

## Optional Kits available through your Distributor:

Flipper Rebuild Kit (Left) ..... 500-6307-10

Flipper Base Plate Kit (Left) ..... 515-6617-01

*Kit includes:* Flipper Base Plate (Left) pre-threaded with securing hardware; see the Flipper Drawing for view.

Flipper Rebuild Kit (Right) ..... 500-6307-00

Flipper Base Plate Kit (Right) ..... 515-6617-00

*Kit includes:* Flipper Base Plate (Left) pre-threaded with securing hardware; see the Flipper Drawing for view.

Pinball Location Maintenance Standard Kit (for Avatar Pinball) ..... 502-6002-B1

**Standard Kit includes :** 8 oz. Novus Wax #2 Fine (Red) (675-0003-01), Cloth, Rubber Rings (used above playfield), Bulbs (Bulb quantities vary and is limited to 25 per type), Fuses (1/per type) and 4 Pinballs. **Note:** Quantities, sizes and contents subject to change without notice.

Pinball Location Maintenance Deluxe Kit (for Avatar Pinball) ..... 502-6003-B1

**Deluxe Kit includes :** Pinball Location Maintenance Standard Kit as described above plus a quantity of Flipper Rebuild Kits. **Note:** Quantity varies which equals the same quantity of flippers used in this game.

▲ THIS GAME KIT INCLUDES ( 2 ) FLIPPER REBUILD KITS ▲

Plastics\*Kit (for Avatar Pinball) ..... 803-5000-B1

*Plastics Kit includes:* Plastic Sets (830-6113-XX)

Decals\*Kit (for Avatar Pinball) ..... 802-5000-B1

*Decals Kit includes:* Decal Set (820-6567-XX)

Mylar\*Kit (for Avatar Pinball) ..... 802-5001-B1

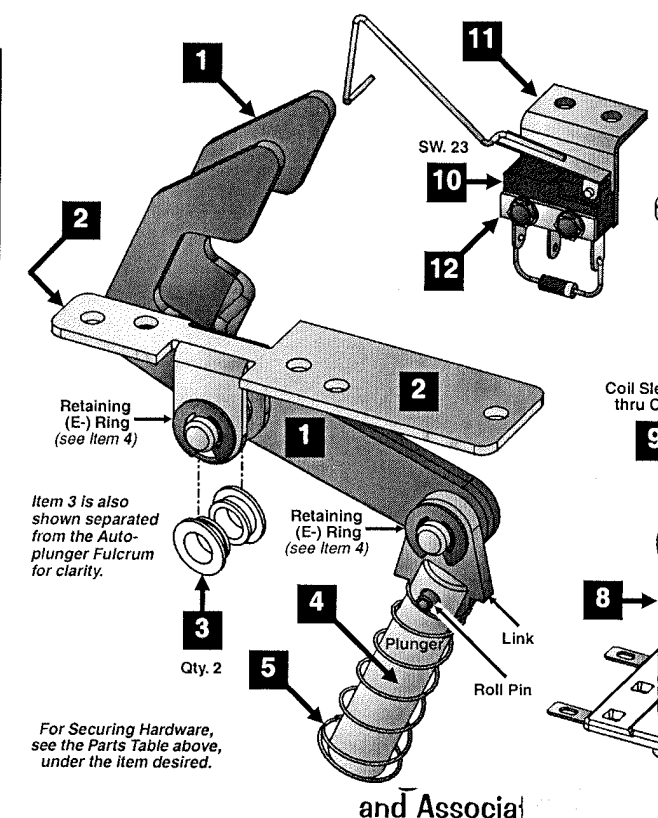
*Mylar Kit includes:* Pop Bumper (820-6570-00)

**\*Attention:** No individual Plastic or Decal can be ordered separately, unless noted otherwise. Plastics & Decals are subject to change without notice during and / or after production. Key Fobs subject to availability and may or may not be included in the plastic set. All designs, shapes & pieces used subject to change without notice. Kit contents subject to change. Service Bulletin(s) will announce any critical changes, if warranted. The last 2-digits shown on plastics or decals are for reference only.

# Ball Shooter (Plunger) Assembly, 500-6146-00-04 (Items 1-6)



| Nr.                                                                                                                                                                                                                       | AUTOPL. ARM WELD PARTS          | QTY. | SPI PART Nr. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------|--------------|
| 1                                                                                                                                                                                                                         | Arm Weld Assembly               | 1    | 515-6526-00  |
| Item 1 is secured to Item 2 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00)                                                                                                                                       |                                 |      |              |
| 2                                                                                                                                                                                                                         | Autoplunger Fulcrum             | 1    | 535-7697-00  |
| 3                                                                                                                                                                                                                         | Nyliner, 1/4" (Thomson #411-FF) | 2    | 545-5423-00  |
| 4                                                                                                                                                                                                                         | Plunger & Link Assembly         | 0    | 511-5183-00  |
| Item 4 is secured to Item 1 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00)<br>For Individual Items use: Plunger 1.81" Lg. (530-5025-05), Plunger Link (545-5293-00) and Roll Pin 1/8" ø x 5/8" Lg. (251-5008-00) |                                 |      |              |
| 5                                                                                                                                                                                                                         | Compression (Return) Spring     | 1    | 266-5020-00  |
| (ASM. REF. 500-6091-00, Items 1-5)                                                                                                                                                                                        |                                 |      |              |

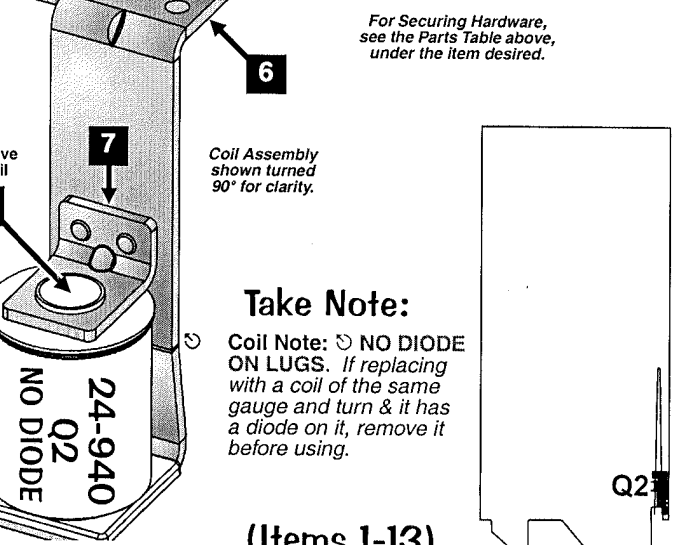


| Nr.                                                                                                                                                                                                                                                                   | BALL SHOOTER PARTS                   | QTY. | SPI PART Nr. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|--------------|
| 1                                                                                                                                                                                                                                                                     | Housing Asm. + Bushings (Item 4)     | 1    | 535-5067-02  |
| Item 1 is secured to the Cabinet by: Support Plate [not included with Item 1 or Assembly] (535-5027-00), #10-32 X 1/2" PPH (Sems) Zinc TF (Qty. 3) (237-6033-00), #10 Split Lock Washer (Qty. 3) (244-5003-00) and #6 X 1/2" HWH AB (Zinc) Red (Qty. 2) (234-5001-02) |                                      |      |              |
| 2                                                                                                                                                                                                                                                                     | Rod Assembly (with Black Knob)       | 1    | 515-6557-00  |
| 3                                                                                                                                                                                                                                                                     | Comp. Spring (Short) (Knob Side)     | 1    | 266-5010-00  |
| Item 3 is sandwiched onto Item 2 (Front Side) between the knob and by: Washer, 3/8" I.D. X 5/8" O.D. X 1/16" (242-5014-00)                                                                                                                                            |                                      |      |              |
| 4                                                                                                                                                                                                                                                                     | Bushing, 3/8" I.D. (Oilite)          | 2    | 280-5010-00  |
| Item 4 is included with Item 1, Housing, (1 @ the front; 1 @ the back) as shown.                                                                                                                                                                                      |                                      |      |              |
| 5                                                                                                                                                                                                                                                                     | Comp. Spring (Long) [GREEN, .035" ø] | 1    | 266-5001-04  |
| Item 5 is sandwiched onto Item 2 (Rubber Tip Side) by: Washer, 3/8" I.D. X 5/8" O.D. X 1/16" (Qty. 1/per side) (242-5014-00) and Retaining Ring, 3/8" ø Shaft (270-5012-00)                                                                                           |                                      |      |              |
| 6                                                                                                                                                                                                                                                                     | Rubber [Plunger] Tip (Black 50 Duro) | 1    | 545-5276-00  |

## Autoplunger Arm Weld Asm., 500-6091-00 (Items 1-5), Autoplunger Coil Assembly, 500-6092-02-ND (Items 6-9) and Shooter Lane Switch Assembly, 500-6096-00 (Items 10-12)

| Nr.                                                                                      | AUTOPLNGR. COIL PARTS             | QTY. | SPI PART Nr. |
|------------------------------------------------------------------------------------------|-----------------------------------|------|--------------|
| 6                                                                                        | Autoplunger Coil Bracket Assembly | 1    | 515-6527-00  |
| Items 1 & 6 are secured below the P/F by: #8 X 1/2" SHWH AB (Zc.) (Qty. 9) (234-5101-00) |                                   |      |              |
| 7                                                                                        | Coil Retainer Bracket             | 1    | 535-5203-03  |
| Item 7 is secured to Item 6 by: #8-32 X 1/4" PPH MS (Sems) Zinc (Qty. 2) (232-5300-00)   |                                   |      |              |
| 8                                                                                        | Coil, 24-940 [ NO DIODE ]         | 1    | 090-5036-ND  |
| COIL DOES NOT REQUIRE A DIODE. SEE ☞ COIL NOTE BELOW FOR DETAILS.                        |                                   |      |              |
| 9                                                                                        | Coil Sleeve                       | 1    | 545-5031-00  |
| (ASM. REF. 500-6092-02-ND, Items 6-9)                                                    |                                   |      |              |

| Nr.                                                                                                                                                    | SWITCH PARTS              | QTY. | SPI PART Nr. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------|--------------|
| 10                                                                                                                                                     | Switch (for Shooter Lane) | 1    | 180-5157-00  |
| Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).                                                                |                           |      |              |
| 11                                                                                                                                                     | Switch Mounting Bracket   | 1    | 535-6173-00  |
| Item 11 is secured to Playfield by: #6 X 1/2" SLT HWH AB (Zinc) (Qty. 2) (234-5001-02)                                                                 |                           |      |              |
| 12                                                                                                                                                     | Switch Body Protect Plate | 14   | 535-6539-00  |
| Item 12 is secured to Items 10-11 by: #2-56 X 1/2" Unslotted Ser. HWH #4 Head TR3 Black (Qty. 2) (237-5937-02) and #2-56 Hex Nut (Qty. 2) (240-5301-0) |                           |      |              |
| (ASM. REF. 500-6096-00, Items 10-12)                                                                                                                   |                           |      |              |

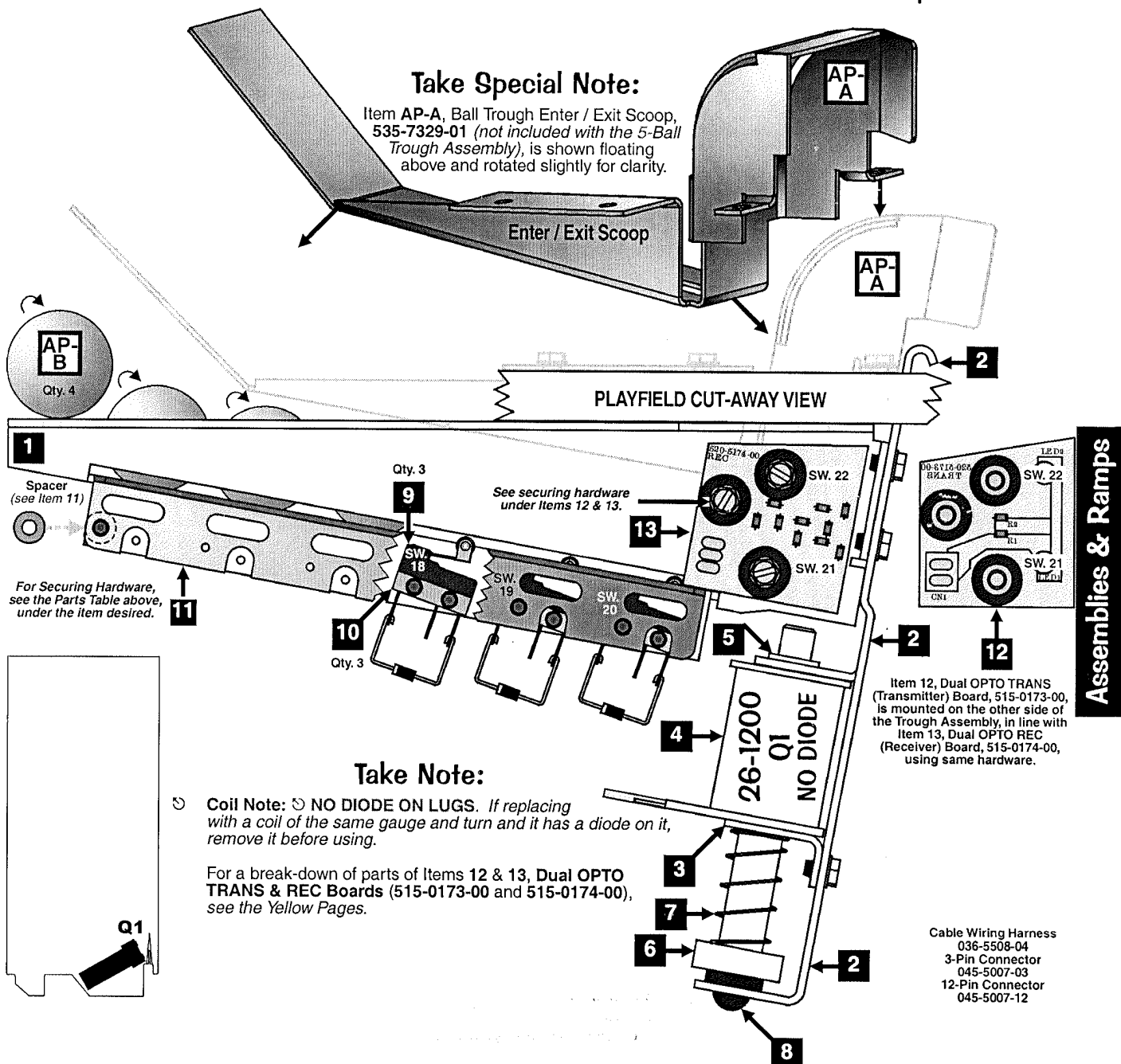


(Items 1-13)  
Table Below.

## 4-Ball Trough Assembly, 500-6318-24-ND (Items 1-13) and Associated Parts: See Parts Table Below.

Ordering Note: Identical to 500-6318-14 with exceptions, see note below Item 13 (Parts Table).

| Nr.                                                                                      | 4-BALL TROUGH PARTS                        | QTY. | SPI PART Nr. | Nr.                                                                                                                                                                                                                                                                                                                                         | 4-BALL TROUGH PARTS            | QTY. | SPI PART Nr. |
|------------------------------------------------------------------------------------------|--------------------------------------------|------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------|--------------|
| 1                                                                                        | Ball Trough Outhole Mounting Bracket       | 1    | 515-6580-01  | 11                                                                                                                                                                                                                                                                                                                                          | Trough Ball Guide Plate        | 1    | 535-7801-00  |
| Item 1 is secured below the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 4) (234-5101-00) |                                            |      |              | Item 11 is secured to Item 1 by: 1/4" X 5/16" X .144" I.D. Spacer Tap. (Qty. 1) (254-5014-03) and #2-56 X 1/2" HWH (Ser) UNS #4HD TR3 BO (Qty. 4) (237-5937-02)                                                                                                                                                                             |                                |      |              |
| 2                                                                                        | Coil Mounting Bracket                      | 1    | 535-7330-01  | 12                                                                                                                                                                                                                                                                                                                                          | Dual OPTO TRANS Board Assembly | 1    | 515-0173-00  |
| Item 2 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Sr.) Zinc (Qty. 4) (237-5975-00) |                                            |      |              | Items 12 & 13 are secured by: #6-32 X 5/8" HWH Swg (Ser) Zc (Qty. 3/per) (237-5976-04)                                                                                                                                                                                                                                                      |                                |      |              |
| 3                                                                                        | Coil Retaining Bracket                     | 1    | 535-5203-03  | 13                                                                                                                                                                                                                                                                                                                                          | Dual OPTO REC Board Assembly   | 1    | 515-0174-00  |
| Item 3 is secured to Item 2 by: #8-32 X 1/4" SHWH (Serr) Zinc (Qty. 2) (237-5975-04)     |                                            |      |              | For Individual Items use: Dual OPTO Transmitter Board (Qty. 1) (520-5173-00), Dual OPTO Receiver Board (Qty. 1) (520-5174-00), OPTO PCB Tube Spacer (Brass) (Qty. 3/per) (530-5308-02) and OPTO PCB Rubber Grommet (Qty. 3/per) (545-5518-00)                                                                                               |                                |      |              |
| 4                                                                                        | Coil, 26-1200 [ NO DIODE ]                 | 1    | 090-5044-ND  | Ordering Note: If 500-6318-24-ND is unavailable, order the individual part(s) actually required. This assembly is identical to 500-6318-14-ND, -15 or -25 except for the quantity of Items 9 & 10 (Qty. 4/per on 5-Ball Trough) and Item 11, required when a Magnet Mech. is used in the game. -ND means no diode on Item 4, Coil, 26-1200. |                                |      |              |
| COIL DOES NOT REQUIRE A DIODE. SEE ☺ COIL NOTE BELOW FOR DETAILS.                        |                                            |      |              | ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.                                                                                                                                                                                                                                                                                  |                                |      |              |
| 5                                                                                        | Coil Sleeve (Short) (Formost #10-7077)     | 1    | 545-5076-01  | Nr.                                                                                                                                                                                                                                                                                                                                         | ASSOCIATED PART(S)             | QTY. | SPI PART Nr. |
| 6                                                                                        | Steel & Nylon Plunger Asm. (3.57")         | 1    | 515-7309-01  | AP-A                                                                                                                                                                                                                                                                                                                                        | Ball Trough Enter / Exit Scoop | 1    | 535-7329-01  |
| 7                                                                                        | Compression (Return) Spring                | 1    | 266-5020-00  | Item AP-A secured to the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 4) (234-5101-00).                                                                                                                                                                                                                                                     |                                |      |              |
| 8                                                                                        | Rubber Bumper (Grommet)                    | 1    | 545-5105-00  | AP-B                                                                                                                                                                                                                                                                                                                                        | Steel Balls (1-1/16" ø)        | 4    | 260-5000-00  |
| 9                                                                                        | Micro Switch (Roller Actuator, Lite-Force) | 3    | 180-5119-02  |                                                                                                                                                                                                                                                                                                                                             |                                |      |              |
| Item 9 requires: Heat Shrink Tubing 1/8" ø PUI-24 (Qty. 1"/per) (605-5006-00)            |                                            |      |              |                                                                                                                                                                                                                                                                                                                                             |                                |      |              |
| Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).  |                                            |      |              |                                                                                                                                                                                                                                                                                                                                             |                                |      |              |
| 10                                                                                       | Switch Body Protect Plate                  | 3    | 535-6539-00  |                                                                                                                                                                                                                                                                                                                                             |                                |      |              |



# **Flipper (Left) Assembly, 500-6543-15-ND (Items 1-15)** **and Associated Parts: Yellow Flipper Bat & Shaft Asm., 515-5133-06-06 (Items AP-A / AP-B)**

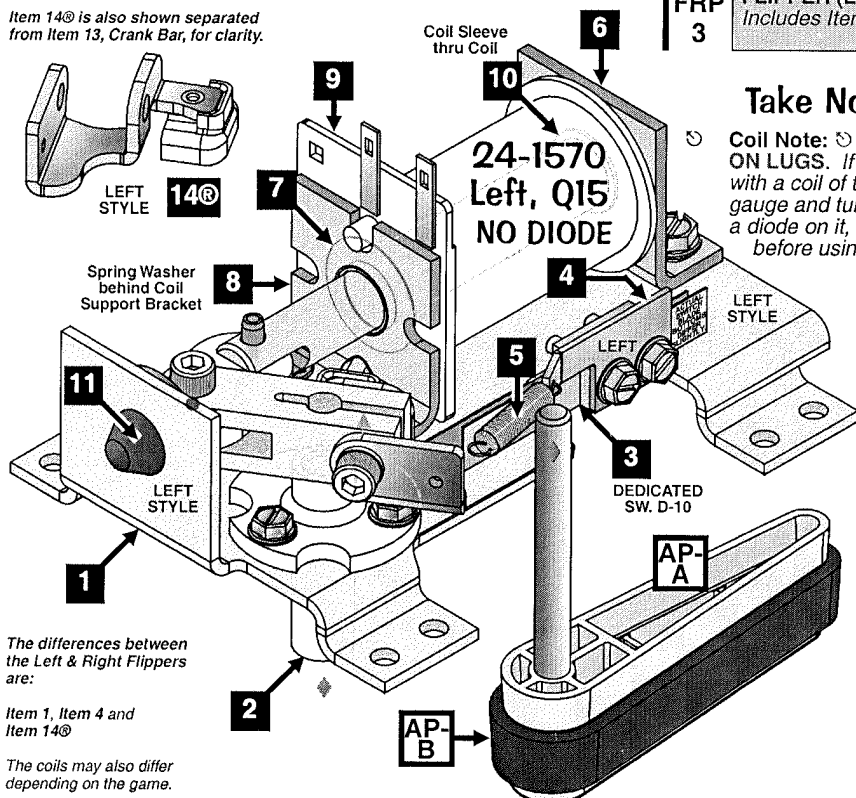
| Nr.                                                                                                                                                                                                                                                        | FLIPPER (LEFT) PARTS                            | QTY. | SPI PART Nr. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------|--------------|
| 1                                                                                                                                                                                                                                                          | Flipper Base Plate (LEFT)                       | 1    | See FRP1     |
| Item 1 is secured below by: #8 X 1/2" SHWH AB (Zinc) (Qty. 8) (234-5101-00)<br><i>Ordering Note: Individual Part (535-7275-01) is not prethreaded, see Item FRP1.</i>                                                                                      |                                                 |      |              |
| 2                                                                                                                                                                                                                                                          | Flipper Bat Bushing (White Plastic) .25" ø I.D. | 1    | 545-5070-00  |
| Item 2 is secured to Item 1 by: #6-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 3) (237-5976-02)                                                                                                                                                                   |                                                 |      |              |
| 3                                                                                                                                                                                                                                                          | Power (EOS / End-of-Stroke) Switch              | 1    | 180-5149-00  |
| Item 3 is secured to Item 1 by: #6-32 X 5/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5976-04)                                                                                                                                                                   |                                                 |      |              |
| 4                                                                                                                                                                                                                                                          | Sw. Plate/Spring Return Brkt. (LEFT)            | 1    | 535-7354-01  |
| 5                                                                                                                                                                                                                                                          | Flipper Return Spring                           | 1    | 265-5035-00  |
| 6                                                                                                                                                                                                                                                          | Coil Stop Bracket Sub-Assembly                  | 1    | 515-6308-01  |
| Item 6 is secured to Item 1 by: #10-32 X 3/8" SHWH Swage (Serr) Zinc (Qty. 2) (237-5985-00) and #10 Split Lock Washer (Qty. 2) (244-5003-00)                                                                                                               |                                                 |      |              |
| 7                                                                                                                                                                                                                                                          | Spring Washer (17/32" ID X 3/4" X 1")           | 1    | 269-5002-00  |
| 8                                                                                                                                                                                                                                                          | Coil Support Bracket                            | 1    | 535-7356-00  |
| Item 8 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5975-00)                                                                                                                                                                   |                                                 |      |              |
| 9                                                                                                                                                                                                                                                          | Coil, 24-1570 [ NO DIODE ]                      | 1    | 090-5025-ND  |
| COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE BELOW FOR DETAILS.                                                                                                                                                                                            |                                                 |      |              |
| 10                                                                                                                                                                                                                                                         | Coil Sleeve                                     | 1    | 545-5388-00  |
| 11                                                                                                                                                                                                                                                         | Deflector Pad (Bumper)                          | 1    | 545-5428-00  |
| 12                                                                                                                                                                                                                                                         | Flipper Plunger & Link Sub-Assy.                | 1    | 515-6304-03  |
| For Individual Items use: Flipper Plunger (530-5349-01) and Plunger "Flipper" Link (545-5611-01) and is secured to the Plunger by: Bushing, .16" ø ID X .281" ø OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin ø 5/32" X 3/4" Lg. (Qty. 1) (251-5015-02) |                                                 |      |              |
| 13                                                                                                                                                                                                                                                         | Crank Bar (Pawl)                                | 1    | 530-5070-02  |
| Item 13 requires: Bushing, .192" ø ID X .312" ø OD X .195" (Qty. 1) (530-5139-00)                                                                                                                                                                          |                                                 |      |              |
| 14®                                                                                                                                                                                                                                                        | Switch Actuator (LEFT) Sub-Assy.                | 1    | 515-7257-01  |
| For Individual Items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and ® Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" ø X 1/4" Lg. (Qty. 1) (249-5003-00)                                             |                                                 |      |              |
| 15                                                                                                                                                                                                                                                         | Set Screw: #10-32 X 3/4" Socket Hd.             | 2    | 237-6144-00  |
| Item 15 requires: #10-32 Nylon Stop Nut (Qty. 1) Flipper Link Side Only (240-5203-00) and #10 Split Lock Washer (Qty. 1) Switch Actuator Side Only (244-5003-00)<br>Tool required for Item 15: 5/32" or 4mm Allen Wrench                                   |                                                 |      |              |

## **Flipper Rebuild Parts for Easier Installation, Save \$:**

**FRP 1 FLIPPER BASE PLATE KIT (LEFT):**  
Includes Item 1 pre-threaded >+< Securing Hardware for Items 2, 3, 6 & 8. **515-6617-01**

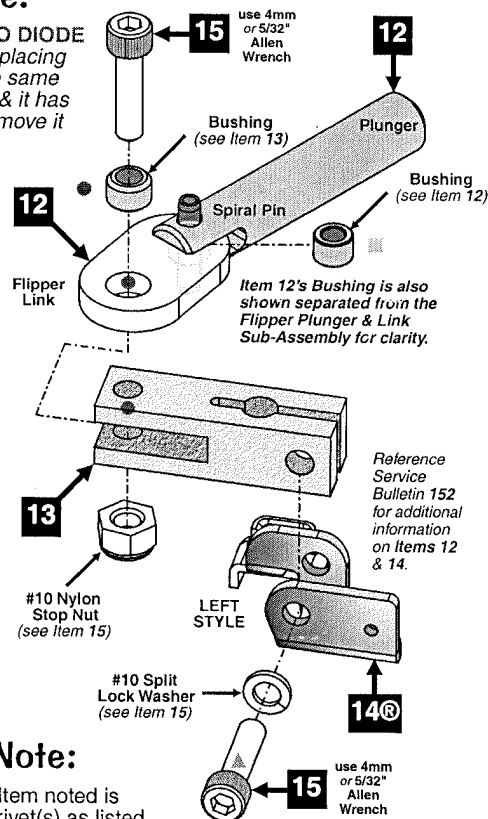
**FRP 2 PLUNGER, LINK & CRANK (LEFT STYLE) ASSEMBLY:** Includes Items 12, 13, 14 & 15 (comes assembled). **515-7203-01**

**FRP 3 FLIPPER (LEFT) REBUILD KIT:**  
Includes Items 6, 10 AND above FRP2 **500-6307-10**



## **Take Note:**

Coil Note: ☹ NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn & it has a diode on it, remove it before using.



## **Take Note:**

® "R" indicates Item noted is secured with rivet(s) as listed.

ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

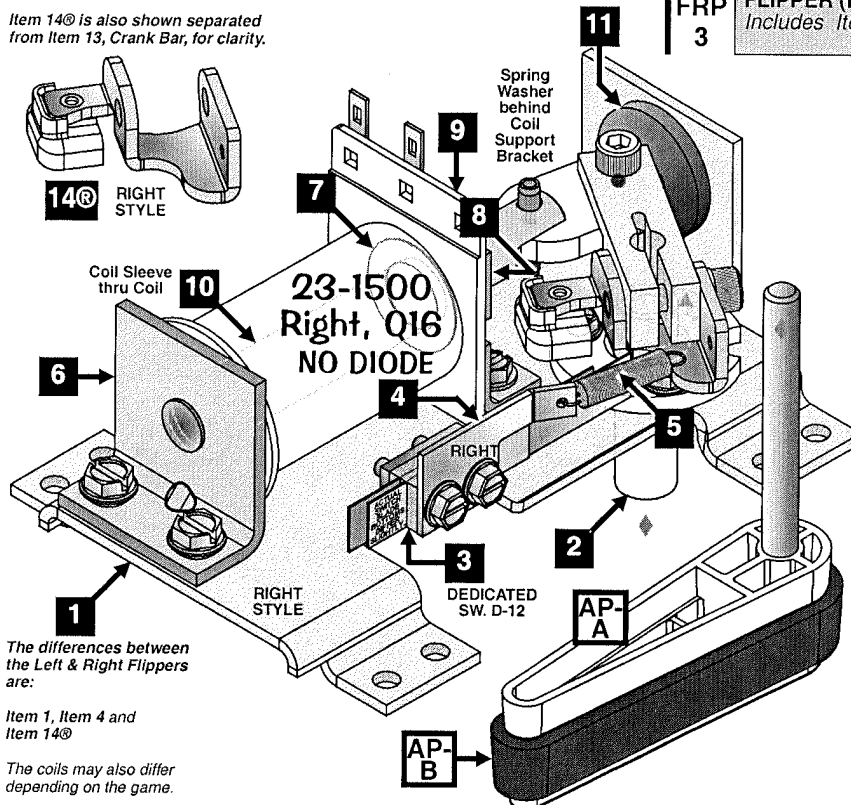
| Nr.  | ASSOCIATED PART(S)                                                          | QTY. | SPI PART Nr.   |
|------|-----------------------------------------------------------------------------|------|----------------|
| AP-A | White Flipper Bat & Shaft Asm. (Non-Knurled End) <b>without Rubber Ring</b> | 1    | 515-5133-08-06 |
| AP-B | Large Flipper Red Rubber Ring                                               | 1    | 545-5277-22    |



# Flipper (Right) Assembly, 500-6543-05-ND (Items 1-15) and Associated Parts: White Flipper Bat & Shaft Asm., 515-5133-08-06 (Items AP-A / AP-B)

| Nr.                                                                                                                                                                                                                                                        | FLIPPER (RIGHT) PARTS                           | QTY. | SPI PART Nr. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------|--------------|
| 1                                                                                                                                                                                                                                                          | Flipper Base Plate (RIGHT)                      | 1    | See FRP1     |
| Item 1 is secured below by: #8 X 1/2" SHWH AB (Zinc) (Qty. 8) (234-5101-00)<br>Ordering Note: Individual Part (535-7275-00) is not prethreaded, see Item FRP1.                                                                                             |                                                 |      |              |
| 2                                                                                                                                                                                                                                                          | Flipper Bat Bushing (White Plastic) .25" ø I.D. | 1    | 545-5070-00  |
| Item 2 is secured to Item 1 by: #6-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 3) (237-5976-02)                                                                                                                                                                   |                                                 |      |              |
| 3                                                                                                                                                                                                                                                          | Power (EOS / End-of-Stroke) Switch              | 1    | 180-5149-00  |
| Item 3 is secured to Item 1 by: #6-32 X 5/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5976-04)                                                                                                                                                                   |                                                 |      |              |
| 4                                                                                                                                                                                                                                                          | Sw. Plate/Spring Return Brkt. (RIGHT)           | 1    | 535-7354-00  |
| 5                                                                                                                                                                                                                                                          | Flipper Return Spring                           | 1    | 265-5035-00  |
| 6                                                                                                                                                                                                                                                          | Coil Stop Bracket Sub-Assembly                  | 1    | 515-6308-01  |
| Item 6 is secured to Item 1 by: #10-32 X 3/8" SHWH Swage (Serr) Zinc (Qty. 2) (237-5985-00) and #10 Split Lock Washer (Qty. 2) (244-5003-00)                                                                                                               |                                                 |      |              |
| 7                                                                                                                                                                                                                                                          | Spring Washer (17/32" ID X 3/4" X 1")           | 1    | 269-5002-00  |
| 8                                                                                                                                                                                                                                                          | Coil Support Bracket                            | 1    | 535-7356-00  |
| Item 8 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Ser.) Zc. (Qty. 2) (237-5975-00)                                                                                                                                                                   |                                                 |      |              |
| 9                                                                                                                                                                                                                                                          | Coil, 23-1500 [ NO DIODE ]                      | 1    | 090-5062-ND  |
| COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE PREV. PAGE FOR DETAILS.                                                                                                                                                                                       |                                                 |      |              |
| 10                                                                                                                                                                                                                                                         | Coil Sleeve                                     | 1    | 545-5388-00  |
| 11                                                                                                                                                                                                                                                         | Deflector Pad (Bumper)                          | 1    | 545-5428-00  |
| 12                                                                                                                                                                                                                                                         | Flipper Plunger & Link Sub-Assy.                | 1    | 515-6304-03  |
| For Individual Items use: Flipper Plunger (530-5349-01) and Plunger "Flipper" Link (545-5611-01) and is secured to the Plunger by: Bushing, .16" ø ID X .281" ø OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin ø 5/32" X 3/4" Lg. (Qty. 1) (251-5015-02) |                                                 |      |              |
| 13                                                                                                                                                                                                                                                         | Crank Bar (Pawl)                                | 1    | 530-5070-02  |
| Item 13 requires: Bushing, .192" ø ID X .312" ø OD X .195" (Qty. 1) (530-5139-00)                                                                                                                                                                          |                                                 |      |              |
| 14®                                                                                                                                                                                                                                                        | Switch Actuator (RIGHT) Sub-Assy.               | 1    | 515-7257-00  |
| For Individual Items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and ® Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" ø X 1/4" Lg. (Qty. 1) (249-5003-00)                                             |                                                 |      |              |
| 15                                                                                                                                                                                                                                                         | Set Screw: #10-32 X 3/4" Socket Hd.             | 2    | 237-6144-00  |
| Item 15 requires: #10-32 Nylon Stop Nut (Qty. 1) Flipper Link Side Only (240-5203-00) and #10 Split Lock Washer (Qty. 1) Switch Actuator Side Only (244-5003-00)<br>Tool required for Item 15: 5/32" or 4mm Allen Wrench                                   |                                                 |      |              |

Item 14® is also shown separated from Item 13, Crank Bar, for clarity.



Item 1, Item 4 and Item 14®

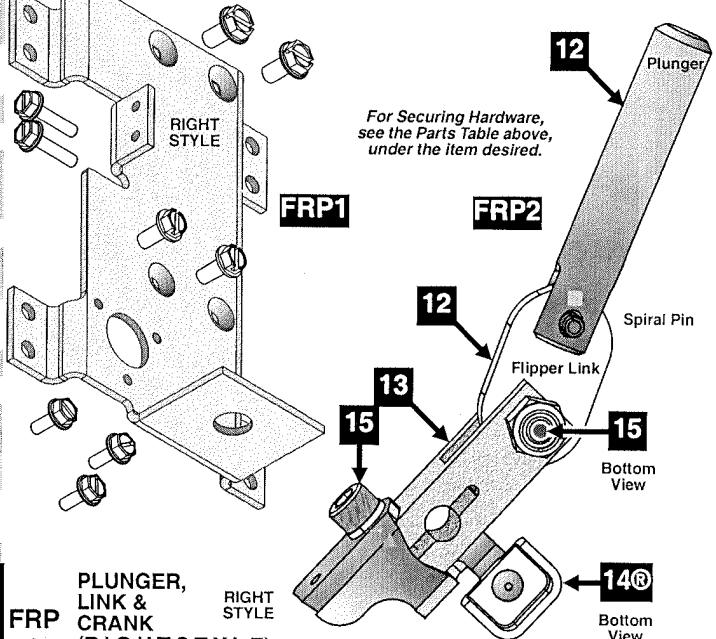
The coils may also differ depending on the game.

ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

| Nr.  | ASSOCIATED PART(S)                                                              | QTY. | SPI PART Nr.   |
|------|---------------------------------------------------------------------------------|------|----------------|
| AP-A | WHITE Flipper Bat & Shaft Assembly (Non-Knurled End) <b>without Rubber Ring</b> | 1    | 515-5133-08-06 |
| AP-B | Large Flipper Red Rubber Ring                                                   | 1    | 545-5277-22    |

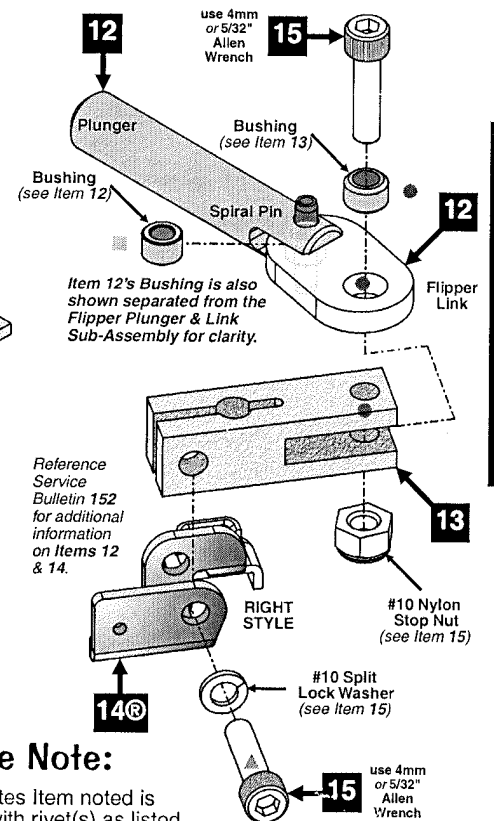
## Flipper Rebuild Parts for Easier Installation, Save \$:

**FRP 1 FLIPPER BASE PLATE KIT (RIGHT):**  
Includes Item 1 pre-threaded >+< Securing Hardware for Items 2, 3, 6 & 8. 515-6617-00



**FRP 2 PLUNGER, LINK & CRANK (RIGHT STYLE) ASSEMBLY:** Includes Items 12, 13, 14 & 15 (comes assembled). 515-7203-00

**FRP 3 FLIPPER (RIGHT) REBUILD KIT:**  
Includes Items 6, 10 AND above FRP2 500-6307-00



Reference Service Bulletin 152 for additional information on Items 12 & 14.

## Take Note:

® "R" indicates Item noted is secured with rivet(s) as listed.

Sec. 4: Drawings ...

