



IRON MAN

Optional Kits available through your Distributor:

Pinball Location Maintenance Standard Kit (for Ironman Pinball) 502-6002-B3

***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:** Quanties, sizes and contents subject to change without notice.*

Pinball Location Maintenance Deluxe Kit (for ironman Pinball) 502-6003-B3

***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 Ironman Pinball) 803-5000-B3

***Plastics Kit includes:** Plastic Sets (830-6105XX)*

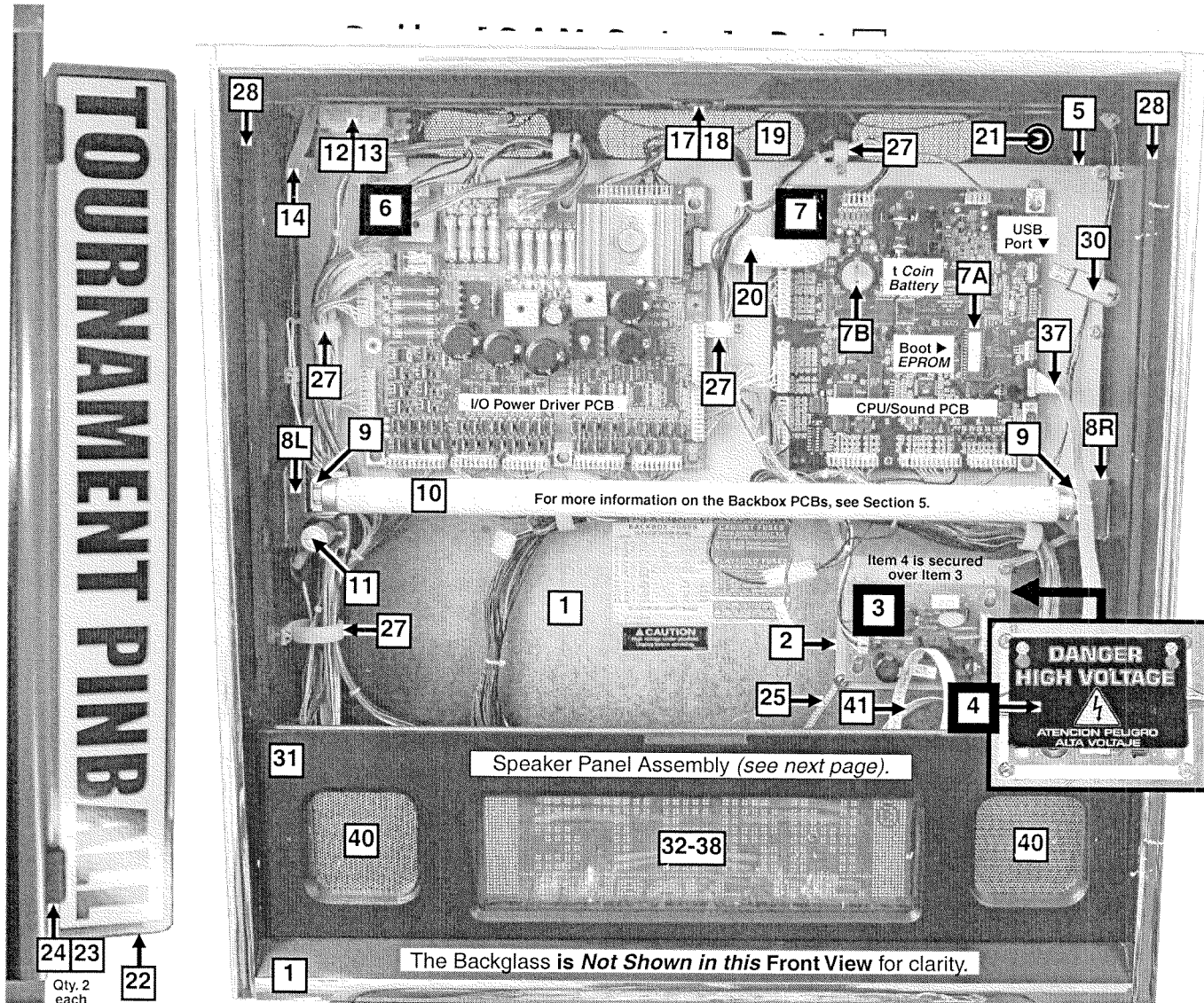
Decals*Kit (for Ironman Pinball) 802-5000-B3

