entry) position decreases playing time and scoring while the “liberal” position has the opposite effect.

The game is shipped with adjustable posts in the position found to be suitable for the greatest number of players. Therefore the posts should not be changed unless the need is clearly evident.

B. Lightbox Adjustments

There are 24 switches on the CPU control board (A1). These allow many features of the game to be adjusted to fit the location. The switches are contained in three “packages” of eight switches each, as shown in the following illustration.

[Diagram of switch layout]

WARNING: TURN OFF POWER BEFORE MAKING ADJUSTMENTS!
BE CAREFUL TO TOUCH ONLY THE SWITCHES. DO NOT TOUCH THE STATIC-SENSITIVE MOS COMPONENTS.

1. Coin and Credit

The number of plays (credits) and the number of coins are adjustable. Switches #1 through #4 adjust the first coin chute (#1 chute, on the left). Switches #5 through #8 adjust #2 coin chute.

The two chutes can be adjusted to be the same. When this is done, both chutes are adjusted using switches #1 through #4.

<table>
<thead>
<tr>
<th>COIN CHUTES</th>
<th>SWITCH 19</th>
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</thead>
<tbody>
<tr>
<td>Separate ..........</td>
<td>OFF</td>
</tr>
<tr>
<td>Same ..............</td>
<td>ON</td>
</tr>
</tbody>
</table>
COIN CHUTE ADJUSTMENTS

#1 Coin Chute ........................................ S1  S2  S3  S4
#2 Coin Chute ........................................ S5  S6  S7  S8

Coins/Credits

1/1 ..................... OFF  OFF  OFF  OFF
1/2 ..................... OFF  OFF  OFF  ON
1/3 ..................... OFF  OFF  ON  OFF
1/4 ..................... OFF  OFF  ON  ON
1/5 ..................... OFF  ON  OFF  OFF
1/6 ..................... OFF  ON  OFF  ON
1/7 ..................... OFF  ON  ON  OFF
1/8 ..................... OFF  ON  ON  ON
1/9 ..................... ON  OFF  OFF  OFF

2/1 ..................... ON  OFF  OFF  ON
2/2 ..................... ON  OFF  ON  OFF
2/3 ..................... ON  OFF  ON  ON
2/4 ..................... ON  ON  OFF  OFF
2/5 ..................... ON  ON  OFF  ON

Note 1

Note 2

Note 3

Note 1: No credits until second coin is deposited.
Note 2: First coin gives one credit. Second coin gives two credits provided that no score is made between first and second coin. If scoring occurred, second coin becomes a "first" coin, giving one credit.
Note 3: No credit until third coin is deposited.
2. Maximum Credits

This adjustment determines the maximum number of games which may be accumulated on the credit display, whether by adding replays or by inserting coins.

<table>
<thead>
<tr>
<th>MAXIMUM CREDITS</th>
<th>SWITCHES</th>
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<tbody>
<tr>
<td>5</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
<tr>
<td>10</td>
<td>ON</td>
</tr>
<tr>
<td>15</td>
<td>ON</td>
</tr>
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</table>

3. BALLS PER GAME  SWITCH 9

<table>
<thead>
<tr>
<th></th>
<th>ON</th>
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<tbody>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5</td>
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4. MATCH FEATURE  SWITCH 10

<table>
<thead>
<tr>
<th></th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td></td>
</tr>
<tr>
<td>OUT</td>
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5. CREDITS DISPLAYED  SWITCH 13

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<thead>
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<th></th>
<th>ON</th>
</tr>
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6. CHIMES WHEN SCORING  SWITCH 20

<table>
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<tr>
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7. TILT  SWITCH 12

<table>
<thead>
<tr>
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<tr>
<td>BALL IN PLAY ONLY</td>
<td></td>
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<tr>
<td>GAME OVER</td>
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8. Score Feature
   This adjustment determines game mode. (Replay or Extra Ball).

   SWITCH 11
   REPLAY ................. ON
   EXTRA BALL ............. OFF

9. Chimes When Resetting Game (Tune)
   The game may be adjusted to play a tune when the credit button is pressed
   and a different tune when a coin is dropped.

   CREDIT BUTTON TUNE  SWITCH 14
   ON ..................... ON
   OFF .................... OFF

   COIN SWITCH TUNE  SWITCH 23
   ON ..................... ON
   OFF .................... OFF

10. High Game to Date Feature
    When the High Game to Date score is reached, three replays are given and
    that score becomes the new High Game to Date. That score is flashed
    periodically on all four player displays at the end of the game.

    HIGH GAME TO DATE  SWITCH 21
    IN .......................... ON
    OUT ......................... OFF

    SWITCH 22
    HIGH GAME TO DATE FEATURE GIVES 3 REPLAYS ...... ON
    HIGH GAME TO DATE FEATURE GIVES NO REPLAYS ...... OFF
VI. ROUTINE MAINTENANCE

After a successful completion of the self-test, check the playfield for dirt or particles. The playfield should be cleaned frequently with a non-abrasive wax-based cleaner. Any of the polishes made specifically for use on pinball machine playfields may be used. Make certain that kicker fulcrums and all pivot points receive a drop of fine oil. The pop bumper cup switches, the drop target shanks and the discs of Vari-targets should be lightly coated with White Lube, a special Gottlieb lubricant available at distributors.

When the playboard is clean and all components are working properly, start the game and try each feature. Make certain each rollover operates, that each pop bumper scores and kicks correctly and that in general everything works as it should. If an intermittent or dirty switch is found, clean the points by pressing them together with a piece of paper or a business card between them, moving the card back and forth.

WARNING: DO NOT FILE, BURNISH OR IN ANY WAY ABRIDE GOLD-PLATED SWITCH CONTACTS.

The only switches whose points may be burnished are the pop bumper cup switches, the rubber-actuated switches on kicking rubber units, and the flipper button switches.

VII. TROUBLE-SHOOTING

Trouble-shooting of the mechanical devices in the game can be held to a minimum by diligent maintenance. Trouble-shooting of the solid-state components is very seldom required and in fact on location is limited to inspection and replacement of entire boards. Detailed diagnosis and repair of boards can be made at a service center or properly equipped shop.

Before replacing the CPU board or driver board, measure the voltages on the power supply board (A2) after first disconnecting the two connectors A2J2 and A2J3. If any fault is found here, replace this board and recheck power supply voltages before reconnecting A2J2 and A2J3. Before replacing anything, check carefully all connectors, crimp connectors and wires. Make certain all grounds are intact.

After any repairs, all connectors must be re-connected before the game is turned on.