# Slingshot (Lower Left & Right) Assemblies, 500-5849-00-ND (Qty. 2) (Items 1-9)

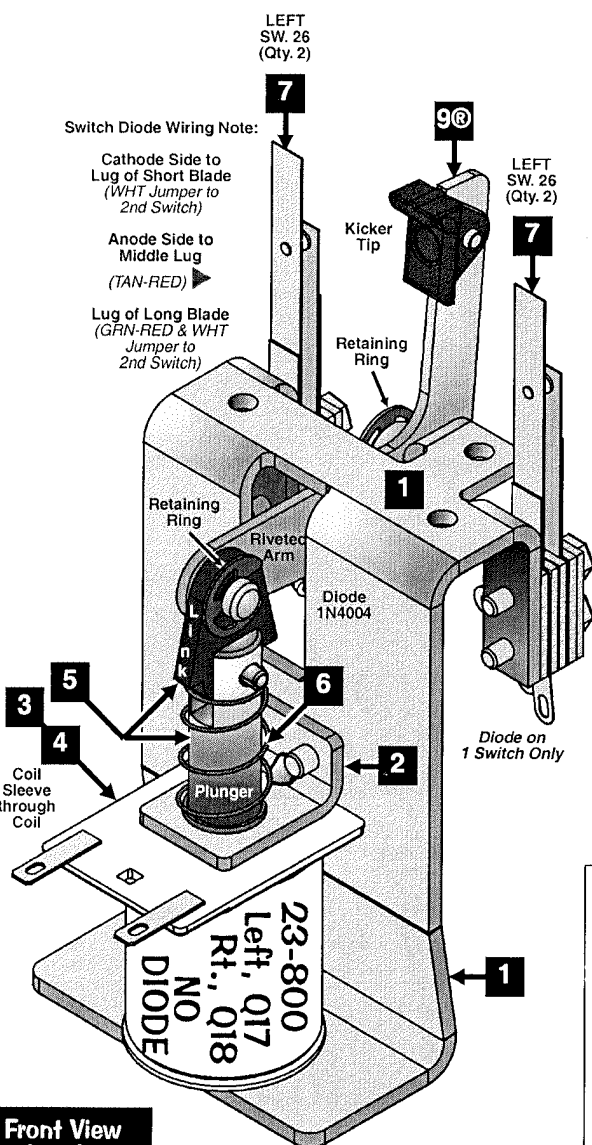
| Nr.                                                                                                                                                                                                                                    | SLINGSHOT PARTS            | QTY.  | SPI PART Nr. | Nr.                                                                                                                                                                                                                                                                                                                                                                                            | SLINGSHOT PARTS                | QTY.  | SPI PART Nr. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------|--------------|
| 1                                                                                                                                                                                                                                      | Slingshot Bracket Assembly | 1/per | 515-5339-01  | 6                                                                                                                                                                                                                                                                                                                                                                                              | Compression (Return) Spring    | 1/per | 266-5020-00  |
| Item 1 is secured below the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 3) (234-5101-00)                                                                                                                                               |                            |       |              | 7                                                                                                                                                                                                                                                                                                                                                                                              | Slingshot Stack (Blade) Switch | 2/per | 180-5054-00  |
| 2                                                                                                                                                                                                                                      | Coil Retaining Bracket     | 1/per | 535-5203-03  | Only 1 of the 2 Switches has a Diode (1N4004) (112-5003-00). See Note Below on Drawing. Can be replaced with (1N4001) (112-5001-00).                                                                                                                                                                                                                                                           |                                |       |              |
| Item 2 is secured to Item 1 by: #8-32 X 3/8" PPH MS (Sems) (Qty. 2) (232-5301-00)                                                                                                                                                      |                            |       |              | 8                                                                                                                                                                                                                                                                                                                                                                                              | Switch Body Protect Plate      | 2/per | 535-5045-00  |
| 3                                                                                                                                                                                                                                      | Coil, 23-800 [ NO DIODE ]  | 1/per | 090-5001-ND  | Items 7 & 8 are secured to Item 1 by: #6-32 X 5/8" HWH Swage (Qty. 4) (237-5976-04)                                                                                                                                                                                                                                                                                                            |                                |       |              |
| COIL DOES NOT REQUIRE A DIODE. SEE COIL NOTE BELOW FOR DETAILS.                                                                                                                                                                        |                            |       |              | 9®                                                                                                                                                                                                                                                                                                                                                                                             | Riveted Arm & Tip Assembly     | 1/per | 515-5340-01  |
| 4                                                                                                                                                                                                                                      | Coil Sleeve                | 1/per | 545-5031-00  | For Individual Parts use (requires drilling out rivet & re-securing):                                                                                                                                                                                                                                                                                                                          |                                |       |              |
| 5                                                                                                                                                                                                                                      | Plunger & Link Assembly    | 1/per | 515-5338-00  | Arm (515-5341-01), Kicker Tip (545-5216-01) and Rivet, 1/8" ø x 1/4" Lg. (249-5003-00)                                                                                                                                                                                                                                                                                                         |                                |       |              |
| For Individual Items use: Plunger 2" Lg. (530-5025-01), Plunger Link (545-5293-00) and Roll Pin 1/8" ø x 5/8" Lg. (251-5008-00) The Plunger Link is secured to the Riveted Arm by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00) |                            |       |              | The Riv. Arm is secured to Item 1 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00)                                                                                                                                                                                                                                                                                                      |                                |       |              |
| Ordering Note: If 515-5338-00 is unavailable, order the individual part(s) actually required.                                                                                                                                          |                            |       |              | Ordering Note: If 500-5849-00-ND is unavailable, order the individual part(s) actually required. This assembly is identical to 500-5849-00R-ND with the exception of Item 3, which has the coil rotated as shown in the drawing on the next page. This assembly is identical to 500-5849-ND-A4 with the exception of Item 1, which is modified to fit the space constraints in this game only. |                                |       |              |

## Take Note:

⊙ **Coil Note:** ⊙ NO DIODE ON LUGS. If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.

® "R" indicates Item noted is secured with rivet(s) as listed.

For Securing Hardware, see the Parts Table above, under the item desired.



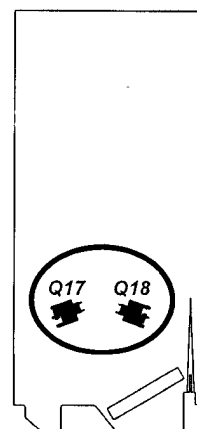
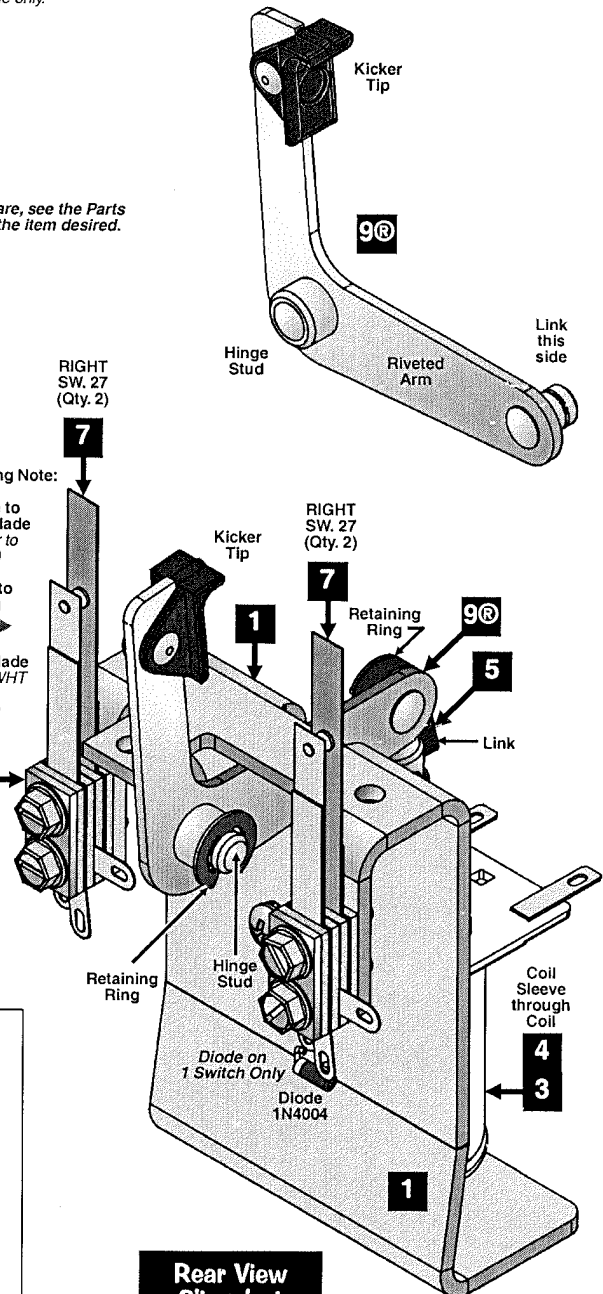
Switch Diode Wiring Note:

Cathode Side to Lug of Short Blade (WHT Jumper to 2nd Switch)

Anode Side to Middle Lug (TAN-ORG)

Lug of Long Blade (GRN-RED & WHT Jumper to 2nd Switch)

8 Qty. 1/per switch



Sec. 4: Drawings ...

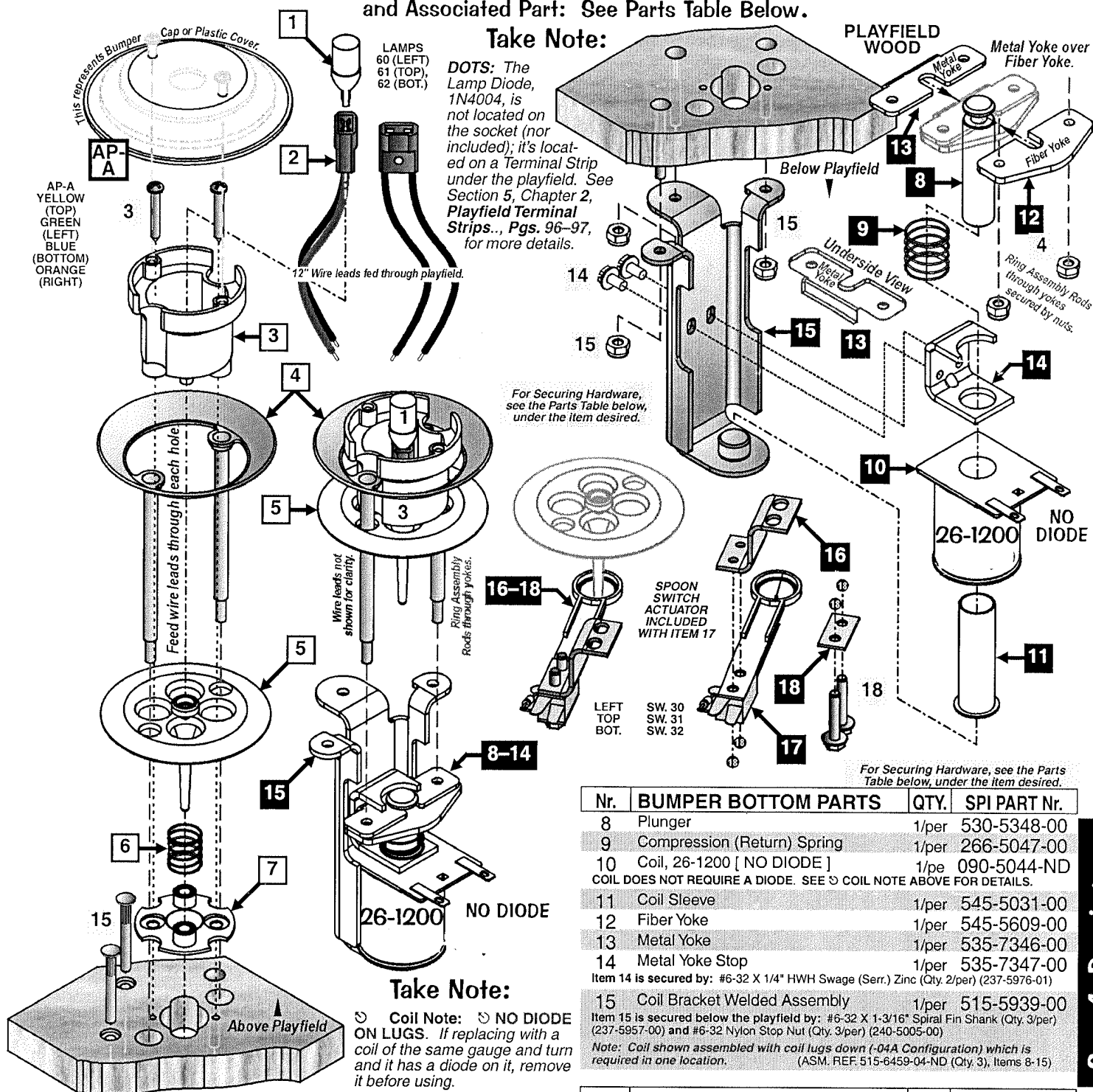
Front View Slingshot (Left)

Rear View Slingshot (Right)

# Left, Top & Bottom Bumper Top, Bottom & Switch Individual Parts Only (Items 1-18) and Associated Part: See Parts Table Below.

## Take Note:

**DOTS:** The Lamp Diode, 1N4004, is not located on the socket (nor included); it's located on a Terminal Strip under the playfield. See Section 5, Chapter 2, Playfield Terminal Strips., Pgs. 96-97, for more details.



## Take Note:

☉ **Coil Note:** ☉ **NO DIODE ON LUGS.** If replacing with a coil of the same gauge and turn and it has a diode on it, remove it before using.

| Nr.                                                                                    | BUMPER TOP PARTS                   | QTY.  | SPI PART Nr. |
|----------------------------------------------------------------------------------------|------------------------------------|-------|--------------|
| 1                                                                                      | LED Module (WHT) (6.3v) Wedge Base | 1     | 112-5024-08  |
| 2                                                                                      | Wedge Base Socket                  | 1     | 077-5206-00  |
| 3                                                                                      | Bumper Body                        | 1/per | 545-5197-00  |
| Item 3 is secured above the P/F by: #5 X 7/8" PRH AB (Zinc) (Qty. 2/per) (237-5826-00) |                                    |       |              |
| 4                                                                                      | Ring Assembly                      | 1/per | 515-5085-00  |
| Item 4 is secured by: #6-32 Nylon Stop Nut (Qty. 2/per) (240-5005-00)                  |                                    |       |              |
| 5                                                                                      | Bumper Skirt (Switch Actuator)     | 1/per | 545-5607-00  |
| 6                                                                                      | Bumper Skirt Compression Spring    | 1/per | 266-5048-00  |
| 7                                                                                      | Bumper Base                        | 1/per | 545-5195-00  |
| (ASM. REF. 515-6459-01L (Qty. 3), Items 1-7; 515-6459-01L-A4 (Qty. 1), Items 5 Diff.)  |                                    |       |              |

The Top & Bottom Assemblies are secured together by hardware noted in Item 4.

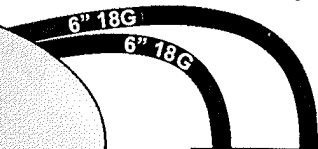
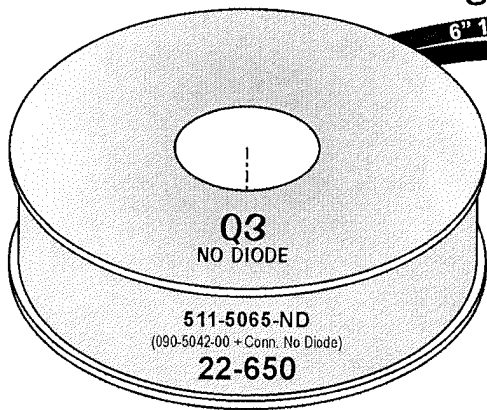
| Nr.                                                                                                                                                        | BUMPER BOTTOM PARTS          | QTY.  | SPI PART Nr. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------|--------------|
| 8                                                                                                                                                          | Plunger                      | 1/per | 530-5348-00  |
| 9                                                                                                                                                          | Compression (Return) Spring  | 1/per | 266-5047-00  |
| 10                                                                                                                                                         | Coil, 26-1200 [ NO DIODE ]   | 1/pe  | 090-5044-ND  |
| COIL DOES NOT REQUIRE A DIODE. SEE ☉ COIL NOTE ABOVE FOR DETAILS.                                                                                          |                              |       |              |
| 11                                                                                                                                                         | Coil Sleeve                  | 1/per | 545-5031-00  |
| 12                                                                                                                                                         | Fiber Yoke                   | 1/per | 545-5609-00  |
| 13                                                                                                                                                         | Metal Yoke                   | 1/per | 535-7346-00  |
| 14                                                                                                                                                         | Metal Yoke Stop              | 1/per | 535-7347-00  |
| Item 14 is secured by: #6-32 X 1/4" HWH Swage (Serr.) Zinc (Qty. 2/per) (237-5976-01)                                                                      |                              |       |              |
| 15                                                                                                                                                         | Coil Bracket Welded Assembly | 1/per | 515-5939-00  |
| Item 15 is secured below the playfield by: #6-32 X 1-3/16" Spiral Fin Shank (Qty. 3/per) (237-5957-00) and #6-32 Nylon Stop Nut (Qty. 3/per) (240-5005-00) |                              |       |              |
| Note: Coil shown assembled with coil lugs down (-04A Configuration) which is required in one location. (ASM. REF. 515-6459-04-ND (Qty. 3), Items 8-15)     |                              |       |              |

| Nr.                                                                                                                                                 | BUMPER SWITCH PARTS               | QTY.  | SPI PART Nr. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------|--------------|
| 16                                                                                                                                                  | Switch Bracket                    | 1/per | 535-7342-00  |
| Item 16 is secured by: #8 X 1/2" HWH AB (Zinc) (Qty. 2/per) (234-5101-00)                                                                           |                                   |       |              |
| 17                                                                                                                                                  | Bumper Stack (Blade) Switch Assy. | 1/per | 180-5015-04  |
| Included with Item 17: Spoon Switch Actuator (545-5610-02). Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00). |                                   |       |              |
| 18                                                                                                                                                  | Switch Body Protect Plate         | 1/per | 535-7344-00  |
| Items 17 & 18 are secured by: #6-32 X 3/4" HWH Swage (Serr.) Zc. (Qty. 2) (237-5976-05)                                                             |                                   |       |              |
| Can substitute Item 17 with 180-5015-05 (ASM. REF. 515-6459-09/R (Qty. 3), Items 16-18)                                                             |                                   |       |              |

ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLIES.

| Nr.                                                                                        | ASSOCIATED PART(S)                | QTY.  | SPI PART Nr. |
|--------------------------------------------------------------------------------------------|-----------------------------------|-------|--------------|
| AP-A                                                                                       | Bumper Cap (Green, Blue & Yellow) | 1/per | 550-5057-XX  |
| Note: Replace -XX with -04 Green; -05 Blue; -06 Yellow (-07 Orange; -07-A4 Org. Modified)  |                                   |       |              |
| Item AP-A is secured Item 3 by: #4 X 3/4 Phillip Rnd. 25 (Zinc) (Qty. 2/per) (237-5873-00) |                                   |       |              |

# Magnet Assembly, Individual Parts Only



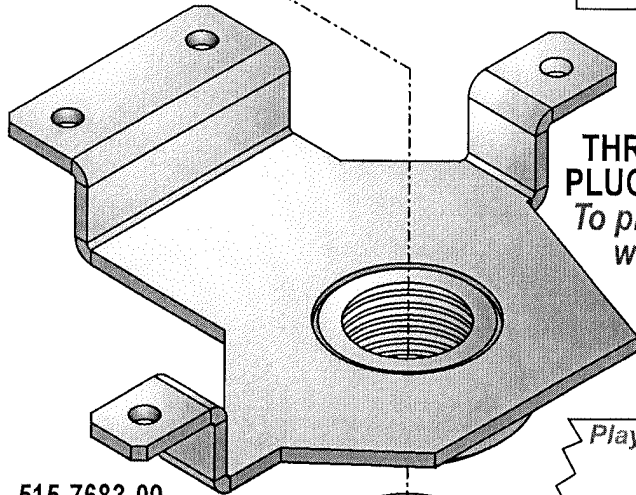
045-5004-03  
1 X 3.093"  
CONNECTOR  
MALE LUGS  
2 EA. 18GA  
055-5023-09

Playfield

not over



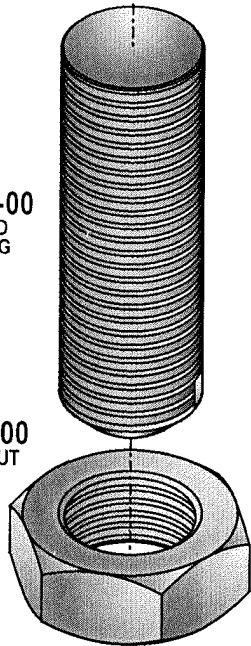
**THREADED CORE  
PLUG ADJUSTMENT**  
*To prevent playfield  
wear and tear,*



515-7683-00  
THREADED  
BUSHING / CORE  
WELD ASSEMBLY

530-5320-00  
THREADED  
CORE PLUG

240-5315-00  
3/4-16 HEX NUT



Playfield

not under

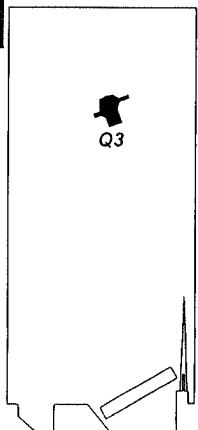


*ensure the threaded  
core plug is level  
with the playfield!*

flush & level

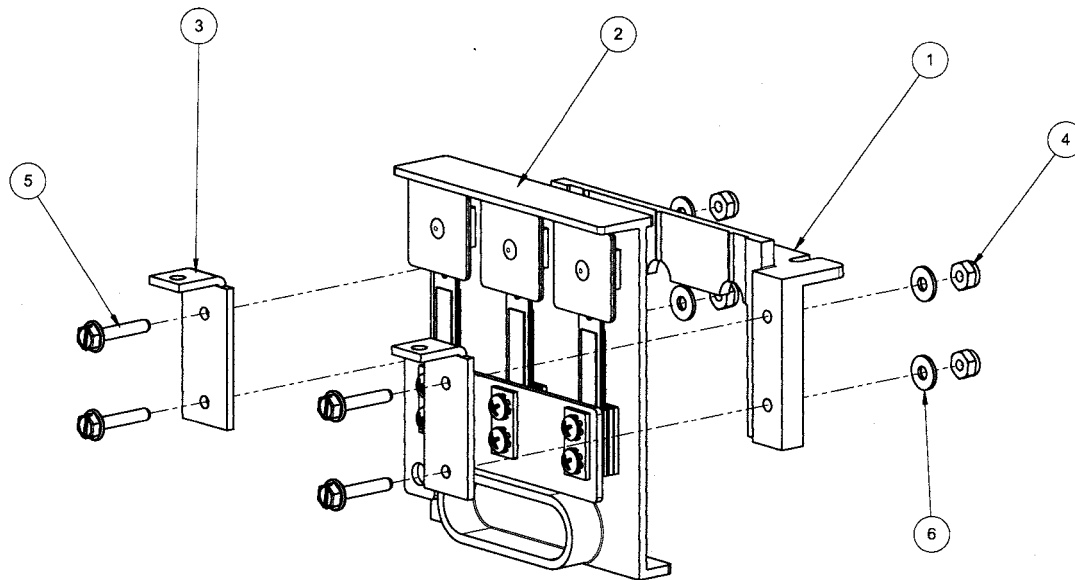


*Once flush & level  
with the playfield,  
apply Loctite 243  
to the threads and  
tighten the hex nut  
up to the bushing.*



Q3

| ITEM # | QTY | PART #      | DESCRIPTION                      |
|--------|-----|-------------|----------------------------------|
| 1      | 1   | 545-6278-00 | SLIDE FRAME                      |
| 2      | 1   | 500-7059-01 | 3 BANK SLIDE ASSEMBLY - AVATAR   |
| 3      | 2   | 535-9852-00 | GIB                              |
| 4      | 4   | 240-5005-00 | 6-32 NYLOK STOP NUT              |
| 5      | 4   | 237-5976-05 | SCREW, 6-32 x 3/4 HWH SWAGE ZINC |
| 6      | 4   | 242-5001-00 | #6 WASHER                        |



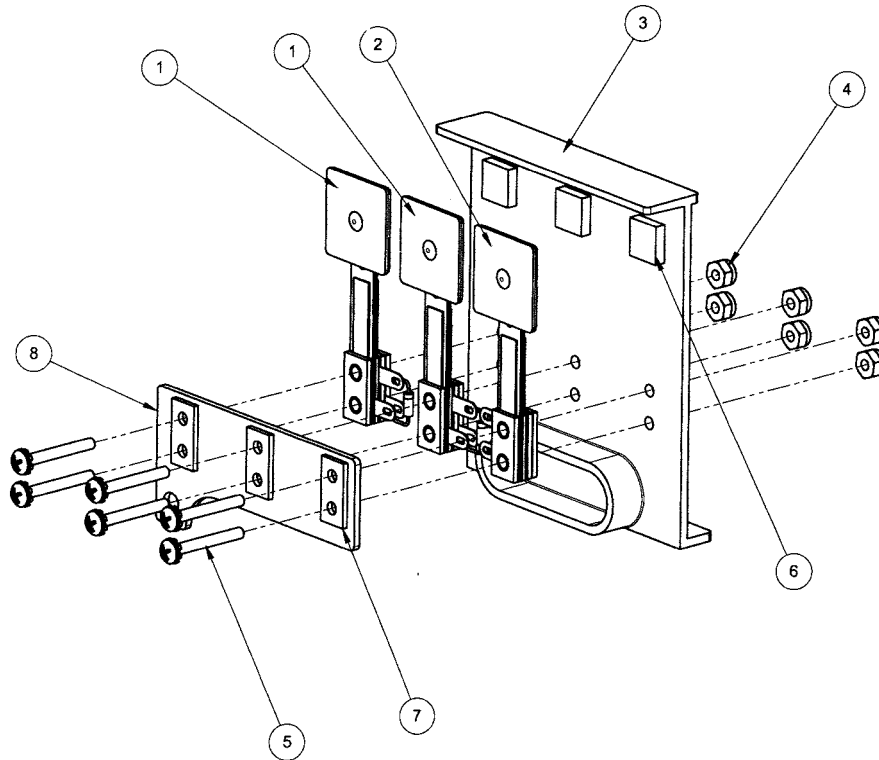
SLIDE FRAME ASSEMBLY - AVATAR

500-7058-01



b10

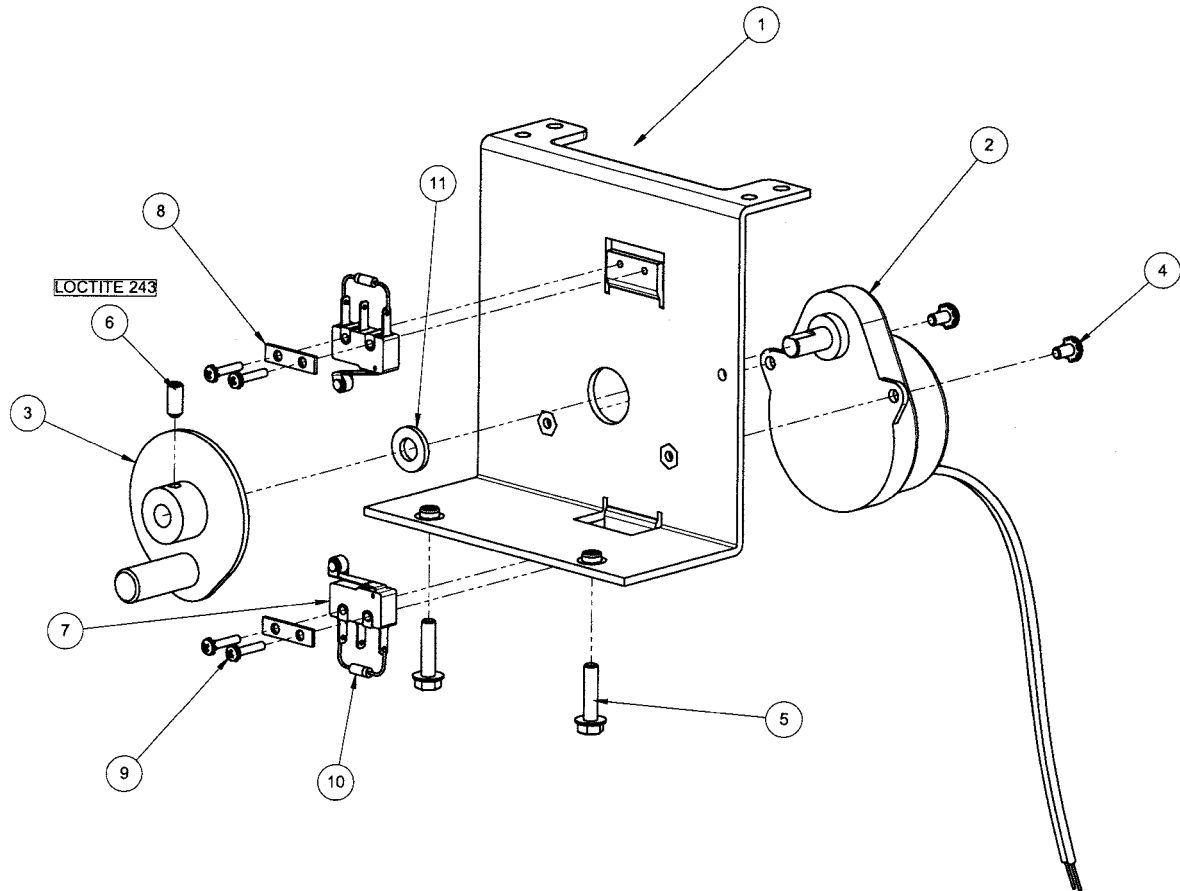
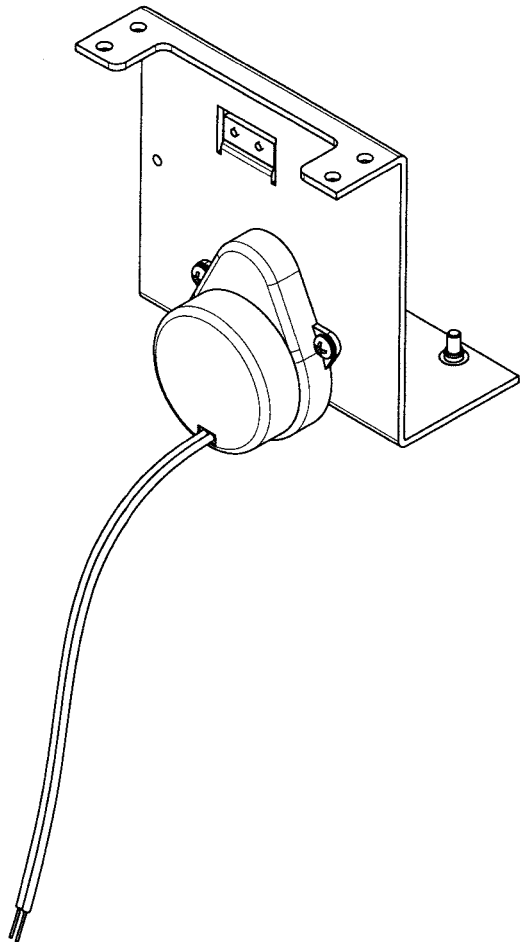
| ITEM #  | PART NUMBER    | DESCRIPTION                                          | QTY. |
|---------|----------------|------------------------------------------------------|------|
| 1       | 515-7497-06-01 | 1" SQ. TARGET & SWITCH ASSY -RT SIDE LUGS - YELLOW   | 2    |
| 2       | 515-7497-06-00 | 1" SQ. TARGET & SWITCH ASSY - LFT SIDE LUGS - YELLOW | 1    |
| 3       | 545-6277-00    | SLIDE                                                | 1    |
| 4       | 240-5005-00    | 6-32 NYLOK STOP NUT                                  | 6    |
| 5       | 232-5206-00    | SCREW, 6-32 X 1" PPH SEMS                            | 6    |
| 6       | 626-5029-00    | FOAM PAD                                             | 3    |
| 7       | 535-5045-00    | SWITCH PLATE                                         | 3    |
| 8       | 830-6113-18    | BUTY #18, MOTOR 3-BANK , AVATAR                      | 1    |
| NOT SHN | 036-5522-13-94 | CABLE ASSEMBLY                                       | 1    |



3 BANK SLIDE ASSEMBLY - AVATAR

| ITEM #  | QTY    | PART #         | DESCRIPTION                             |
|---------|--------|----------------|-----------------------------------------|
| 1       | 1      | 515-7633-01    | MOTOR FRAME - MOT. 3 BANK - AVATAR      |
| 2       | 1      | 511-5063-00    | MOTOR & CONN ASSY - SYNCH 24 VAC        |
| 3       | 1      | 515-7634-00    | DISC                                    |
| 4       | 2      | 232-5200-00    | SCREW, 6-32 X 1/4" PPH SEMS             |
| 5       | 2      | 237-5975-03    | SCREW, 8-32 X 5/8" HWH SWAGE            |
| 6       | 1      | 237-5839-00    | SET SCREW, 8-32 X 3/8" CUP PT           |
| 7       | 2      | 180-5119-02    | MICRO-SWITCH - LIGHT ACTUATION          |
| 8       | 2      | 535-6539-00    | SWITCH BODY PROTECT PLATE               |
| 9       | 4      | 237-5872-01    | SCREW, 2-56 X 7/16" PPH SEMS            |
| 10      | 2      | 112-5003-00    | DIODE - 1N4004                          |
| 11      | 1      | 242-5008-00    | WASHER, 1/4" ID X 1/2" OD X 1/16" THICK |
| NOT SHN | 1      | 036-5539-11-B1 | SWITCH CABLE                            |
| NOT SHN | .063FT | 605-5002-00    | SHRINK TUBING - SWITCHES                |

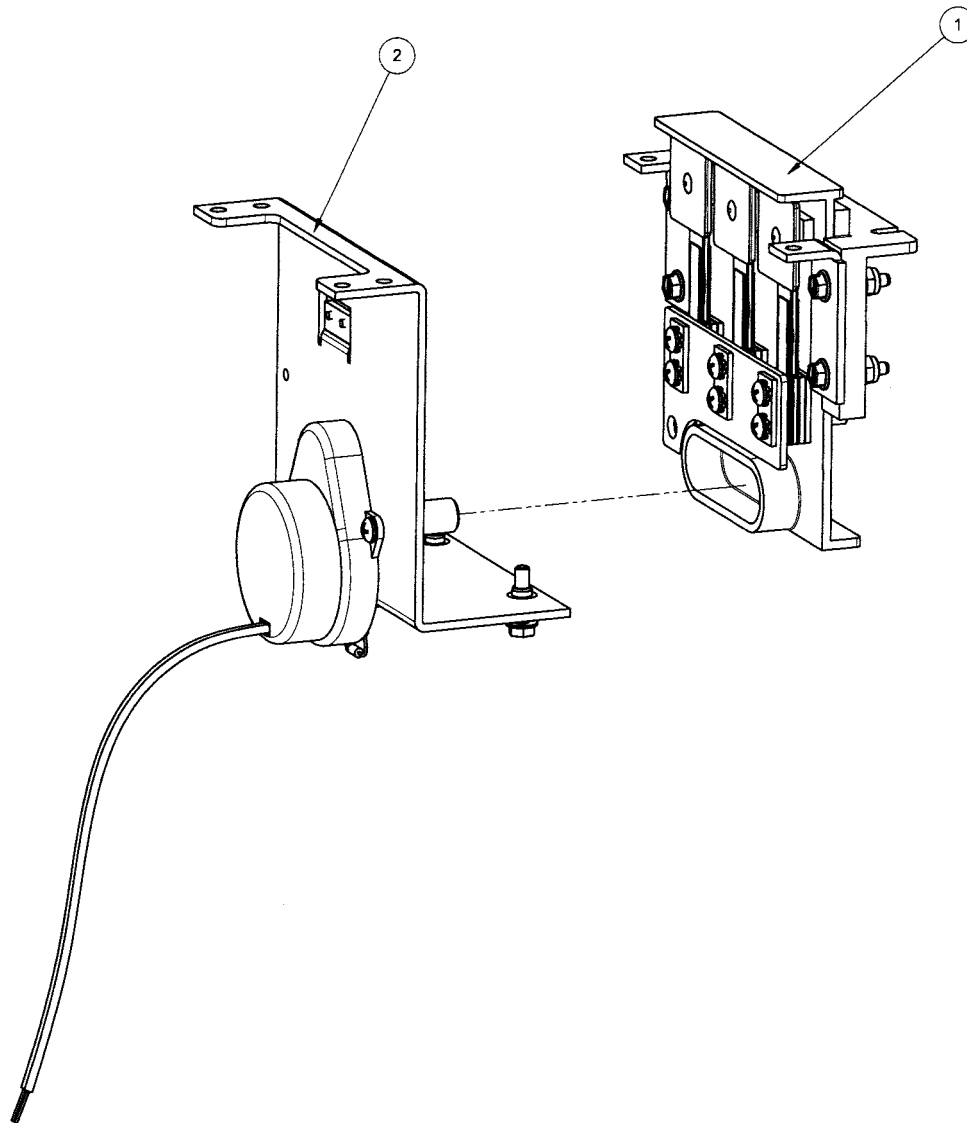
119



MOTOR FRAME ASSEMBLY - AVATAR

b12

| ITEM # | QTY | PART #      | DESCRIPTION               |
|--------|-----|-------------|---------------------------|
| 1      | 1   | 500-7058-01 | SLIDE FRAME ASSEMBLY - AV |
| 2      | 1   | 500-7057-01 | MOTOR FRAME ASSEMBLY - A  |

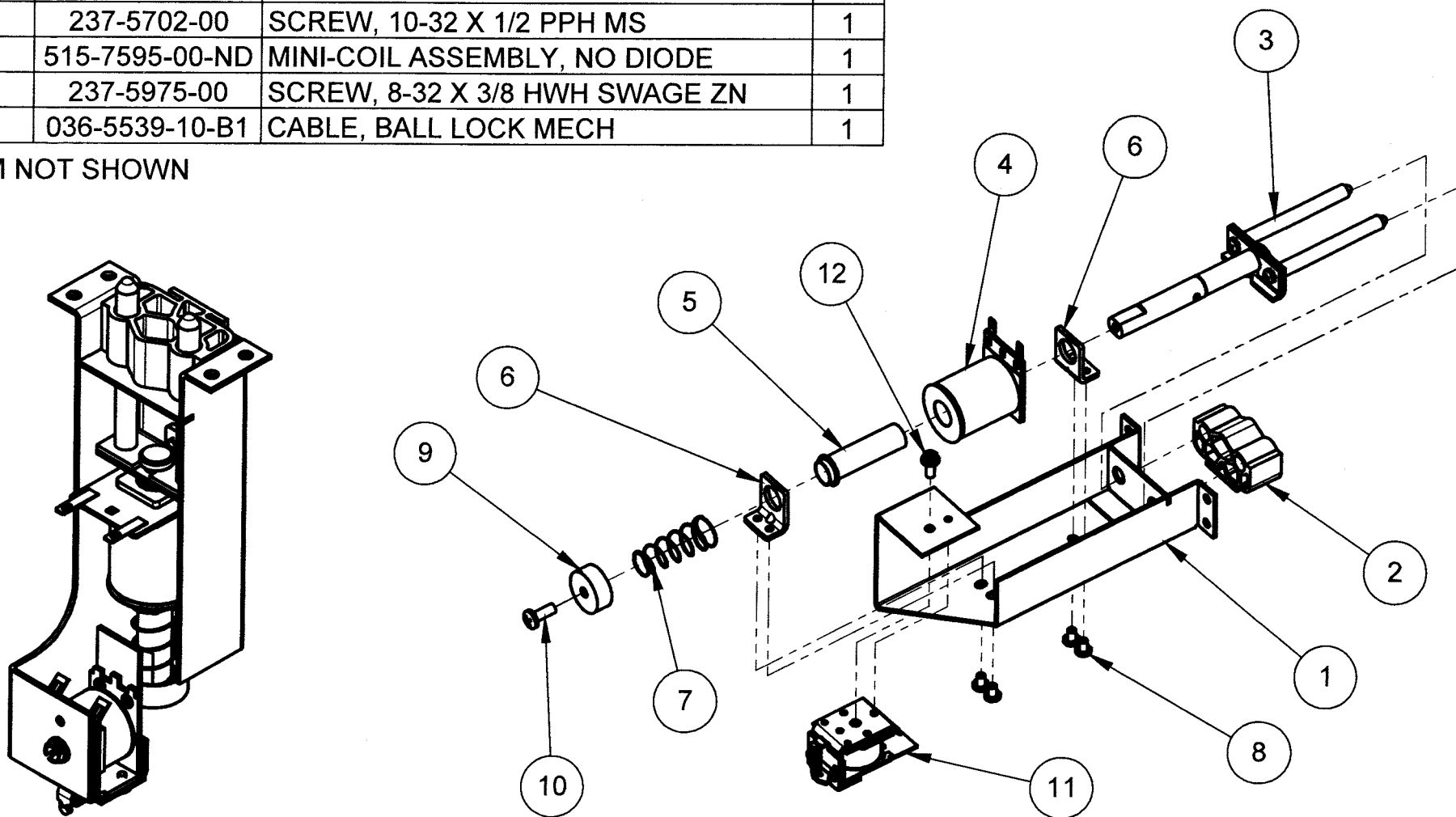


| ITEM NO. | PART NUMBER    | DESCRIPTION                    | QTY. |
|----------|----------------|--------------------------------|------|
| 1        | 515-7734-00    | WELDMNT, BALL LOCK BRACKET     | 1    |
| 2        | 545-6816-01    | BEARING BLOCK - BALL LOCK      | 1    |
| 3        | 511-6769-00    | ASSY, BALL LOCK PLUNGER & BARS | 1    |
| 4        | 090-5044-ND    | COIL 26-1200 - NO DIODE        | 1    |
| 5        | 545-5076-01    | COIL SLEEVE                    | 1    |
| 6        | 535-5203-03    | COIL RETAINING BRACKET         | 2    |
| 7        | 266-5020-00    | COMPRESSION SPRING-CONICAL     | 1    |
| 8        | 232-5300-00    | SCREW, 8-32 X 1/4" PPH SEMS    | 4    |
| 9        | 530-5511-00    | PLUNGER HEAD                   | 1    |
| 10       | 237-5702-00    | SCREW, 10-32 X 1/2 PPH MS      | 1    |
| 11       | 515-7595-00-ND | MINI-COIL ASSEMBLY, NO DIODE   | 1    |
| 12       | 237-5975-00    | SCREW, 8-32 X 3/8 HWH SWAGE ZN | 1    |
| 99*      | 036-5539-10-B1 | CABLE, BALL LOCK MECH          | 1    |