***Decals Kit includes:** Decal Set (820-6561-XX)*

Mylar*Kit (for Ironman Pinball) 802-5001-B3

***Mylar Kit includes:** Ball Drop (820-5815-00)*

****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.*



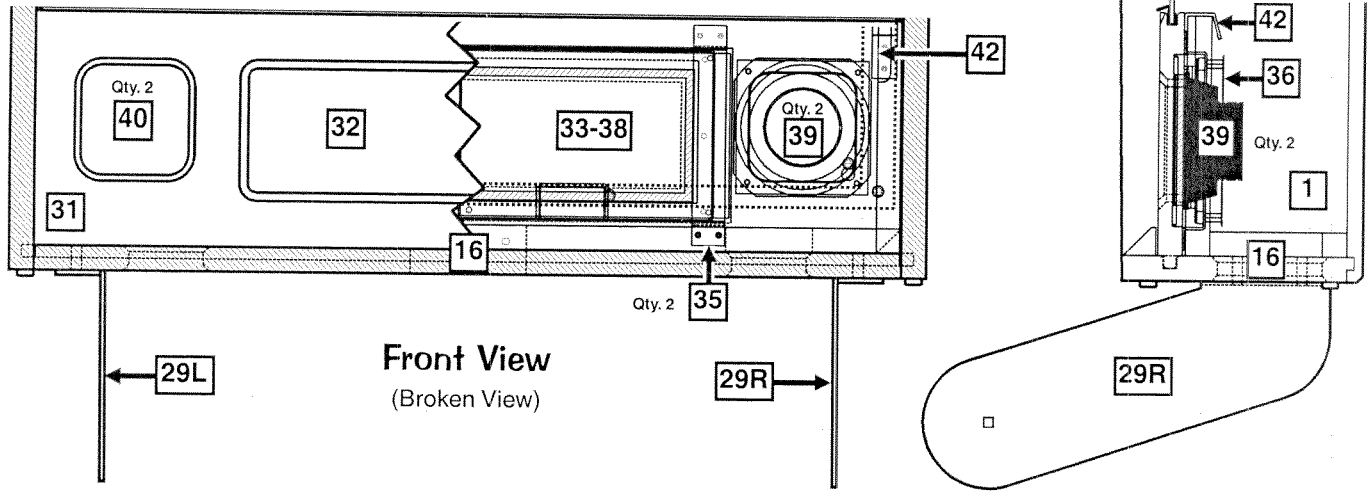
Parts Identification

| Nr. | BACKBOX PARTS | QTY. | SPI PART Nr. |
|---|--|------|----------------|
| 1 | Backbox Ironman™ (No Parts) | 1 | 525-5631-17-B3 |
| <i>Item 1 Note: Chrome T-Molding is installed and cannot be ordered separately. Fuse Description (820-6384-00) and High Voltage Caution (UL) (820-6082-01 & -02) Decals.</i> | | | |
| 2 | PCB Metal Mounting Plate [Display] | 1 | 535-9769-00 |
| 3 | Display Power Supply PCB | 1 | 520-5138-00 |
| <i>Item 3 is secured to @ bottom by: #8-32 X 3/8" SHWH Swg. (Zinc) (Qty. 2) (237-5975-00)</i> | | | |
| 4 | Plastic Cover [DANGER HIGH VOLTAGE] | 1 | 830-6053-00 |
| <i>Items 3 & 4 are secured to @ top by: 1-1/4" X 3/8" Plastic Spacer Gray (Qty. 2) (234-5000-05) and #8-32 X 1-3/4" SHWH Ser. (Zinc) (Qty. 2) (237-5975-28)</i> | | | |
| 5 | PCB Metal Mounting Plate [I/O+CPU] | 1 | 535-9664-00 |
| <i>Items 2 & 5 are secured to Item 1 by: #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) Note: Where a Wire Clamp (Item 27) is mounted, a #10 Washer is not required.</i> | | | |
| 6 | I/O Power Driver PCB [S.A.M. Sys.] | 1 | 520-5249-00 |
| 7 | CPU/Sound PCB [S.A.M. System] | 1 | 520-5246-00 |
| <i>7A: 8MB EPROM #M27C801-100F1 (960-5016-00) Ordering Note: Programmed EPROM (965-BOOT-SAM) 7B: Coin Cell Battery (CR2430 3V) (000-0644-01) For USB Memory Stick Information, see Item 30 on the next page.</i> | | | |
| <i>Items 6 & 7 are secured to Item 5 by: #8-32 X 3/8" SHWH Swage (Zinc) (Qty. 10) (237-5975-00) and 1/4" Slf. Rtn. Spacer White (Qty. 5 [I/O] / Qty. 4 [CPU]) (254-5007-05)</i> | | | |
| 8L | Fluorescent Light Bracket (Left Style) | 1 | 535-7739-00 |
| 8R | Fluorescent Light Brckt. (Right Style) | 1 | 535-7739-01 |
| <i>Items 8L & 8R are secured to Item 1 by: #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)</i> | | | |
| 9 | Fluorescent Lamp Holder (Socket) | 2 | 077-5214-01 |
| <i>Item 9 is secured to Items 8L and 8R by: #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)</i> | | | |
| 10 | Fluorescent Tube 24" (F18T8CW) | 1 | 165-5061-00 |