WARNING! TURN OFF POWER BEFORE REMOVING OR REPLACING ANY OF THE BOARDS.
GAME TEST AND TROUBLE SHOOTING GUIDE

POWER ON (on/off switch)

PRESS PLAY/TEST SWITCH TO STEP 11

PRESS PLAY/TEST SWITCH TO STEP 12

SCORE DISPLAYS STEP 0 THROUGH 9

IF NO
See Symptom #1

YES

PRESS PLAY/TEST SWITCH TO STEP 13

GAME FEATURE LIGHTS COME ON

IF NO
See Symptom #2

YES

SOLENOIDS OPERATE IN SEQUENCE

IF NO
See Symptom #3

YES

BALL IN PLAY DISPLAY SHOWS “0”

IF NO
See Symptom #4

YES

END OF TEST

If game fails to delay, or play/test switch fails to start test sequence, check anti-cheat switches; they must be closed. Check all circuit board connectors, check power supply voltages. If trouble remains, replace control board (A1).

Game returns to normal play mode, repeat entire test if repairs were performed.
SYMPTOM #1    DISPLAYS

Note: Before replacing a display, check the connector and the individual crimped wires.

1A) Symptom:  One or several display segments or digits always off, always on, or mottled. May appear on one or more players but not all.

Action: 1. Open front door and press play/test button until step 11 or 12 is reached. Note any defective display boards.
2. Turn power off.
3. Replace defective score display board (see parts list). Turn power on and repeat 1. If trouble persists, go to 1B2.

1B) Symptom:  All player displays improper; segments or digits always on or always off.

Action: 1. Repeat 1A-1.
2. Check power supply voltages.
3. Turn power off.
4. Replace CPU board A1. (see parts list)
5. Turn power on and repeat 1.

SYMPTOM #2    FEATURE LIGHTS

2A) Symptom:  Not all feature lights come on during play.

Action: 1. Check the wiring and bulb, of lights not working.
2. Check connectors and crimped wires on the driver board (A3).
3. Open the front door and press play/test button until step 13 is reached. Feature lights come on.
4. Turn power off.
5. Replace driver board A3. (see parts list)
6. Turn power on and repeat 3. If not correct, turn power off.
7. Replace CPU board A1. (see parts list)
8. Turn power on and repeat 3.

2B) Symptom:  One or more feature lights always on.

SYMPTOM #3  SOLENOIDS

3A) Symptom: Controlled solenoid does not operate during play (may be one or more). NOTE: Flipper, kicking rubber and pop bumper solenoids are non-CPU controlled. They have nothing to do with boards A1 and A3.

Action:
1. Open front door and press play/test button until step 13 is reached. Each solenoid operates once. (See solenoid list in Section III).
2. Turn power off.
3. Raise the playfield and check the solenoid not operating. Replace if damaged. Check for free movement of the device operated by the solenoid. Check 24 VDC fuse.
4. Inspect connectors and crimped wires on driver board (A3).
5. Replace driver board A3. (see parts list)
6. Turn power on and repeat 3A-1. If solenoid does not operate, turn power off.
8. Turn power off and replace CPU control board A1. (see parts list)
9. Turn power on and repeat 3A-1.

3B) Symptom: One or more controlled solenoids always energized.
NOTE: Solenoids other than flippers will overheat if kept energized continuously. Do not allow more than 20 seconds of operation. Follow this with several minutes with the power off.

Action:
1. Turn power off.
2. Check coil for shorted or open diode and/or shorted coil. Replace if defective, carefully noting diode polarity.
3. Turn power on and test solenoid. If a problem still exists, turn game off. Refer to symptom 3A2.
SYMPTOM #4     GAME FEATURES

4A) Symptom: Game feature does not score.
   Action: 1. Open front door and press play/test button until step 13 is reached. Each switch is checked automatically and any closed switch is indicated in code in the ball-in-play display (see Section III and switch code list).

2. Raise the playfield and locate the faulty switch indicated by the code. The switch should have an approximate 1/16” gap. Check for loose solder or other foreign matter across the points or terminals. Make sure that the device operating the switch operates freely. The code may represent several parallel switches; be sure to check all similar (such as yellow rollovers) switches.

3. Repeat 4A1. If trouble persists, replace personality prom.

4. If trouble still exists, replace control board. (A1)

SYMPTOM #5     GENERAL

5A) Symptom: A Fuse or fuses blow repeatedly.
   Action: 1. Inspect the circuits controlled by each fuse which blows for shorts, loose wires, etc.

2. If either 5 amp fuse blows, check the bridge rectifiers located on the bottom board.

VIII. SERVICE AND PARTS

All solid-state components are listed in the parts catalog and are available at Gottlieb distributors. When making replacements of any components, always use Gottlieb parts to assure infrequent service calls. The parts catalog lists all current components and their prices, enabling the repairman to quickly and easily select the item he needs. Whenever parts are ordered, state the part number, the part name, the game for which it is intended and, if applicable, the color or design.
### JOKER POKER (SOLID STATE)

#### Lamp Assignments

<table>
<thead>
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<th>Latch</th>
<th>Position</th>
<th>Lamp Number</th>
<th>Function</th>
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<td>Game over relay</td>
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<td></td>
<td>2</td>
<td>2</td>
<td>Tilt relay</td>
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<td>3</td>
<td>3</td>
<td>High game to date</td>
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<td></td>
<td>4</td>
<td>4</td>
<td>Same player shoots again</td>
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<td>Not used</td>
</tr>
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<td></td>
<td>4</td>
<td>8</td>
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## WIRE COLOR ASSIGNMENTS

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Flipper Switches
Left:  Green-Black
Right: Purple-Black

Anti-Cheat Switches
Blue-Black
Orange-Black
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A1-J1

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<th>FUNCTION</th>
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<tr>
<td>2</td>
<td>*Blue</td>
<td>−12 VDC</td>
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<td>3</td>
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<td>*Black</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>*Red</td>
<td>+5 VDC</td>
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PLUG A1-J2

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<td>g A</td>
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<td>White-Brown-Red</td>
<td>a A</td>
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<td>b A</td>
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<tr>
<td>5</td>
<td>White-Purple-Red</td>
<td>c A</td>
</tr>
<tr>
<td>6</td>
<td>White-Yellow-Red</td>
<td>d A</td>
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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A1-J3

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A1-J5

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

**PLUG A1-J6**

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

**PLUG A2-J1**

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**PLUG A2-J2**

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**PLUG A2-J3**

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A3-J1

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PLUG A3-J2

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

**PLUG A3-J3**

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A3-J5

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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG 1A4-J1

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<tr>
<td>13</td>
<td>White-Green-Red</td>
<td>b A</td>
</tr>
<tr>
<td>14</td>
<td>White-Brown-Red</td>
<td>a A</td>
</tr>
<tr>
<td>15</td>
<td>Brown-White-Red</td>
<td>5 VAC</td>
</tr>
<tr>
<td>16</td>
<td>Purple-White-Red</td>
<td>5 VAC Return</td>
</tr>
<tr>
<td>17</td>
<td>White-Blue</td>
<td>+60 VDC</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>19</td>
<td>Black</td>
<td>Ground</td>
</tr>
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</table>