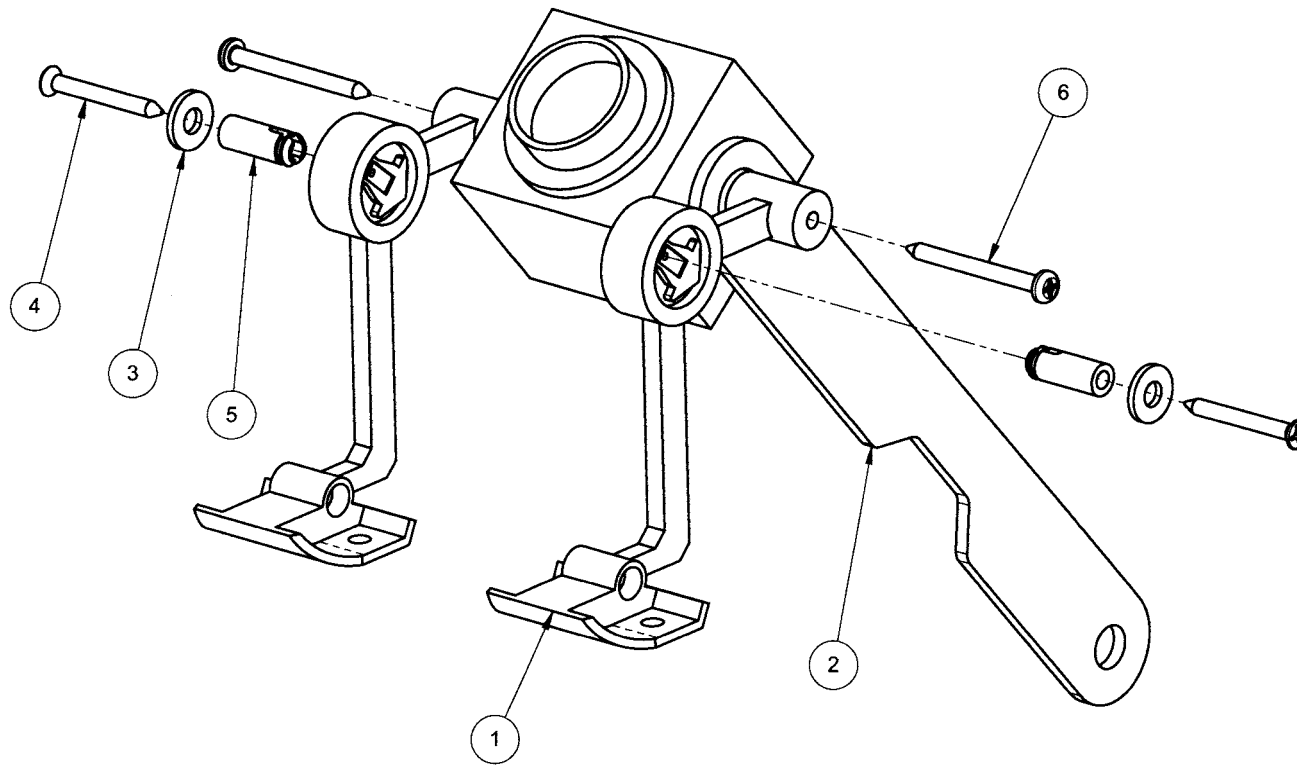
## ASSEMBLY, LATCHING BALL LOCK

511-6770-00

\* ITEM NOT SHOWN



b14

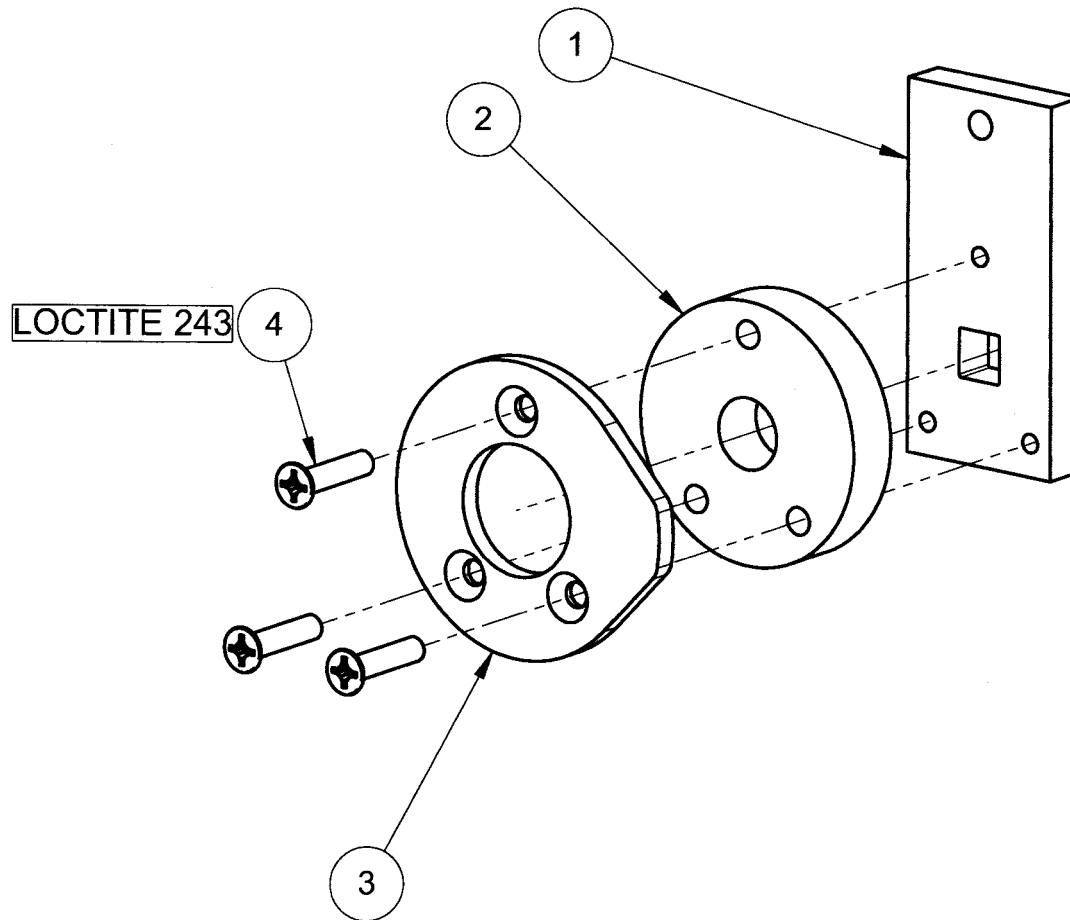


| ITEM # | QTY | PART #      | DESCRIPTION                         |
|--------|-----|-------------|-------------------------------------|
| 1      | 1   | 880-5118-01 | AMP SUIT - MODIFIED - AVATAR        |
| 2      | 1   | 545-6813-00 | LINK - AMP SUIT                     |
| 3      | 2   | 242-5003-00 | #10 FLAT WASHER - 1/2" O.D. X .062  |
| 4      | 2   | 237-5804-00 | #6 x 1 1/4 PHILLIPS FLAT HEAD ZINC  |
| 5      | 2   | 254-5007-00 | 5/8" SELF RETAINING SPACER          |
| 6      | 2   | 232-5007-00 | 6 x 1 1/2 PAN HEAD PHILLIPS AB ZINC |

AMP SUIT ASSEMBLY

511-6764-00

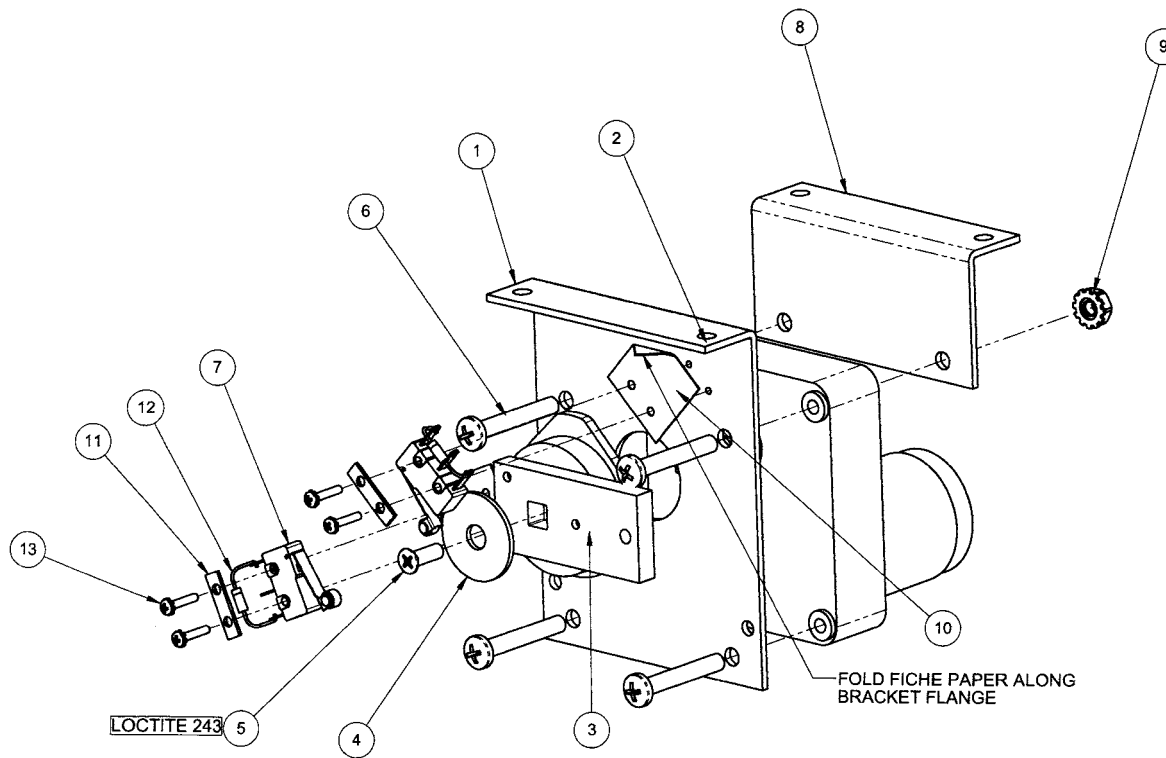
| ITEM # | QTY | PART #      | DESCRIPTION                        |
|--------|-----|-------------|------------------------------------|
| 1      | 1   | 535-0388-00 | CRANK ARM                          |
| 2      | 1   | 545-6814-00 | SPACER                             |
| 3      | 1   | 535-0389-00 | SWITCH ACTUATOR - POSITION         |
| 4      | 3   | 237-6172-00 | 6-32 x 5/8 PHILLIPS FLAT HEAD ZINC |



CRANK ARM ASSEMBLY

511-6766-00





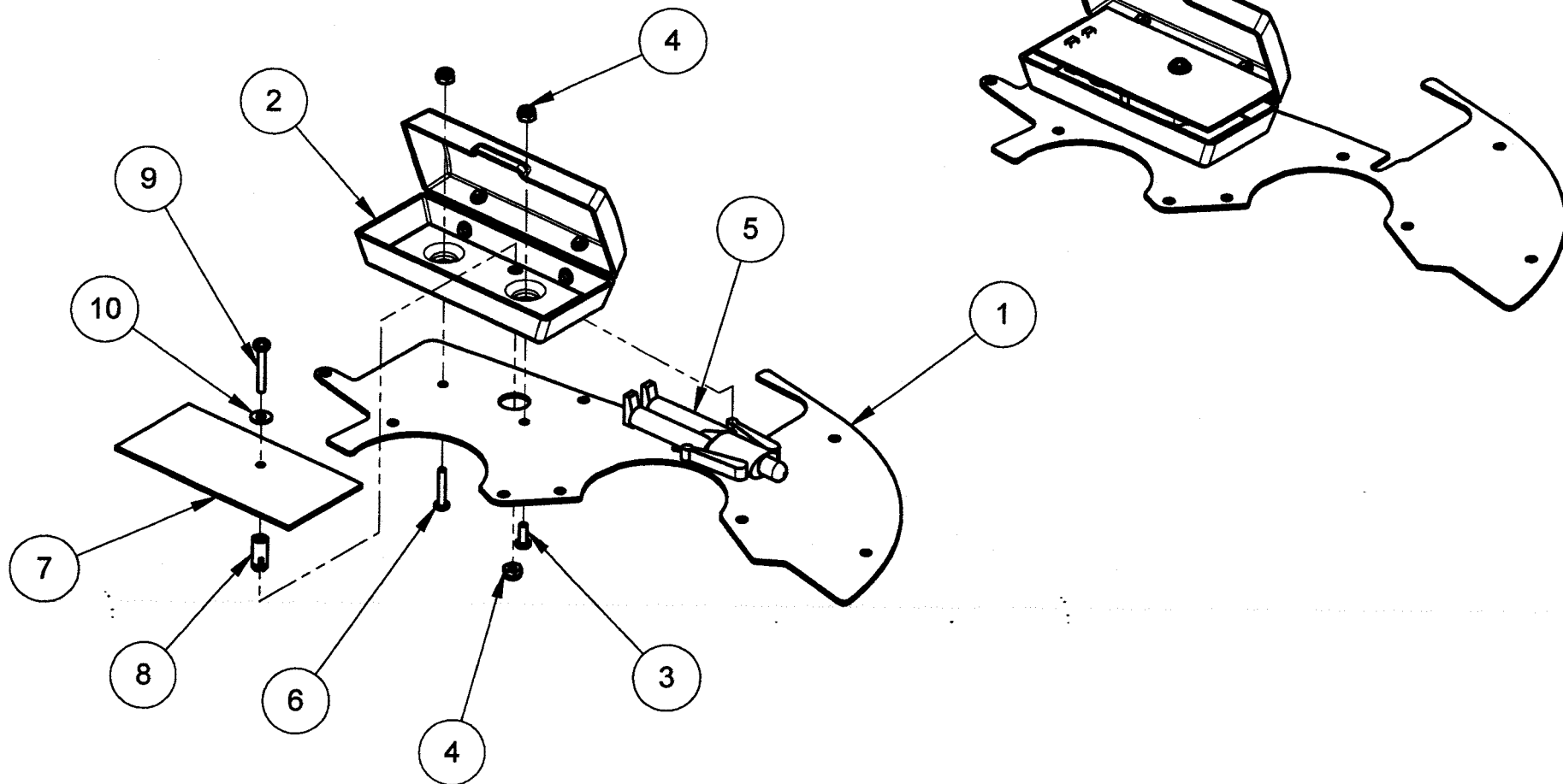
| ITEM #  | QTY | PART #         | DESCRIPTION                           |
|---------|-----|----------------|---------------------------------------|
| 1       | 1   | 535-0387-00    | MOTOR BRACKET - DRIVE SIDE - AMP SUIT |
| 2       | 1   | 041-5109-00    | GEAR MOTOR - 24VDC - 40 RPM           |
| 3       | 1   | 511-6766-00    | CRANK ARM ASSEMBLY                    |
| 4       | 1   | 242-5009-00    | WASHER, 1/4" ID X 1" OD X .048" THICK |
| 5       | 1   | 237-6023-00    | 8-32 x 1/2 PFH MS                     |
| 6       | 4   | 237-5708-00    | SCREW, 10-32 X 1-1/4 PPH MS           |
| 7       | 2   | 180-5119-02    | MICRO-SWITCH - LIGHT ACTUATION        |
| 8       | 1   | 535-0387-01    | MOTOR BRACKET - MOTOR SIDE - AMP SUIT |
| 9       | 2   | 240-5208-00    | 10-32 KEPS NUT                        |
| 10      | 2   | 545-6268-00    | FISCHE PAPER                          |
| 11      | 2   | 535-6539-00    | SWITCH BODY PROTECT PLATE             |
| 12      | 2   | 112-5003-00    | DIODE - 1N4004                        |
| 13      | 4   | 237-5872-01    | SCREW, 2-56 X 7/16" PPH SEMS          |
| NOT SHN | 1   | 036-5552-00    | CABLE - MOTOR                         |
| NOT SHN | 1   | 036-5539-06-B1 | CABLE - MICROSWITCH                   |

MOTOR BRACKET ASSEMBLY - AMP SUIT

| ITEM NO. | PART NUMBER | DESCRIPTION                     | QTY. |
|----------|-------------|---------------------------------|------|
| 1        | 830-6113-09 | PLASTIC #9, POD LOWER, AVATAR   | 1    |
| 2        | 510-5117-00 | RIVETED ASSY, POD, AVATAR       | 1    |
| 3        | 237-5501-00 | SCREW, 6-32 X 3/8" PPH MS ZINC  | 1    |
| 4        | 240-5005-00 | 6-32 NYLON STOP NUT             | 3    |
| 5        | 880-5119-01 | TOY, JAKE ONLY, AVATAR          | 1    |
| 6        | 237-5504-00 | SCREW, 6-32 X 3/4" PPH MS       | 1    |
| 7        | 830-6113-22 | PLASTIC #22, JAKE COVER, AVATAR | 1    |
| 8        | 254-5007-04 | 1/2" SELF RETAINING SPACER      | 1    |
| 9        | 232-5206-00 | SCREW, 6-32 X 1" PPH SEMS       | 1    |
| 10       | 242-5001-00 | #6 WASHER                       | 1    |

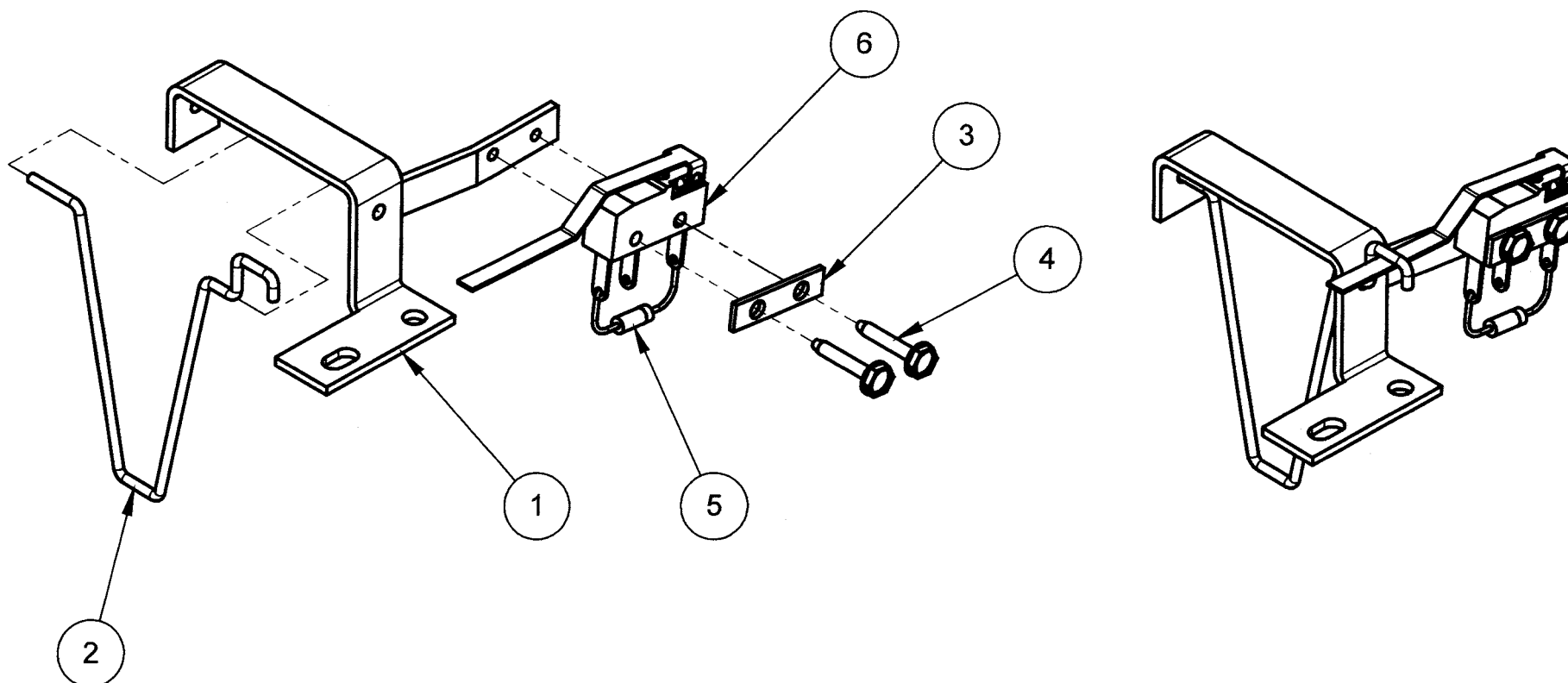
## ASSEMBLY, POD & TOY, AVATAR PRO

511-6762-09



| ITEM NO. | PART NUMBER | DESCRIPTION               | QTY. |
|----------|-------------|---------------------------|------|
| 1        | 535-7756-01 | BRACKET - GATE            | 1    |
| 2        | 535-0400-00 | WIRE FORM, EXTENDED       | 1    |
| 3        | 535-6539-00 | SWITCH BODY PROTECT PLATE | 1    |
| 4        | 237-5937-02 | SCREW, 2-56 X 1/2" HWH MS | 2    |
| 5        | 112-5003-00 | DIODE - 1N4004            | 1    |
| 6        | 180-5087-00 | SWITCH - GATE             | 1    |

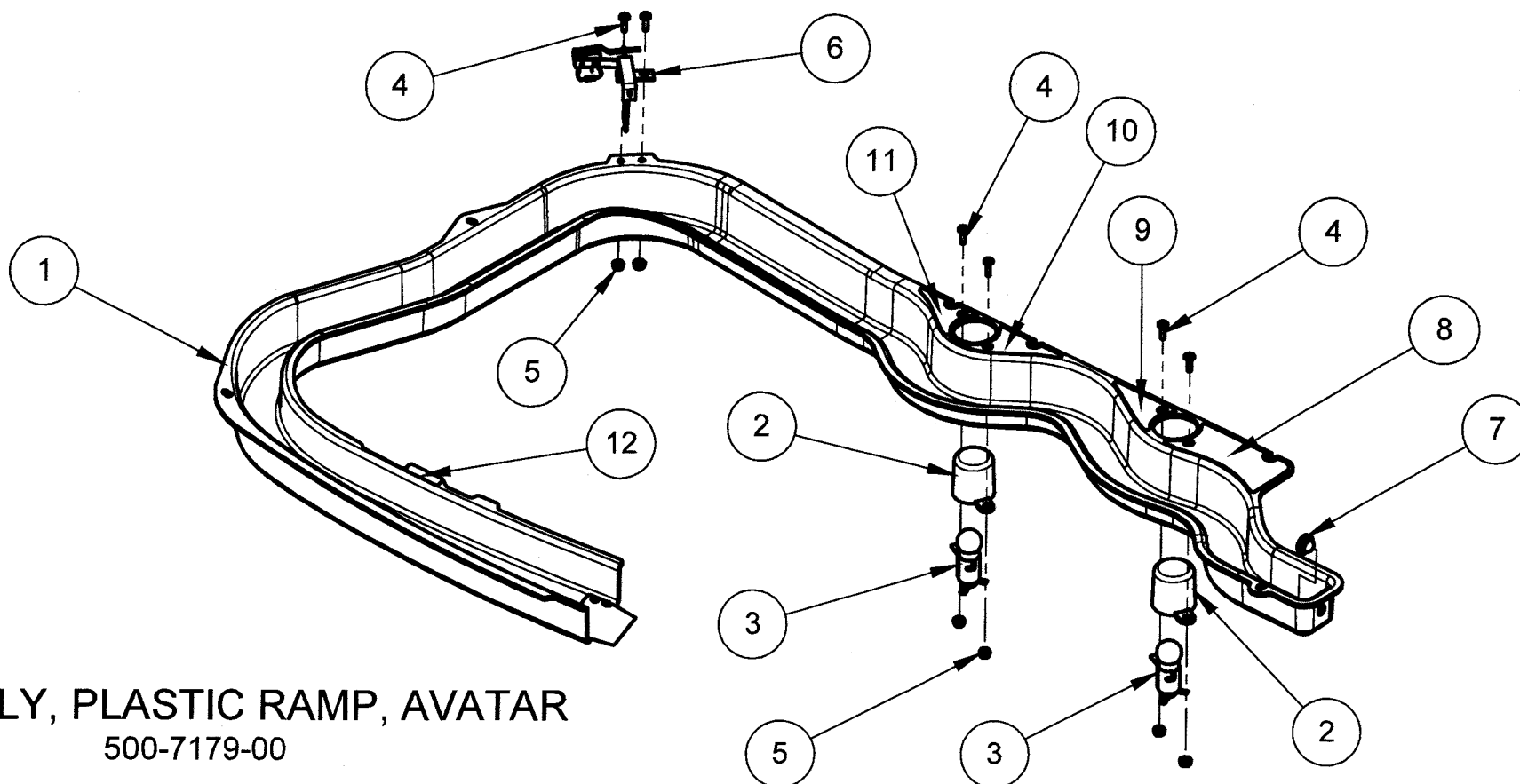
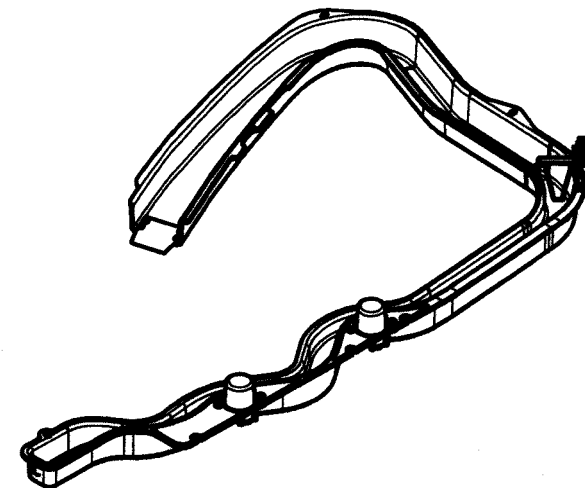
b20



ROLLUNDER GATE ASSEMBLY, AVATAR RAMP

511-6773-00

| ITEM # | PART NUMBER | DESCRIPTION                        | QTY. |
|--------|-------------|------------------------------------|------|
| 1      | 510-5116-00 | RIVETED ASSY, PLASTIC RAMP, AVATAR | 1    |
| 2      | 550-5031-05 | MINI MARS W/ EARS - BLUE SB        | 2    |
| 3      | 511-5241-05 | ASSEMBLY, FLASH LAMP BLUE          | 2    |
| 4      | 232-5202-00 | SCREW, 6-32 X 1/2" PPH MS SEMS     | 6    |
| 5      | 240-5005-00 | 6-32 NYLON STOP NUT                | 6    |
| 6      | 511-6773-00 | R/U SWITCH & CABLE ASSEMBLY        | 1    |
| 7      | 545-5105-00 | RUBBER BUMPER                      | 1    |
| 8      | 820-6567-31 | DECAL #31, AVATAR RAMP             | 1    |
| 9      | 820-6567-32 | DECAL #32, AVATAR RAMP             | 1    |
| 10     | 820-6567-33 | DECAL #33, AVATAR RAMP             | 1    |
| 11     | 820-6567-34 | DECAL #34, AVATAR RAMP             | 1    |
| 12     | 820-6567-42 | DECAL #42, AVATAR RAMP             | 1    |

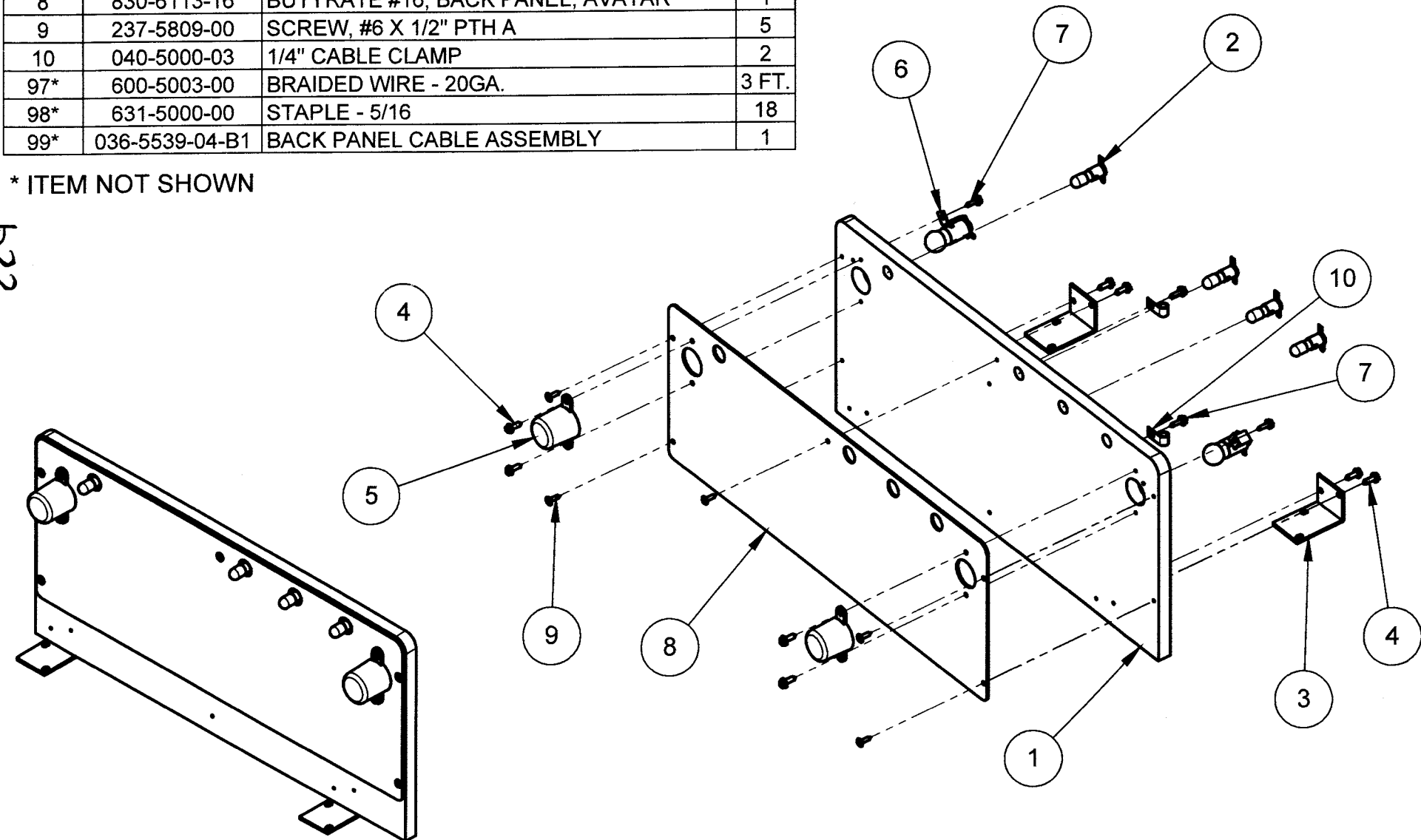


ASSEMBLY, PLASTIC RAMP, AVATAR  
500-7179-00

b21

| ITEM # | PART NUMBER    | DESCRIPTION                            | QTY.  |
|--------|----------------|----------------------------------------|-------|
| 1      | 525-5700-00    | BACK PANEL, AVATAR                     | 1     |
| 2      | 519-5000-00-HF | SOCKET & BULB ASSY, CLEAR              | 4     |
| 3      | 535-8964-00    | BRACKET - BACK PANEL SUPPORT           | 2     |
| 4      | 234-5101-00    | SCREW, #8 X 1/2" SLT HWH AB ZINC       | 8     |
| 5      | 550-5031-05    | MINI MARS W/ EARS - BLUE SB            | 2     |
| 6      | 519-5101-05-HF | SOCKET/#89 BULB ASSY, BLUE - HEAVY FIL | 2     |
| 7      | 234-5001-02    | SCREW, #6 X 1/2" HWH                   | 4     |
| 8      | 830-6113-16    | BUTYRATE #16, BACK PANEL, AVATAR       | 1     |
| 9      | 237-5809-00    | SCREW, #6 X 1/2" PTH A                 | 5     |
| 10     | 040-5000-03    | 1/4" CABLE CLAMP                       | 2     |
| 97*    | 600-5003-00    | BRAIDED WIRE - 20GA.                   | 3 FT. |
| 98*    | 631-5000-00    | STAPLE - 5/16                          | 18    |
| 99*    | 036-5539-04-B1 | BACK PANEL CABLE ASSEMBLY              | 1     |

## ASSEMBLY, BACK PANEL, AVATAR 500-7177-00



\* ITEM NOT SHOWN

## AVATAR PREMIUM PARTS:

|                                            |                |
|--------------------------------------------|----------------|
| Pivot Hinge Chrome (Left Style) .....      | 535-7999-06    |
| Pivot Hinge Chrome (Right Style).....      | 535-7999-07    |
| Speaker Grill Chrome.....                  | 535-8081-04    |
| Chrome Legs with Leveler Asm. ....         | 500-5921-10    |
| Chrome Side Armor (Left & Right).....      | 535-7297-05    |
| White Ceramic Pinball.....                 | 260-5012-00    |
| Front Molding Lockdown Asm.....            | 500-6881-00    |
| Front Molding (Chrome) No Button Hole..... | 500-6882-02-02 |
| Bracket, Playfield Support Slide.....      | 535-6862-05    |
| Ramp Butyrate.....                         | 830-6132-00    |
| Metal Lower Arch.....                      | 500-6005-B6    |

## Optional Kits available through your Distributor:

Pinball Location Maintenance Standard Kit (for Avatar Pinball) ..... 502-6002-B1

**Standard Kit includes :** 8 oz. Novus Wax #2 Fine (Red) (675-0003-01), Cloth, Rubber Rings (used above playfield), Bulbs (Bulb quantities vary and is limited to 25 per type), Fuses (1/per type) and 4 Pinballs. **Note:** Quantities, sizes and contents subject to change without notice.

Pinball Location Maintenance Deluxe Kit (for Avatar Pinball) ..... 502-6003-B1

**Deluxe Kit includes :** Pinball Location Maintenance Standard Kit as described above plus a quantity of Flipper Rebuild Kits. **Note:** Quantity varies which equals the same quantity of flippers used in this game.

▲ THIS GAME KIT INCLUDES ( 2 ) FLIPPER REBUILD KITS ▲

Plastics\*Kit (for Avatar Pinball) ..... 803-5000-B1

**Plastics Kit includes:** Plastic Sets (830-6113-XX)

Decals\*Kit (for Avatar Pinball) ..... 802-5000-B1

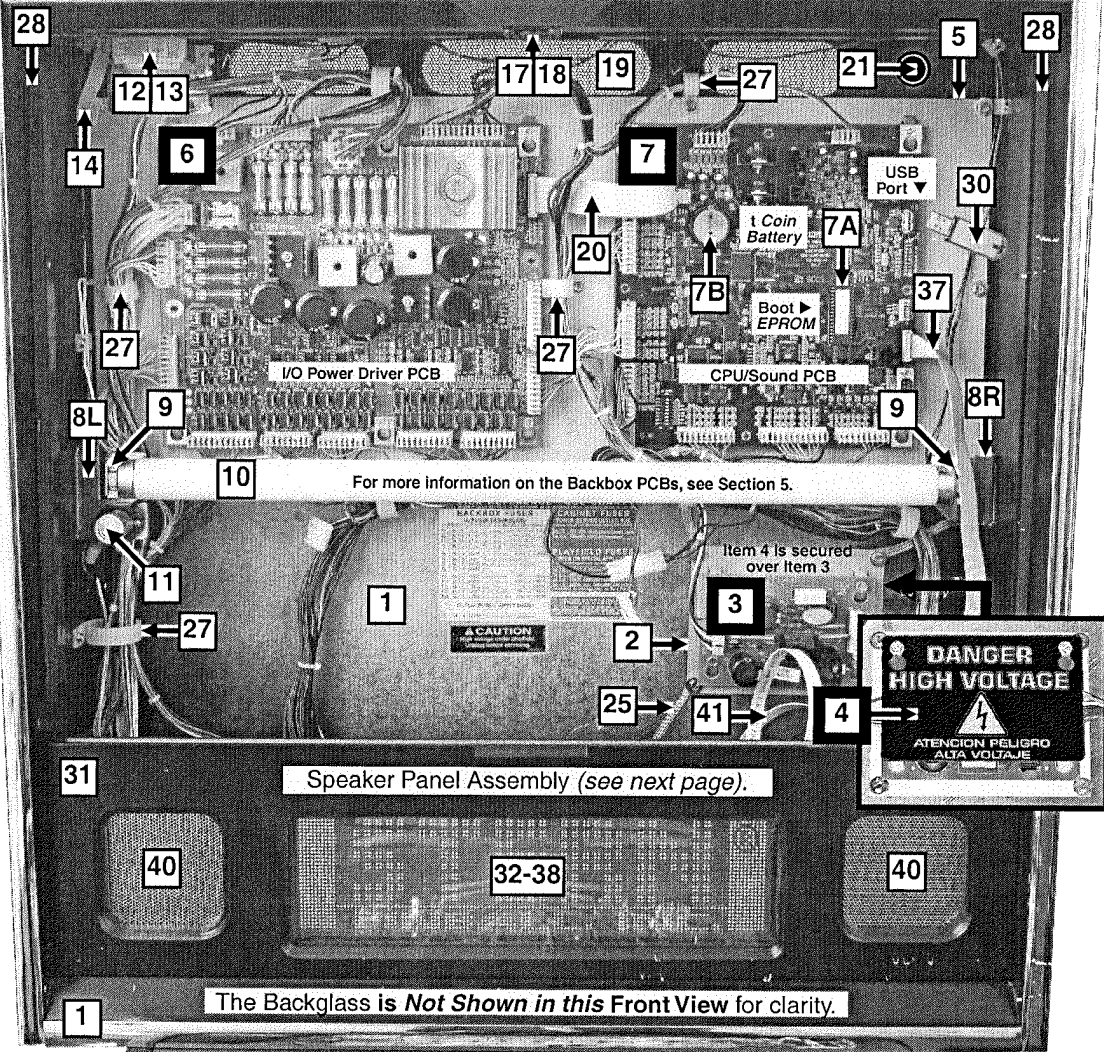
**Decals Kit includes:** Decal Set (820-6567-XX)

Mylar\*Kit (for Avatar Pinball) ..... 802-5001-B1

**Mylar Kit includes:** Pop Bumper (820-6570-00)

**\*Attention:** No individual Plastic or Decal can be ordered separately, unless noted otherwise. Plastics & Decals are subject to change without notice during and / or after production. Key Fobs subject to availability and may or may not be included in the plastic set. All designs, shapes & pieces used subject to change without notice. Kit contents subject to change. Service Bulletin(s) will announce any critical changes, if warranted. The last 2-digits shown on plastics or decals are for reference only.