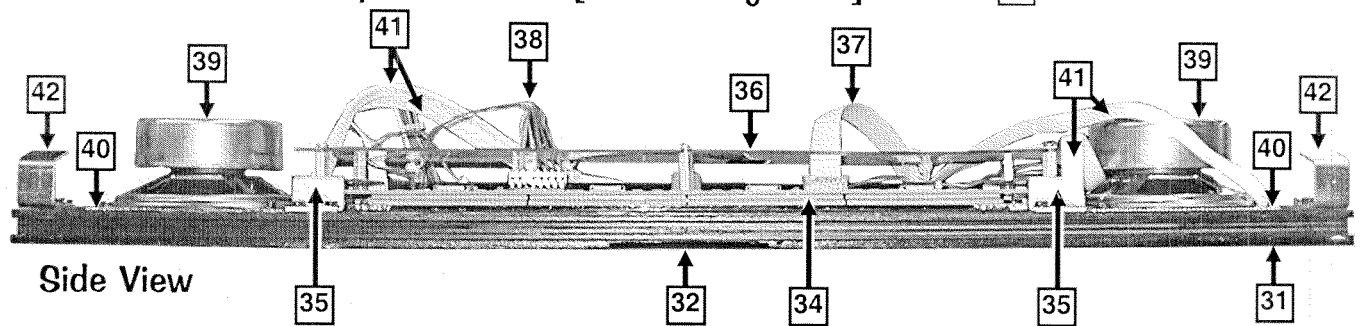
| Nr. | BACKBOX PARTS | QTY. | SPI PART Nr. |
|---|---|------|--------------|
| 11 | Starter - Fluorescent (FS2 Light) | 1 | 165-5011-01 |
| <i>Starter Base (with leads) [on Item 8L]</i> | | | |
| <i>Item 11 is secured to Item 8L by: #4-40 X 1/2" PPH MS (Sems) Zc. (Qty. 2) (237-5813-00)</i> | | | |
| 12 | Ballast Mounting Plate | 1 | 535-8657-00 |
| 13 | Ballast CU452-W 1/2" Core 120v 60 Hz 13W | 1 | 010-5015-00 |
| <i>Items 12 & 13 are secured to Item 1 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00) >>> CAUTION - VERY HOT" Decal (820-6266-00) EU / UK Only : Ballast, 5/8" Core 50/60 Hz (010-5015-01)</i> | | | |
| 14 | Ground Strap (5") | 1 | 600-5006-05 |
| 15* | Roto Lock Male (on Cabinet) | 1 | 355-5006-01 |
| 16 | Roto Lock Female (R2-0002-02) | 1 | 355-5006-02 |
| <i>Item 16 is secured by: #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.</i> | | | |
| 17 | Lock Mounting Plate | 1 | 535-0072-00 |
| 18 | Lock 5/8" Barrel, 3/4"ø, 1.5" Flat Cam | 1 | 355-5055-00 |
| <i>Items 17 & 18 are secured by: #8 X 1/2" TP Torx T20 Black (Qty. 2) (237-6173-05)</i> | | | |
| 19 | Back Vent Grill 2-1/2" X 18" | 1 | 545-5072-02 |
| 20 | Ribbon Cable, 20-Pin (3.5") | 1 | 036-5000-350 |
| <i>Item 20 connects the I/O Pwr. Drvr. PCB to the CPU/Sound PCB; For 14-Pin see next page.</i> | | | |
| 21 | Button Hole Plug (Blk) (Happ #52-6214-00) | 1 | 500-6566-00 |
| <i>Item 21 plugs the Access Hole required if using optional BETAbrite Sign or Data cables.</i> | | | |
| 22 | Header Sign TOURNAMENT PINBALL | 1 | 545-6133-00 |
| 23 | Bracket, Tournament Sign (Black) | 2 | 535-0081-02 |
| <i>Item 22 is mounted to item 23 with #8-32 x 3/8 PPA screw (Qty 2/per) (232-5303-01) & #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)</i> | | | |