All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG 2A4-J1

<table>
<thead>
<tr>
<th>PIN</th>
<th>WIRE COLOR</th>
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<tbody>
<tr>
<td>1</td>
<td>Blue-Red</td>
<td>D 14</td>
</tr>
<tr>
<td>2</td>
<td>Orange-Red</td>
<td>D 13</td>
</tr>
<tr>
<td>3</td>
<td>Orange-White</td>
<td>D 12</td>
</tr>
<tr>
<td>4</td>
<td>Blue-White</td>
<td>D 11</td>
</tr>
<tr>
<td>5</td>
<td>Purple</td>
<td>D 10</td>
</tr>
<tr>
<td>6</td>
<td>Yellow</td>
<td>D 9</td>
</tr>
<tr>
<td>7</td>
<td>White-Purple-Black</td>
<td>h A</td>
</tr>
<tr>
<td>8</td>
<td>White-Orange-Red</td>
<td>g A</td>
</tr>
<tr>
<td>9</td>
<td>White-Blue-Red</td>
<td>f A</td>
</tr>
<tr>
<td>10</td>
<td>White-Blue-Black</td>
<td>e A</td>
</tr>
<tr>
<td>11</td>
<td>White-Yellow-Red</td>
<td>d A</td>
</tr>
<tr>
<td>12</td>
<td>White-Purple-Red</td>
<td>c A</td>
</tr>
<tr>
<td>13</td>
<td>White-Green-Red</td>
<td>b A</td>
</tr>
<tr>
<td>14</td>
<td>White-Brown-Red</td>
<td>a A</td>
</tr>
<tr>
<td>15</td>
<td>Brown-White-Red</td>
<td>5 VAC</td>
</tr>
<tr>
<td>16</td>
<td>Purple-White-Red</td>
<td>5 VAC Return</td>
</tr>
<tr>
<td>17</td>
<td>White-Blue</td>
<td>+60 VDC</td>
</tr>
<tr>
<td>18</td>
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<tr>
<td>19</td>
<td>Black</td>
<td>Ground</td>
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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG 3A4-J1

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<th>PIN</th>
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<td>2</td>
<td>Yellow-White</td>
<td>D 5</td>
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<tr>
<td>3</td>
<td>Orange</td>
<td>D 4</td>
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<tr>
<td>4</td>
<td>Blue</td>
<td>D 3</td>
</tr>
<tr>
<td>5</td>
<td>Brown</td>
<td>D 2</td>
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<td>6</td>
<td>Green</td>
<td>D 1</td>
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<td>7</td>
<td>White-Yellow-Black</td>
<td>h B</td>
</tr>
<tr>
<td>8</td>
<td>White-Yellow</td>
<td>g B</td>
</tr>
<tr>
<td>9</td>
<td>White-Purple</td>
<td>f B</td>
</tr>
<tr>
<td>10</td>
<td>White-Green-Black</td>
<td>e B</td>
</tr>
<tr>
<td>11</td>
<td>Orange-White-Red</td>
<td>d B</td>
</tr>
<tr>
<td>12</td>
<td>Blue-White-Red</td>
<td>c B</td>
</tr>
<tr>
<td>13</td>
<td>Green-White-White</td>
<td>b B</td>
</tr>
<tr>
<td>14</td>
<td>Brown-White-White</td>
<td>a B</td>
</tr>
<tr>
<td>15</td>
<td>Brown-White-Red</td>
<td>5 VAC</td>
</tr>
<tr>
<td>16</td>
<td>Purple-White-Red</td>
<td>5 VAC Return</td>
</tr>
<tr>
<td>17</td>
<td>White-Blue</td>
<td>+60 VDC</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>19</td>
<td>Black</td>
<td>Ground</td>
</tr>
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All wires #22 gauge unless specified * (#18 gauge)
# CABLE PLUGS FOR SOLID-STATE GAMES

## PLUG 4A4-J1

<table>
<thead>
<tr>
<th>PIN</th>
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<td>1</td>
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<td>2</td>
<td>Orange-Red</td>
<td>D 13</td>
</tr>
<tr>
<td>3</td>
<td>Orange-White</td>
<td>D 12</td>
</tr>
<tr>
<td>4</td>
<td>Blue-White</td>
<td>D 11</td>
</tr>
<tr>
<td>5</td>
<td>Purple</td>
<td>D 10</td>
</tr>
<tr>
<td>6</td>
<td>Yellow</td>
<td>D 9</td>
</tr>
<tr>
<td>7</td>
<td>White-Yellow-Black</td>
<td>h</td>
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<tr>
<td>8</td>
<td>White-Yellow</td>
<td>g</td>
</tr>
<tr>
<td>9</td>
<td>White-Purple</td>
<td>f</td>
</tr>
<tr>
<td>10</td>
<td>White-Green-Black</td>
<td>e</td>
</tr>
<tr>
<td>11</td>
<td>Orange-White-Red</td>
<td>d</td>
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<tr>
<td>12</td>
<td>Blue-White-Red</td>
<td>c</td>
</tr>
<tr>
<td>13</td>
<td>Green-White-White</td>
<td>b</td>
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<tr>
<td>14</td>
<td>Brown-White-White</td>
<td>a</td>
</tr>
<tr>
<td>15</td>
<td>Brown-White-Red</td>
<td>5 VAC</td>
</tr>
<tr>
<td>16</td>
<td>Purple-White-Red</td>
<td>5 VAC Return</td>
</tr>
<tr>
<td>17</td>
<td>White-Blue</td>
<td>+60 VDC</td>
</tr>
<tr>
<td>18</td>
<td>spare</td>
<td>Spare</td>
</tr>
<tr>
<td>19</td>
<td>Black</td>
<td>Ground</td>
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</tbody>
</table>