# TOURNAMENT PINBALL



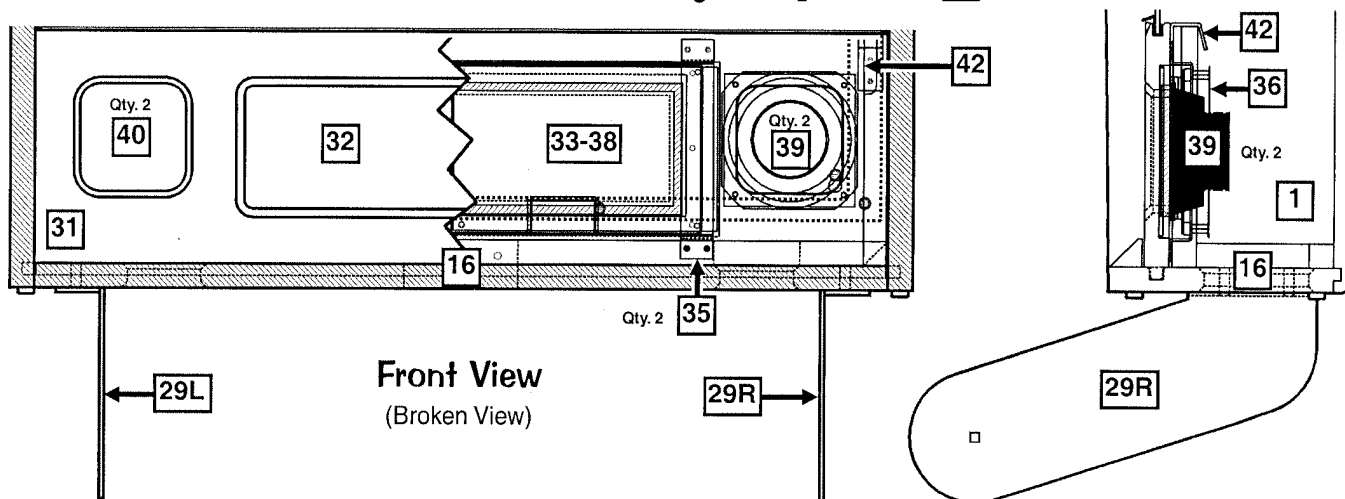
## Parts Identification

| Nr.                                                                                                                                                                                                                                                                         | BACKBOX PARTS                          | QTY. | SPI PART Nr.   | Nr.                                                                                                                                                                                                                                   | BACKBOX PARTS                             | QTY. | SPI PART Nr. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------|--------------|
| 1                                                                                                                                                                                                                                                                           | Backbox Avatar™ (No Parts)             | 1    | 525-5631-17-B1 | 11                                                                                                                                                                                                                                    | Starter - Fluorescent (FS2 Light)         | 1    | 165-5011-01  |
| <b>Item 1 Note:</b> Chrome T-Molding is installed and cannot be ordered separately.<br>Fuse Description (820-6384-00) and High Voltage Caution (UL) (820-6082-01 & -02) Decals.                                                                                             |                                        |      |                |                                                                                                                                                                                                                                       | Starter Base (with leads) [on Item 8L]    | 1    | 077-5213-00  |
| 2                                                                                                                                                                                                                                                                           | PCB Metal Mounting Plate [Display]     | 1    | 535-9769-00    | Item 11 is secured to Item 8L by: #4-40 X 1/2" PPH MS (Sems) Zc. (Qty. 2) (237-5813-00)                                                                                                                                               |                                           |      |              |
| 3                                                                                                                                                                                                                                                                           | Display Power Supply PCB               | 1    | 520-5138-00    | 12                                                                                                                                                                                                                                    | Ballast Mounting Plate                    | 1    | 535-8657-00  |
| Item 3 is secured to @ bottom by: #8-32 X 3/8" SHWH Swg. (Zinc) (Qty. 2) (237-5975-00)                                                                                                                                                                                      |                                        |      |                | 13                                                                                                                                                                                                                                    | Ballast CU452-W 1/2" Core 120v 60 Hz 13W  | 1    | 010-5015-00  |
| 4                                                                                                                                                                                                                                                                           | Plastic Cover [DANGER HIGH VOLTAGE]    | 1    | 830-6053-00    | <b>Items 12 &amp; 13 are secured to Item 1 by:</b> #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00)<br>>>> CAUTION - VERY HOT" Decal (820-6266-00)<br>EU / UK Only : Ballast, 5/8" Core 50/60 Hz (010-5015-01)                         |                                           |      |              |
| <b>Items 3 &amp; 4 are secured to @ top by:</b> 1-1/4" X 3/8" Plastic Spacer Gray (Qty. 2) (254-5000-05) and #8-32 X 1-3/4" SHWH Ser. (Zinc) (Qty. 2) (237-5975-28)<br><b>Note:</b> Where a Wire Clamp (Item 27) is mounted, a #10 Washer is not required.                  |                                        |      |                | 14                                                                                                                                                                                                                                    | Ground Strap (5")                         | 1    | 600-5006-05  |
| 5                                                                                                                                                                                                                                                                           | PCB Metal Mounting Plate [I/O+CPU]     | 1    | 535-9664-00    | 15*                                                                                                                                                                                                                                   | Roto Lock Male (on Cabinet)               | 1    | 355-5006-01  |
| <b>Items 2 &amp; 5 are secured to Item 1 by:</b> #8 X 1/2" SHWH AB (Zinc) (Qty. 1/hole) (234-5101-00) and #10 Washer 7/32" I.D. X .5" O.D. X 1/16" Thick (Qty. 1/hole) (242-5003-00)<br><b>Note:</b> Where a Wire Clamp (Item 27) is mounted, a #10 Washer is not required. |                                        |      |                | 16                                                                                                                                                                                                                                    | Roto Lock Female (R2-0002-02)             | 1    | 355-5006-02  |
| 6                                                                                                                                                                                                                                                                           | I/O Power Driver PCB [S.A.M. Sys.]     | 1    | 520-5249-00    | <b>Item 16 is secured by:</b> #10-24 X 1-3/4" CBSN (231-5022-00), #10-24 Keps Nut (Qty. 2) (240-5207-00), #10-24 X 2" CBSN (231-5045-00) and #10 Washer 7/32" I.D. X .5" O.D. X 1/16" (Qty. 5) (242-5003-00); See opposite next page. |                                           |      |              |
| 7                                                                                                                                                                                                                                                                           | CPU/Sound PCB [S.A.M. System]          | 1    | 520-5246-00    | 17                                                                                                                                                                                                                                    | Lock Mounting Plate                       | 1    | 535-0072-00  |
| 7A: 8MB EPROM #M27C801-100F1 (960-5016-00)<br><b>Ordering Note:</b> Programmed EPROM (965-B00T-SAM)<br>7B: Coin Cell Battery (CR2430 3V) (000-0644-01)<br>For USB Memory Stick Information, see Item 30 on the next page.                                                   |                                        |      |                | 18                                                                                                                                                                                                                                    | Lock 5/8" Barrel, 3/4"Ø, 1.5" Flat Cam    | 1    | 355-5055-00  |
| <b>Items 6 &amp; 7 are secured to Item 5 by:</b> #8-32 X 3/8" SHWH Swage (Zinc) (Qty. 10) (237-5975-00) and 1/4" Slt. Rtn. Spacer White (Qty. 5 [I/O] / Qty. 4 [CPU]) (254-5007-05)                                                                                         |                                        |      |                | Items 17 & 18 are secured by: #8 X 1/2" TP Torx T20 Black (Qty. 2) (237-6173-05)                                                                                                                                                      |                                           |      |              |
| 8L                                                                                                                                                                                                                                                                          | Fluorescent Light Bracket (Left Style) | 1    | 535-7739-00    | 19                                                                                                                                                                                                                                    | Back Vent Grill 2-1/2" X 18"              | 1    | 545-5072-02  |
| 8R                                                                                                                                                                                                                                                                          | Fluorescent Light Brckt. (Right Style) | 1    | 535-7739-01    | 20                                                                                                                                                                                                                                    | Ribbon Cable, 20-Pin (3.5")               | 1    | 036-5000-350 |
| <b>Items 8L &amp; 8R are secured to Item 1 by:</b> #10-24 X 1-1/4" Carriage Bolt Square Neck (Qty. 2/per) (231-5012-00), #10-24 Keps Nut (Qty. 2/per) (240-5207-00) and 3/4" X 3" Reinforced Strapping Tape (Qty. 1, sold in 12" length only) (626-5040-00)                 |                                        |      |                | Item 20 connects the I/O Pwr. Drvr. PCB to the CPU/Sound PCB; For 14-Pin see next page.                                                                                                                                               |                                           |      |              |
| 9                                                                                                                                                                                                                                                                           | Fluorescent Lamp Holder (Socket)       | 2    | 077-5214-01    | 21                                                                                                                                                                                                                                    | Button Hole Plug (Blk) (Happ #52-6214-00) | 1    | 500-6566-00  |
| <b>Item 9 is secured to Items 8L and 8R by:</b> #6-32 X 5/8" PPH MS (Sems) Zinc (Qty. 1/per) (232-5203-00) Lock-In Fluor. Bulb with Yellow Socket Clip (Qty. 1/per) (545-6271-00)                                                                                           |                                        |      |                | Item 21 plugs the Access Hole required if using optional BETabrite Sign or Data cables.                                                                                                                                               |                                           |      |              |
| 10                                                                                                                                                                                                                                                                          | Fluorescent Tube 24" (F18T8CW)         | 1    | 165-5061-00    | 22                                                                                                                                                                                                                                    | Header Sign TOURNAMENT PINBALL            | 1    | 545-6133-00  |
|                                                                                                                                                                                                                                                                             |                                        |      |                | 23                                                                                                                                                                                                                                    | Bracket, Tournament Sign (Black)          | 2    | 535-0081-02  |
|                                                                                                                                                                                                                                                                             |                                        |      |                | <b>Item 22 is mounted to Item 23 with #8-32 x 3/8 PPA screw (Qty 2/per) (232-5303-01) &amp; #8-32 Nylock Nut (Qty 2/per) (240-5102-00). Item 23 is secured to Item 1 by: #8 X 5/8" PPH (Qty. 2/per) (232-5101-01)</b>                 |                                           |      |              |

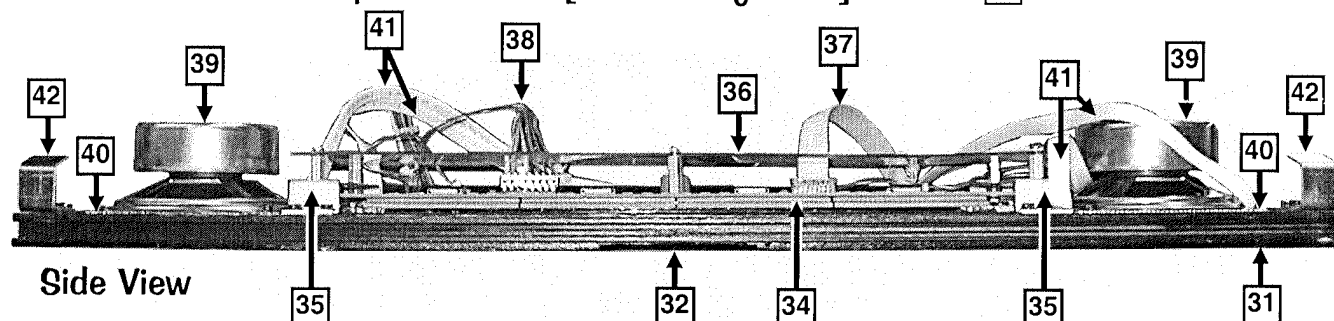
PARTS TABLE & VIEWS CONTINUED ON THE NEXT PAGE. ►



## Backbox [ S.A.M. System ] - Parts ☐



## Speaker Panel [ S.A.M. System ] - Parts ☐



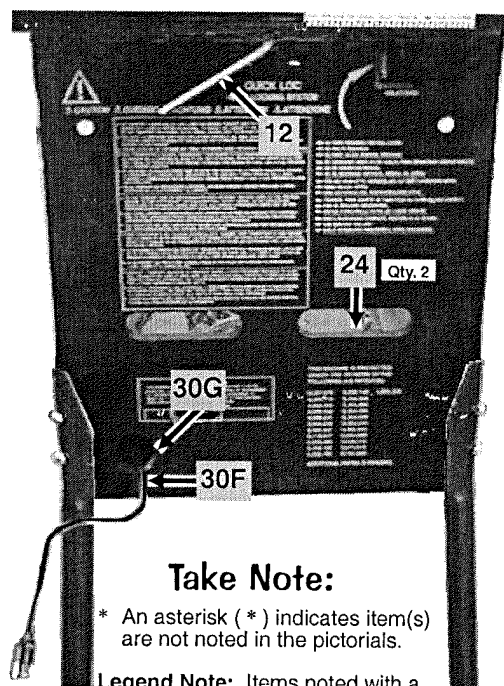
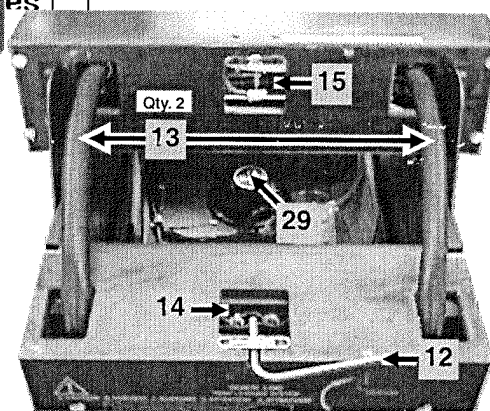
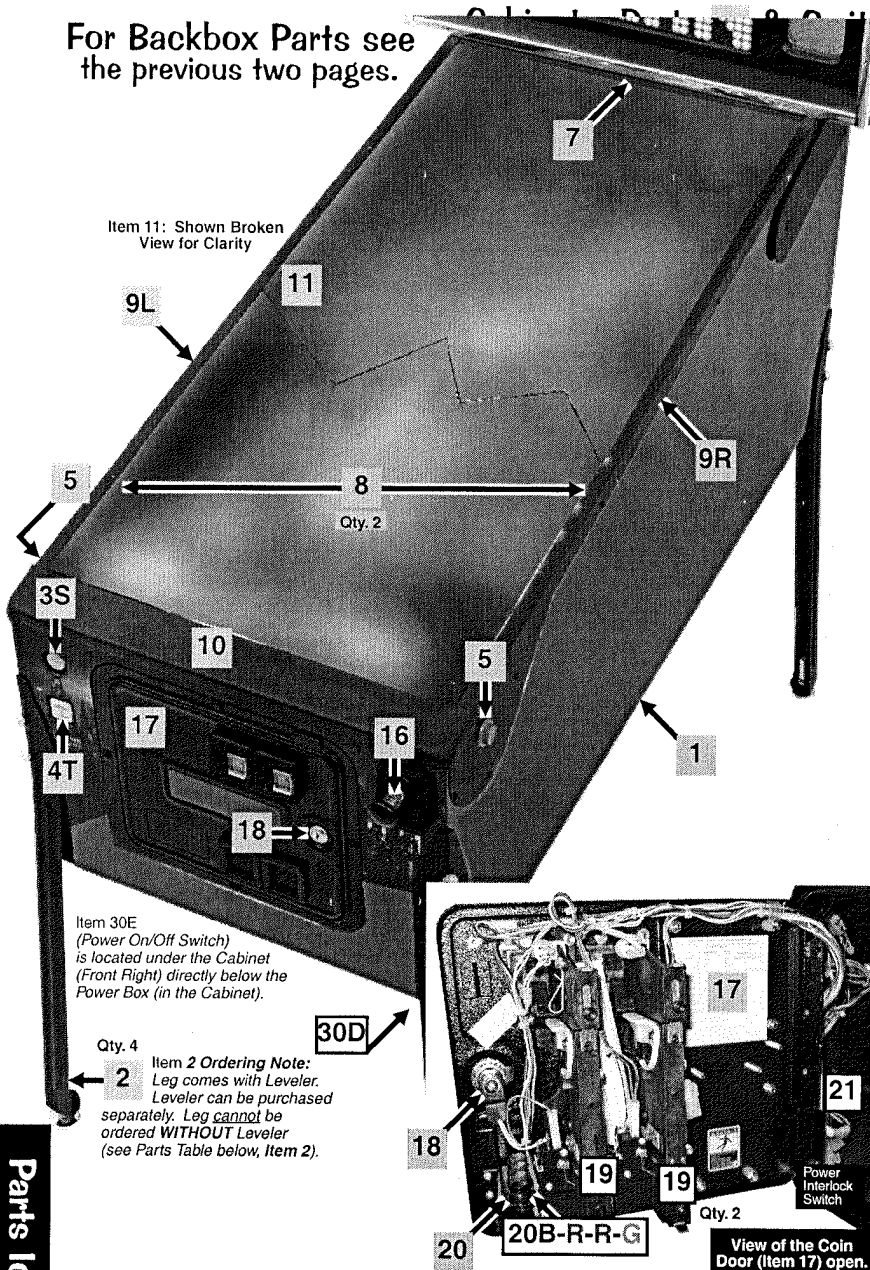
| Nr.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BACKBOX PARTS                        | QTY. | SPI PART Nr. | Nr.                                                                                                                                                                                                                                                    | SPEAKER PANEL PARTS                          | QTY.        | SPI PART Nr. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|--------------|
| ▲ PARTS TABLE & VIEWS CONTINUED FROM THE PREVIOUS PAGE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                      |      |              |                                                                                                                                                                                                                                                        |                                              |             |              |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Braided Wire (1-1/2 Feet)            | 1    | 600-5001-00  | 31                                                                                                                                                                                                                                                     | Speaker Panel (Black Wood)                   | 1           | 525-5515-00  |
| Item 25 is secured by: Staple 5/16" (Qty. 23) (631-5000-00)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                      |      |              | 32                                                                                                                                                                                                                                                     | Plastic Shield (Display Front Cover)         | 1           | 545-5884-00  |
| 26*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Zip Cable Tie (Screw Down Style)     | 4    | 040-5005-00  | Item 33 is secured to inside Item 31 by: #6 X 3/8" SHWH AB (Zinc) (Qty. 8) (234-5000-00)                                                                                                                                                               |                                              |             |              |
| Item 26 is secured @ inside bot. by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |      |              | 33*                                                                                                                                                                                                                                                    | Foam 3/16" Thick X 1/4" Wide X 12"           | 6           | 626-5026-00  |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Clamps [Multiple Sizes]              | 30   | 040-5000-XX  | Above Item 33 is self-adhesive. Located between Items 32-34. Sold in 12" Lengths only.                                                                                                                                                                 |                                              |             |              |
| Item 27 secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) For the following sizes, replace -XX with: 1/4" Double = -23 (Qty. 5); 1/2" Single = -06 (Qty. 3); 3/4" Single = -08 (Qty. 4); 1" Single = -09 (Qty. 1); 1-1/4" Double = -30 (Qty. 1)                                                                                                                                                                                                                                                                                               |                                      |      |              | 128 X 32 Dot Matrix Display PCB                                                                                                                                                                                                                        | 1                                            | 520-5052-00 |              |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Foam 3/16" Thick X 1/4" Wide X 12"   | 6    | 626-5026-00  | 34                                                                                                                                                                                                                                                     | // EURO ONLY RoHS // 128 X 32 DM CES PCB     |             | 520-5052-05  |
| Above Item 28 is self-adhesive. 17.5" strip on each side. Sold in 12" Lengths only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                      |      |              | // EURO ONLY RoHS // Dot Matrix Bezel                                                                                                                                                                                                                  |                                              |             |              |
| 29L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Pivot Hinge (Left Style)             | 1    | 535-7999-00  | Item 34 is secured to Item 35 by (at corners): 3/16" X 3/8" Spacer Gray (Qty. 4) (254-5000-18) and #6-32 X 1/2" SHWH Swage (Serr) Zinc (Qty. 4) (237-5976-03)                                                                                          |                                              |             |              |
| 29R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Pivot Hinge (Right Style)            | 1    | 535-7999-01  | 35                                                                                                                                                                                                                                                     | Dot Matrix Display Mounting Bracket          | 2           | 535-8368-01  |
| Items 29L-29R are secured to Backbox by: 1/4"-20 X 1-1/4" C.B. Sq. Neck (Qty. 4) (231-5003-00) and 1/4"-20 Flange Nut (Qty. 4) (240-5300-00)                                                                                                                                                                                                                                                                                                                                                                                                                |                                      |      |              | 36                                                                                                                                                                                                                                                     | Plastic Shield (Display Back Cover)          | 1           | 830-6040-00  |
| Items 29L-29R are secured to Cabinet by: Spacer Hex Nut 1/2" O.D. - 1/4-20 X 1/2" TD (Black) (Qty. 1/per) (254-5042-00), Nylon Spacer (Black) (Qty. 1/per) (242-5084-00), 1/4-20 X 1/2" Carriage Bolt Square Neck (Black) (Qty. 1/per) (231-5072-00) and Washer 1" O.D. X 1/2" I.D. X 1/16" (Black) (Qty. 1/per side, only if required) (242-5087-00)                                                                                                                                                                                                       |                                      |      |              | Item 36 is secured to Item 34 by: 1/2" X 1/4" Hex Spacer #6-32 Tap (Qty. 4) (254-5008-03), 3/4" X 1/4" Hex Spacer #6-32 Tap (Qty. 2) (254-5008-04), #6-32 X 1/4" PPH MS (Serr) Zinc (Qty. 2) (232-5200-00) and #6-32 X 3/8" PPH (Qty. 6) (232-5201-00) |                                              |             |              |
| 30*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Memory Stick USB 1.1+ [Generic] 64MB |      | 970-0064-00  | 37                                                                                                                                                                                                                                                     | Ribbon Cable, 14-Pin (33")                   | 1           | 036-5260-33  |
| Memory Stick USB 1.1+ [Generic] 128MB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                      |      |              | // EURO ONLY RoHS // LED Ribbon Cable Filter PCB                                                                                                                                                                                                       |                                              |             |              |
| Item 30 was not included with your game. Read the inside cover or go on-line for more info. To order with the latest game code copied onto it, add -A3 to the Part Nr. (970-0128-00-A3). File(s) can be downloaded from our website (Files are 25MB or larger, DSL or Fast Modem recommended). Not all manufacturers of Memory Sticks are compatible with our system. Test it out, if it doesn't work properly, return your purchase and order the memory stick through you local pinball distributor. (Stern Pinball Memory Sticks guaranteed compatible). |                                      |      |              | Item 37 (14-Pin) connects the 128 X 32 Dot Matrix Display PCB to the CPU/Sound PCB.                                                                                                                                                                    |                                              |             |              |
| (ASM. REF. 505-6002-A3-A3, Items 1-42 Only, [29-30 not included in assembly])                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                      |      |              | 38                                                                                                                                                                                                                                                     | Display Cable (Wiring Harness)               | 1           | 036-5454-01  |
| Take Note:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                      |      |              | // EURO ONLY RoHS // LED Display Adapter Harness                                                                                                                                                                                                       |                                              |             |              |
| * An asterisk ( * ) indicates item(s) are not noted in the pictorials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                      |      |              | 39                                                                                                                                                                                                                                                     | Speaker (Shld.) 4" 8Ω #MG ELE 4060SH         | 2           | 031-5004-02  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | 40                                                                                                                                                                                                                                                     | Speaker Grill (Black w/Artwork)              | 2           | 535-8081-03  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | Items 39-40 are secured by: #8 X 1/2" SHWH AB (Black) (Qty. 4/per) (234-5101-01)                                                                                                                                                                       |                                              |             |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | 41                                                                                                                                                                                                                                                     | Ground Strap (25") [ 2 per : Items 35 & 39 ] | 4           | 600-5006-25  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | 42                                                                                                                                                                                                                                                     | Speaker Panel Hook Bracket                   | 2           | 535-7009-02  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | Item 42 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2/per) (234-5101-00)                                                                                                                                                                             |                                              |             |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |      |              | (ASM. REF. 515-6888-05, Items 31-42 Only [includes wiring])                                                                                                                                                                                            |                                              |             |              |

### Take Note:

\* An asterisk ( \* ) indicates item(s) are not noted in the pictorials.

| Nr.  | BACKGLASS PARTS                            | QTY. | SPI PART Nr. | Nr.                                                                                    | BACKGLASS PARTS                       | QTY. | SPI PART Nr. |
|------|--------------------------------------------|------|--------------|----------------------------------------------------------------------------------------|---------------------------------------|------|--------------|
| i*   | Glass (Tempered) 25.906" X 19.187" X .125" | 1    | 660-5038-02  | iv*                                                                                    | Bottom Plastic Lift Channel - 26"     | 1    | 545-6313-01  |
| ii*  | Avatar™ Film Art (#B1)                     | 1    | 830-52B1-00  | v*                                                                                     | Plastic Edging (Left/Right) - 18-1/8" | 2    | 545-5018-14  |
| iii* | Top Plastic Channel - 26"                  | 1    | 545-5018-15  | Items i-v are secured to Item I by: 3M Tape (Double-Sided), 12" (Qty. 1) (626-5080-00) |                                       |      |              |
|      |                                            |      |              | Note: Only 6" required, sold in 12" lengths only.                                      |                                       |      |              |
|      |                                            |      |              | (ASM. REF. 515-5450-00-A9, Items i-v)                                                  |                                       |      |              |

For Backbox Parts see the previous two pages.

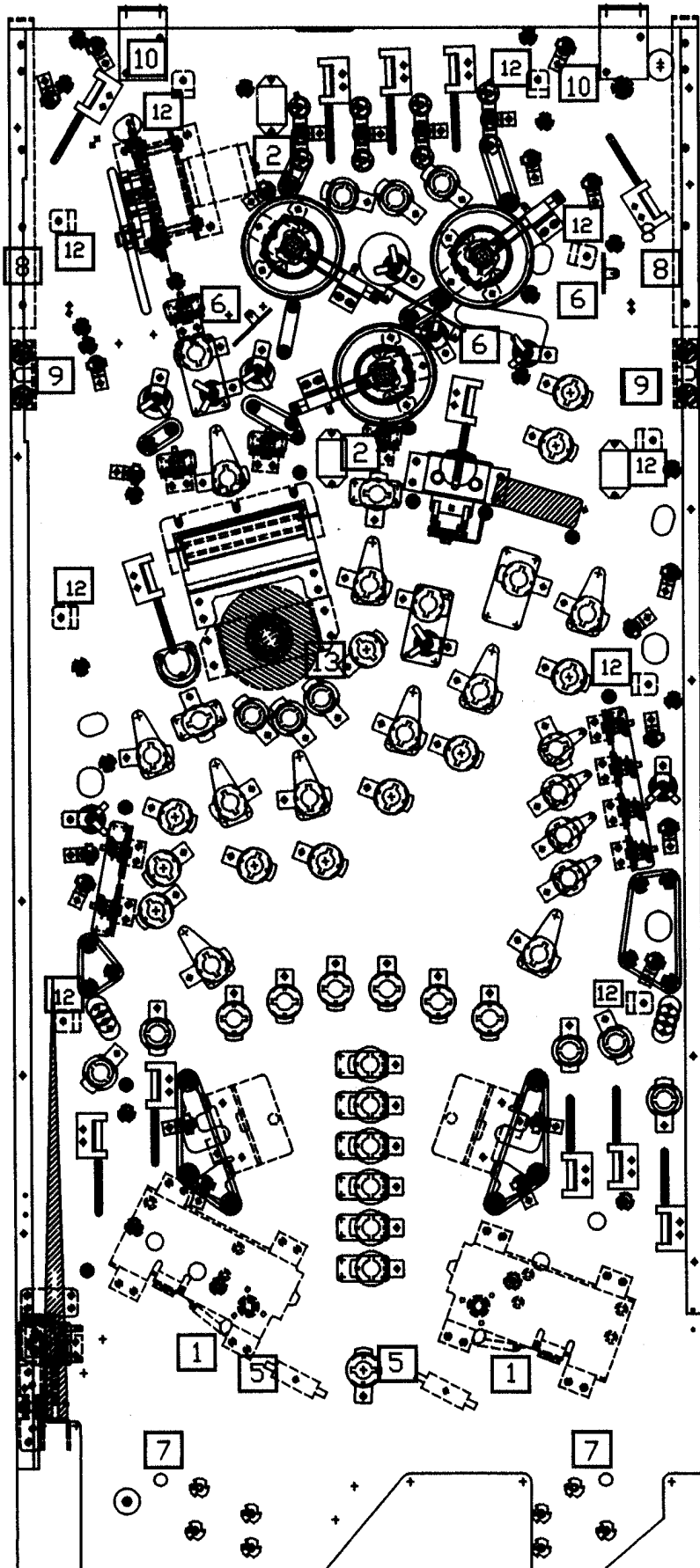


# Parts Identification

| Nr.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CAB. PARTS & SWITCHES                       | QTY. | SPI PART Nr.    | Nr.                                                                                                                                                                                                                                                                                                                                                            | CAB. PARTS & SWITCHES                        | QTY. | SPI PART Nr.   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------|----------------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Screened Cabinet Ironman™ (No Parts)        |      | 525-5395-15P-B1 | 7                                                                                                                                                                                                                                                                                                                                                              | Rear Glass Channel 20-3/8" Length            | 1    | 545-5038-00    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Black Leg with Leveler Asm.                 | 4    | 500-5921-50     | 8                                                                                                                                                                                                                                                                                                                                                              | Plastic Channel 42-5/8" Lg. (Left/Rt.)       | 2    | 545-5017-00    |
| Item 2 is secured by: Leg Bolt Back Plate (535-7394-00) and Leg Bolt 3/8" X 16 X 2-1/2" Hex 5/8" Hd. (2/per) (231-5001-01) Leg Leveler ONLY (3/8"-16 X 3") (500-5017-00).                                                                                                                                                                                                                                                                                                                                 |                                             |      |                 | 9L                                                                                                                                                                                                                                                                                                                                                             | Side Armor (Left) W/O Button Guard           | 1    | 535-7297-02    |
| 3S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Start Button (Green Round) with Sw. + Lamp  | 1    | 500-6388-44-TL  | 9R                                                                                                                                                                                                                                                                                                                                                             | Side Armor (Right) W/O Button Guard          | 1    | 535-7297-02    |
| 4T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tournament Button (Yel. Sq.), w/Sw. + Lamp  | 1    | 500-6587-06-TL  | Items 9L & 9R are secured @ front & side by: Pem Stud 1/4 X 1" Flange Head Black (Qty. 1/per) (237-6116-01), 1/4-20 Flange Nut (Qty. 1/per) (240-5300-00) and #8 X 1/2" T20 Tamper Proof Black (Qty. 5/per) (237-6173-05); @ rear (backbox) by: #10-24 X 1" Sq. Neck Carr. Bolt Black (Qty. 1/per) (231-5021-00) and #10-24 Hex Nut (Qty. 1/per) (240-5202-00) |                                              |      |                |
| Item 3S & 4T includes the Switch & Lamp (No Wiring; desolder old wiring where required). Switch or Bulb replacement: TWIST LOCK (-TL) >> not snap-in << Assembly Parts Included: Microswitch (180-5174-00); #555 Wedge Base Clear Bulb (165-5002-00); If 4T is not desired, use optional Button Plug Black (500-6566-00). Requires 3-Lug Terminal Strip (055-5204-03) and Diodes, 1N4004 (Qty. 2) (112-5003-00) inside cabinet under button(s) for Lamp Operation (Diodes for Switch, located on Switch.) |                                             |      |                 | 10                                                                                                                                                                                                                                                                                                                                                             | Front Molding (Black) < NO BUTTON HOLE >     | 1    | 515-7729-00    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Flipper Button (White) Assembly (No Switch) | 2    | 500-5026-38     | Item 10 includes: Self-Adhesive Foam Rubber 3/8" X 3/16" X 20-3/8" (3") (626-5001-00) Items 10 works with Item 22 (next page) ONLY.                                                                                                                                                                                                                            |                                              |      |                |
| Item 5 is secured by: Pal Nut for Flipper Button (Metal) (Qty. 2/per) (240-5003-01) Pal Nut inside cabinet secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) and Washer (Zinc), .187" ID X .875" OD X .048" Thick (Qty. 1/per) (242-5059-00)                                                                                                                                                                                                                                                |                                             |      |                 | 11                                                                                                                                                                                                                                                                                                                                                             | Playfield Glass (Tempered) 21" X 43" X 3/16" | 1    | 660-5001-00    |
| 6S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Flipper Switch Single Assembly              | 2    | 500-6889-01     | 12                                                                                                                                                                                                                                                                                                                                                             | Hex Key Allen Wrench 5/16"                   | 1    | 777-0001-00    |
| Assembly Parts Included: Flipper Switch Stack Single (Paliney Contact) (180-5160-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00)                                                                                                                                                                                                                                                                                                                                                                |                                             |      |                 | 13                                                                                                                                                                                                                                                                                                                                                             | Corrugated Tubing Black 1" x 2.6' Lg.        | 1    | 605-5008-03    |
| Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00)                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |      |                 | Above Item 13 covers the Cable Wiring Harnesses going into the Backbox from the Cabinet.                                                                                                                                                                                                                                                                       |                                              |      |                |
| 6D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Flipper Switch Double Assembly              | 0    | 500-6890-01     | 14                                                                                                                                                                                                                                                                                                                                                             | Roto Lock Male (R2-0055-02)                  | 1    | 355-5006-01    |
| Assembly Parts Included: Flipper Switch Stack Double (Paliney Contact) (180-5164-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00)                                                                                                                                                                                                                                                                                                                                                                |                                             |      |                 | Item 14 is secured by: #10-24 X 1-3/4" Carriage Bolt Square Neck (Qty. 2) (231-5022-00), #10-24 Nylon Stop Nut (Qty. 2) (240-5206-00) and #10 Washer, 7/32" ID X 1/2" OD X 1/16" Thick (Qty. 2) (242-5003-00)                                                                                                                                                  |                                              |      |                |
| Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00)                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |      |                 | 15                                                                                                                                                                                                                                                                                                                                                             | Roto Lock Female (on Backbox)                | 1    | 355-5006-02    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                             |      |                 | 16                                                                                                                                                                                                                                                                                                                                                             | Ball Shooter (Plunger) Assembly              | 1    | 500-6146-00-04 |

PARTS TABLE & VIEWS CONTINUED ON THE NEXT PAGE. ►

# Main Playfield Bottom - Miscellaneous Parts and Brackets



| Nr.  | THE PLAYFIELD                       | QTY. | SPI PART Nr.   |
|------|-------------------------------------|------|----------------|
| Main | P/F Screened w/ Inserts & NO Parts  | 1    | 830-5100-B1    |
| P/F  | P/F Complete w/ Inserts & ALL Parts | 1    | 505-6004-B1-B1 |

| Nr. | MISC. PARTS (BELOW)                           | QTY. | SPI PART Nr. |
|-----|-----------------------------------------------|------|--------------|
| 1   | Insulation Fiche Paper (under Lower Flippers) | 2    | 545-5721-00  |
| 2   | Relay + Conn. Asm. Amp Suit                   | 1    | 511-5249-00  |
| 2   | Relay+ Conn Asm Transporter (Prem)            | 1    | 511-5249-01  |
| 2   | Relay+ Conn Asm 3-Bank                        | 1    | 511-5249-02  |

|                                                                                                                                                            |                                 |   |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---|-------------|
| 3                                                                                                                                                          | PCB, OPTO Transceiver Amplifier | 1 | 520-5239-01 |
| Item 3 is secured by: #6 X 3/4" SHWH AB (Zinc) (Qty. 4) (234-5003-00)                                                                                      |                                 |   |             |
| Application Note: Required for OPTO Transceiver Pairs (500-6775-01) listed on the next page (... Switches). See the Yellow Pages, PCBs, Pages y 42 - y 43. |                                 |   |             |
| 4                                                                                                                                                          | Resistor Assy                   |   | 511-5223-00 |
| See the Yellow Pages,                                                                                                                                      |                                 |   |             |

|   |                           |   |             |
|---|---------------------------|---|-------------|
| 5 | 3A 250v Slo-Blo Fuse      | 2 | 200-5000-08 |
|   | Fuse Clip Holder (Socket) | 1 | 205-5000-01 |

Item 5 is secured by: #6 X 1/2" PPH AB (Qty. 1/per) (237-5805-00)  
 Note: Item 5, Fuse Clip Holder (Socket) 205-5000-01 is part of a set of 12 (205-5000-12).  
 You can order them as individuals (...-01) or a set of 12 (...-12).

|   |                                           |   |             |
|---|-------------------------------------------|---|-------------|
| 6 | Diode Terminal Strip 3-Lug (810) Isolated | 1 | 055-5204-03 |
| 6 | Diode Terminal Strip 5-Lug (813) Isolated | 1 | 055-5204-05 |
| 6 | Diode Terminal Strip 7-Lug (824) Isolated | 1 | 055-5204-07 |

Items 6B-6C are secured by: #6 X 3/8" HWH AB Zinc (Qty. 1-2/per) (234-5000-00)  
 Item 6B (Qty. 1) located in Cabinet. Note: 1N4004 Diodes (112-5003-00) are used in all Diode applications. 1N4001 Diodes can be used for Switches and/or Lamps.

| Nr. | MISC. BRACKETS (BELOW) | QTY. | SPI PART Nr. |
|-----|------------------------|------|--------------|
|-----|------------------------|------|--------------|

|                                                                                                                                                                                    |                                  |   |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---|-------------|
| 7                                                                                                                                                                                  | Bracket, Playfield Support Slide | 2 | 535-6862-05 |
| Item 7 is secured by: #10 X 1/2" HWH A (Zinc) (Qty. 2/per) (237-5817-00), #8-32 X 5/8" SHWH Swage (Zinc) Wax (Qty. 1/per) (237-5975-03) and #8-32 T-Nut (Qty. 1/per) (240-5101-00) |                                  |   |             |

|                                                                                                                  |                                |   |             |
|------------------------------------------------------------------------------------------------------------------|--------------------------------|---|-------------|
| 8                                                                                                                | Bracket, Edge Slide (Extended) | 2 | 535-5988-01 |
| Item 8 is secured by: #4 X 1/2" PFH (Zinc) (Qty. 5/per) (237-5840-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00) |                                |   |             |

|                                                                                     |                                    |   |             |
|-------------------------------------------------------------------------------------|------------------------------------|---|-------------|
| 9                                                                                   | Bracket, Pivot Pin Welded Assembly | 2 | 500-5329-03 |
| Item 9 is secured by: #8-32 X 5/8" SHWH Swage (Zinc) Wax (Qty. 2/per) (237-5975-03) |                                    |   |             |

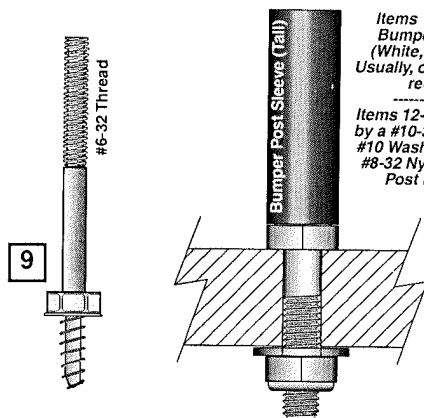
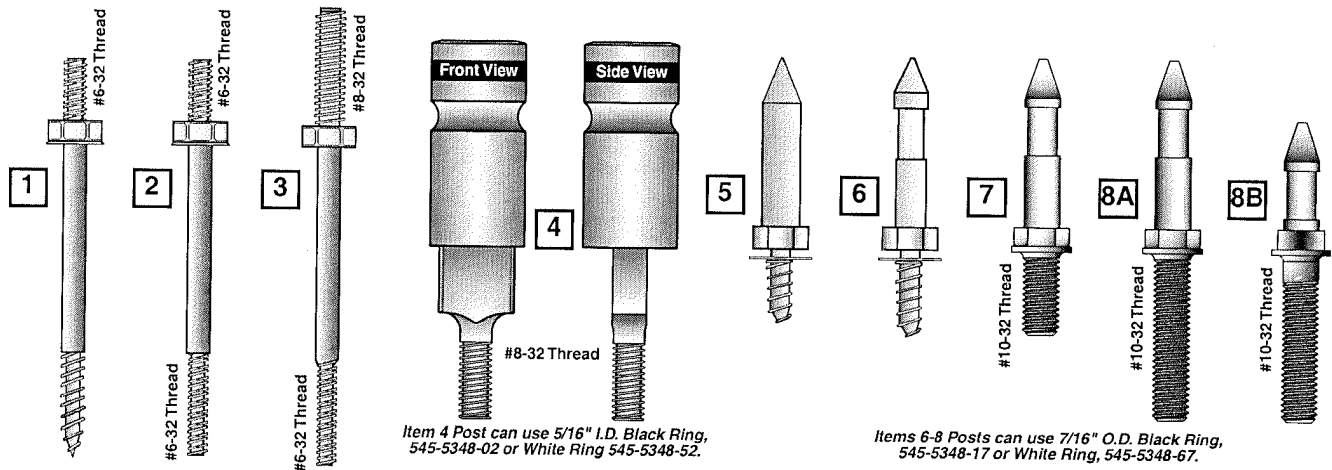
|                                                                                                                                                                     |                              |   |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---|-------------|
| 10                                                                                                                                                                  | Bracket, Back Panel Mounting | 2 | 535-8964-00 |
| Item 10 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2/per) (234-5101-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00) For a 3D View: See the Blue Pages, Page b 23. |                              |   |             |

|                                                                                         |                                        |   |             |
|-----------------------------------------------------------------------------------------|----------------------------------------|---|-------------|
| 11                                                                                      | Bracket, Hole Protect (center up-post) | 0 | 535-0289-00 |
| Item 11 secured under the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00) |                                        |   |             |

|                                                                                                                                        |                               |    |             |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|-------------|
| 12                                                                                                                                     | Tie Post (White Nylon) 3-1/2" | 11 | 545-5253-01 |
| Item 12 is secured by: #6 X 5/8" SHWH AB Green (Qty. 1/per) (234-5002-00) and wiring with Cable Tie, 5-1/2" (Qty. 1/per) (040-5001-02) |                               |    |             |

Parts Identification

# Playfield - Metal Posts & Fin Shank Screws (Actual Size) †



Items 11-16 & 18 Posts can use a Black Bumper Post Sleeve (Tail), 545-5308-00 (White, 545-5308-08 or Red, 545-5308-22) Usually, only Posts which are in the ball path require a Bumper Post Sleeve.

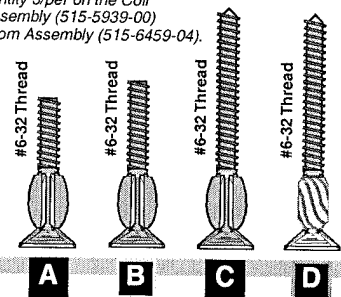
Items 12-15 & 18 Posts are typically secured by a #10-32 Nylon Stop Nut, 240-5203-00 and #10 Washer, 242-5010-00 (Item 11 Post use a #8-32 Nylon Stop Nut, 240-5102-00; Item 16 Post use a #8-32 T-Nut, 240-5101-00).

**A & B** Items A & B Note: Typically used to secure Hex Spacers onto the Playfield Wood or Back Panel.

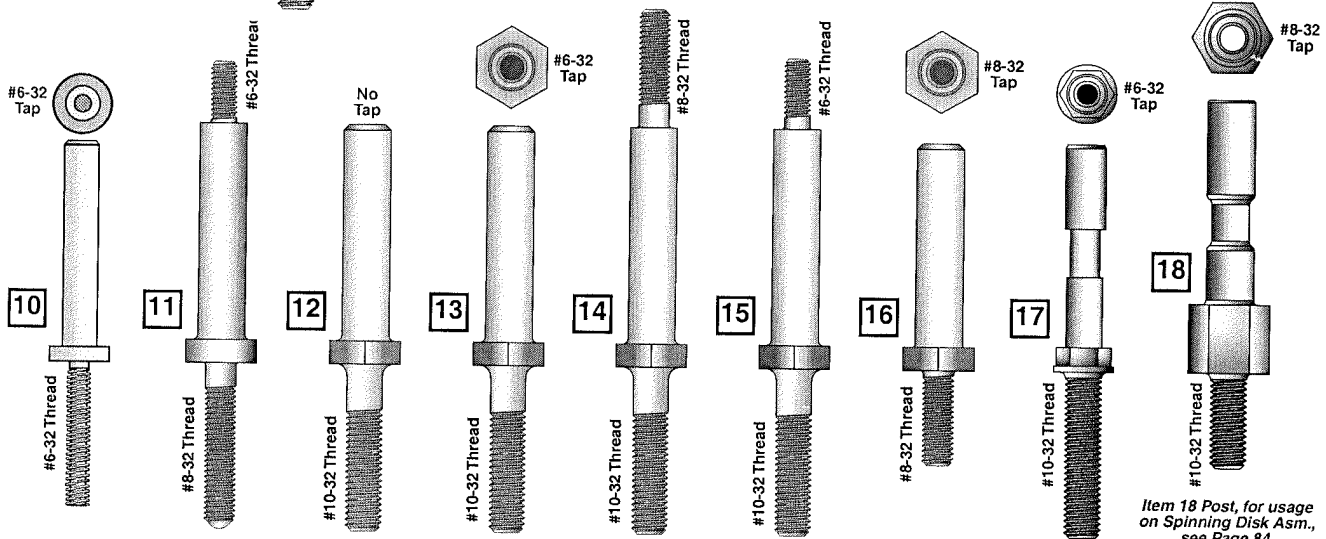
**C** Item C Note: Quantity 4 on bottom Cabinet Speaker Grill (Qty. 4) (also requires #6-32 Nylon Stop Nut, 240-5005-00).

**D** Item D Note: Quantity 3/per on the Coil Bracket Welded Assembly (515-5939-00) in the Bumper Bottom Assembly (515-6459-04).

**A - D** Items A-D Note: The "Fins" keep the screw from turning inside the wood hole.



Parts Identification

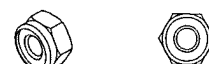


| Nr. | METAL POSTS                                   | SPI PART Nr. | Nr. | METAL POSTS                                    | SPI PART Nr. |
|-----|-----------------------------------------------|--------------|-----|------------------------------------------------|--------------|
| 1   | Post [Fasten] #6-32 Thread // Wood Screw      | 530-5010-02  | 12  | Post [Hex Base] NO TAP // 10-32 Thread         | 530-5332-00  |
| 2   | Post [Fasten] #6-32 Thread // #6-32 Thread    | 530-5012-02  | 13  | Post [Hex Bs.] #6-32 TAP // #10-32 Thread      | 530-5332-01  |
| 3   | Post [Fasten] #8-32 Thread // #6-32 Thread    | 530-5008-00  | 14  | Post [Hex Bs.] #8-32 Thread // #10-32 Thr.     | 530-5332-02  |
| 4   | Post Brass [Adjustable, Sliding] #8-32 Thread | 530-5621-00  | 15  | Post [Hex Bs.] #6-32 Thread // #10-32 Thr.     | 530-5332-03  |
| 5   | Mini-Post Wood Screw (no cut-away)            | 530-5004-01  | 16  | Post [Hex Bs.] #8-32 TAP // #8-32 Thread       | 530-5332-04  |
| 6   | Mini-Post Wood Screw                          | 530-5004-00  | 17  | Post [Hex Bs.+Groove] #6-32 TAP // #10-32 Thr. | 530-5679-00  |
| 7   | Mini-Post Machine Scr. // #10-32 .4" Thread   | 530-5005-01  | 18  | Post [Hex Bs.+Groove] #8-32 TAP // #10-32 Thr. | 530-5753-00  |
| 8A  | Mini-Post MS // #10-32 .875" Thread           | 530-5005-00  |     |                                                |              |
| 8B  | Mini-Post Short MS // #10-32 .875" Thread     | 530-5749-00  |     |                                                |              |
| 9   | Post [Fasten] #6-32 Thread // Wood Screw      | 530-5263-01  |     |                                                |              |
| 10  | Post #6-32 Tap // #6-32 Thread                | 530-5127-00  |     |                                                |              |
| 11  | Post [Fasten] #6-32 Thread // #8-32 Thread    | 530-5007-00  |     |                                                |              |
| Nr. | FIN SHANK SCREWS                              | SPI PART Nr. |     |                                                |              |
| A   | #6-32 X 3/4" Fin Shank Screw                  | 237-5921-02  |     |                                                |              |
| B   | #6-32 X 7/8" Fin Shank Screw                  | 237-5921-04  |     |                                                |              |
| C   | #6-32 X 1 1/4" Fin Shank Screw                | 237-5883-00  |     |                                                |              |
| D   | #6-32 X 1 3/16" Spiral Fin Shank Screw        | 237-5957-00  |     |                                                |              |

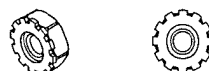


# Playfield - Nylon Stop, KEPS, Hex, T-, Flange, Pal\* & Wing Nuts\* (Actual Size) †

| Nr.                                                                                                                                                   | NYLON STOP NUTS*                      | SPI PART Nr. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------|
| N1                                                                                                                                                    | #6-32 Nylon Stop Nut                  | 240-5005-00  |
| N2                                                                                                                                                    | #6-32 N.S. Nut (with 1/4" Hex Body)   | 240-5010-00  |
| N3                                                                                                                                                    | #8-32 Nylon Stop Nut                  | 240-5102-00  |
| N4                                                                                                                                                    | #10-32 Nylon Stop Nut                 | 240-5203-00  |
| N5                                                                                                                                                    | #10-24 Nylon Stop Nut                 | 240-5206-00  |
| <i>Item N5 used with #10-24 X 1-3/4" Carriage Bolt Square Neck Black (231-5022-00) located in the Cabinet for the Foto Lock (Male) (355-5006-01).</i> |                                       |              |
| N6                                                                                                                                                    | #4-40 Nylon Stop Nut                  | 240-5303-00  |
| N7                                                                                                                                                    | #4-40 (18/8 Stainless) Nylon Stop Nut | 240-5303-01  |
| N8                                                                                                                                                    | 5/16"-18 Nylon Stop Nut               | 240-5316-00  |



| Nr. | KEPS NUTS*                          | SPI PART Nr. |
|-----|-------------------------------------|--------------|
| K1  | #6-32 Keps Nut (with Star Washer)   | 240-5008-00  |
| K2  | #6-32 Keps Nut (with 1/4" Hex Body) | 240-5011-00  |
| K3  | #8-32 Keps Nut                      | 240-5104-00  |
| K4  | #10-32 Keps Nut                     | 240-5208-00  |
| K5  | #10-24 Keps Nut                     | 240-5207-00  |
| K6  | #4-40 Keps Nut                      | 240-5318-00  |



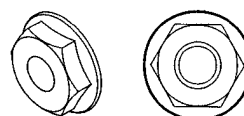
| Nr.                                                                                                                                                  | HEX NUTS*                      | SPI PART Nr. |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------|
| H1                                                                                                                                                   | #6-32 Hex Nut (No Star Washer) | 240-5004-00  |
| H2                                                                                                                                                   | #8-32 Hex Nut                  | 240-5103-00  |
| H3                                                                                                                                                   | #10-32 Hex Nut                 | 240-5201-00  |
| H4                                                                                                                                                   | #10-24 Hex Nut                 | 240-5202-00  |
| <i>Item H4 used with #10-24 X 1" Carriage Bolt Square Neck Black (231-5021-00) located in the Cabinet for the Side Armor Rear (towards Backbox).</i> |                                |              |
| H5                                                                                                                                                   | #10-32 X 3/8" Hex Nut          | 240-5209-00  |
| H6                                                                                                                                                   | 3/4"-16 Hex Nut                | 240-5315-00  |
| H7                                                                                                                                                   | #2-56 Hex Nut                  | 240-5301-00  |
| H8                                                                                                                                                   | 7/8"-14 Hex Nut                | 240-5317-00  |



| Nr. | T-NUTS*                          | SPI PART Nr. |
|-----|----------------------------------|--------------|
| T1  | #6-32 T-Nut                      | 240-5002-00  |
| T2  | #6-32 T-Nut (with Side Cut Off)  | 240-5002-01  |
| T3  | #8-32 T-Nut                      | 240-5101-00  |
| T4  | #10-32 (Black Oxide) T-Nut       | 240-5007-00  |
| T5  | #10-32 T-Nut (with Side Cut Off) | 240-5205-00  |
| T6  | #10-32 X 5/16" 3-Prong T-Nut     | 240-5204-00  |
| T7  | #10-24 T-Nut                     | 240-5200-00  |



| Nr.                                                                                                                                                     | FLANGE NUT*          | SPI PART Nr. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|
| F1                                                                                                                                                      | 1/4" X 20 Flange Nut | 240-5300-00  |
| <i>Item F1 used with 1/4-20 X 1-1/4 Sq. Neck Carriage Bolt Black (231-5003-00) located in the Cabinet for the Slide Armor (Front) and Pivot Hinges.</i> |                      |              |



| Nr. | PAL NUTS*                            | SPI PART Nr. |
|-----|--------------------------------------|--------------|
| P1  | Plastic Pal Nut (on Flipper Buttons) | 240-5003-00  |
| P2  | Metal Pal Nut (on Flipper Buttons)   | 240-5003-01  |

\* Not Shown

| Nr. | WING NUTS*          | SPI PART Nr. |
|-----|---------------------|--------------|
| W1  | #6-32 Wing Nut      | 240-5001-00  |
| W2  | #8-32 Wing Nut      | 240-5100-00  |
| W3  | #10-24 Wing Nut     | 240-5211-00  |
| W4  | 1/4"-20 Wing Nut    | 240-5302-00  |
| W5  | 1/4"-20 Toggle Wing | 240-5324-00  |

\* Not Shown

Parts Identification

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).  
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

# Playfield Top - Hex Spacers (Actual Size) †

Hex Spacers:

#6-32

Tap



1

2

3A

4A

5

6A

7

8A

8B

example of "Bs"  
with Male #6-32 Thread  
1-end, #6-32 Tap on other.

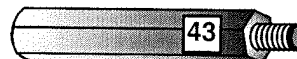
## Take Note:

Items 1-33 are 1/4" wide. Items 34-39 are 5/16" wide. With Items 1-3A, 4A, 5 & 6A (the tap goes thru the length of spacer). With Items 7, 8A, 9-33 & 34-39, the tap is up to 5/8" deep on each end. **Note:** Items 3B, 4B, 6B (Not Shown) & 8B (Shown as example of all "B" Styles) all have a #6-32 Threaded end, the other end Tapped (same as Items 7-33).

† Hex Spacers Not Used in current games may no longer be available. Choose an available size (+/-) and compensate with washers or other spacers.

- ☑ Hex Spacer Nut 1/5" O.D. X 1/4"-20 BO (254-5042-00) (Qty. 2)  
(with Pivot Hinges Item 29L/R, Page 43, Backbox Parts).
- ☑ Hex Spacer (254-5052-00) (Qty. 4)

Item 42 Hex Spacer 1/2" X 1/4" #6-32 M/F (Qty. 0) (254-5049-03)  
Item 43 Hex Spacer 1-1/2" X 1/4" #6-32 M/F (Qty. 1) (254-5049-09)



3 1/4" - 26

27 - 3 1/2"

3 1/8" - 25

28 - 3 5/8"

3" - 24

29 - 3 3/4"

2 7/8" - 23

30 - 4"

31 - 4 1/8"

32 - 4 1/4"

33 - 4 3/8"

34 - 5 1/4"

Item 44 Hex Spacer  
1.13" X .31" #8-32 M/F  
(Qty. 0) (254-5050-00)  
**Not Used This Game**

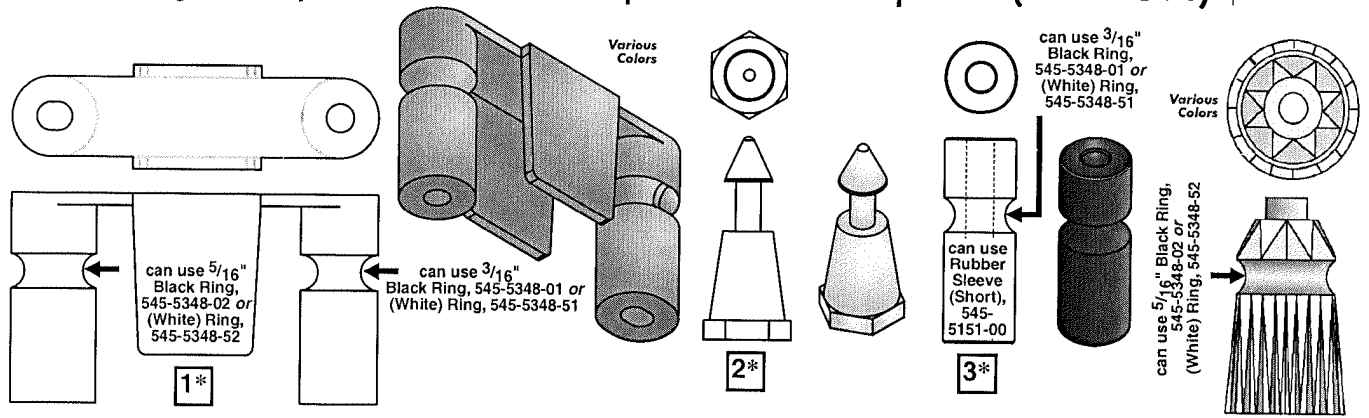
A Standard USA 9 Inch Ruler  
is provided on the back cover.

Parts Identification

| Nr.  | HEX SPACERS                            | SPI PART Nr. | Nr. | HEX SPACERS                             | SPI PART Nr. |
|------|----------------------------------------|--------------|-----|-----------------------------------------|--------------|
| 1    | 1/4" X 1/4" : #6-32 Tap (both ends)    | 254-5008-00  | 19  | 2 3/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-28  |
| 2    | 3/8" X 1/4" : #6-32 Tap (both ends)    | 254-5008-12  | 20  | 2 1/2" X 1/4" : #6-32 Tap (both ends)   | 254-5008-16  |
| 3A   | 1/2" X 1/4" : #6-32 Tap (both ends)    | 254-5008-03  | 21  | 2 5/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-08  |
| 3B*  | Identical to 3A with #6-32 Thread end  | 254-5024-03  | 22  | 2 3/4" X 1/4" : #6-32 Tap (both ends)   | 254-5008-15  |
| 4A   | 5/8" X 1/4" : #6-32 Tap (both ends)    | 254-5008-02  | 23  | 2 7/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-31  |
| 4B*  | Identical to 4A with #6-32 Thread end  | 254-5024-02  | 24  | 3" X 1/4" : #6-32 Tap (both ends)       | 254-5008-14  |
| 5    | 3/4" X 1/4" : #6-32 Tap (both ends)    | 254-5008-04  | 25  | 3 1/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-19  |
| 6A   | 7/8" X 1/4" : #6-32 Tap (both ends)    | 254-5008-05  | 26  | 3 1/4" X 1/4" : #6-32 Tap (both ends)   | 254-5008-26  |
| 6B*  | Identical to 6A with #6-32 Thread end  | 254-5024-05  | 27  | 3 1/2" X 1/4" : #6-32 Tap (both ends)   | 254-5008-27  |
| 7    | 1" X 1/4" : #6-32 Tap (both ends)      | 254-5008-06  | 28  | 3 5/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-25  |
| 8A   | 1 1/8" X 1/4" : #6-32 Tap (both ends)  | 254-5008-17  | 29  | 3 3/4" X 1/4" : #6-32 Tap (both ends)   | 254-5008-36  |
| 8B   | Identical to 8A with #6-32 Thread end  | 254-5024-17  | 30  | 4" X 1/4" : #6-32 Tap (both ends)       | 254-5008-21  |
| 9    | 1 1/4" X 1/4" : #6-32 Tap (both ends)  | 254-5008-11  | 31  | 4 1/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-23  |
| 10   | 1 5/16" X 1/4" : #6-32 Tap (both ends) | 254-5008-34  | 32  | 4 1/4" X 1/4" : #6-32 Tap (both ends)   | 254-5008-30  |
| 11 ‡ | 1 3/8" X 1/4" : #6-32 Tap (both ends)  | 254-5008-33  | 33  | 4 3/8" X 1/4" : #6-32 Tap (both ends)   | 254-5008-29  |
| 12   | 1 1/2" X 1/4" : #6-32 Tap (both ends)  | 254-5008-09  | 34  | 5 1/4" X 1/4" : #6-32 Tap (both ends)   | 254-5008-35  |
| 13 ‡ | 1 5/8" X 1/4" : #6-32 Tap (both ends)  | 254-5008-13  | 35  | 1 1/4" X 5/16" : #6-32 Tap (both ends)  | 254-5018-09  |
| 14   | 1 3/4" X 1/4" : #6-32 Tap (both ends)  | 254-5008-10  | 36  | 1 3/4" X 5/16" : #6-32 Tap (both ends)  | 254-5018-06  |
| 15 ‡ | 1 7/8" X 1/4" : #6-32 Tap (both ends)  | 254-5008-20  | 37  | 2" X 5/16" : #6-32 Tap (both ends)      | 254-5018-07  |
| 16   | 2" X 1/4" : #6-32 Tap (both ends)      | 254-5008-07  | 38  | 4" X 5/16" : #6-32 Tap (both ends)      | 254-5018-03  |
| 17   | 2 1/8" X 1/4" : #6-32 Tap (both ends)  | 254-5008-32  | 39  | 4 5/16" X 5/16" : #6-32 Tap (both ends) | 254-5018-00  |
| 18   | 2 1/4" X 1/4" : #6-32 Tap (both ends)  | 254-5008-18  | 40  | 4.92" X 5/16" : #6-32 Tap (both ends)   | 254-5018-04  |

**NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).  
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.**

# Playfield Top - Plastic Posts & Spacers & Metal Spacers (Actual Size) †

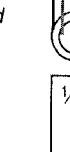
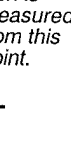
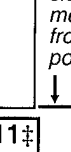
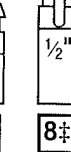
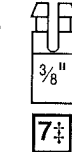
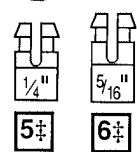
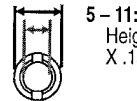


## PLASTIC PART COLOR CHART

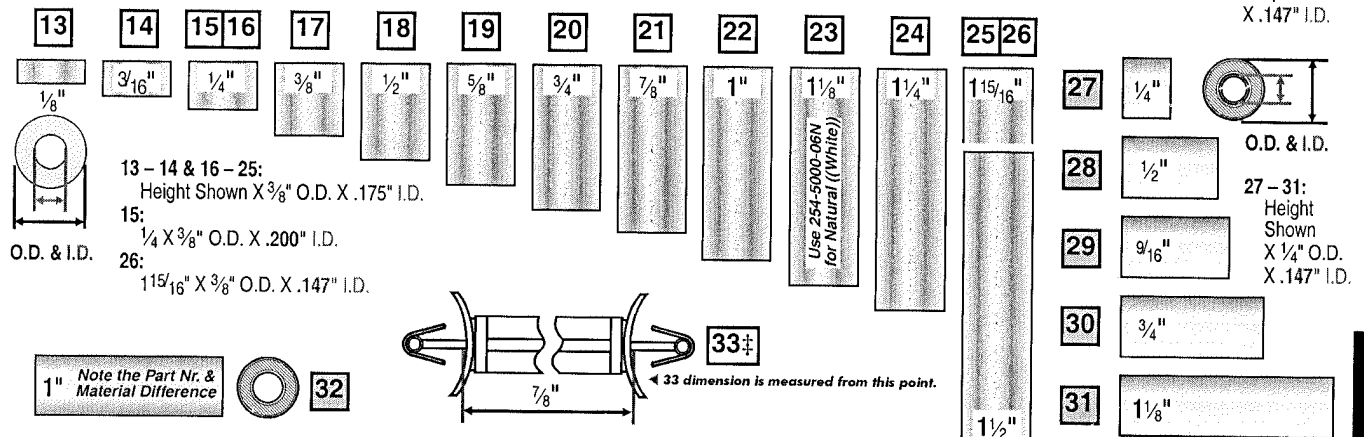
| Nr. | Color | Nr. | Color        | Nr. | Color       |
|-----|-------|-----|--------------|-----|-------------|
| -00 | Black | -06 | Yellow       | -12 | Fluor. Blue |
| -01 | Clear | -07 | Orange       | -13 | Teal Green  |
| -02 | Red   | -08 | (White)      | -14 | (Gray)      |
| -03 | Amber | -09 | Purple       | -15 | Luminescent |
| -04 | Green | -10 | Fluor. Org.  | -16 | Gold        |
| -05 | Blue  | -11 | Fluor. Green |     |             |

\* Items 1 & 5 come in various colors. The "-XX" (the last 2-Digits in the Part Number), should be replaced with the desired 2-Digit number from the above Color Chart (may not be available in every color; other colors used in prior games may no longer be available.) Call for availability.

O.D. & I.D.



† Items 5 through 11 dimensions are measured from bottom to just under the cut-away. Item 33 dimension is measured from top-to-top of curve. See pictorials with Items 11 & 33.

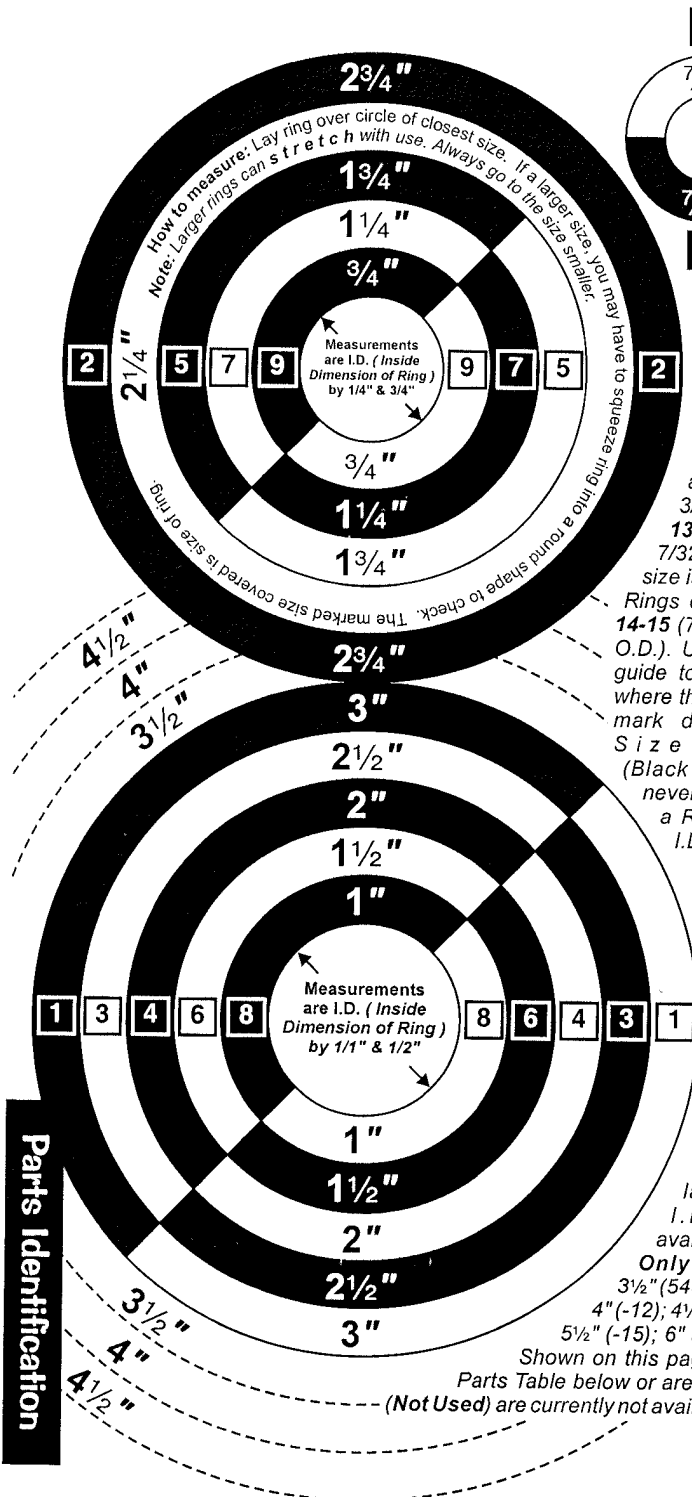


| Nr.                                                                                                                                                              | PLASTIC POSTS & SPACERS                           | SPI PART Nr. | Nr.                                                                                                                                                                               | PLASTIC POSTS & SPACERS                               | SPI PART Nr. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------|
| 1**                                                                                                                                                              | Top Lane Plastic Mini-Lite Hood (XX-Color)        | 550-5061-XX  | 21                                                                                                                                                                                | 7/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)      | 254-5000-11  |
| 2**                                                                                                                                                              | Mini-Jewel Plastic Post (XX-Color)                | 550-5052-XX  | 22                                                                                                                                                                                | 1" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)        | 254-5000-04  |
| 3**                                                                                                                                                              | 1 1/16" 1-Groove Plastic Post (XX-Color)          | 550-5059-XX  | 23                                                                                                                                                                                | 1 1/8" X 3/8" O.D. X .175" I.D. Pls. Spcr. (Gray)     | 254-5000-06  |
| Item 3 Only: Use Part Number (550-5059-00) for color Black.                                                                                                      |                                                   |              |                                                                                                                                                                                   |                                                       |              |
| 4**                                                                                                                                                              | 1-Groove Jewel Plastic Post (XX-Color)            | 550-5034-XX  | 24                                                                                                                                                                                | 1 1/4" X 3/8" O.D. X .175" I.D. Pls. Spcr. (Gray)     | 254-5000-05  |
| Items 3 & 4 typically sec'd by: Post Fastening Scr. #6-32 Top / #6-32 Bot. (530-5012-02). Use Color Chart above for last 2-digits. Not all colors are available. |                                                   |              |                                                                                                                                                                                   |                                                       |              |
| Items 1-4 Note: Use Color Chart above for last 2-digits. Not all colors are available.                                                                           |                                                   |              |                                                                                                                                                                                   |                                                       |              |
| 5 ‡                                                                                                                                                              | 1/4" Self Retain. Plastic Spacer (White)          | 254-5007-02  | 25                                                                                                                                                                                | 1 1/2" X 3/8" O.D. X .175" I.D. Pls. Spcr. (Gray)     | 254-5000-08  |
| 6 ‡                                                                                                                                                              | 9/16" Self Retain. Plastic Spacer (White)         | 254-5007-05  | 26                                                                                                                                                                                | 1 5/8" X 3/8" O.D. X .147" I.D. Plastic Spacer (Gray) | 254-5000-15  |
| 7 ‡                                                                                                                                                              | 3/8" Self Retain. Plastic Spacer (White)          | 254-5007-01  | Items 13-26 Only: Spacers may also be Black in color (random from vendor).                                                                                                        |                                                       |              |
| 8 ‡                                                                                                                                                              | 1/2" Self Retain. Plastic Spacer (White)          | 254-5007-04  | Not Shown and listed for reference only: 254-5000-10: 2 1/2" X 3/8" O.D. X .175" I.D. -13: 5/16" X 1/4" X .147"; -16: 5/16" X 5/16" X .190"; -17: 1 3/4" X 3/8" O.D. X .175" I.D. |                                                       |              |
| 9 ‡                                                                                                                                                              | 5/8" Self Retain. Plastic Spacer (White)          | 254-5007-00  | 27                                                                                                                                                                                | 1/4" X 5/16" O.D. X .144" I.D. Metal Spacer           | 254-5014-03  |
| 10 ‡                                                                                                                                                             | 3/4" Self Retain. Plastic Spacer (White)          | 254-5007-03  | 28                                                                                                                                                                                | 1/2" X 5/16" O.D. X .144" I.D. Metal Spacer           | 254-5014-00  |
| 11 ‡                                                                                                                                                             | 1" Self Retain. Plastic Spacer (White)            | 254-5007-06  | 29                                                                                                                                                                                | 9/16" X 5/16" O.D. X .144" I.D. Metal Spacer          | 254-5014-04  |
| 12                                                                                                                                                               | 1/2" X 1/4" O.D. X .147" I.D. Pls. Spacer (White) | 254-5000-03  | 30                                                                                                                                                                                | 3/4" X 5/16" O.D. X .144" I.D. Metal Spacer           | 254-5014-01  |
| 13                                                                                                                                                               | 1/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-19  | 31                                                                                                                                                                                | 1 1/8" X 5/16" O.D. X .144" I.D. Metal Spacer         | 254-5014-02  |
| 14                                                                                                                                                               | 3/16" X 3/8" O.D. X .175" I.D. Pls. Spcr. (Gray)  | 254-5000-18  | 32                                                                                                                                                                                | 1" X 5/16" O.D. X .144" I.D. Metal Spacer             | 254-5001-00  |
| 15                                                                                                                                                               | 1/4" X 3/8" O.D. X .200" I.D. Pls. Spcr. (Gray)   | 254-5000-02  | 33 ‡                                                                                                                                                                              | 7/8" Plastic Spacer Support (Dual-Locking)            | 254-5039-14  |
| 16                                                                                                                                                               | 1/4" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-09  | 34                                                                                                                                                                                | Plastic Spacer, .5"                                   | 254-5054-00  |
| 17                                                                                                                                                               | 3/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-12  | 35                                                                                                                                                                                | Plastic Spacer, 1.13"                                 | 254-5054-01  |
| 18                                                                                                                                                               | 1/2" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-01  |                                                                                                                                                                                   |                                                       |              |
| 19                                                                                                                                                               | 5/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-14  |                                                                                                                                                                                   |                                                       |              |
| 20                                                                                                                                                               | 3/4" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray)  | 254-5000-07  |                                                                                                                                                                                   |                                                       |              |

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER). COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE P/N REQUIRED.

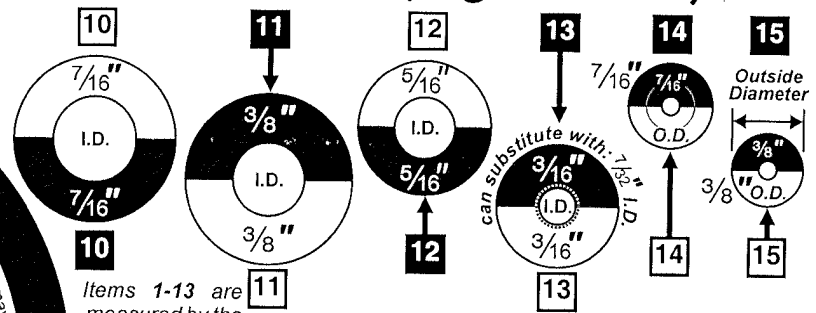
Parts Identification

# Playfield - Rubber Parts Black ■, White □ & Blue ■ (Rings Actual Size) †



Items 1-13 are measured by the Inside Diameter (I.D.). Items 1-9 and 11 are approximately 1/4" thick. Items 10, 12-15 are approximately 3/16" thick. Item 13 can also be a 7/32" I.D. Ring. The size is imprinted on all Rings except for Items 14-15 (7/16" O.D. & 3/8" O.D.). Use this page as a guide to measure rings where the size imprint or mark does not exist. Size 2 1/4" I.D. (Black or White) was never used. Choose a Ring Size +/- 1/4" I.D. if required.

Note: Sizes larger than 3" I.D. currently available in Black Only (Not Used): 3 1/2" (545-5348-11); 4" (-12); 4 1/2" (-13); 5" (-14); 5 1/2" (-15); 6" (-16). Sizes Not Shown on this page, listed in the Parts Table below or are noted with N/U (Not Used) are currently not available.



| Nr.                                                                                                                                              | RUBBER RINGS                                          | QTY. | SPI PART Nr.      |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------|-------------------|
| 1                                                                                                                                                | 3" I.D. Rubber Ring BLACK                             |      | 545-5348-10       |
|                                                                                                                                                  | 3" I.D. Rubber Ring WHITE                             |      | 545-5348-60       |
| 2                                                                                                                                                | 2 3/4" I.D. Rubber Ring BLK                           |      | 545-5348-20       |
|                                                                                                                                                  |                                                       |      | 545-5348-70       |
| 3                                                                                                                                                | 2 1/2" I.D. Rubber Ring BLK                           |      | 545-5348-09       |
|                                                                                                                                                  | 2 1/2" I.D. Rubber Ring WHT                           |      | 545-5348-59       |
| 4                                                                                                                                                | 2" I.D. Rubber Ring BLACK                             | 3    | 545-5348-08-40    |
|                                                                                                                                                  | 2" I.D. Rubber Ring WHITE                             |      | 545-5348-58       |
| 5                                                                                                                                                | 1 3/4" I.D. Rubber Ring BLK                           |      | 545-5348-21       |
|                                                                                                                                                  | 1 3/4" I.D. Rubber Ring WHT                           |      | 545-5348-71       |
| 6                                                                                                                                                | 1 1/2" I.D. Rubber Ring BLK                           | 1    | 545-5348-07       |
|                                                                                                                                                  | 1 1/2" I.D. Rubber Ring WHT                           |      | 545-5348-57       |
| 7                                                                                                                                                | 1 1/4" I.D. Rubber Ring BLK                           |      | 545-5348-06       |
|                                                                                                                                                  | 1 1/4" I.D. Rubber Ring WHT                           |      | 545-5348-56       |
| 8                                                                                                                                                | 1" I.D. Rubber Ring BLACK                             | 2    | 545-5348-05-40    |
|                                                                                                                                                  | 1" I.D. Rubber Ring WHITE                             |      | 545-5348-55       |
| 9                                                                                                                                                | 3/4" I.D. Rubber Ring BLACK                           | 4    | 545-5348-04-40-40 |
|                                                                                                                                                  | 3/4" I.D. Rubber Ring WHITE                           |      | 545-5348-54       |
| 10                                                                                                                                               | 7/16" I.D. Rubber Ring BLK                            |      | 545-5348-18       |
|                                                                                                                                                  | 7/16" I.D. Rubber Ring WHT                            |      | 545-5348-68       |
| 11                                                                                                                                               | 3/8" I.D. Rubber Ring BLACK                           |      | 545-5348-03       |
|                                                                                                                                                  | 3/8" I.D. Rubber Ring WHITE                           |      | 545-5348-53       |
| 12                                                                                                                                               | 5/16" I.D. Rubber Ring BLK                            | 7    | 545-5348-02-40    |
|                                                                                                                                                  | 5/16" I.D. Rubber Ring WHT                            |      | 545-5348-52       |
| 13                                                                                                                                               | 3/16" I.D. Rubber Ring BLK                            | 7    | 545-5348-01-40    |
|                                                                                                                                                  | 3/16" I.D. Rubber Ring WHT                            |      | 545-5348-51       |
| 14                                                                                                                                               | 7/16" O.D. Rubber Ring BLK                            | 38   | 545-5348-17-40    |
|                                                                                                                                                  | 7/16" O.D. Rubber Ring WHT                            |      | 545-5348-67       |
| Note: Item 14, 7/16" O.D. Black Rings (Qty. 44 of 49) are used to cushion the Bayonet Sockets under the playfield (between bracket & playfield). |                                                       |      |                   |
| 15                                                                                                                                               | 3/8" O.D. Rubber Ring BLK                             |      | 545-5348-19       |
|                                                                                                                                                  | 3/8" O.D. Rubber Ring WHT                             |      | 545-5348-69       |
| 16                                                                                                                                               | Small Flipper BLACK Ring (Soft Duro)                  |      | 545-5207-00       |
|                                                                                                                                                  | Small Flipper RED Ring (Soft Duro)                    |      | 545-5207-22       |
|                                                                                                                                                  | Large Flipper BLACK Ring (50 Duro)                    |      | 545-5277-00       |
|                                                                                                                                                  | Large Flipper YELLOW Ring (50 Duro) (use -06 40 Duro) |      | 545-5277-04       |
| 17                                                                                                                                               | Large Flipper WHITE Ring (50 Duro)                    |      | 545-5277-08       |
|                                                                                                                                                  | Large Flipper RED Ring (Soft Duro)                    | 2    | 545-5277-22       |

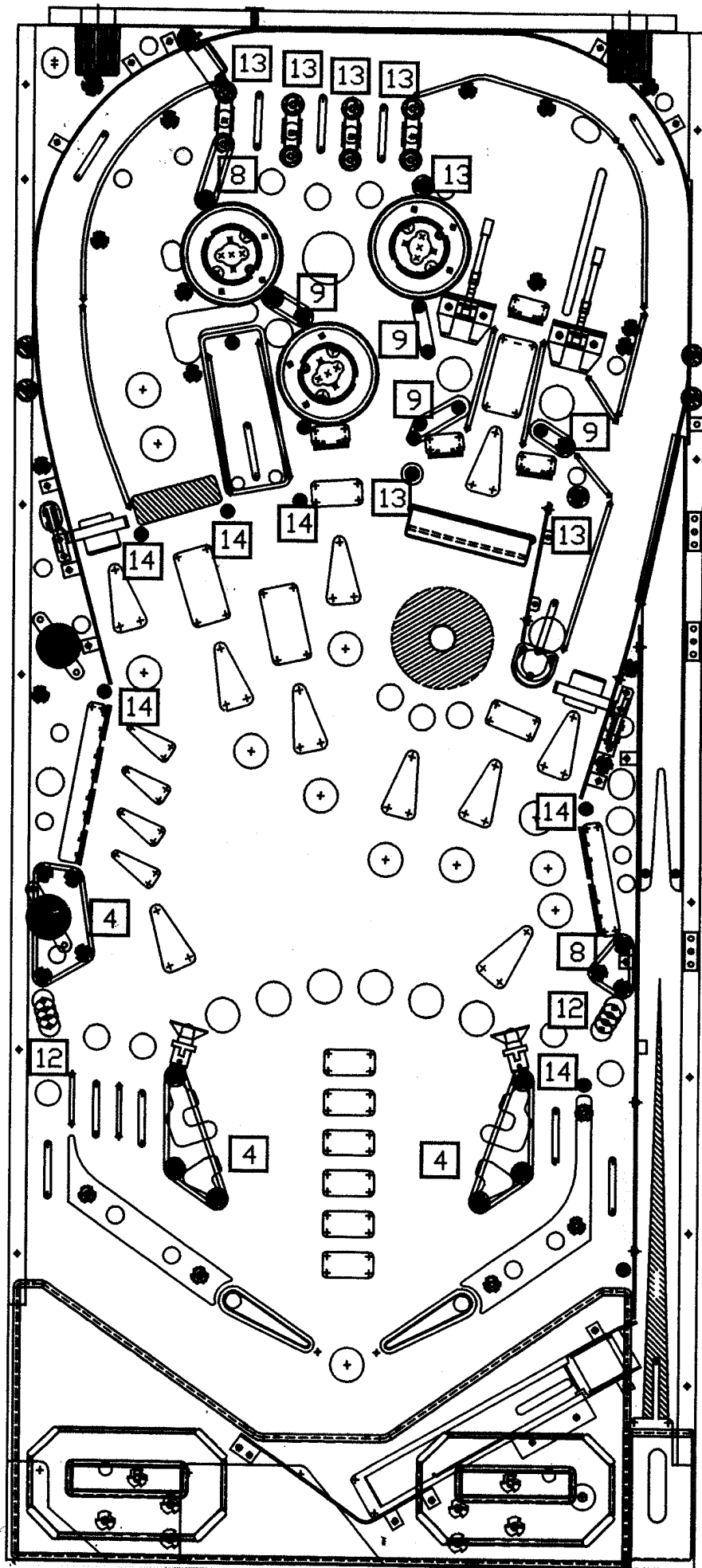
## Take Note:

For Blue Rubber Pads, see the next page and/or the Blue Pages for the assembly the pads are found on for the part number.