All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A5-J1

<table>
<thead>
<tr>
<th>PIN</th>
<th>WIRE COLOR</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>___</td>
<td>Spare</td>
</tr>
<tr>
<td>2</td>
<td>Green-Red</td>
<td>D 16</td>
</tr>
<tr>
<td>3</td>
<td>Brown-Red</td>
<td>D 15</td>
</tr>
<tr>
<td>4</td>
<td>___</td>
<td>Spare</td>
</tr>
<tr>
<td>5</td>
<td>Green-White</td>
<td>D 8</td>
</tr>
<tr>
<td>6</td>
<td>Brown-White</td>
<td>D 7</td>
</tr>
<tr>
<td>7</td>
<td>White-Purple-Red</td>
<td>c A</td>
</tr>
<tr>
<td>8</td>
<td>White-Green-Red</td>
<td>b A</td>
</tr>
<tr>
<td>9</td>
<td>White-Purple-Black</td>
<td>h A</td>
</tr>
<tr>
<td>10</td>
<td>White-Orange-Red</td>
<td>g A</td>
</tr>
<tr>
<td>11</td>
<td>White-Blue-Red</td>
<td>f A</td>
</tr>
<tr>
<td>12</td>
<td>White-Blue-Black</td>
<td>e A</td>
</tr>
<tr>
<td>13</td>
<td>White-Yellow-Red</td>
<td>d A</td>
</tr>
<tr>
<td>14</td>
<td>White-Brown-Red</td>
<td>a A</td>
</tr>
<tr>
<td>15</td>
<td>Yellow-White-Red</td>
<td>3 VAC</td>
</tr>
<tr>
<td>16</td>
<td>Orange-White-Black</td>
<td>3 VAC Return</td>
</tr>
<tr>
<td>17</td>
<td>White-Orange</td>
<td>+42 VDC</td>
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<tr>
<td>18</td>
<td>*Red</td>
<td>+5 VDC</td>
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<tr>
<td>19</td>
<td>Black</td>
<td>Ground</td>
</tr>
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</table>

All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A6-J1

<table>
<thead>
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<th>PIN</th>
<th>WIRE COLOR</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
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<td>Return 0</td>
</tr>
<tr>
<td>2</td>
<td>Blue-White</td>
<td>Play/test switch</td>
</tr>
<tr>
<td>3</td>
<td>Orange-White</td>
<td>#1 coin chute</td>
</tr>
<tr>
<td>4</td>
<td>Brown-White</td>
<td>#2 coin chute</td>
</tr>
<tr>
<td>5</td>
<td>Green-White</td>
<td>Replay button</td>
</tr>
<tr>
<td>6</td>
<td>Purple-White</td>
<td>Tilt pendulum</td>
</tr>
<tr>
<td>7</td>
<td>*Brown-Red</td>
<td>Coin chute lights</td>
</tr>
<tr>
<td>8</td>
<td>Blue-Black</td>
<td>Anti-cheat switches</td>
</tr>
<tr>
<td>9</td>
<td>*Brown-Black</td>
<td>Left flipper switch</td>
</tr>
<tr>
<td>10</td>
<td>*Green-Black</td>
<td>Flipper return</td>
</tr>
<tr>
<td>11</td>
<td>*Red</td>
<td>Coin lockout</td>
</tr>
<tr>
<td>12</td>
<td>*Black</td>
<td>Ball roll tilt ground</td>
</tr>
<tr>
<td>13</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>*White-Black</td>
<td>Coin chute lights return</td>
</tr>
<tr>
<td>15</td>
<td>*Green-Yellow</td>
<td>Earth ground and coin lockout return</td>
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PLUG A6-J2

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<th>FUNCTION</th>
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<tr>
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<td>*Orange-Red</td>
<td>Knocker</td>
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<tr>
<td>2</td>
<td>*Green-Red</td>
<td>Hundreds chime</td>
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<tr>
<td>3</td>
<td>*Purple-Red</td>
<td>Thousands chime</td>
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<tr>
<td>4</td>
<td>*Orange-Black</td>
<td>Tens chime</td>
</tr>
<tr>
<td>5</td>
<td>*Red</td>
<td>24 VDC</td>
</tr>
<tr>
<td>6</td>
<td>*Red</td>
<td>24 VDC</td>
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All wires #22 gauge unless specified *(#18 gauge)
# CABLE PLUGS FOR SOLID-STATE GAMES

## PLUG A6-J3

<table>
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<tr>
<th>PIN</th>
<th>WIRE COLOR</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Yellow-Black</td>
<td>Game over light</td>
</tr>
<tr>
<td>2</td>
<td>White-Brown</td>
<td>High game to date light</td>
</tr>
<tr>
<td>3</td>
<td>White-Green</td>
<td>Shoot Again light</td>
</tr>
<tr>
<td>4</td>
<td>Brown-White-Red</td>
<td>5 VAC</td>
</tr>
<tr>
<td>5</td>
<td>Green-White-Red</td>
<td>+8 VDC offset</td>
</tr>
<tr>
<td>6</td>
<td>Purple-White-Red</td>
<td>5 VAC Return</td>
</tr>
<tr>
<td>7</td>
<td>Yellow-White-Red</td>
<td>3 VAC</td>
</tr>
<tr>
<td>8</td>
<td>Blue-White-Black</td>
<td>+4 VDC offset</td>
</tr>
<tr>
<td>9</td>
<td>Orange-White-Black</td>
<td>3 VAC Return</td>
</tr>
<tr>
<td>10</td>
<td>White-Brown-Black</td>
<td>Tilt light</td>
</tr>
<tr>
<td>11</td>
<td>*White</td>
<td>6 VDC</td>
</tr>
<tr>
<td>12</td>
<td>(#16 Gauge) White-Red</td>
<td>6.3 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(lightbox)</td>
</tr>
<tr>
<td>13</td>
<td>(#16 Gauge) White-Black</td>
<td>6.3 VAC Return</td>
</tr>
<tr>
<td>14</td>
<td>*Green-Yellow</td>
<td>Earth ground</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Spare</td>
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## PLUG A6-J4

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<th>PIN</th>
<th>WIRE COLOR</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>White-Brown</td>
<td>High game to date light</td>
</tr>
<tr>
<td>2</td>
<td>*Black</td>
<td>Ground</td>
</tr>
<tr>
<td>3</td>
<td>*Black</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>*Black</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>*Black</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>(#16 Gauge) White</td>
<td>6 VDC</td>
</tr>
<tr>
<td>7</td>
<td>(#16 Gauge) White-Black</td>
<td>6.3 VAC Return</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Spare</td>
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All wires #22 gauge unless specified * (#18 gauge)
CABLE PLUGS FOR SOLID-STATE GAMES

PLUG A6-J5

<table>
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<th>WIRE COLOR</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>(#16 Gauge) Brown-Red</td>
<td>6.3 VAC</td>
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<tr>
<td></td>
<td></td>
<td>(playboard)</td>
</tr>
<tr>
<td>2</td>
<td>*Brown-Black</td>
<td>Flipper switch</td>
</tr>
<tr>
<td>3</td>
<td>*Brown-Black</td>
<td>Flipper switch</td>
</tr>
<tr>
<td>4</td>
<td>*Green-Black</td>
<td>Left flipper sw.</td>
</tr>
<tr>
<td>5</td>
<td>*Purple-Black</td>
<td>Right flipper sw.</td>
</tr>
<tr>
<td>6</td>
<td>Yellow-Black</td>
<td>Game Over light</td>
</tr>
<tr>
<td>7</td>
<td>White-Green</td>
<td>Shoot Again light</td>
</tr>
<tr>
<td>8</td>
<td>White-Brown-Black</td>
<td>Tilt light</td>
</tr>
<tr>
<td>9</td>
<td>(#16 Gauge) Red</td>
<td>24 VDC</td>
</tr>
<tr>
<td>10</td>
<td>(#16 Gauge) Black</td>
<td>Ground</td>
</tr>
<tr>
<td>11</td>
<td>(#16 Gauge) Black</td>
<td>Ground</td>
</tr>
<tr>
<td>12</td>
<td>(#16 Gauge) Black</td>
<td>Ground</td>
</tr>
</tbody>
</table>