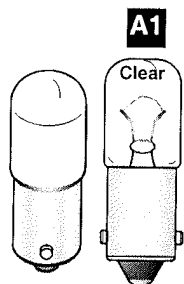
| Nr.                                                                    | RUBBER BUMPER PADS              | QTY. | SPI PART Nr. |
|------------------------------------------------------------------------|---------------------------------|------|--------------|
| A*                                                                     | Bumper BLK Pad (Lg. w/ grommet) |      | 545-5428-00  |
| Item A are located on Flipper Assemblies. See next page for location.  |                                 |      |              |
| B*                                                                     | Bumper BLK Pad (Sm. w/ grommet) | 6    | 545-5105-00  |
| Item B are located on multiple assemblies. See next page for location. |                                 |      |              |

| Nr.                                                             | RBR. BUMPER POST SLVS.          | QTY. | SPI PART Nr. |
|-----------------------------------------------------------------|---------------------------------|------|--------------|
| D*                                                              | Bumper BLACK Post Sleeve (Tall) |      | 545-5308-00  |
| Item D in RED use 545-5308-22; Item D in WHITE use 545-5308-08. |                                 |      |              |
| E*                                                              | Bumper Post Sleeve (Short)      |      | 545-5151-00  |

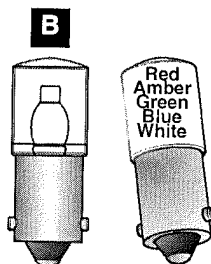
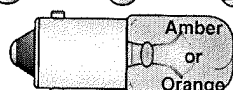
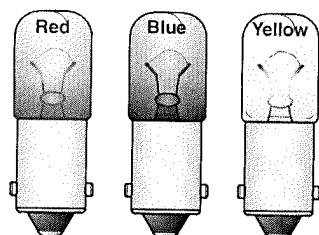




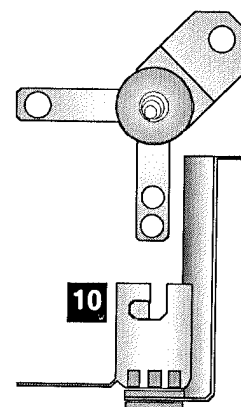
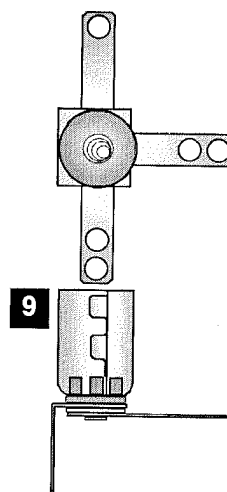
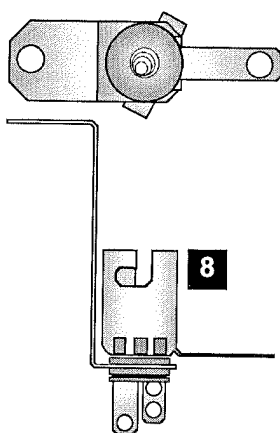
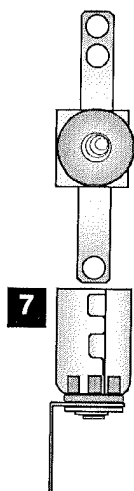
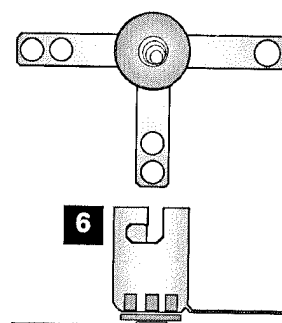
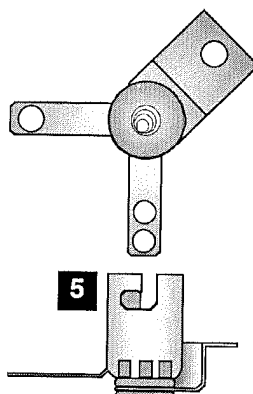
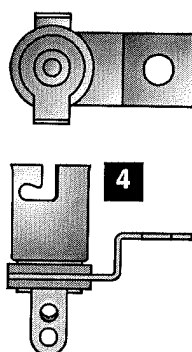
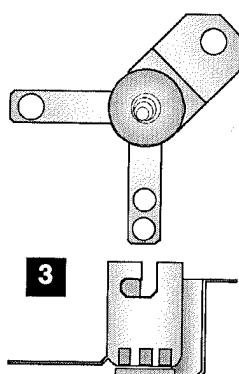
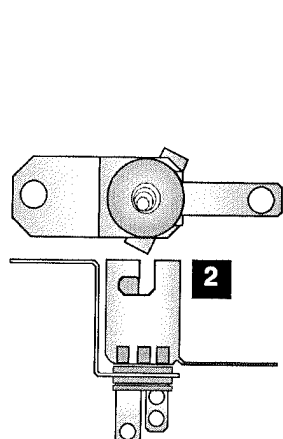
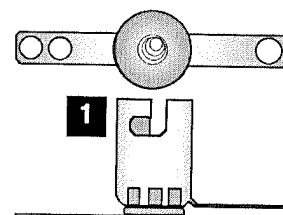
# Playfield Top & Bottom - Small Bayonet Sockets & Bulbs ■ (Actual Size) †



#44  
Bulbs



LED Bulb  
(Bayonet Style)



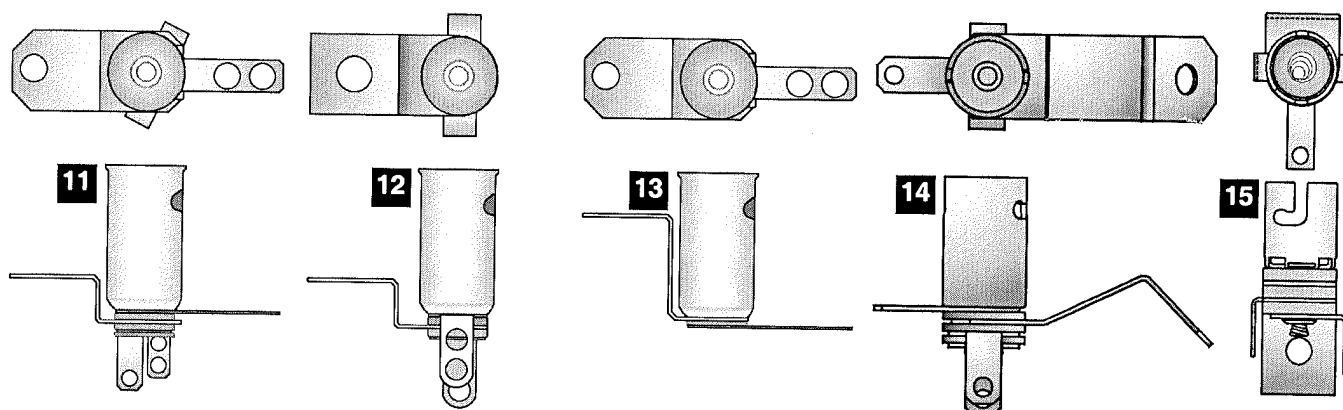
Parts Identification

| Nr. | BULBS (#44)                                                                           | SPI PART Nr.   | Nr. | BULBS (LED & #455)                                                               | SPI PART Nr. |
|-----|---------------------------------------------------------------------------------------|----------------|-----|----------------------------------------------------------------------------------|--------------|
| A   | #44 Bulb (Clear) Heavy Filament                                                       | 165-5000-44-HF | B   | LED Module (WHT) (12.8v 20-25mA) Bynt.                                           | 112-5023-08  |
|     | #44 Bulb (replace -XX w/color below)                                                  | 165-5053-XX-HF |     | Item B Note: Different Colors may be available -                                 |              |
|     | Item A Note: Amber (165-5053-03-HF); Green (165-5053-04-HF); Yellow (165-5053-06-HF); |                |     | Red (112-5023-02); Amber (112-5023-03); Green (112-5023-04); Blue (112-5023-05); |              |
|     | Red (165-5053-02-HF); Blue (165-5053-05-HF); Orange (165-5053-07-HF)                  |                |     |                                                                                  |              |

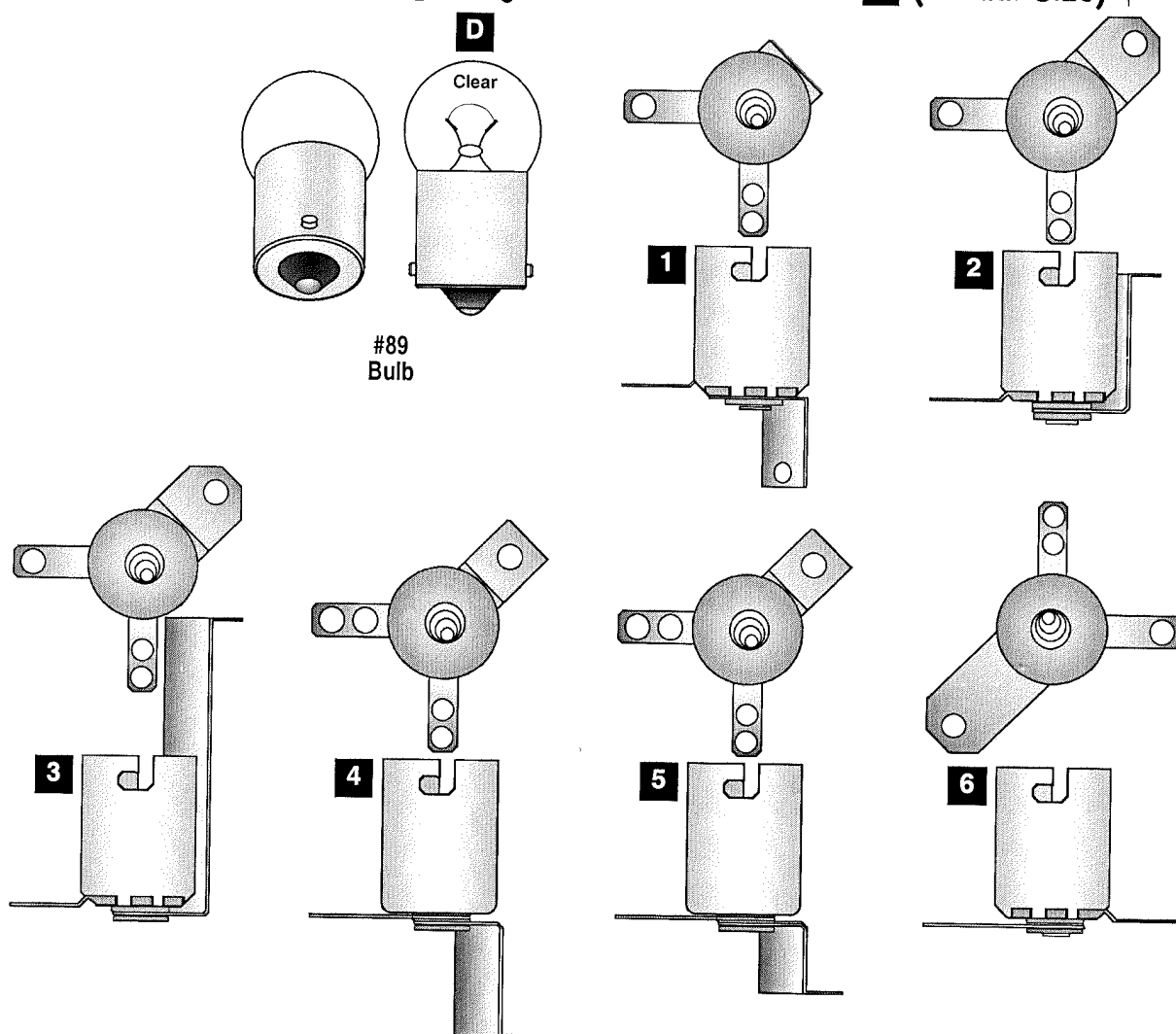
| Nr. | SMALL BAYONET SOCKETS                | SPI PART Nr. |
|-----|--------------------------------------|--------------|
| 1   | 2-Lug Staple Down Socket             | 077-5000-00  |
| 2   | 3-Lug Stand-Up Socket (Med. Brkt.)   | 077-5008-00  |
| 3   | 2-Lug Stand-Up Socket (Med. Brkt.)   | 077-5002-00  |
| 4   | 2-Lug Stand-Up Socket (Short Brkt.)  | 077-5223-00  |
| 5   | 2-Lug Stand-Up Sckt. (Short Bracket) | 077-5002-31  |
| 6   | 3-Lug Staple Down Socket             | 077-5001-00  |
| 7   | 2-Lug Laydown Socket                 | 077-5003-00  |
| 8   | 3-Lug Stand-Up Socket (Tall Bracket) | 077-5009-00  |
| Nr. | SMALL BAYONET SOCKETS                | SPI PART Nr. |
| 9   | 3-Lug Laydown Socket (3 Lugs Flat)   | 077-5006-00  |

|    |                                        |             |
|----|----------------------------------------|-------------|
| 10 | 2-Lug Stand-Up Socket (Tall Bracket)   | 077-5005-00 |
| 11 | 3-Lug Stand-Up Long Shell Socket       | 077-5013-00 |
| 12 | 2-Lug Stand-Up Lg. Shell Socket (Gls)  | 077-5031-00 |
| 13 | 1-Lug S-U Lg. Shell Sckt. (Med. Brkt.) | 077-5012-00 |
| 14 | 3-Lug S-U Lg. Shell Sckt. (45° Brkt.)  | 077-5035-00 |
| 15 | 3-Lug Laydown Socket (2 Lugs Bent)     | 077-5032-00 |

# Playfield Top & Bot. - Small Bayonet Sockets & Bulbs ■ (Actual Size) † Continued



## Playfield Bottom - Large Bayonet Sockets & Bulbs ■ (Actual Size) †



Parts Identification

| Nr. | BULBS (#89)             | SPI PART Nr.   |   |                                                  |
|-----|-------------------------|----------------|---|--------------------------------------------------|
| D   | #89 Bulb Heavy Filament | 165-5000-89-HF | 1 | 2-Lug Laydown Standard Socket 077-5100-00        |
|     |                         |                | 2 | 2-Lug Stand-Up Short Socket 077-5101-00          |
|     |                         |                | 3 | 2-Lug Stand-Up Long Socket 077-5102-00           |
|     |                         |                | 4 | 2-Lug Stand-Up Rev. Mount Socket 077-5103-00     |
|     |                         |                | 5 | 2-Lug Stand-Up Rv. Mnt. Short Socket 077-5106-00 |
|     |                         |                | 6 | 2-Lug Straight Leg Socket 077-5107-00            |

| Nr. | LARGE BAYONET SOCKETS | SPI PART Nr. |
|-----|-----------------------|--------------|
|-----|-----------------------|--------------|

NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).  
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

**Backbox Wiring**

- ▶ Coils Detailed Chart Table
- ▶ Backbox I/O Power Driver Board Detailed Wiring Diagram
- ▶ Backbox Board Layout Wiring Diagram
  - ▷ 128 X 32 Dot Matrix Display PCB (USA)..... 520-5052-00
  - ▷ 128 X 32 Dot Matrix CES-LED // EURO ONLY RoHS //..... 520-5052-05

**Playfield Wiring**

- ▶ General Illumination Circuit Detailed Wiring Diagram
- ▶ Playfield Switch Wiring Diagram
- ▶ Playfield Lamp Wiring Diagram
- ▶ Playfield Terminal Strips, Fuses & Misc. Wiring Descriptions & Locations
- ▶ #-Flipper Circuit Wiring Diagram

**Cabinet and Coin Door Wiring**

- ▶ Transformer Power Wiring Diagram
- ▶ Cabinet Wiring Diagram
- ▶ Coin Door Wiring Diagram
- ▶ Cabinet Universal Voltage Jumper Plugs (for use with Universal AC Cable, 036-5530-00 ONLY)

Use the below **Coils Detailed Chart Table** in conjunction with **Sec. 5, Chp. 1, Backbox I/O Power Driver Board Detailed Wiring Diagram (I/O Board Connectors J6, J7, J8 & J9) and Backbox Board Layout Wiring Diagram:**

| High Current Coils Group 1         |                             |     | Drive Transistor           | Driver Output Board | Power Line Color           | Power Line Connection | Power Voltage | Drive Transistor Control Line Color | D.T. Control Line Connect | Coil GA-Turn or Bulb Type    |
|------------------------------------|-----------------------------|-----|----------------------------|---------------------|----------------------------|-----------------------|---------------|-------------------------------------|---------------------------|------------------------------|
| #1                                 | TROUGH UP-KICKER            | Q1  | ▲<br>I/O Power Driver<br>▼ |                     | YEL-VIO                    | J10-P9/10             | 50v DC        | BRN-BLK                             | J8-P1                     | 26-1200<br>090-5044-ND       |
| #2                                 | AUTO LAUNCH                 | Q2  |                            |                     | YEL-VIO                    | J10-P9/10             | 50v DC        | BRN-RED                             | J8-P3                     | 24-940<br>090-5038-ND        |
| #3                                 | AMP SUIT MAGNET             | Q3  |                            |                     | VIO-YEL                    | J10-P8                | 50v DC        | BRN-ORG                             | J8-P4                     | 22-650.<br>090-5042-00-ND    |
| #4                                 | NOT USED                    | Q4  |                            |                     |                            |                       |               |                                     |                           |                              |
| #5                                 | UP-DOWN 3-BANK RELAY        | Q5  |                            |                     | BROWN                      | J7-P10                | 20v DC        | BRN-GRN                             | J8-P6                     | RELAY<br>190-5004-00         |
| #6                                 | LINK LOCKUP UP              | Q6  |                            |                     | YEL-VIO                    | J10-P9/10             | 50v,DC        | BRN/BLU                             | J8-P7                     | 26-1200<br>090-5044-ND       |
| #7                                 | LINK LOCKUP LATCH           | Q7  |                            |                     | YEL-VIO                    | J10-P9/10             | 50VDC         | BRN- VIO                            | J8-P8                     | MINI COIL<br>515-7595-00-ND  |
| #8                                 | SHAKER MOTOR (OPTIONAL)     | Q8  |                            |                     | YEL-VIO                    | J17-P7                | 16VAC<br>12DC | BRN-GRY                             | J8-P9                     | S. MOTOR<br>502-5027-00      |
| High Current Coils Group 2         |                             |     | Drive Transistor           | Driver Output Board | Power Line Color           | Power Line Connection | Power Voltage | Drive Transistor Control Line Color | D.T. Control Line Connect | Coil GA-Turn or Bulb Type    |
| #9                                 | TOP LEFT POP BUMPER         | Q9  | ▲<br>I/O Power Driver<br>▼ |                     | YEL-VIO                    | J10-P9/10             | 50v DC        | BLU-BRN                             | J9-P1                     | 26-1200<br>090-5044-ND       |
| #10                                | TOP RIGHT POP BUMPER        | Q10 |                            |                     | YEL-VIO                    | J10-P9/10             | 50v DC        | BLU-RED                             | J9-P2                     | 26-1200<br>090-5044-ND       |
| #11                                | BOTTOM POP BUMPER           | Q11 |                            |                     | YEL-VIO                    | J10-P9/10             | 50v DC        | BLU-ORG                             | J9-P4                     | 26-1200<br>090-5044-ND       |
| #12                                | NOT USED                    | Q12 |                            |                     |                            |                       |               |                                     |                           |                              |
| #13                                | AMP SUIT MOTOR RELAY        | Q13 |                            |                     | BROWN                      | J7-P10                | 20VDC         | BLU-GRN                             | J9-P6                     | RELAY<br>190-5004-00         |
| #14                                | NOT USED                    | Q14 |                            |                     |                            |                       |               |                                     |                           |                              |
| #15                                | LEFT FLIPPER (50v RED/YEL)  | Q15 |                            |                     | GRY-YEL-3A<br>Fuse-RED-YEL | J10-P6/7              | 50v DC        | ORG-GRY                             | J9-P8                     | 24-1570<br>090-5025-ND       |
| #16                                | RIGHT FLIPPER (50v RED/YEL) | Q16 |                            |                     | BLU-YEL-3A<br>Fuse-RED-YEL | J10-P6/7              | 50v DC        | ORG-VIO                             | J9-P9                     | 23-1500<br>090-5062-ND       |
| Low Current Coils Group 1          |                             |     | Drive Transistor           | Driver Output Board | Power Line Color           | Power Line Connection | Power Voltage | Drive Transistor Control Line Color | D.T. Control Line Connect | Coil GA-Turn or Bulb Type    |
| #17                                | LEFT SLINGSHOT              | Q17 | ▲<br>I/O Power Driver<br>▼ |                     | BROWN                      | J7-P1                 | 20v DC        | VIO-BRN                             | J7-P2                     | 23-800<br>090-5001-ND        |
| #18                                | RIGHT SLINGSHOT             | Q18 |                            |                     | BROWN                      | J7-P1                 | 20v DC        | VIO-RED                             | J7-P3                     | 23-800<br>090-5001-ND        |
| #19                                | AMP SUIT MOTOR              | Q19 |                            |                     | BROWN                      | J7-P1                 | 20v DC        | VIO-ORG                             | J7-P4                     | RELAY<br>190-5004-00         |
| #20                                | LINK FLASH                  | Q20 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | VIO-WHT                             | J7-P6                     | #89 Bulb<br>165-5000-89-HF-5 |
| #21                                | BACK PANEL FLASH (X2)       | Q21 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | VIO-GRN                             | J7-P7                     | #89 Bulb<br>165-5000-89-HF   |
| #22                                | LINK (L) FLASH              | Q22 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | VIO-BLU                             | J7-P8                     | #89 Bulb<br>165-5000-89-HF   |
| #23                                | LINK (R) FLASH              | Q23 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | VIO-BLK                             | J7-P9                     | #89 Bulb<br>165-5000-89-HF   |
| #24                                | OPTIONAL (e.g. Coin Meter)  | Q24 |                            |                     | RED                        | J16-P10               | 5v DC         | VIO-GRY                             | J7-P10                    | 090-5001-ND                  |
| Diode On Terminal Strip (if noted) |                             |     |                            |                     |                            |                       |               |                                     |                           |                              |
| Low Current Coils Group 2          |                             |     | Drive Transistor           | Driver Output Board | Power Line Color           | Power Line Connection | Power Voltage | Drive Transistor Control Line Color | D.T. Control Line Connect | Coil GA-Turn or Bulb Type    |
| #25                                | POP BUMPER FLASH            | Q25 | ▲<br>I/O Power Driver<br>▼ |                     | ORANGE                     | J6-P10                | 20v DC        | BLK-BRN                             | J6-P1                     | #89 Bulb<br>165-5000-89-HF   |
| #26                                | AMP MULTIBALL FLASH         | Q26 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | BLK-RED                             | J6-P2                     | #89 Bulb<br>165-5000-89-HF   |
| #27                                | NOT USED                    | Q27 |                            |                     |                            |                       |               |                                     |                           |                              |
| #28                                | AMP SUIT FLASH (X2)         | Q28 |                            |                     | ORANGE                     | J6-P10                | 20VDC         | BLK-YEL                             | J6-94                     | #89 BULB<br>165-5000-89-HF   |
| #29                                | LEFT SIDE FLASH             | Q29 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | BLK-GRN                             | J6-P5                     | #89 Bulb<br>165-5000-89-HF   |
| #30                                | LEFT SIDE BLUE (X2)         | Q30 |                            |                     | ORANGE                     | J6-P10                | 20v,DC        | BLK-BLU                             | J6-P6                     | #89 Bulb<br>165-5000-89-HF   |
| #31                                | RIGHT SIDE BLUE (X2)        | Q31 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | BLK-VIO                             | J6-P7                     | #89 Bulb<br>165-5000-89-HF   |
| #32                                | RIGHT SIDE FLASH            | Q32 |                            |                     | ORANGE                     | J6-P10                | 20v DC        | BLK-GRY                             | J6-P8                     | #89 Bulb<br>165-5000-89-HF   |

Coil Note: -ND means 'No Diode'. -00B or -00T can be used for coil replacements, but the diode must be removed. Call for more info.

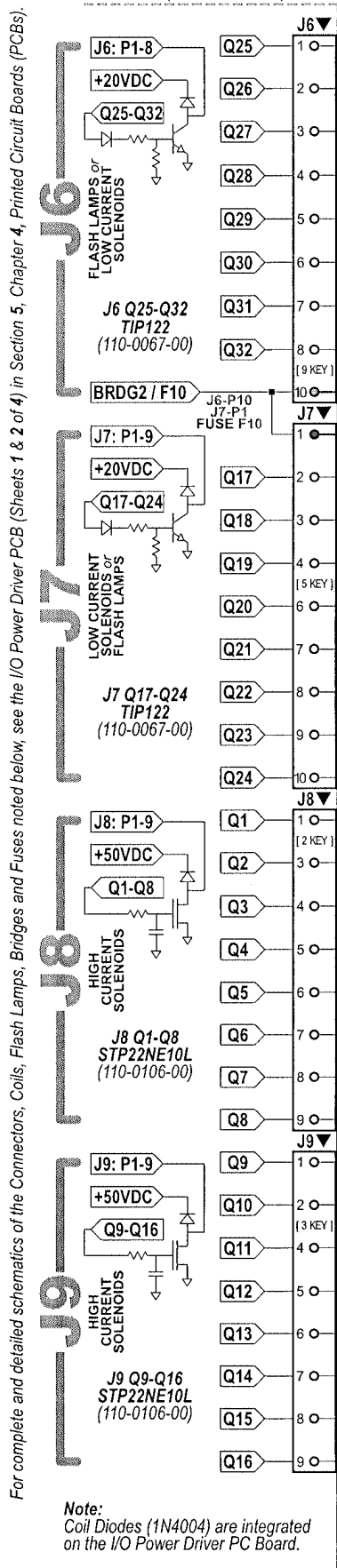
# Backbox I/O Power Driver Board

(Coils Q1-Q32)

## Detailed Wiring Diagram

Partial View (520-5249-00)

ALL FUSES RATED 250V SLO-BLO  
I/O FUSE CHART INFO IN BACKBOX & PAGE DR. 1

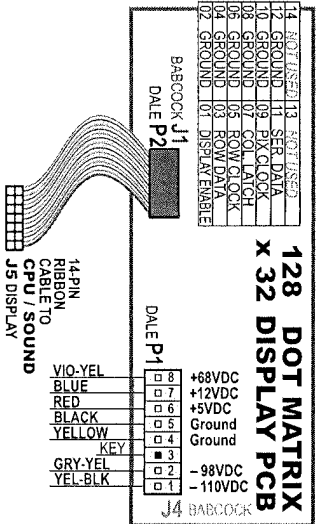


Backbox  
Wiring

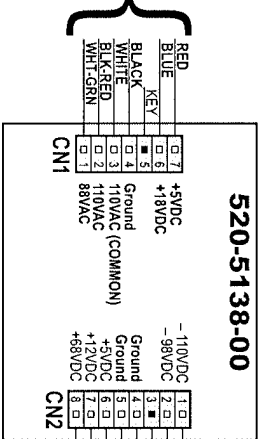
Backbox Wiring

# Backbox Board Layout Wiring Diagram

|                                                 |   |             |
|-------------------------------------------------|---|-------------|
| 128 X 32 Dot Matrix Display PCB                 | 1 | 520-5052-00 |
| //EURO ONLY Rohs // 128 X 32 DM CES PCB         |   | 520-5052-05 |
| //EURO ONLY Rohs // Dot Matrix Bezel            |   | 545-6281-00 |
| Ribbon Cable, 14-Pin (33')                      |   | 036-5260-33 |
| //EURO ONLY Rohs // LED Ribbon Cable Filler PCB |   | 520-5259-00 |
| Display Cable (Wiring Harness)                  |   | 036-5454-01 |
| //EURO ONLY Rohs // LED Display Adapter Harness |   | 036-5520-00 |

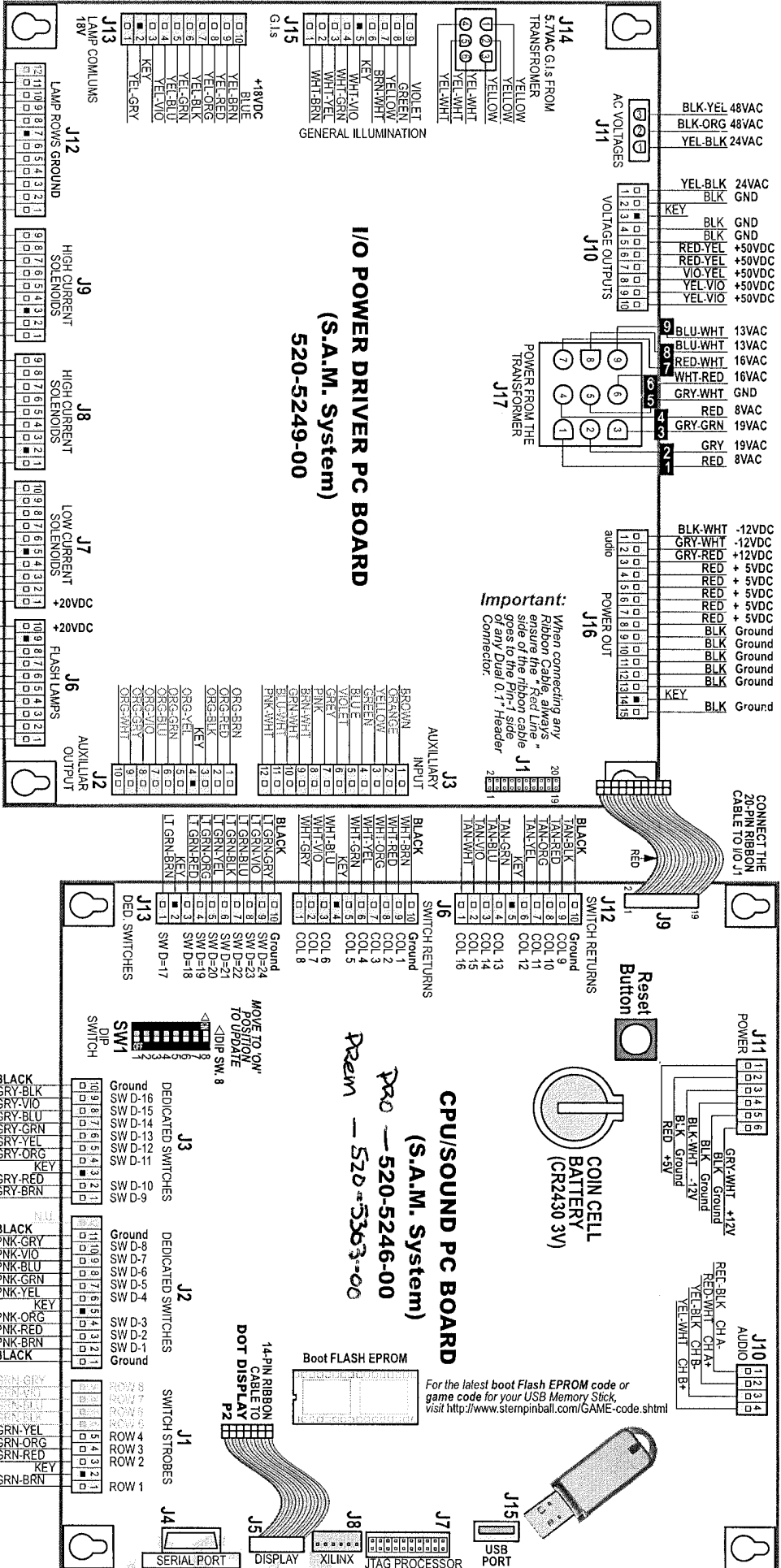


CN1 to Transformer (Cabinet)



DISPLAY POWER SUPPLY PCB  
520-5138-00

CN2 to Display



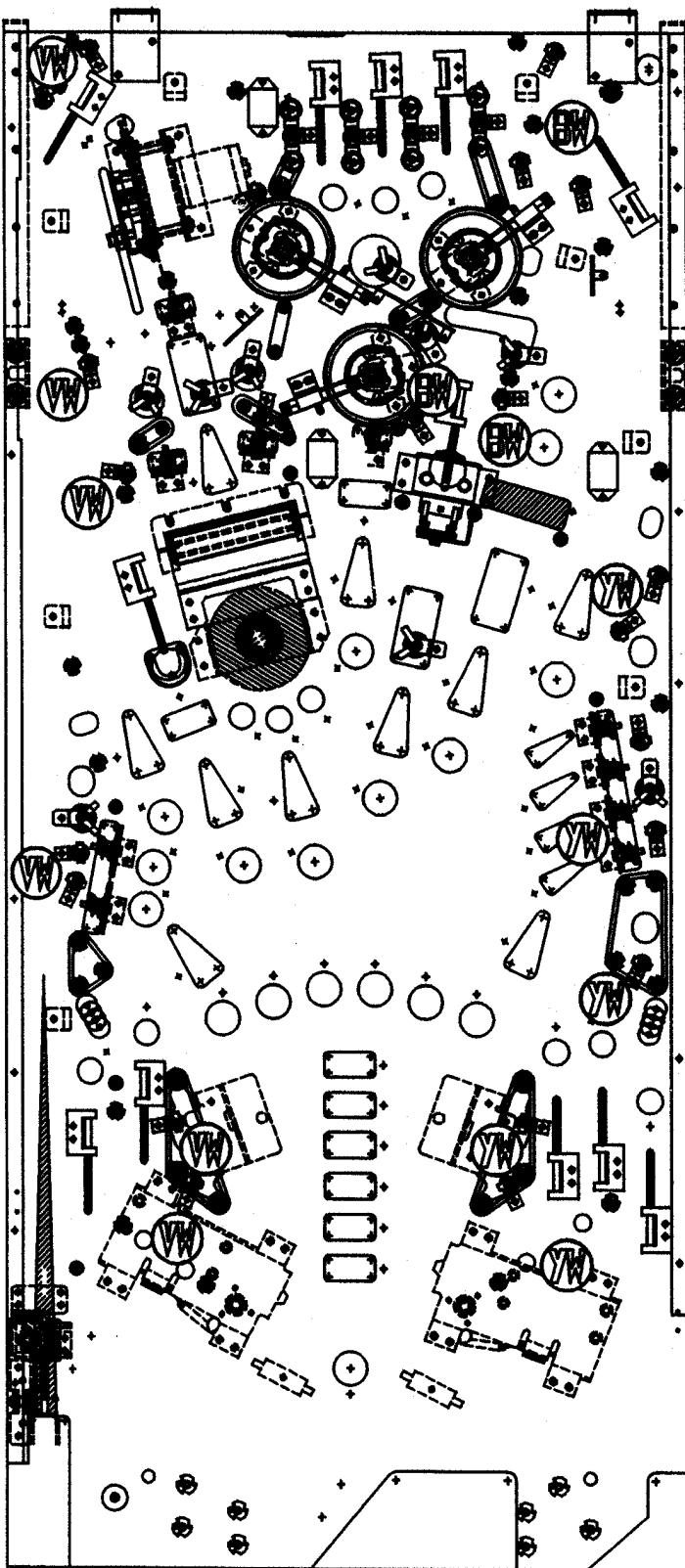
Backbox  
Wiring

Y4

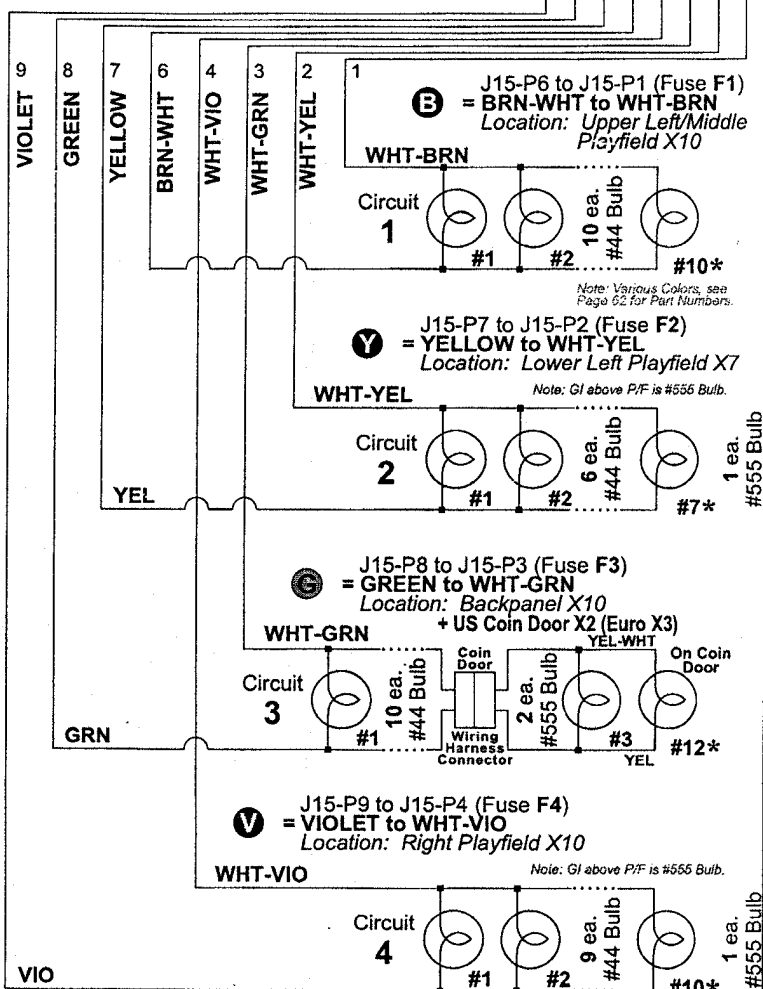
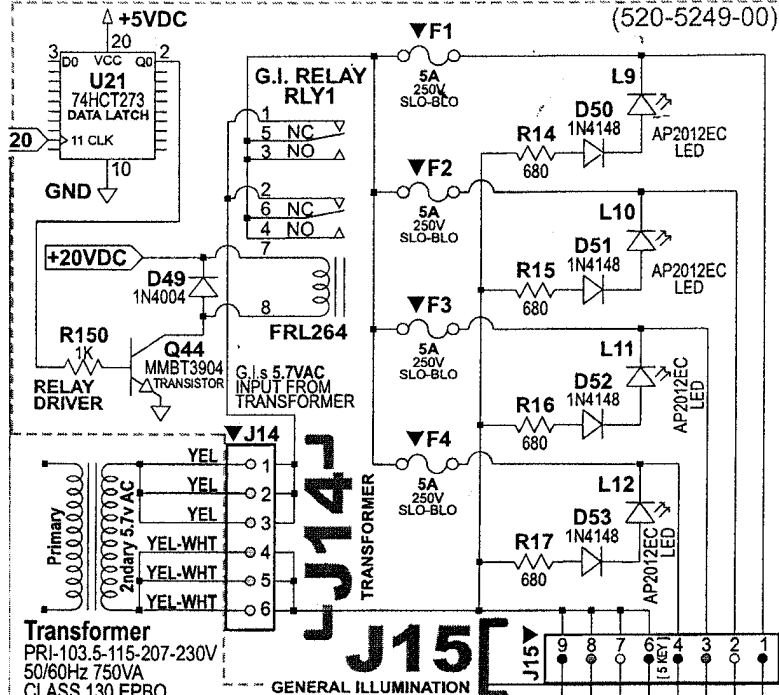


## General Illumination Circuit Detailed Wiring Diagram

Below: Bottom of Playfield shown as if leaning up against the Backbox.



## Partial View I/O Power Driver PCB (520-5249-00)



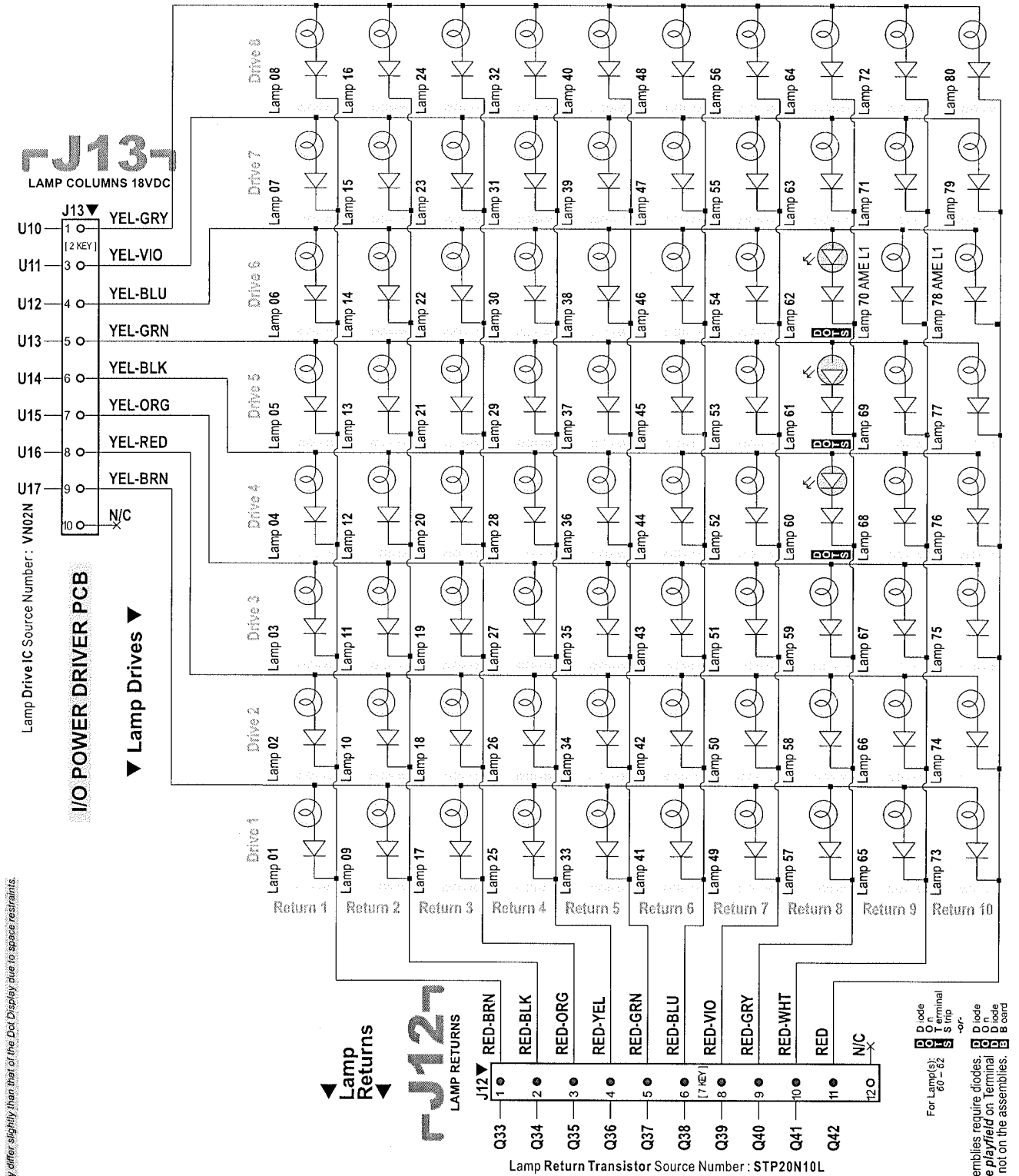
\* G.I. Bulb quantities may change during production.

## y 6

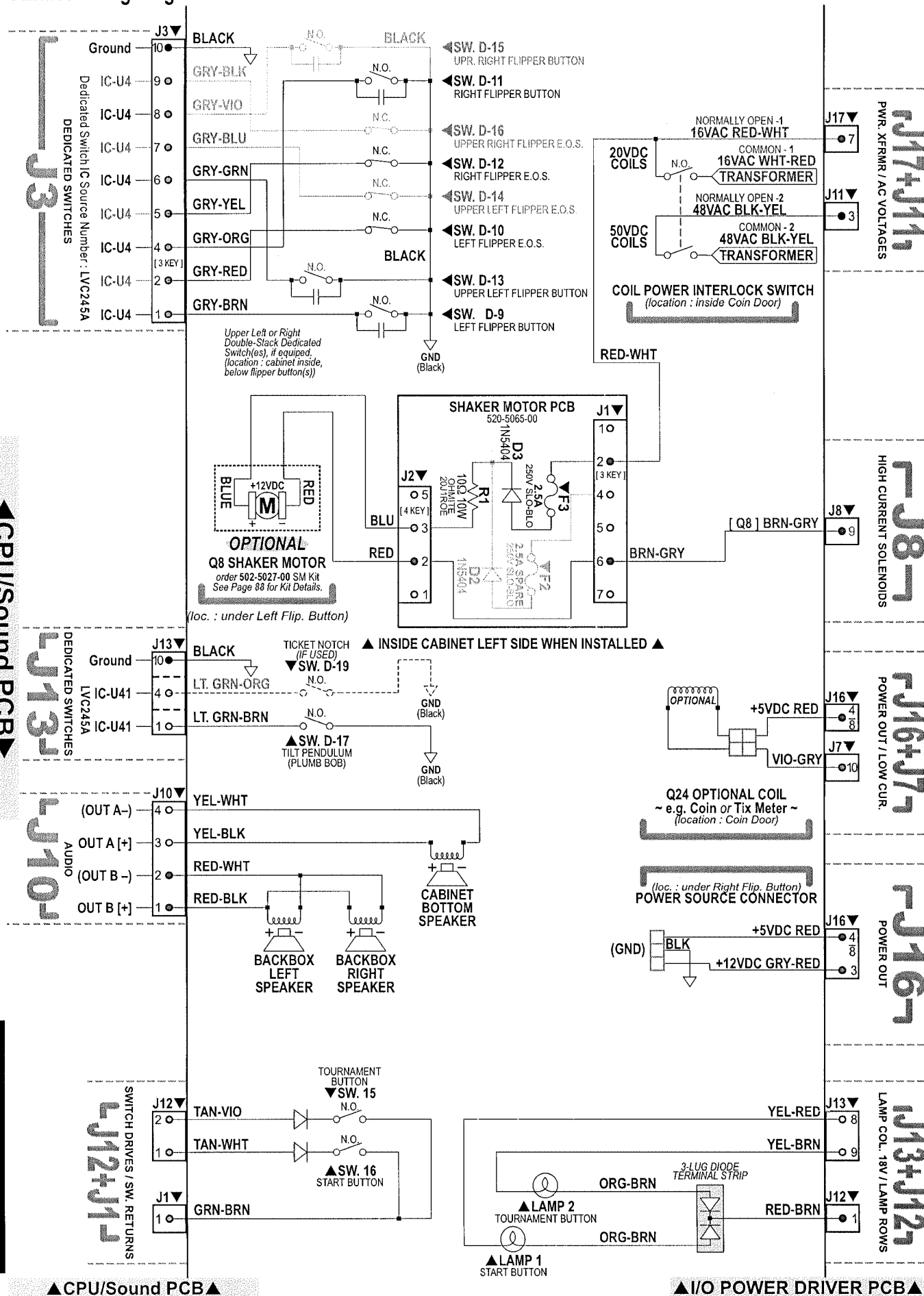


## Playfield Wiring

# Playfield Lamp Wiring Diagram



## Cabinet Wiring Diagram



## Cabinet and Coin Door Wiring

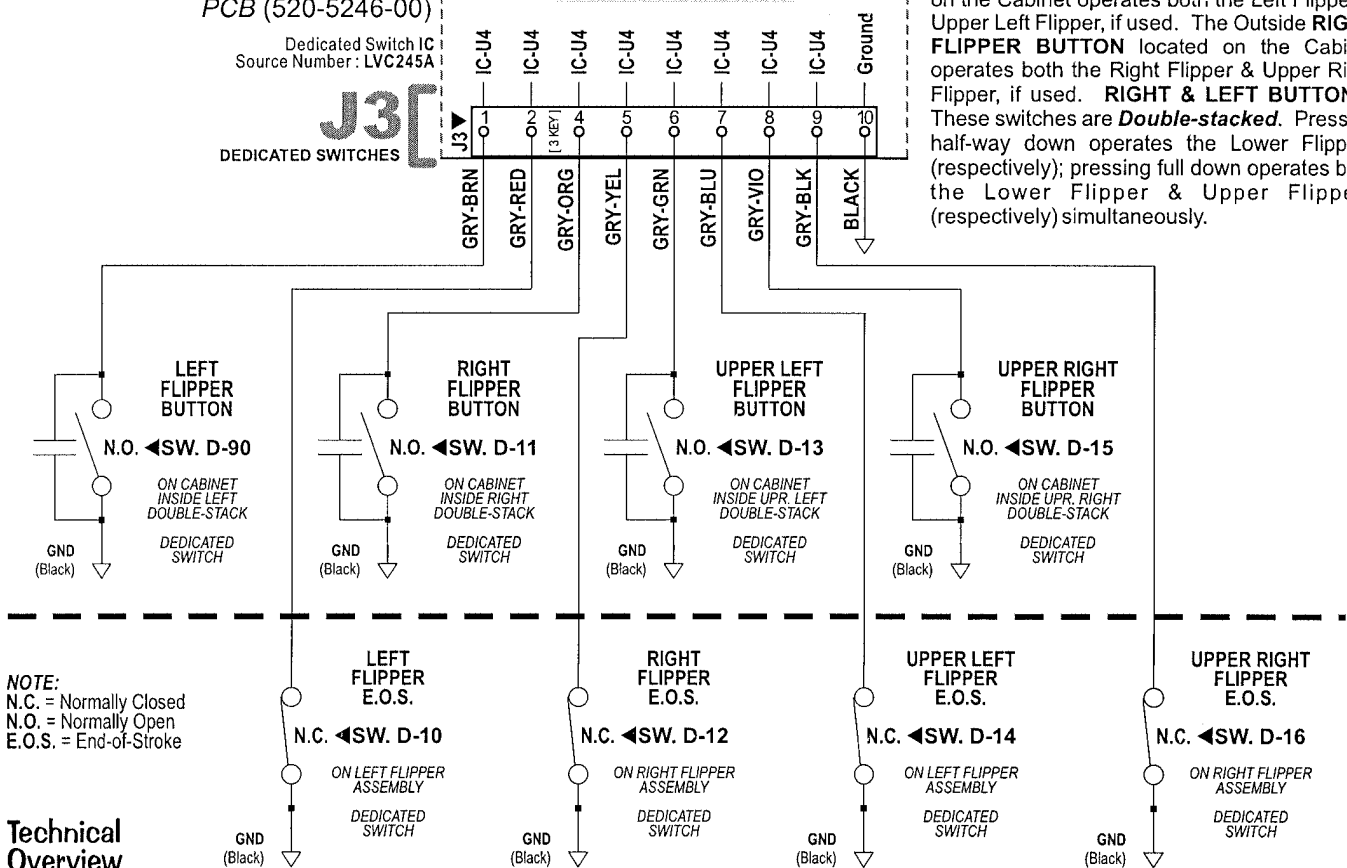
## #-Flipper Circuit Wiring Diagram

Partial View CPU/Sound PCB (520-5246-00)

Dedicated Switch IC Source Number: LVC245A

CPU/Sound PCB

The Outside **LEFT FLIPPER BUTTON** located on the Cabinet operates both the Left Flipper & Upper Left Flipper, if used. The Outside **RIGHT FLIPPER BUTTON** located on the Cabinet operates both the Right Flipper & Upper Right Flipper, if used. **RIGHT & LEFT BUTTONS:** These switches are **Double-stacked**. Pressing half-way down operates the Lower Flippers (respectively); pressing full down operates both the Lower Flipper & Upper Flippers (respectively) simultaneously.

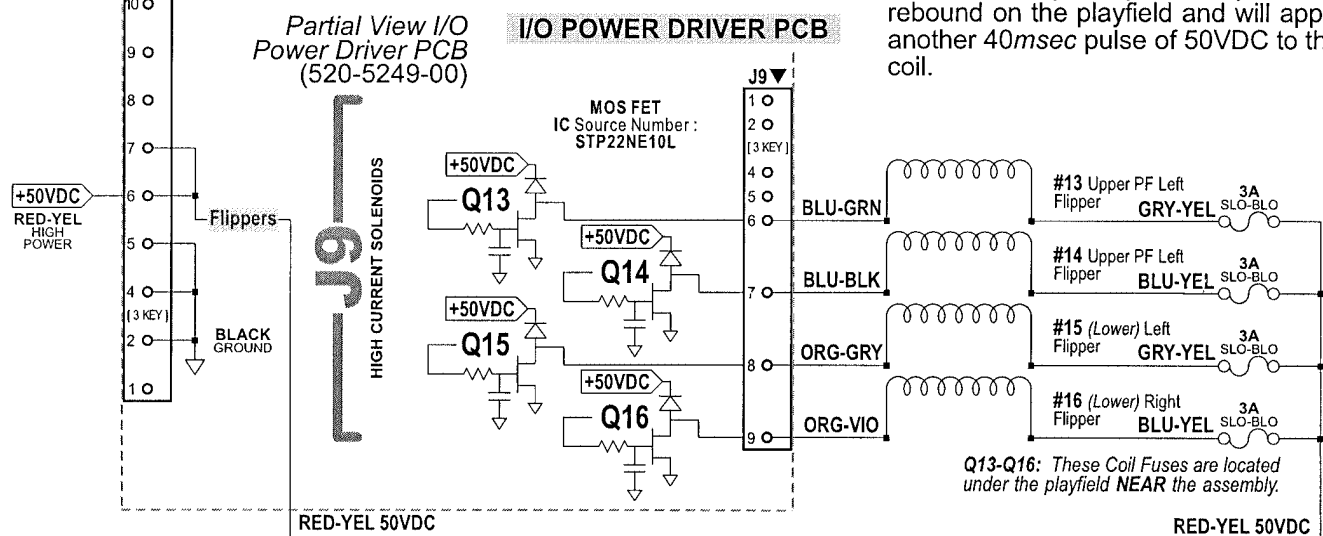


### Technical Overview

Our **Flipper System** uses one supply voltage (+50VDC) for both **kick & hold**. Once the **Game CPU** detects a Flipper Cabinet Switch closure (*during game play*) it applies a 40msec pulse to the gate of the Flipper Drive Transistor (STP22NE10L). If it continues to detect a Flipper Cabinet Switch closure (*the player holding the button in*) it will continue to pulse the flipper drive transistor 1msec every 12msecs for the duration of the hold cycle.

J10  
VOLTAGE OUTPUTS

The **E.O.S. (End-Of-Stroke) Switch** serves the same function as before as it prevents foldback when the player has the flipper energized to capture balls. The **E.O.S. Dedicated Switch** is a normally closed switch which opens approximately 1/16" when the flipper is energized. The **Game CPU** will detect a switch closure if the flipper bat is forced back by a high velocity shot or rebound on the playfield and will apply another 40msec pulse of 50VDC to the coil.

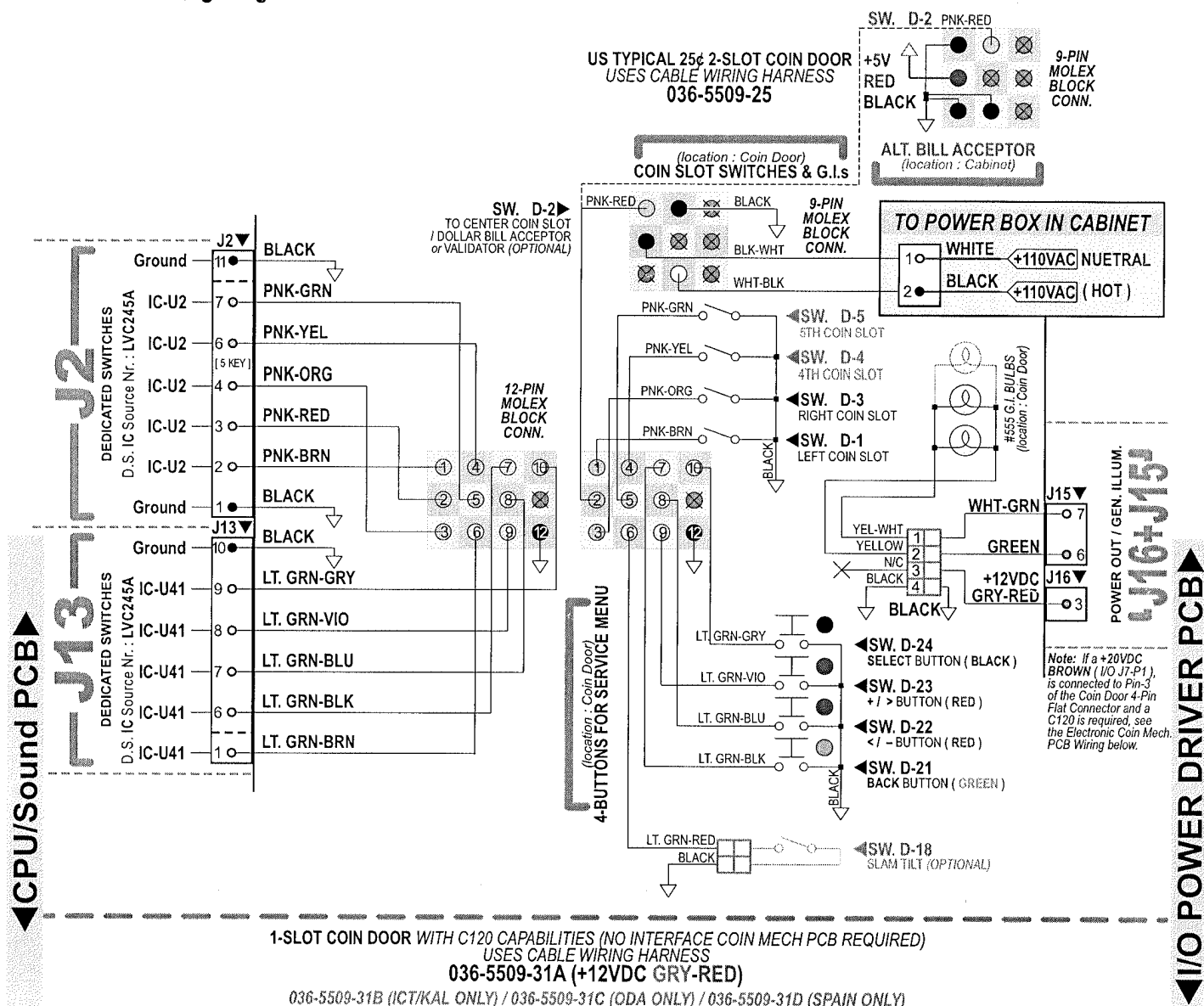


Typical Under-Playfield Fuses are rated:  
**3A 250v Slo-Blo**  
 Do Not Over-Fuse

Playfield Wiring

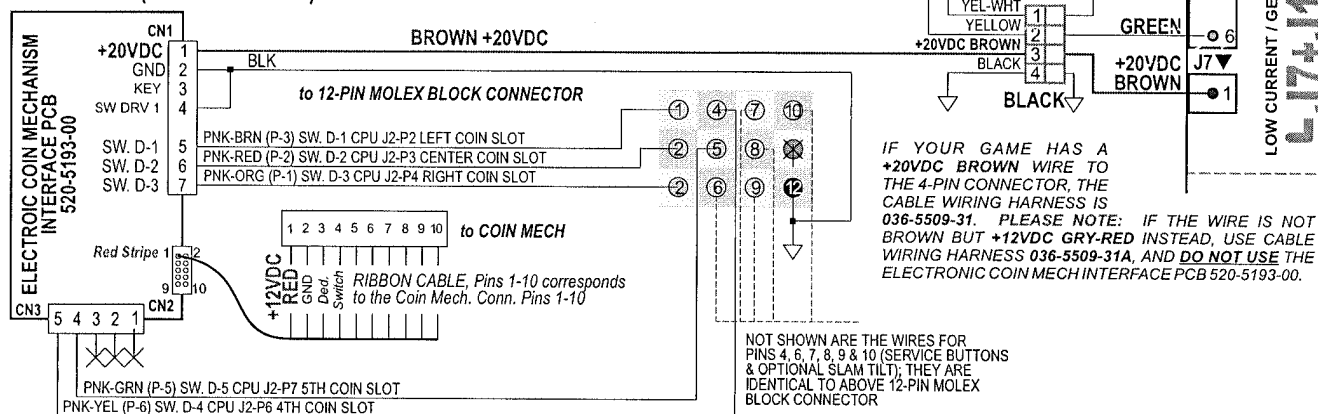
**NOTE:**  
 Coil Diodes (1N4004) are integrated on the I/O Power Driver PCB. See Coils Detailed Wiring Diagram for actual number of flippers used on this game.

# Coin Door Wiring Diagram



IF YOUR GAME HAS AN ELECTRONIC COIN MECH. INTERFACE PC BOARD ( 520-5193-00 ):

1-SLOT COIN DOOR USE WITH C120 CAPABILITIES REQUIRING PCB 520-5193-00  
USES CABLE WIRING HARNESS  
**036-5509-31 (S.A.M. SYSTEM)**

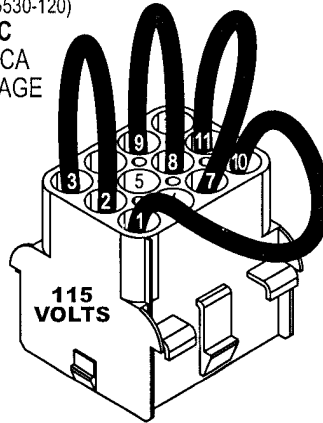
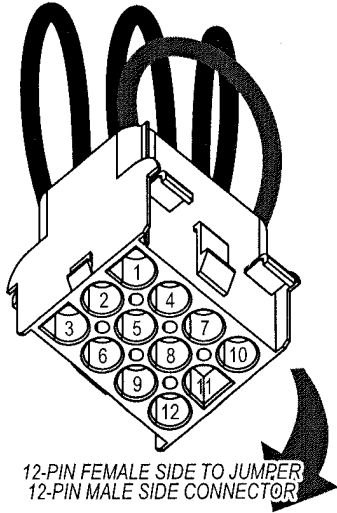


- WIRING CONFIGURATION WILL VARY ACCORDING TO COUNTRY -

Cabinet and Coin  
Door Wiring Y10

**Cabinet Universal Voltage Jumper Plugs (for use with Universal AC Cable, 036-5530-00 ONLY)**

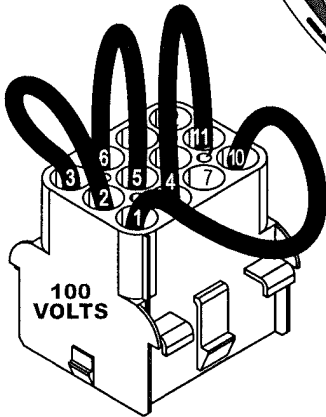
**JUMPER PLUG ▼**  
(SPI PART #036-5530-120)  
**110+VAC**  
N. AMERICA  
LINE VOLTAGE



- 1 BLK
- 2 BLK
- 3 WHT-BLK
- 4 WHT-BRN
- 5 WHT-BRN
- 6 BRN (or YEL-WHT)
- 7 WHT-ORG
- 8 WHT-ORG
- 9 ORG
- 10 BLK
- 11 WHT
- 12 N/U

12-PIN F/M CONN.  
BACK VIEW ▲

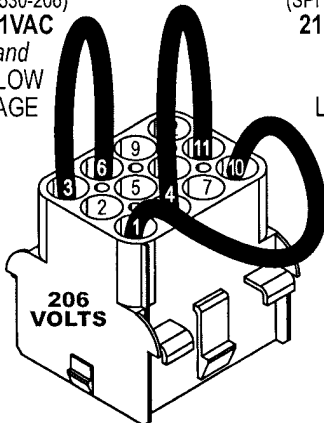
9-PIN F/M CONN.  
▲ BACK VIEW



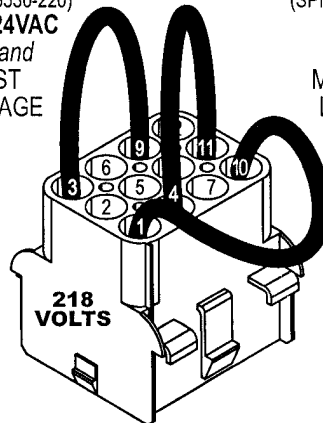
**JUMPER PLUG ▼**  
(SPI PART #036-5530-100)  
**98VAC – 109VAC**  
JAPAN or  
N. AMERICA LOW  
LINE VOLTAGE

Black & White wires from  
the POWER BOX, cabinet bottom  
to 12-Pin Conn., Pins 10 & 11..

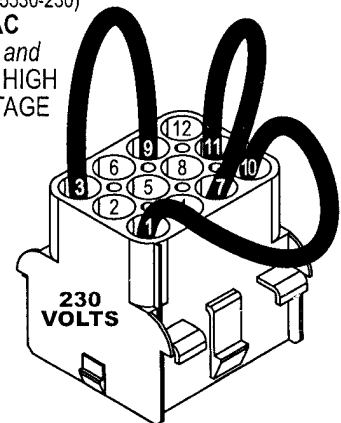
**JUMPER PLUG ▼**  
(SPI PART #036-5530-206)  
**200VAC – 211VAC**  
EUROPE and  
MID. EAST LOW  
LINE VOLTAGE



**JUMPER PLUG ▼**  
(SPI PART #036-5530-220)  
**212VAC – 224VAC**  
EUROPE and  
MID. EAST  
LINE VOLTAGE

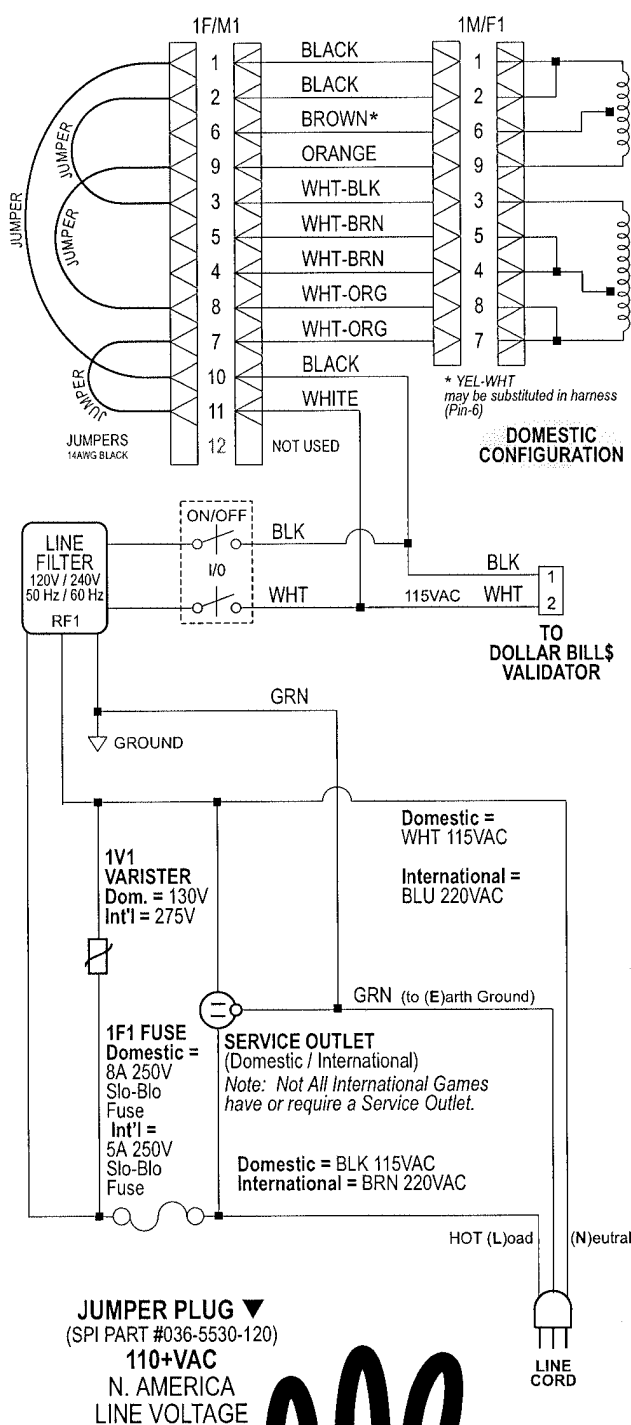


**JUMPER PLUG ▼**  
(SPI PART #036-5530-230)  
**225+VAC**  
EUROPE and  
MID. EAST HIGH  
LINE VOLTAGE

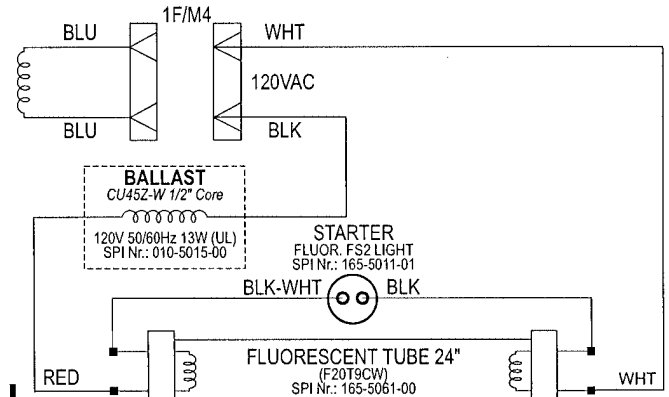
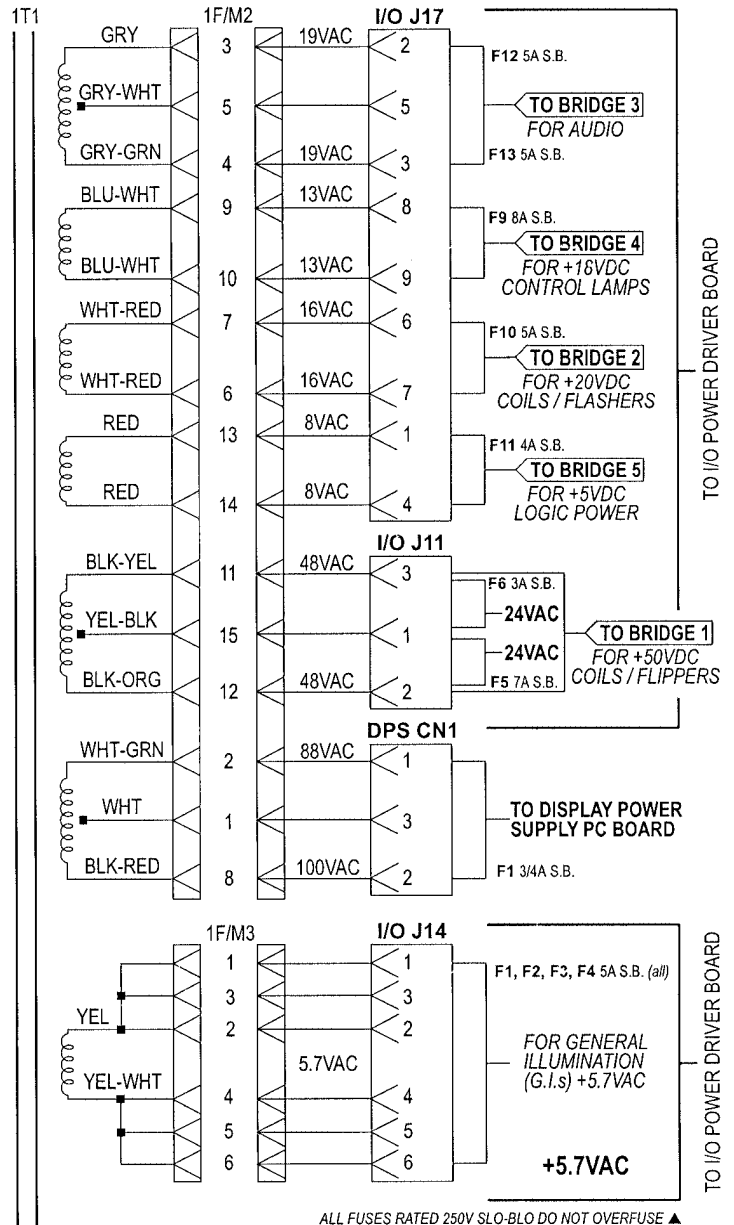




## Transformer Power Wiring Diagram



Cabinet Universal Voltage Jumper Plug Configurations.



FLUORESCENT TUBE, STARTER & BALLAST LOCATED IN THE BACKBOX

## Playfield Terminal Strips

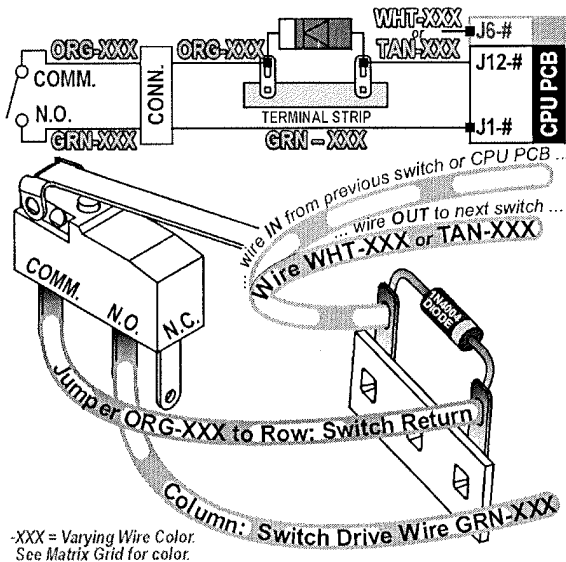


### Explanation:

All Switches, Lamps & Coils require diodes. Coil diodes are located on the I/O Power Driver PCB (in Backbox). Some diodes from switches or lamps are moved onto Terminal Strips (**located under the playfield**). This is done where space constraints or excessive vibrations are present. The Switch & Lamp Matrix Grids also note which Switch or Lamp has a diode on a Terminal Strip, noted by **DOTS** (Diode On Terminal Strip).

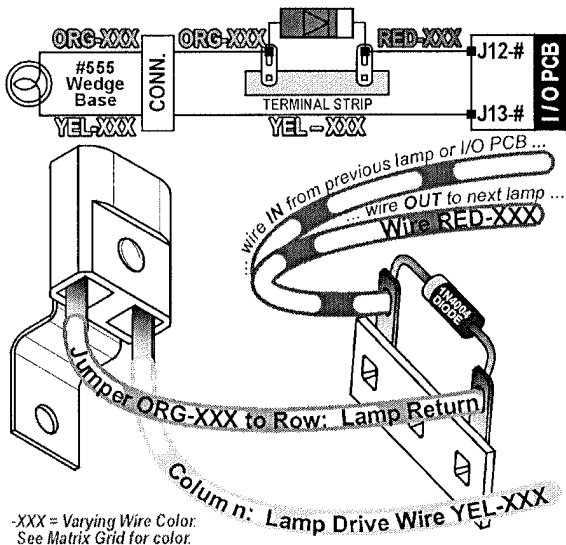
**Note:** Some wires 'appear' to be doubled on the lugs. The switches and lamps are in a series, so you may see 1 or 2 wires depending where the switch or lamp is in the string.

## Typical Switch Wiring & Schematic ... with Switch Diode on a Terminal Strip (DOTS)



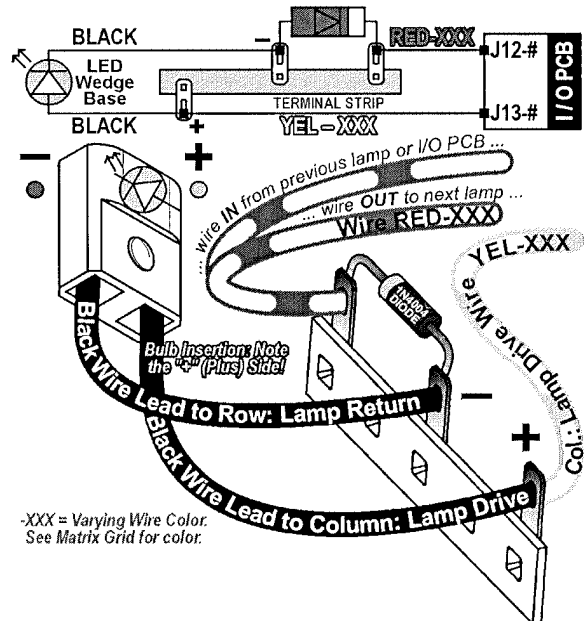
## Typical Lamp Wiring & Schematic ... with Lamp Diode on a Terminal Strip (DOTS)

Usually when a #555 Bulb is used as a Controlled Lamp for a Spot Light.



## Typical Lamp Wiring & Schematic ... with Lamp Diode on a Terminal Strip (DOTS)

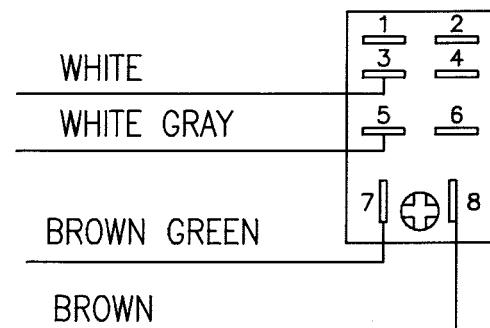
Usually when an LED Module is used as a Controlled Lamp for a Pop Bumper.



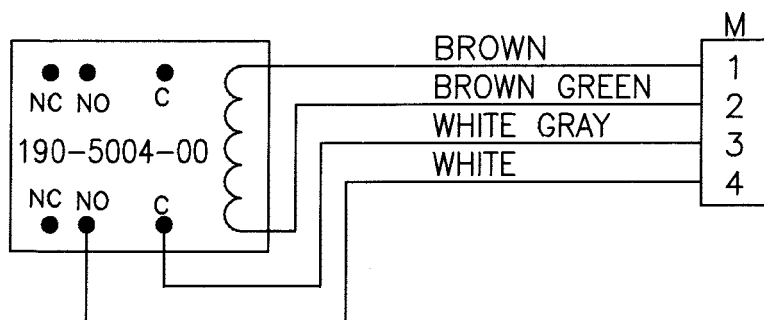
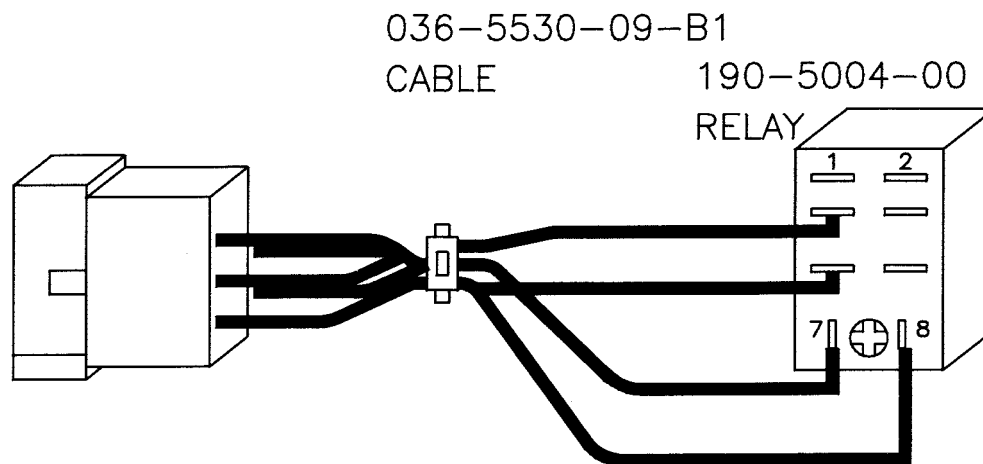
Y14

# RELAY ASSEMBLY #2-AVATAR

| Rev | Description | Eng      | Date     |
|-----|-------------|----------|----------|
| P1  | Preliminary | Sheridan | 06-03-10 |



Relay Cable 036-5539-09-B1



**511-5249-01**

**511-5249-02**

| Item | Part Number    | Description   | Qty |
|------|----------------|---------------|-----|
| 1    | 190-5004-00    | Packard Relay | 1   |
| 2    | 036-5539-09-B1 | Relay Cable   | 1   |

|                                                                 |                  |                         |
|-----------------------------------------------------------------|------------------|-------------------------|
| DWN.<br>Sheridan                                                | DATE<br>06-03-10 | TITLE                   |
| 1st USE<br>AVATAR                                               | SCALE<br>N/S     | REV<br>P1               |
| Relay and Cable Assembly 3-Bank                                 |                  |                         |
| Stern Pinball, Inc<br>2220 JANICE AVE., MELROSE PARK, IL. 60160 |                  | PART NO.<br>511-5249-02 |

# AVATAR

## MOTOR & RELAY WIRING

### Operations Notes:

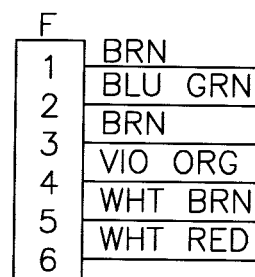
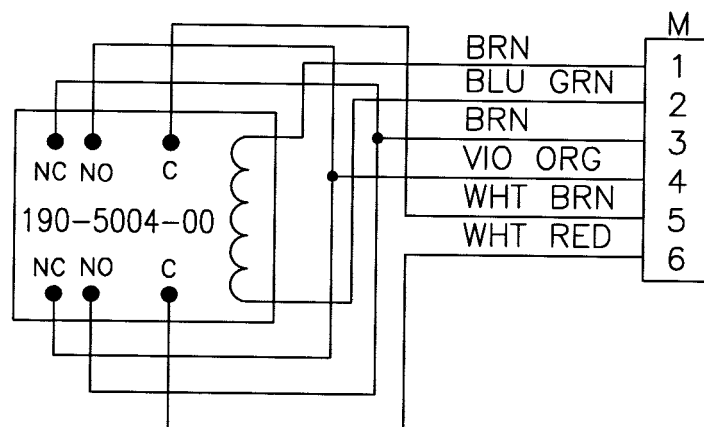
- \* Q13 controls the direction relay
- \* Q19 directly drives the motor

JUNE 21, 2010

## AMP SUIT

### Relay Assy 511-5249-00

Relay Cable 036-5539-07-B1

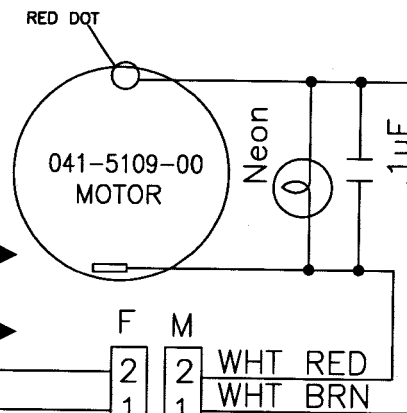


+20V

To Q13

To Q19

### AMP SUIT CABLE 036-5539-05-10

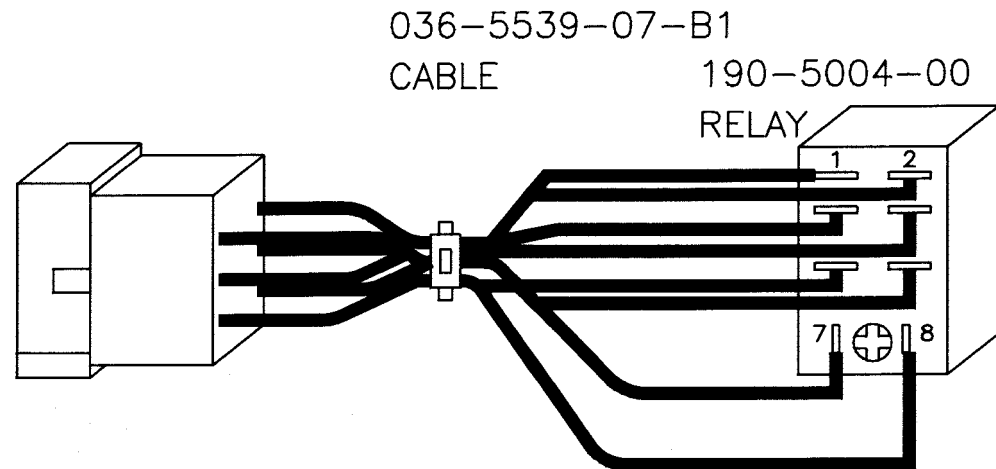
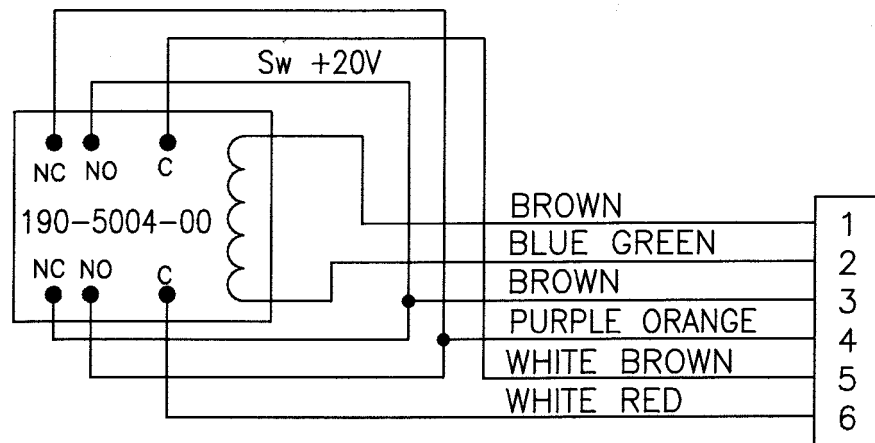
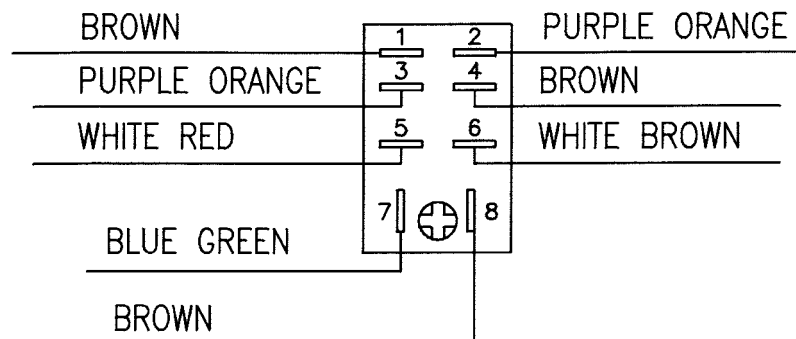


### MOTOR CABLE 036-5552-00

Y16

# RELAY ASSEMBLY #1- AVATAR

| Rev | Description | Eng      | Date     |
|-----|-------------|----------|----------|
| A   | Released    | Sheridan | 07-22-10 |