All wires #22 gauge unless specified * (#18 gauge)
PLAYBOARD
INFORMATION

RUBBER RINGS

A—A-10217 (2) White
B—A-10219 (1) White
C—A-10220 (3) White
D—A-10221 (3) White
E—A-10222 (1) White
F—A-10223 (2) White
G—A-10224 (1) White
H—A-10225 (1) White
I—A-13149 (1) Red
J—A-13151 (2) Red
K—A-15705 (6) White (Mini Post Screw)

PARTS LIST

1. A-3290 Ball Gate.
3. A-8215 Ball Deflector.
4. C-17618 Plastic Shield Set.
6. B-8246 Pop Bumper Platter.—(2)
9. C-15647 Yellow Plastic Rollover Guide.—(2)
10. 1-Pos. Drop Target White with A-13445 Stamped in Red.
11. 2-Pos. Drop Target White with A-13446 Stamped (1) in Red and (1) in Black.
12. 3-Pos. Drop Target White with A-13447 Stamped (2) in Red and (1) in Black.
13. 4-Pos. Drop Target White with A-13448 Stamped (2) in Red and (2) in Black.
14. 5-Pos. Drop Target White with A-13449 Stamped (2) in Red, (2) in Black and A-17747 Stamped in Black.
15. A-18511 Bulls-Eye Target. (B-18075 SW. & Target Assem.)
17. A-11151 Metal Hole Liner.
18. A-3722 Ball Guide Rail. (Wire Form)—(1)
19. A-4832 Ball Guide Rail. (Wire Form)—(2)
20. A-4833 Ball Guide Rail. (Wire Form)—(1)
21. A-4246 Ball Guide Rail. (Wire Form)—(1)
22. A-6931 Ball Guide Rail. (Wire Form)—(4)
23. A-14571 Ball Guide Rail. (Wire Form)—(1)
24. A-14572 Ball Guide Rail. (Wire Form)—(1)
25. A-17650 Ball Guide Rail. (Wire Form)—(2)
26. A-18070 Ball Guide Rail. (Wire Form)—(2)
27. A-13798 Ball Snub Rail. (Wire Form)—(2)
28. A-5272 Metal Flat Rail.—(1)
29. A-14792 Mini Post Screw.—(6)
30. C-11241 White Flipper.—(1)
31. C-13150 White Flipper.—(2)
32. C-7393 Wood Rail. (Left Side)
33. C-9771 Wood Rail. (Center)
34. C-13977 Wood Rail. (Right Side)
35. D-4806 Top Arch. (with "G","6","7" Pos.)
36. A-10542 Steel Pin.—(2)
38. C-9767 Ball Shooter Gage.
C-11561 White Plastic Post 1" High.—(32)
C-11562 White Plastic Post 1-3/16" High.—(2)
LIB. — LIBERAL.
CON. = CONSERVATIVE.
SWITCH MATRIX AND LAMP LOCATION

SWITCHES ON MATRIX

<table>
<thead>
<tr>
<th>SW. MATRIX NUMBER</th>
<th>SWITCH FUNCTION</th>
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<tbody>
<tr>
<td>SW.00</td>
<td>Test Button (On Front Door)</td>
</tr>
<tr>
<td>SW.01</td>
<td>#1 Coin Chute (On Front Door)</td>
</tr>
<tr>
<td>SW.02</td>
<td>#2 Coin Chute (On Front Door)</td>
</tr>
<tr>
<td>SW.03</td>
<td>Replay Button (On Front Door)</td>
</tr>
<tr>
<td>SW.04</td>
<td>Tilt Switches</td>
</tr>
<tr>
<td>SW.10</td>
<td>Pop Bumpers—(2)</td>
</tr>
<tr>
<td>SW.11</td>
<td>“A” Rollover—(2)</td>
</tr>
<tr>
<td>SW.12</td>
<td>“B” Rollover—(3)</td>
</tr>
<tr>
<td>SW.13</td>
<td>“C” Rollover—(2)</td>
</tr>
<tr>
<td>SW.20</td>
<td>Extra Ball Target</td>
</tr>
<tr>
<td>SW.21</td>
<td>“10” Drop Target</td>
</tr>
<tr>
<td>SW.22</td>
<td>“J” Drop Target</td>
</tr>
<tr>
<td>SW.23</td>
<td>“J” Drop Target</td>
</tr>
<tr>
<td>SW.30</td>
<td>Special Rollover</td>
</tr>
<tr>
<td>SW.31</td>
<td>“Q” Drop Target</td>
</tr>
<tr>
<td>SW.32</td>
<td>“Q” Drop Target</td>
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<td>SW.33</td>
<td>“Q” Drop Target</td>
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<tr>
<td>SW.40</td>
<td>10 Point Switches—(II)</td>
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<tr>
<td>SW.41</td>
<td>“K” Drop Target</td>
</tr>
<tr>
<td>SW.42</td>
<td>“K” Drop Target</td>
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<tr>
<td>SW.43</td>
<td>“K” Drop Target</td>
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<tr>
<td>SW.44</td>
<td>“K” Drop Target</td>
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<tr>
<td>SW.50</td>
<td>“A” Drop Target</td>
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<tr>
<td>SW.51</td>
<td>“A” Drop Target</td>
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<tr>
<td>SW.52</td>
<td>Joker Drop Target</td>
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<tr>
<td>SW.53</td>
<td>“A” Drop Target</td>
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<td>SW.54</td>
<td>“A” Drop Target</td>
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CPU CONTROLLED LAMPS

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<thead>
<tr>
<th>LAMP NUMBER</th>
<th>LAMP FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Game Over Relay (Lamp in Lightbox)</td>
</tr>
<tr>
<td>2</td>
<td>Tilt Relay (Lamp in Lightbox)</td>
</tr>
<tr>
<td>3</td>
<td>High Game to Date (In Lightbox)</td>
</tr>
<tr>
<td>4</td>
<td>Same Player Shoots Again (Playfield &amp; Lightbox)</td>
</tr>
<tr>
<td>8</td>
<td>Aces Bonus</td>
</tr>
<tr>
<td>9</td>
<td>Queens Bonus</td>
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<tr>
<td>10</td>
<td>Kings Bonus</td>
</tr>
<tr>
<td>11</td>
<td>Jacks Bonus</td>
</tr>
<tr>
<td>12</td>
<td>Tens Bonus</td>
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<tr>
<td>13</td>
<td>4000 Bonus</td>
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<td>14</td>
<td>5000 Bonus</td>
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<td>15</td>
<td>3000 Bonus</td>
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<tr>
<td>16</td>
<td>2000 Bonus</td>
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<tr>
<td>18</td>
<td>1000 Bonus</td>
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<tr>
<td>19</td>
<td>Special Rollover</td>
</tr>
<tr>
<td>20</td>
<td>Extra Ball Target</td>
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<tr>
<td>21</td>
<td>Top “B” Rollover</td>
</tr>
<tr>
<td>22</td>
<td>Top “C” Rollover</td>
</tr>
<tr>
<td>23</td>
<td>Top “A” Rollover</td>
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<tr>
<td>24</td>
<td>Bottom “C” Rollover</td>
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<tr>
<td>25</td>
<td>Left Bottom “B” Rollover</td>
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<tr>
<td>26</td>
<td>Right Bottom “B” Rollover</td>
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<td>27</td>
<td>Bottom “A” Rollover</td>
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<td>28</td>
<td>5 X Bonus</td>
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### PARTS LIST

#### ELECTRONIC COMPONENTS

<table>
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<tr>
<th>Part Number</th>
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<tbody>
<tr>
<td>PB00-D100</td>
<td>Control Board (A1) (Less Prom)</td>
</tr>
<tr>
<td>S520</td>
<td>Power Supply Board (A2)</td>
</tr>
<tr>
<td>PB00-D110</td>
<td>Master Driver Board (A3)</td>
</tr>
<tr>
<td>PB00-D140</td>
<td>Display Board—Score (A4)</td>
</tr>
<tr>
<td>PB00-D150</td>
<td>Display Board—Ball in Play, Credit (A5)</td>
</tr>
<tr>
<td>MMI-6351-1J</td>
<td>Prom (Joker Poker Prom is “C”)</td>
</tr>
<tr>
<td>#5K1</td>
<td>Line Filter (Corcom)</td>
</tr>
<tr>
<td>#VK-438</td>
<td>Bridge Rectifier (Varo)</td>
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<tr>
<td>#VL-038</td>
<td>Bridge Rectifier (Varo)</td>
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<tr>
<td>#1N-270</td>
<td>Germanium Diode</td>
</tr>
<tr>
<td>#1N-4004</td>
<td>Diode</td>
</tr>
<tr>
<td>#2N5875</td>
<td>Transistor</td>
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#### MECHANICAL COMPONENTS

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<tbody>
<tr>
<td>A-17906</td>
<td>Bracket and Stop—Pop Bumper</td>
</tr>
<tr>
<td>A-17907</td>
<td>Bracket and Stop—Hole Kickers</td>
</tr>
<tr>
<td>A-17908</td>
<td>Bracket and Stop—Flipper</td>
</tr>
<tr>
<td>A-17958</td>
<td>Bracket and Stop—Target Bank Reset</td>
</tr>
<tr>
<td>A-18265</td>
<td>Bracket and Stop—Small Flipper</td>
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# PARTS LIST

**CONTROL BOARD**

**PB00-D100**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>MMI-6351-1J</td>
<td>Prom — Monolithic Memories (Z23)</td>
</tr>
<tr>
<td>15-24-1151</td>
<td>Molex Connector — (TC1, TC2)</td>
</tr>
<tr>
<td>CA-08P02</td>
<td>Plug — Circuit Assembly</td>
</tr>
<tr>
<td>CA-08-160-000</td>
<td>Cover — Circuit Assembly</td>
</tr>
<tr>
<td>41B901CD05-1</td>
<td>Battery — 3.6V. General Electric</td>
</tr>
<tr>
<td>V-1003</td>
<td>Battery Clip — Richco</td>
</tr>
<tr>
<td>44-111-021</td>
<td>Switch-Push Button — (S 25) — Chicago Switch</td>
</tr>
<tr>
<td>10040-008</td>
<td>Molex-Switch Matrix — (Dip Sw. 1, 2, 3) (S1-S24)</td>
</tr>
<tr>
<td>CA-18SE-10SD</td>
<td>IC Socket — 18 Pin-Circuit Ass’y</td>
</tr>
<tr>
<td>333R08-001</td>
<td>Crystal — 3.579545 MHZ. (Y1)</td>
</tr>
<tr>
<td>11660CF</td>
<td>MOS/LSI-CPU-(U1) — Rockwell</td>
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<tr>
<td>10696EE</td>
<td>MOS/LSI-GPI0-(U2, U3) — Rockwell</td>
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<tr>
<td>A1753CE</td>
<td>MOS/LSI-ROM/RAM/I0 (U4)</td>
</tr>
<tr>
<td>A1752CF</td>
<td>MOS/LSI-ROM/RAM/I0 (U5)</td>
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<tr>
<td>10788PA</td>
<td>MOS/LSI-GPKD (U6) — Rockwell</td>
</tr>
<tr>
<td>SCL4081BE</td>
<td>IC-Quad And Gate — Sol. St. Scientific (Z1)</td>
</tr>
<tr>
<td>SN74154N</td>
<td>IC-4 to 16 Decoder — T.I. (Z30)</td>
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<tr>
<td>7405N</td>
<td>IC-Hex Inverter — OC — T.I. (Z9, 27, 28, 29)</td>
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<tr>
<td>SN7416N</td>
<td>IC-Hex Inverter — OC/HV. — T.I. (Z26)</td>
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<tr>
<td>SN7404N</td>
<td>IC-Hex Inverter — T.I. (Z8, Z13, 14, 24, 25)</td>
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<tr>
<td>SN7417N</td>
<td>IC-Hex Buffer — T.I. (Z6, 7, 11, 12)</td>
</tr>
<tr>
<td>SN74H21N</td>
<td>IC-Dual 4-Input And Gate — T.I. (Z15)</td>
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<tr>
<td>SN7448N</td>
<td>IC-BCD to 7 Segment Decoder T.I. (Z16, 17)</td>
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<tr>
<td>SN7408N</td>
<td>IC-Quad 2 Input And Gate — T.I. (Z18, 19, 20, 21)</td>
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<tr>
<td>5P101L-3</td>
<td>CMOS-Static Ram (256X4) (Z22) INTELL</td>
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<tr>
<td>CD4049AE</td>
<td>IC-Hex Buffer/Conv. — National (Z3, 4)</td>
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<tr>
<td>SN74LS05N</td>
<td>IC-LP Hex Inverter — OC — T.I. (Z5)</td>
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<tr>
<td>SCL4528BE</td>
<td>IC-Dual One Shot — Sol. St. Scientific (Z2)</td>
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<tr>
<td>6MPS-A70</td>
<td>Transistor, PNP (Q1-6) — Motorola</td>
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<tr>
<td>1N4148</td>
<td>Diode, GP 75 mA, 75V. (CRI-24, 26-37)</td>
</tr>
<tr>
<td>721R01-025</td>
<td>Resistor-1 OHM, 1/4 W. 5% (R107-R108)</td>
</tr>
<tr>
<td>721R01-068</td>
<td>Resistor-62 OHM, 1/4 W. 5% (R133)</td>
</tr>
<tr>
<td>721R01-092</td>
<td>Resistor-620 OHM, 1/4 W. 5% (R45-R56)</td>
</tr>
<tr>
<td>721R01-097</td>
<td>Resistor-1K OHM, 1/4 W. 5% (R109, 156, 157)</td>
</tr>
<tr>
<td>721R01-107</td>
<td>Resistor-2.7K OHM, 1/4W. 5% (R11-16, 73-80, 99-106, 110, 113, 116, 119, 147)</td>
</tr>
<tr>
<td>721R01-113</td>
<td>Resistor-4.7K OHM, 1/4 W. 5% (R25-32)</td>
</tr>
<tr>
<td>721R01-117</td>
<td>Resistor-6.8K OHM, 1/4 W. 5% (R3-10. 33-44, 57-62, 82-98, 122-131, 162)</td>
</tr>
<tr>
<td>721R01-123</td>
<td>Resistor-12K OHM, 1/4 W. 5% (R134-145, 149-153)</td>
</tr>
<tr>
<td>721R01-130</td>
<td>Resistor-24K OHM, 1/4 W. 5% (R1, 2, 17-24, 65-72, 81, 154, 155)</td>
</tr>
<tr>
<td>10/40/80000</td>
<td>Capacitor — 10 Micro-Farad, 40V. — Siemens (C20)</td>
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<tr>
<td>ECE-B25V100L</td>
<td>Capacitor — 100 Micro-Farad, 25V. — Matsushita (C17)</td>
</tr>
<tr>
<td>ECE-B10V100L</td>
<td>Capacitor — 100 Micro-Farad, 10V. — Matsushita (C16)</td>
</tr>
<tr>
<td>C320C103MIR5CA</td>
<td>Capacitor — .01 Micro-Farad, 100V. — Sprague/Kemet (C1-15, 18, 19, 22-30)</td>
</tr>
<tr>
<td>703R01-003</td>
<td>Capacitor — 0.1 Micro-Farad, 100V. (C31-33)</td>
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<tr>
<td>1N703</td>
<td>Diode — 3.5 V, 250 mW, 20% — Motorola/Siemens (CR38)</td>
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<tr>
<td>721R01-175</td>
<td>Resistor — 1.8M, 1/4 W. 5% (R158)</td>
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<tr>
<td>721R01-179</td>
<td>Resistor — 2.7M, 1/4 W. 5% (R159)</td>
</tr>
<tr>
<td>CA-08SE-10SD</td>
<td>Socket (TC3), 8 Pin-Circuit Assembly</td>
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### PARTS LIST