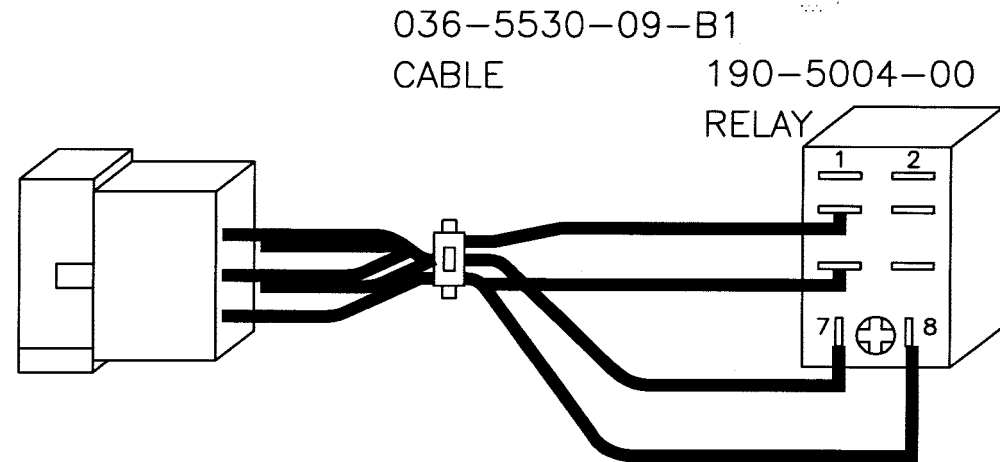
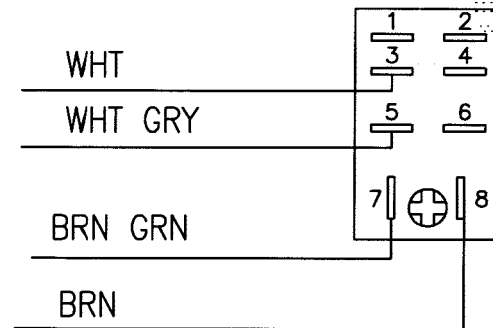
## 511-5249-00

| Item                                      | Part Number    | Description   | Qty         |
|-------------------------------------------|----------------|---------------|-------------|
| 1                                         | 190-5004-00    | Packer Relay  | 1           |
| 2                                         | 036-5539-07-B1 | Relay Cable   | 1           |
| DWN. Sheridan                             |                | DATE 05-24-10 | TITLE       |
| 1st USE BIG BUCK                          |                | SCALE N/S     | REV A       |
| Relay and Cable Assembly <i>AMP</i>       |                |               |             |
| Stern Pinball, Inc                        |                |               | PART NO.    |
| 2220 JANICE AVE., MELROSE PARK, IL. 60160 |                |               | 511-5249-00 |

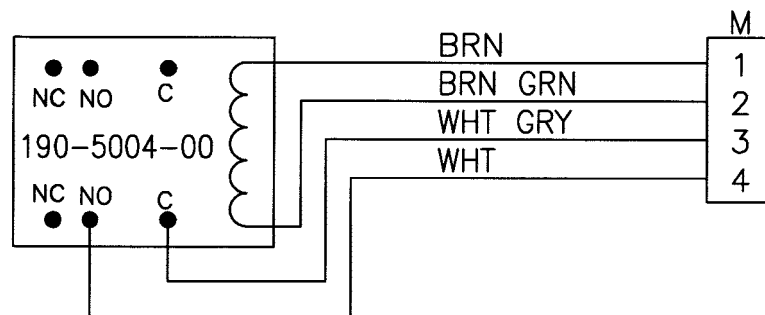
# RELAY ASSEMBLY #2

## AVATAR PREMIUM

| Rev | Description | Eng      | Date     |
|-----|-------------|----------|----------|
| A   | Released    | Sheridan | 11-12-10 |



Relay Cable 036-5539-09-B1



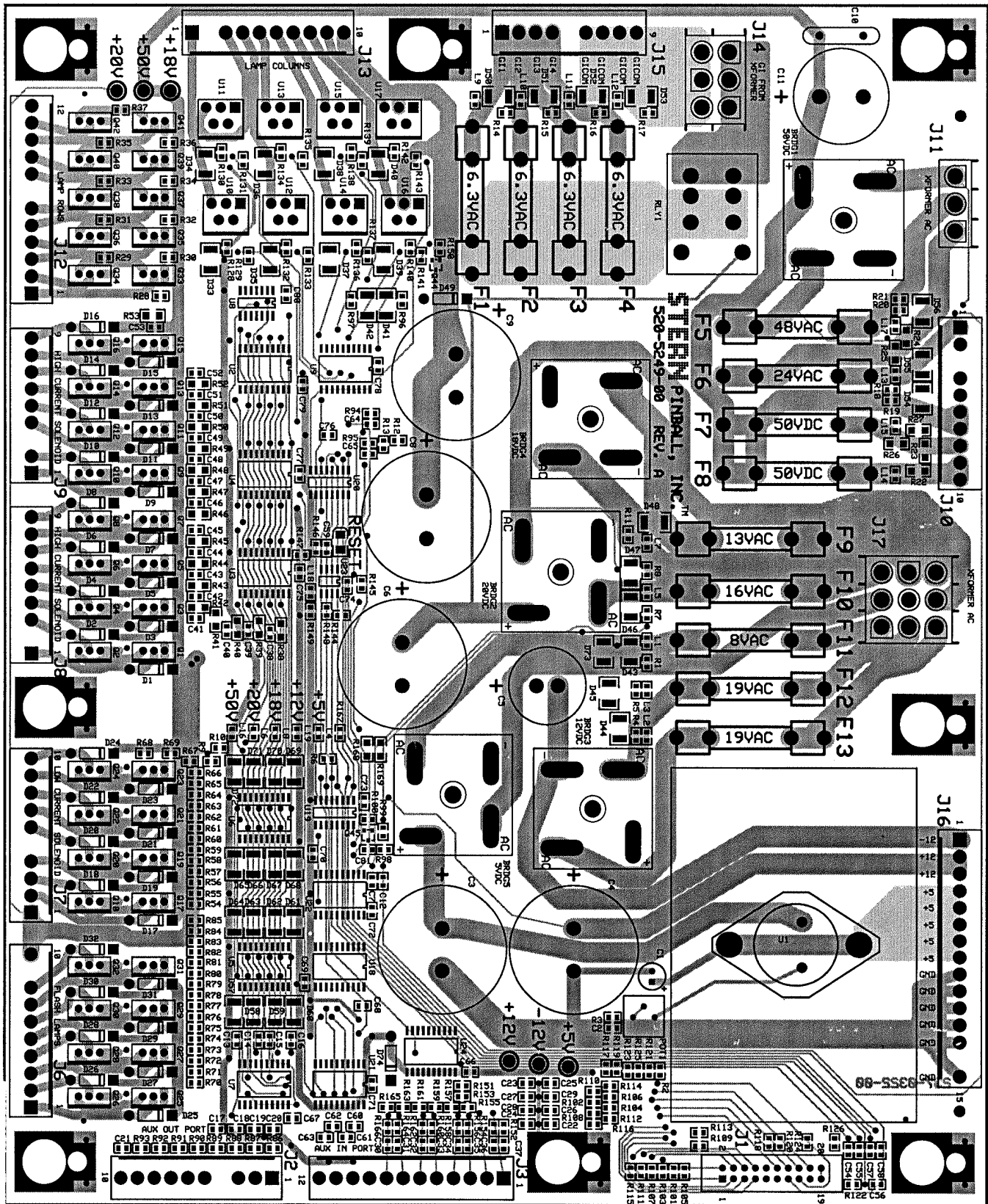
**511-5249-01**

| Item                                      | Part Number    | Description   | Qty         |
|-------------------------------------------|----------------|---------------|-------------|
| 1                                         | 190-5004-00    | Packard Relay | 1           |
| 2                                         | 036-5539-09-B1 | Relay Cable   | 1           |
| DWN. Sheridan                             |                | DATE 06-03-10 | TITLE       |
| 1st USE AVATAR                            |                | SCALE N/S     | REV P1      |
| Relay and Cable Assembly                  |                |               |             |
| Stern Pinball, Inc                        |                |               | PART NO.    |
| 2220 JANICE AVE., MELROSE PARK, IL. 60160 |                |               | 511-5249-01 |

**511-5249-01**

7/17

# I/O POWER DRIVER PCB S.A.M. System (520-5249-00) Component Layout

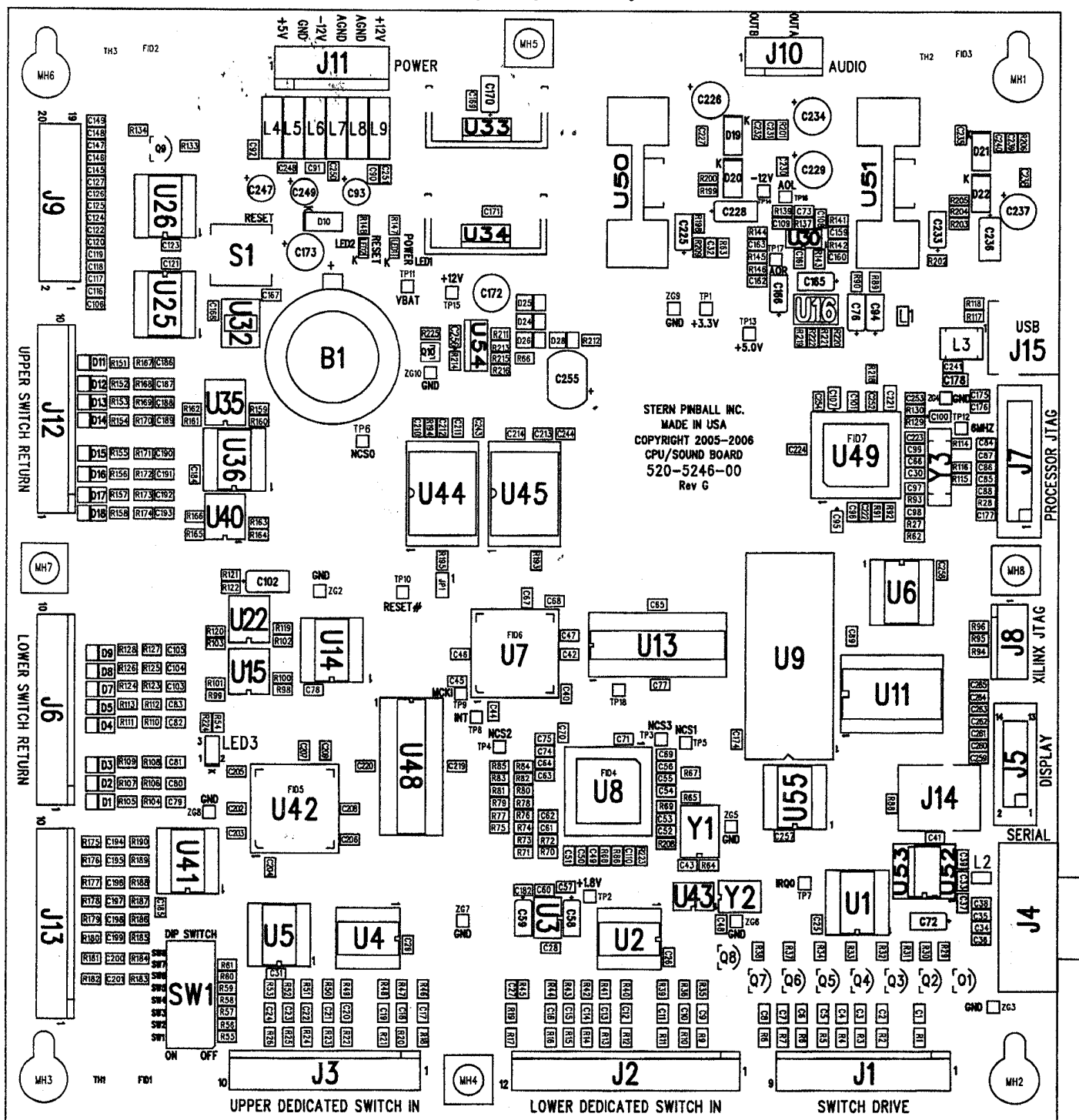


# I/O POWER DRIVER PCB S.A.M. System (520-5249-00) Parts

| ITEM | QTY. | SPI PART NUMBER | (MFG. P.N.)     | REF-DESIGNATOR                                                                                                                                                  | DESCRIPTION (SM = Surface Mount)                |
|------|------|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| —    | 1    | 520-5249-00     |                 | I/O Power Driver PCB (S.A.M. System), Rev. A                                                                                                                    | (includes Items 1-67)                           |
| 1    | 1    | 121-6001-00     | (101-0001807)   | R9                                                                                                                                                              | Resistor SM 0805 Film 1.5KΩ 1/10W 5%            |
| 2    | 22   | 121-6002-00     | (101-0001820)   | R86, R87, R88, R89, R90, R91, R92, R93, R102, R104, R106, R108, R110, R112, R114, R116, R118, R120, R122, R124, R126, R146                                      | Resistor SM 0805 Film 100Ω 1/10W 5%             |
| 3    | 12   | 121-6020-00     | (101-0001827)   | R21, R94, R95, R101, R103, R105, R107, R109, R111, R113, R115, R144                                                                                             | Resistor SM 0805 Film 10KΩ 1/10W 5%             |
| 4    | 1    | 121-6003-00     | (101-0001845)   | R2                                                                                                                                                              | Resistor SM 0805 Film 120Ω 1/10W 5%             |
| 5    | 20   | 121-6022-00     | (101-0001905)   | R7, R8, R10, R11, R12, R13, R18, R19, R98, R100, R150, R152, R154, R156, R158, R160, R162, R164, R166, R167                                                     | Resistor SM 0805 Film 1KΩ 1/10W 5%              |
| 6    | 2    | 121-6004-00     | (101-0001943)   | R6, R145                                                                                                                                                        | Resistor SM 0805 Film 220Ω 1/10W 5%             |
| 7    | 16   | 121-6005-00     | (101-0001849)   | R55, R57, R59, R61, R63, R65, R67, R69, R71, R73, R75, R77, R79, R81, R83, R85                                                                                  | Resistor SM 0805 Film 22KΩ 1/10W 5%             |
| 8    | 2    | 121-6006-00     | (101-0002012)   | R3, R149                                                                                                                                                        | Resistor SM 0805 Film 330Ω 1/10W 5%             |
| 9    | 3    | 121-6007-00     | (101-0002031)   | R1, R4, R5                                                                                                                                                      | Resistor SM 0805 Film 390Ω 1/10W 5%             |
| 10   | 8    | 121-6013-00     | (101-0002035)   | R151, R153, R155, R157, R159, R161, R163, R165                                                                                                                  | Resistor SM 0805 Film 39KΩ 1/10W 5%             |
| 11   | 9    | 121-6008-00     | (101-0002046)   | R96, R97, R99, R117, R119, R121, R123, R125, R148                                                                                                               | Resistor SM 0805 Film 4.7KΩ 1/10W 5%            |
| 12   | 8    | 121-6014-00     | (101-0002065)   | R129, R131, R133, R135, R137, R139, R141, R143                                                                                                                  | Resistor SM 0805 Film 47Ω 1/10W 5%              |
| 13   | 1    | 121-6015-00     | (101-0002071)   | R20                                                                                                                                                             | Resistor SM 0805 Film 47KΩ 1/10W 5%             |
| 14   | 8    | 121-6009-00     | (101-0002108)   | R128, R130, R132, R134, R136, R138, R140, R142                                                                                                                  | Resistor SM 0805 Film 6.8KΩ 1/10W 5%            |
| 15   | 16   | 121-6010-00     | (101-0002116)   | R54, R56, R58, R60, R62, R64, R66, R68, R70, R72, R74, R76, R78, R80, R82, R84                                                                                  | Resistor SM 0805 Film 620Ω 1/10W 5%             |
| 16   | 4    | 121-6016-00     | (101-0002126)   | R14, R15, R16, R17                                                                                                                                              | Resistor SM 0805 Film 680Ω 1/10W 5%             |
| 17   | 10   | 121-6011-00     | (101-0002296)   | R28, R29, R30, R31, R32, R33, R34, R35, R36, R37                                                                                                                | Resistor SM 1206 Film 22KΩ 1/10W 5%             |
| 18   | 8    | 121-6012-00     | (101-0002473)   | R22, R23, R24, R25, R26, R27, R168, R169                                                                                                                        | Resistor SM 1206 Film 8.2KΩ 1/10W 5%            |
| 19   | 16   | 121-6013-01     | (101-0002378)   | R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53                                                                                  | Resistor SM 1206 Film 39KΩ 1/10W 5%             |
| 20   | 16   | 125-6001-00     | (121-0000056)   | C2, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80                                                                                   | Capacitor SM 0805 Cer. .1UF 50V 10% X7R         |
| 21   | 25   | 125-6002-00     | (121-0000096)   | C13, C14, C15, C16, C17, C18, C19, C20, C21, C30, C31, C32, C33, C34, C35, C36, C37, C59, C60, C61, C62, C63, C64, C65, C81                                     | Capacitor SM 0805 Cer. 470PF 50V 5% NPO         |
| 22   | 18   | 125-6003-00     | (121-0004236)   | C7, C12, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53                                                                         | Capacitor SM 0805 Cer. .01UF 50V 10% X7R        |
| 23   | 13   | 125-6004-00     | (121-0005318)   | C22, C23, C24, C25, C26, C27, C28, C29, C54, C55, C56, C57, C58                                                                                                 | Capacitor SM 0805 Cer. 22PF 100V 5% NPO         |
| 24   | 1    | 125-5032-00     | (131-0003773)   | C1                                                                                                                                                              | Capacitor Tht. Radial Alum. 100UF 25V 20%       |
| 25   | 1    | 125-5034-00     | (131-0003864)   | C5                                                                                                                                                              | Capacitor Tht. Radial Alum. 4700UF 35V 20%      |
| 26   | 1    | 125-5029-01     | (133-0003741)   | C10                                                                                                                                                             | Capacitor Tht. Disc Cer. .1UF 500V 20%          |
| 27   | 1    | 125-6022-00     | (134-0003846)   | C11                                                                                                                                                             | Capacitor Tht. Radial Alum. 330UF 160V 20%      |
| 28   | 5    | 125-5036-01     | (134-0004000)   | C3, C4, C6, C8, C9                                                                                                                                              | Cap. Tht. Rad. Al. 15000UF 35V 20% Snap-In      |
| 29   | 34   | 112-6001-01     | (183-0004374)   | D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D49, D74 | Diode Tht. DO-41 1N4004 400V 1A                 |
| 30   | 5    | 112-5000-00     | (187-0004700)   | BRDG1, BRDG2, BRDG3, BRDG4, BRDG5                                                                                                                               | Bridge Tht. Fullwave 100V 35A MB-35             |
| 31   | 10   | 110-0088-01     | (203-0003591)   | Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42                                                                                                                | Fet Tht. TO-220 STP20NE06L NFet 60V 20A         |
| 32   | 16   | 110-0106-00     | (203-0003592)   | Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16                                                                                           | Fet Tht. TO-220 20N10L NFet 100V 20A            |
| 33   | 8    | 110-0089-00     | (203-0003597)   | U10, U11, U12, U13, U14, U15, U16, U17                                                                                                                          | Fet Tht. PENTAWAT VN02N NFet HighSide 26V 6A    |
| 34   | 2    | 110-0069-01     | (211-0003589)   | Q44, Q45                                                                                                                                                        | Trans. SM SOT-23 MMST3904 NPN 40V 0.2A          |
| 35   | 16   | 110-0067-00     | (213-0003565)   | Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32                                                                                  | Transistor Tht. TO-220 TIP122 NPN 100V 5A       |
| 36   | 3    | 100-6003-00     | (221-0000972)   | U18, U22, U24                                                                                                                                                   | I.C. SM SOIC 74HC245 Oct. Bus. Xcvr.            |
| 37   | 1    | 100-6000-00     | (221-0011253)   | U23                                                                                                                                                             | I.C. SM SOIC DS1832S, SO-8                      |
| 38   | 8    | 100-5056-00     | (221-0001287)   | U2, U3, U4, U5, U6, U7, U9, U21                                                                                                                                 | I.C. SM SOIC 74HCT273 Oct. D F-F                |
| 39   | 2    | 100-6001-00     | (221-0003728)   | U19, U20                                                                                                                                                        | I.C. SM SO 74LS138D Hex Inverter, 3-8 DC/DMX    |
| 40   | 1    | 100-6002-00     | (221-0011135)   | U8                                                                                                                                                              | I.C. SM SOIC 74LS74AD SOIC-14                   |
| 41   | 1    | 100-0356-00     | (225-0003582)   | U1                                                                                                                                                              | I.C. Tht. TO-3 LM338 5A Adjust. Voltage Reg.    |
| 42   | 5    | 045-            | (315-0003427)   | J2, J6, J7, J10, J13                                                                                                                                            | Con. Tht. Hdr. 10 Pin, 1 Row .156"              |
| 43   | 1    | 045-            | (315-0006910)   | J1                                                                                                                                                              | Con. Tht. Hdr. 20 Pin, 2 Row .1"                |
| 44   | 2    | 045-            | (315-0003430)   | J3, J12                                                                                                                                                         | Con. Tht. Hdr. 12 Pin, 1 Row .156"              |
| 45   | 1    | 045-            | (315-0003432)   | J16                                                                                                                                                             | Con. Tht. Hdr. 15 Pin, 1 Row .156"              |
| 46   | 1    | 045-            | (315-0003503)   | J11                                                                                                                                                             | Con. Tht. Pwr. 3 Pin, 1 Row .25"                |
| 47   | 1    | 045-            | (315-0003504)   | J14                                                                                                                                                             | Con. Tht. Pwr. 6 Pin, 2 Row .25"                |
| 48   | 1    | 045-            | (315-0003505)   | J17                                                                                                                                                             | Con. Tht. Pwr. 9 Pin, 3 Row .25"                |
| 49   | 3    | 045-            | (315-0003821)   | J8, J9, J15                                                                                                                                                     | Con. Tht. Hdr. 9 Pin, 1 Row .156"               |
| 50   | 2    | 200-5000-08     | (407-0003117)   | F6, F8                                                                                                                                                          | Fuse 3 Amp 250V Slo-Blo (Glass, Tht. 3AG)       |
| 51   | 2    | 200-5000-06     | (407-0003118)   | F7, F11                                                                                                                                                         | Fuse 4 Amp 250V Slo-Blo (Glass, Tht. 3AG)       |
| 52   | 7    | 200-5000-01     | (407-0003119)   | F1, F2, F3, F4, F10, F12, F13                                                                                                                                   | Fuse 5 Amp 250V Slo-Blo (Glass, Tht. 3AG)       |
| 53   | 1    | 200-5000-03     | (407-0003121)   | F5                                                                                                                                                              | Fuse 7 Amp 250V Slo-Blo (Glass, Tht. 3AG)       |
| 54   | 1    | 200-5000-05     | (407-0003122)   | F9                                                                                                                                                              | Fuse 8 Amp 250V Slo-Blo (Glass, Tht. 3AG)       |
| 55   | 1    | 121-5039-00     | (415-0004788)   | POT1                                                                                                                                                            | Potentiometer THT 50K Single Top Adjust. Trimr. |
| 56   | 1    | 165-6000-00     | (425-0006913)   | L18                                                                                                                                                             | LED SM Yellow 0805 LED                          |
| 57   | 5    | 165-6001-00     | (425-0007753)   | L4, L6, L8, L16, L19                                                                                                                                            | LED SM Green Ultrabright Top                    |
| 58   | 13   | 165-6002-00     | (425-0007755)   | L1, L2, L3, L5, L7, L9, L10, L11, L12, L15, L17                                                                                                                 | LED SM Red Ultrabright Top 0805 LED             |
| 59   | 1    | 190-5002-00     | (448-0004778)   | RLY1                                                                                                                                                            | Relay Tht. GW DPDT10A DC24 2400VA PC MNT        |
| 60   | 1    | 127-5001-00     | (461-0003520)   | for BRDG 4, BRDG 5                                                                                                                                              | Heatsink, Sq. Finned Ba TO-220 Avid 531102      |
| 61   | 1    | 127-5001-02     | (461-0003534)   | for U1                                                                                                                                                          | Heatsink All Large Finned Alum. TO-3            |
| 62   | 1    | 127-5001-04     | (579103B00000G) | for U1 on TO-3 LM338 5A Adj. Volt. Reg.                                                                                                                         | Heatsink, Circular Finned (Mfg. Aavid)          |
| 63   | 4    | 240-5008-00     | (503-0004469)   | 2 pcs. for U1 1 pc. each for BRDG 4 & 5                                                                                                                         | #6-32 Keps Nut                                  |
| 64   | 26   | 205-0004-00     | (503-0004667)   | 2 pcs. each for F1 - F13                                                                                                                                        | Fuseclip with End Stops (+ Ears)                |
| 65   | 4    | 237-5504-00     | (504-0004610)   | 2 pcs. for U1 1 pc. each for BRDG 4 & 5                                                                                                                         | #6-32 X 3/4" FPH MS (Zinc) Screw                |
| 66   | 2    | 254-5007-02     | (507-0004544)   | for BRDG 4 & 5 (Mfg. .169" I.D. X 9/32" O.D. X 1/4")                                                                                                            | 1/4" Sif. Rtn. Spacer White                     |
| 67   | 5    | 254-5007-05     | (507-0004547)   | for BRDG1, 2 & 3 and for Mounting Holes (Mfg. .169" I.D. X 9/32" O.D. X 5/16")                                                                                  | 5/16" Sif. Rtn. Spacer White                    |



## CPU / SOUND PCB S.A.M. System (520-5246-00) Component Layout



## CPU / SOUND PCB S.A.M. System (520-5246-00) Component Parts

| ITEM | QTY. | SPI PART NUMBER | (MFG. P.N.)   | REF-DESIGNATOR                                                                                                                                                                                             | DESCRIPTION (SM = Surface Mount)    |
|------|------|-----------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| —    | 1    | 520-5246-00     |               | CPU/Sound PCB (S.A.M. System), Rev. G                                                                                                                                                                      | (includes Items 1-90)               |
| 1    | 3    | 121-6017-00     | (101-0001790) | R27, R202, R212                                                                                                                                                                                            | Resistor SM 0805 0.0Ω 1/10W 5%      |
| 2    | 2    | 121-6108-00     | (101-0001792) | R201, R206                                                                                                                                                                                                 | Resistor SM 0805 1.0Ω 1/10W 5%      |
| 3    | 24   | 121-6001-00     | (101-0001807) | R9, R10, R11, R12, R13, R14, R15, R16, R18, R20, R21, R22, R23, R24, R25, R26, R175, R176, R177, R178, R179, R180, R181, R182 R147, R148, R211                                                             | Resistor SM 0805 1.5KΩ 1/10W 5%     |
| 4    | 3    | 121-6002-00     | (101-0001820) | R64, R66, R67, R68, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R89, R90, R92, R208                                                                                    | Resistor SM 0805 Film 100Ω 1/10W 5% |
| 5    | 24   | 121-6019-00     | (101-0001823) | R28, R65, R91, R98, R99, R100, R101, R102, R103, R119, R120, R134, R137, R139, R141, R142, R143, R144, R145, R146, R159, R160, R161, R162, R163, R164, R165, R166, R193, R194, R195, R223, R225 R117, R118 | Resistor SM 0805 100KΩ 1/10W 5%     |
| 6    | 33   | 121-6020-00     | (101-0001827) |                                                                                                                                                                                                            | Resistor SM 0805 Film 10KΩ 1/10W 5% |
| 7    | 2    | 121-6021-00     | (101-0001880) |                                                                                                                                                                                                            | Resistor SM 0805 15KΩ 1/10W 5%      |

**Parts List Continued Next Page.**

## Printed Circuit Boards (PCBs)

Y20

# CPU / SOUND PCB S.A.M. System (520-5246-00) Parts Continued

| ITEM | QTY. | SPI PART NUMBER | (MFG. P.N.)   | REF-DESIGNATOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DESCRIPTION (SM = Surface Mount)                  |
|------|------|-----------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| 8    | 47   | 121-6022-00     | (101-0001905) | R1, R2, R3, R4, R5, R6, R7, R8, R29, R30, R31, R32, R33, R34, R37, R38, R55, R56, R57, R58, R59, R60, R61, R94, R95, R96, R105, R107, R109, R111, R113, R114, R115, R116, R124, R126, R128, R133, R151, R152, R153, R154, R155, R156, R157, R158, R218, LED2                                                                                                                                                                                                                                                                                                              | Resistor SM 0805 1KΩ 1/10W 5%                     |
| 9    | 19   | 121-6004-00     | (101-0001943) | R104, R106, R108, R110, R112, R123, R125, R127, R167, R168, R169, R170, R171, R172, R173, R174, R213, R214, R215                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Resistor SM 0805 Film 220Ω 1/10W 5%               |
| 10   | 4    | 121-6005-00     | (101-0001849) | R198, R200, R203, R205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Resistor SM 0805 Film 22KΩ 1/10W 5%               |
| 11   | 5    | 121-6023-00     | (101-0001889) | R45, R86, R88, R121, R122                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Resistor SM 0805 3.3KΩ 1/10W 5%                   |
| 12   | 3    | 121-6024-00     | (101-0002009) | R69, R129, R130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Resistor SM 0805 33Ω 1/10W 5%                     |
| 13   | 2    | 121-6006-00     | (101-0002012) | R54, R93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Resistor SM 0805 Film 330Ω 1/10W 5%               |
| 14   | 24   | 121-6013-00     | (101-0002035) | R35, R36, R39, R40, R41, R42, R43, R44, R46, R47, R48, R49, R50, R51, R52, R53, R183, R184, R185, R186, R187, R188, R189, R190                                                                                                                                                                                                                                                                                                                                                                                                                                            | Resistor SM 0805 Film 39KΩ 1/10W 5%               |
| 15   | 2    | 121-6008-00     | (101-0002046) | R17, R19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Resistor SM 0805 Film 4.7KΩ 1/10W 5%              |
| 16   | 4    | 121-6014-00     | (101-0002065) | R219, R220, R221, R222                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Resistor SM 0805 Film 47Ω 1/10W 5%                |
| 17   | 3    | 121-6025-00     | (101-0002067) | R199, R204, R216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Resistor SM 0805 470Ω 1/10W 5%                    |
| 18   | 1    | 121-6015-00     | (101-0002071) | R209                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Resistor SM 0805 Film 47KΩ 1/10W 5%               |
| 19   | 99   | 125-6001-00     | (121-0000056) | C25, C26, C27, C29, C31, C33, C37, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C51, C52, C54, C62, C64, C65, C67, C68, C69, C71, C75, C77, C78, C79, C80, C81, C82, C83, C89, C90, C91, C92, C103, C104, C105, C121, C123, C168, C169, C171, C174, C175, C176, C177, C182, C184, C185, C186, C187, C188, C189, C190, C191, C192, C193, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C219, C220, C222, C223, C224, C227, C230, C231, C232, C235, C238, C239, C240, C241, C243, C244, C248, C250, C251, C252, C253, C254, C257, C258 | Capacitor SM 0805 Cer. 1UF 50V 10% X7R            |
| 20   | 3    | 125-6013-00     | (121-0000077) | C28, C57, C60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Capacitor SM 0805 Cer. 1UF 10V 10% X7R            |
| 21   | 1    | 125-6014-00     | (121-0000086) | C97                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Capacitor SM 0805 Cer. 3300PF 50V 5% X7R          |
| 22   | 7    | 125-6002-00     | (121-0000096) | C259, C260, G261, C262, C263, C264, C265                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Capacitor SM 0805 Cer. 470PF 50V 5% NPO           |
| 23   | 3    | 125-6015-00     | (121-0000269) | Rev. G as Mods on back of PCB, Rev. H in place (FCC Caps Plasma Ribbon Cable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Capacitor SM Case D Tant 22UF 25V 20%             |
| 24   | 11   | 125-6003-00     | (121-0004236) | C1, C2, C3, C4, C5, C6, C7, C8, C110, C161, C167                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Capacitor SM 0805 Cer. .01UF 50V 10% X7R          |
| 25   | 49   | 125-6016-00     | (121-0004245) | C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C49, C50, C53, C55, C56, C61, C63, C70, C74, C106, C116, C117, C118, C119, C120, C122, C124, C125, C126, C127, C145, C146, C147, C148, C149, C194, C195, C196, C197, C198, C199, C200, C201                                                                                                                                                                                                                                                                                                | Capacitor SM 0805 Cer. 47PF 50V 5% NPO            |
| 26   | 4    | 125-6017-00     | (121-0005317) | C95, C100, C107, C256                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Capacitor SM Case A Tant 2.2UF 16V 10%            |
| 27   | 6    | 125-6004-00     | (121-0005318) | C30, C34, C35, C36, C38, C66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Capacitor SM 0805 Cer. 22PF 100V 5% NPO           |
| 28   | 2    | 125-6005-00     | (121-0006113) | C178, C221                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Capacitor SM 1206 Cer. 4.7PF 16V 20% Y5V          |
| 29   | 2    | 125-6006-00     | (121-0007394) | C159, C163                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Capacitor SM 603 Cer. 1500PF 25V 10% X7R          |
| 30   | 10   | 125-6007-00     | (121-0007853) | C58, C59, C72, C76, C94, C165, C166, C170, C225, C233                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Capacitor SM Case C Tant 10UF 16V 20%             |
| 31   | 1    | 125-6018-00     | (121-0010097) | C98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cap. SM 805 Cer. .033UF 50V +80/-20% Y5V          |
| 32   | 4    | 125-6009-00     | (121-0010493) | C32, C73, C160, C162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Capacitor SM 805 Cer. 680PF 50V 5% NPO            |
| 33   | 6    | 125-6019-00     | (134-0005415) | C172, C173, C226, C229, C234, C237                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Capacitor Tht. Radial Alum. 100UF 35V 20%         |
| 34   | 3    | 125-6020-00     | (134-0007336) | C93, C247, C249                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Capacitor Tht. Radial Alum. 47UF 35V 20%          |
| 35   | 1    | 125-6010-00     | (139-0006487) | C255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Capacitor Tht. .22UF 5.5V, Gold, SD, Vert         |
| 36   | 6    | 125-6011-00     | (161-0004959) | L4, L5, L6, L7, L8, L9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ind.-SM Ferrite 100Ω 1234 Smt.                    |
| 37   | 2    | 125-6012-00     | (161-0007286) | L1, L2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ind.-SM Bead 600Ω 100MHz 25% 500mA                |
| 38   | 1    | 125-6021-00     | (161-0009686) | L3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ind.-SM EP Inductor 15uH 1100mA 20%               |
| 39   | 20   | 112-6000-00     | (181-0004347) | D1, D2, D3, D4, D5, D7, D8, D9, D11, D12, D13, D14, D15, D16, D17, D18, D24, D25, D26, D28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Diode SM MiniMELFDL1448 100V 500mW                |
| 40   | 5    | 112-6001-00     | (181-0004478) | D10, D19, D20, D21, D22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Diode SM MELF DL4004 400V 1.0A                    |
| 41   | 1    | 110-6000-00     | (201-0006808) | Q10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Fet-SM SOT-23 MMBF170 N-Chnnl. Fet                |
| 42   | 9    | 110-0069-00     | (213-0003546) | Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Transistor Tht. TO-92 2N3904 NPN 40V 0.2A         |
| 43   | 1    | 124-6000-00     | (213-0005687) | U34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Trans. Tht. TO-220 LT1086 3.3V 1.5A Volt Reg.     |
| 44   | 8    | 100-6004-00     | (221-0001000) | U2, U4, U5, U14, U25, U26, U36, U41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SO 74LVC245 Oct. Bus Xcvr                 |
| 45   | 1    | 100-5048-00     | (221-0003716) | U55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOIC 74HCT245DW Octal Line Xvr. W/3S      |
| 46   | 4    | 100-6005-00     | (221-0003718) | U15, U22, U35, U40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I.C.-SM SO LM339 Quad Diff. Comparator            |
| 47   | 1    | 100-6006-00     | (221-0005249) | U43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOIC DS1302 Time Keeper                   |
| 48   | 1    | 100-6008-00     | (221-0006578) | U52                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOIC SP232A SO-16                         |
| 49   | 1    | 100-6009-00     | (221-0006914) | U32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOT-223 DS1233A2-15 Reset                 |
| 50   | 1    | 100-6007-00     | (221-0006919) | U30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM OPA2353 Dual CMOS O/A MSOP-8              |
| 51   | 1    | 100-6018-00     | (221-0006940) | U48                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOJ IDT71V016SA15Y SOJ-44                 |
| 52A  | 1    | 100-6016-00     | (221-0007056) | U7 (must be programmed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | U7 (I.C.-SM TQFP CPLD 144 Macro Cell 3.3V)        |
| 52B  | 1    | 100-6017-00     | (221-0007056) | U42 (must be programmed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | U42 (I.C.-SM TQFP CPLD 144 Mac. Cell 3.3V)        |
| 53   | 1    | 124-6001-00     | (221-0007298) | U3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I.C.-SM SOIC LT1503CS8-1.8                        |
| 54   | 1    | 100-6012-00     | (221-0010735) | U11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOIC CY62128 SRAM 128Kx8 3V LP SO32       |
| 55   | 1    | 100-6013-00     | (221-0010736) | U49                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM QFP-L AT43 USB380 Processor USB 2.0       |
| 56   | 1    | 100-6014-00     | (221-0010738) | U16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SSOP PCM1755 24-Bit Audio DAC 16-Pi       |
| 57   | 1    | 100-6010-00     | (221-0010978) | U13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM SOJ IDT71V416S15Y SOJ-44                  |
| 58   | 1    | 100-6011-00     | (221-0010981) | U44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-SM TSOP S29GL256N11 256MB Flash              |
| 59   | 1    | 100-6015-00     | (221-0011102) | U1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I.C.-SM SOIC 74LV273 SOIC-20                      |
| 60   | 1    | 124-6002-00     | (225-0003581) | U54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-Tht. TO-220 LM317T Adjustable Volt Reg.      |
| 61   | 2    | 100-5016-20     | (225-0003635) | U50, U51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | I.C.-Tht. Pentawatt TDA2030 18W Amplifier         |
| 62   | 1    | 124-6003-00     | (225-0006921) | U33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I.C.-Tht. TO-220 LM340T 5V 1A Volt Regulator      |
| 63   | 1    | 077-5217-00     | (301-0004285) | SU9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Socket DIP/SIP 32-Pin, Tin, .6, Dip               |
| 64   | 2    | n/a             | (303-0005944) | TP1, TP2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Test Pt. All Test Point, White, Miniature         |
| 65   | 1    | 045-            | (315-0003511) | JP1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Con.-Tht. Header 2 Pin, 1 Row, VT, Tin, .1"       |
| 66   | 1    | 045-            | (315-0004097) | J11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Con.-Tht. Header 6 Pin, 1 Row, VT, Tin, .156"     |
| 67   | 1    | 045-            | (315-0004121) | J1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. Header 9 Pin, 1 Row, VT, Tin, .156"     |
| 68   | 4    | 045-            | (315-0004122) | J3, J6, J12, J13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Con.-Tht. Hdr. 10 Pin, 1 Row, VT, Tin, .156"      |
| 69   | 1    | 045-            | (315-0004124) | J8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. Header 6 Pin, 1 Row, VT, Tin, .1"       |
| 70   | 1    | 045-            | (315-0006776) | J14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Con.-Tht. Hdr. 6 Pos. Phone Jack, Vertical        |
| 71   | 1    | 045-            | (315-0006910) | J9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. Header 20 Pin, 2 Row, VT, Tin, .1"      |
| 72   | 1    | 045-            | (315-0009252) | J10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Con.-Tht. Header 4 Pin, 1 Row, VT, Tin, .156"     |
| 73   | 1    | 045-            | (315-0009520) | J2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. Hdr. 12 Pin, 1 Row, VT, Tin, .156"      |
| 74   | 1    | 045-            | (315-0009626) | J15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Con.-Tht. 4 Pos. USB Recept, VT, WHT/BLK          |
| 75   | 1    | 045-            | (315-0009627) | J4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. D-Sub 9 Pos, VT, w/lock & Hex Sc.       |
| 76   | 1    | 045-            | (315-0010979) | J5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Con.-Tht. Hdr. 14 Pin, 2 Row, VT, Gold, .1" Shrou |
| 77   | 1    | 140-6000-00     | (401-0007295) | Y2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | XTAL-SM 32.768MHz Cl 12.5 FSR327                  |
| 78   | 1    | 140-6001-00     | (401-0010737) | Y3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | XTAL-SM 600MHz 20PF                               |
| 79   | 1    | 140-6002-00     | (403-0005489) | Y1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Osc.-SM SO 400MHz 5V Tristate CMOS                |
| 80   | 1    | 515-            | (421-0010979) | B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Battery (Coin Cell 24.5mm) Holder with clip       |
| 81   | 1    | 000-0644-01     | (421-0010980) | for B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Coin Cell 3V 265mAh 24X3 mm (CR2430)              |
| 82   | 1    | 165-6003-00     | (425-0005320) | LED1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LED SM Green 0805 LED                             |
| 83   | 1    | 165-6004-00     | (425-0010803) | LED3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LED SM Dual Red/Green 1210 Top                    |
| 84   | 1    | 182-5002-00     | (450-0004750) | SW1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8-Position Dip Switch                             |
| 85   | 1    | 182-5001-00     | (450-0004752) | S1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Spst. 16 Pin X8 Slide 5VDC 100ma                  |
| 86   | 2    | 127-5001-00     | (461-0003520) | for U33, U34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | White Push-Button Reset Switch                    |
| 87   | 2    | 127-5001-01     | (461-0003528) | for U50, U51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Spst. 4 Pin Momentary 24VDC 50ma                  |
| 88   | 4    | 237-5909-01     | (504-0004604) | for Heat Sinks U33, U34, U50, U51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Heatsink All Vert Mount Ba TO-220                 |
| 89   | 4    | 240-5318-00     | (503-0004457) | for Heat Sinks U33, U34, U50, U51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Heatsink All Vert Mount Ba TO-220                 |
| 90   | 4    | 254-5007-05     | (507-0004547) | for Mntg. Holes (Mtg. .169" I.D. X 9/32" O.D. X 5/16")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | #4-40 X 3/8" PPH MS Sems (Zinc) Screw             |



960-5016-00:  
(No File, Unprogrammed)

965-BOOT-SAM:  
(Latest Version Programmed)