**MASTER DRIVER BOARD**  
**PB00-D110**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part Number</th>
<th>Description</th>
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<tr>
<td>9</td>
<td>SN74175N</td>
<td>Integrated Circuit, Quad “D” Flip-Flop-T.I. (Z1-Z9)</td>
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<tr>
<td>38</td>
<td>721R01-097</td>
<td>Resistor-1K OHM, 5%, 1/4 W. (R1-R38)</td>
</tr>
<tr>
<td>1</td>
<td>721R01-052</td>
<td>Resistor-13 OHM, 5%, 1/4 W. (R39)</td>
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<td>14</td>
<td>C320C103MIR5CA</td>
<td>Capacitor-.01 Micro-Farad, 20%, 100V. — Kemet (C2-C15)</td>
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<tr>
<td>1</td>
<td>T320B106-010AS</td>
<td>Capacitor-10 Micro-Farad, 10V. — Kemet (C1)</td>
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<td>5</td>
<td>MPS-U45</td>
<td>Transistor, NPN — Motorola (Q1-Q4, Q29)</td>
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<td>32</td>
<td>MPS-A13</td>
<td>Transistor, NPN — Motorola (Q5-Q24, Q33-Q44)</td>
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<td>7</td>
<td>2N6043</td>
<td>Transistor, NPN — Motorola (Q25-Q28, Q30-Q32)</td>
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<td>1</td>
<td>2N3055</td>
<td>Transistor, NPN — RCA (Q45)</td>
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<td>1</td>
<td>43-03-4</td>
<td>Insulator — Thermalloy (Q45 Ref.)</td>
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### PARTS LIST

#### 6 DIGIT DISPLAY

**PB00-D140**

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<tr>
<td>1</td>
<td>RC20GF103</td>
<td>Resistor, 10K, 1/2 W., 5% (R1)</td>
</tr>
<tr>
<td>1</td>
<td>TE1400</td>
<td>Capacitor — 1 Micro-Farad 100V. (C3)</td>
</tr>
<tr>
<td>2</td>
<td>C320C103MIR5CA</td>
<td>Capacitor — .01 Micro-Farad, 100V. (C1, C2)</td>
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<tr>
<td>2</td>
<td>UDN6118A</td>
<td>IC-Fluorescent Dis. Driver — Sprague (Z1, Z2)</td>
</tr>
<tr>
<td>1</td>
<td>6-JS-01</td>
<td>6 Digit Display — Futaba Ind. U.S.A.</td>
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#### 4 DIGIT DISPLAY

**PB00-D150**

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<td>1</td>
<td>TE1400</td>
<td>Capacitor — 1 Micro-Farad, 100V. — Sprague (C1)</td>
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<tr>
<td>2</td>
<td>C320C103MIR5CA</td>
<td>Capacitor — .01 Micro-Farad, 100V. — Kemet (C2, C3)</td>
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<tr>
<td>2</td>
<td>UDN6118A</td>
<td>IC — Fluorescent Dis. Driver — Sprague (Z2, Z3)</td>
</tr>
<tr>
<td>1</td>
<td>SN7432N</td>
<td>IC — Quad or Gate — T.I. (Z1)</td>
</tr>
<tr>
<td>1</td>
<td>4-LT-11</td>
<td>4 Digit Display — Futuba Ind. U.S.A. (DS1)</td>
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## POWER SUPPLY

### PARTS LIST

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<tr>
<td>1</td>
<td>RC42GF18R2</td>
<td>Resistor, .18 OHM, 2 W. ± 5% (R1A)</td>
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<tr>
<td>3</td>
<td>RC20GF101</td>
<td>Resistor, 100 OHM, ½ W. ± 5% (R2, R101, R201)</td>
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<tr>
<td>1</td>
<td>RC20GF431</td>
<td>Resistor, 430 OHM, ½ W. ± 5% (R3)</td>
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<td>1</td>
<td>RC20GF681</td>
<td>Resistor, 680 OHM, ½ W. ± 5% (R21)</td>
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<tr>
<td>1</td>
<td>C173BNA</td>
<td>Resistor, 1.2K OHM, ½ W. ± 1% (R5) MEPCO</td>
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<td>1</td>
<td>RC20GF202</td>
<td>Resistor, 2K OHM, ½ W. ± 5% (R6)</td>
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<tr>
<td>2</td>
<td>RC20GF152</td>
<td>Resistor, 1.5K OHM, ½ W. ± 5% (R7, R8)</td>
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<tr>
<td>1</td>
<td>RC20GF222</td>
<td>Resistor, 2.2K OHM, ½ W. ± 5% (R9)</td>
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<tr>
<td>2</td>
<td>RC20GF153</td>
<td>Resistor, 15K OHM, ½ W. ± 5% (R10, R11)</td>
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<tr>
<td>1</td>
<td>RC20GF102</td>
<td>Resistor, 1K OHM, ½ W. ± 5% (R12)</td>
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<tr>
<td>1</td>
<td>RC20GF330</td>
<td>Resistor, 33K OHM, ½ W. ± 5% (R13)</td>
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<tr>
<td>1</td>
<td>RC20GF123</td>
<td>Resistor, 12K OHM, ½ W. ± 5% (R14)</td>
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<tr>
<td>2</td>
<td>RC20GF103</td>
<td>Resistor, 10K OHM, ½ W. ± 5% (R15, R18)</td>
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<tr>
<td>1</td>
<td>RC20GF242</td>
<td>Resistor, 2.4K OHM, ½ W. ± 5% (R17)</td>
</tr>
<tr>
<td>1</td>
<td>RC20GF201</td>
<td>Resistor, 200 OHM, ½ W. ± 5% (R102, R202)</td>
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<tr>
<td>1</td>
<td>RC20GF471</td>
<td>Resistor, 470 OHM, ½ W. ± 5% (R22)</td>
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<td>1</td>
<td>1N5R102A</td>
<td>Pot. 1K OHM, 2W. 10% (R4) CTS</td>
</tr>
<tr>
<td>1</td>
<td>1N5R501A</td>
<td>Pot. 500 OHM, 2W. 10% (R16) CTS</td>
</tr>
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<td>1</td>
<td>PMD12K40</td>
<td>Transistor (Q1) Power Monolithics</td>
</tr>
<tr>
<td>1</td>
<td>MJE340K</td>
<td>Transistor (Q2) Motorola</td>
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<tr>
<td>1</td>
<td>2N3416</td>
<td>Transistor (Q3)</td>
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<tr>
<td>1</td>
<td>MPSA43</td>
<td>Transistor (Q4) Motorola</td>
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<tr>
<td>2</td>
<td>MR751</td>
<td>Diode, 3AMP, 50 V. (CR1, CR2) Motorola</td>
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<tr>
<td>2</td>
<td>1N4002</td>
<td>Diode, 1 AMP, 100 V. (CR3, CR4)</td>
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<tr>
<td>3</td>
<td>1N914</td>
<td>Diode, 75 mA, 75 V. (CR5, CR22, CR23)</td>
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<tr>
<td>4</td>
<td>1N4004</td>
<td>Diode, 1 AMP, 400 V. (CR6, CR7, CR8, CR9)</td>
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<td>1N4753</td>
<td>Diode, 36 V., 1 W., 10% (CR10)</td>
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<tr>
<td>1</td>
<td>1N4742A</td>
<td>Diode, 12 V., 1 W., 5% (CR11)</td>
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<tr>
<td>1</td>
<td>1N4746A</td>
<td>Diode, 18 V., 1 W., 5% (CR12)</td>
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<tr>
<td>1</td>
<td>1N4738A</td>
<td>Diode, 8.2 V., 1 W., 5% (CR21)</td>
</tr>
<tr>
<td>1</td>
<td>1N4734A</td>
<td>Diode, 5.6 V., 1 W., 5% (CR101)</td>
</tr>
<tr>
<td>2</td>
<td>S0306LS3</td>
<td>Rectifier (SCR101, SCR201) ECC</td>
</tr>
<tr>
<td>1</td>
<td>UA723CL</td>
<td>+ 5 V. Regulator (IC1) TI</td>
</tr>
<tr>
<td>1</td>
<td>UA79M12CKC</td>
<td>- 12 V. Regulator (LIC1) TI</td>
</tr>
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<td>1</td>
<td>8101-100W5RO221K</td>
<td>Capacitor 2.9K Micro-Farad 30 V. (C1)</td>
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<tr>
<td>1</td>
<td>8121-050651104M</td>
<td>Capacitor 220 Pico-Farad 16 V. (C2) Erie</td>
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<tr>
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<td>Capacitor 470 Micro-Farad 10 V. (C3) TI</td>
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<td>Capacitor 1K Micro-Farad 35 V. (C4) TI</td>
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<td>CEO2W</td>
<td>Capacitor 200 Micro-Farad 150 V. (C6) Towa</td>
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<td>09-60-1071</td>
<td>Connector (J1) Molex</td>
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<td>09-67-1061</td>
<td>Connector (J2) Molex</td>
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<td>Connector (J3) Molex</td>
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<td>1N4743A</td>
<td>Diode, 13V., 1 W., 5% (CR201)</td>
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COILS USED

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<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tr>
<td>A-1496</td>
<td>POP BUMPER COILS</td>
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<tr>
<td>A-5195</td>
<td>OUT HOLE COIL</td>
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<tr>
<td>A-5194</td>
<td>KICKING RUBBER COIL</td>
</tr>
<tr>
<td>A-16890</td>
<td>GAME OVER RELAY COIL (Q)</td>
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<tr>
<td>A-16890</td>
<td>TILT RELAY COIL (T)</td>
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<td>A-17875</td>
<td>FLIPPER COILS</td>
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<td>A-17891</td>
<td>&quot;A&quot; TARGET BANK RESET COIL</td>
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<td>A-18102</td>
<td>&quot;10-J&quot; TARGET BANK RESET COIL</td>
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<td>A-18102</td>
<td>&quot;Q&quot; TARGET BANK RESET COIL</td>
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<td>A-18318</td>
<td>&quot;K&quot; TARGET BANK RESET COIL</td>
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</tbody>
</table>
NOTE: UNLESS OTHERWISE SPECIFIED
1. RESISTORS ARE ½ W. ± 5%
2. VOLTAGES ARE DC AND WITH RESPECT TO GROUND.
3. ALL VOLTAGES ARE TYPICAL.
NOTE: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS ±5%, 1/4W
2. CAPACITORS ARE 0.1UF & RATED 100V
3. TRANSISTORS ARE MPS-A70
4. DIODES ARE 1N448