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. |
|---|---------------------------------------|------|--------------|--|--|------|--------------|
| <p>← PARTS TABLE & VIEWS CONTINUED FROM THE PREVIOUS PAGE.</p> | | | | | | | |
| 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 32 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" 128 X 32 Dot Matrix Display PCB | 1 | 626-5026-00 |
| 27 | Clamps [Multiple Sizes] | 28 | 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) | | | | 34 | // EURO ONLY RoHS // 128 X 32 DM CES PCB | | 520-5052-05 |
| 28 | Foam 3/16" Thick X 1/4" Wide X 12" | 6 | 626-5026-00 | // EURO ONLY RoHS // Dot Matrix Bezel | | | |
| Above Item 28 is self-adhesive. 17.5" strip on each side. Sold in 12" Lengths only. | | | | | | | 545-6281-00 |
| 29L | Pivot Hinge (Left Style) | 1 | 535-7999-00 | Item 34 is secured to Item 35 by: 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) | | | | Item 35 is secured to Item 31 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 4/per) (234-5101-00) | | | |
| 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) | | | | 36 | Plastic Shield (Display Back Cover) | 1 | 830-6040-00 |
| 30* | Memory Stick USB 1.1+ [Generic] 64MB | | 970-0064-00 | 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 (Sems) Zinc (Qty. 2) (232-5200-00) and #6-32 X 3/8" PPH (Qty. 6) (232-5201-00) | | | |
| | Memory Stick USB 1.1+ [Generic] 128MB | | 970-0128-00 | 37 | Ribbon Cable, 14-Pin (33") | 1 | 036-5260-33 |
| 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 your local pinball distributor. (Stern Pinball Memory Sticks guaranteed compatible). (ASM. REF. 505-6002-A3-A3, Items 1-42 Only, [29-30 not included in assembly]) | | | | // EURO ONLY RoHS // LED Ribbon Cable Filter PCB | | | |
| | | | | 38 | Display Cable (Wiring Harness) | 1 | 036-5454-01 |
| | | | | Item 37 (14-Pin) connects the 128 X 32 Dot Matrix Display PCB to the CPU/Sound PCB. | | | |
| | | | | // EURO ONLY RoHS // LED Display Adapter Harness | | | |
| | | | | 39 | Speaker (Shld.) 4" 8Ω #MG ELE 4060SH | 2 | 031-5004-02 |
| | | | | 40 | Speaker Grill (Black w/Artwork) | 2 | 535-8081-B3 |
| | | | | 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:

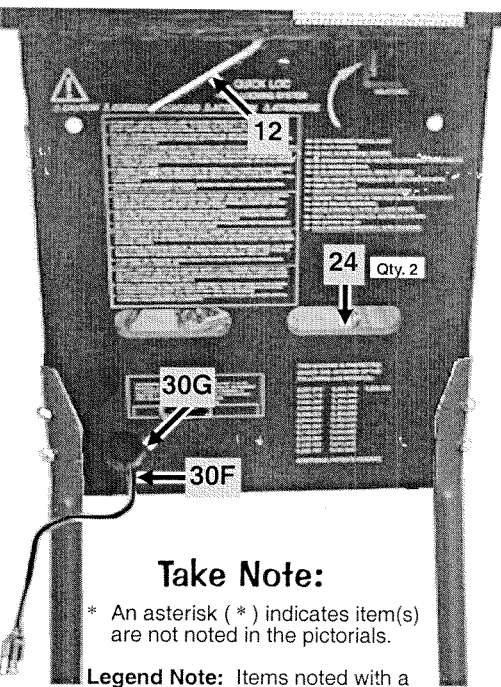
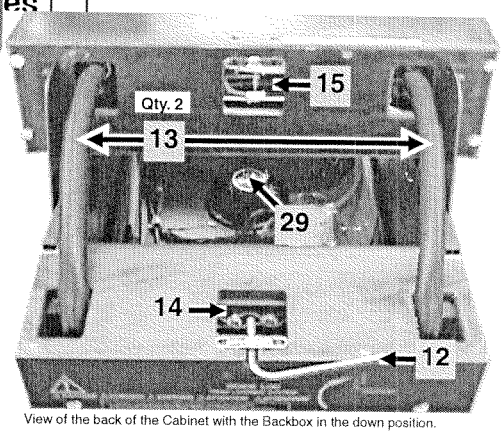
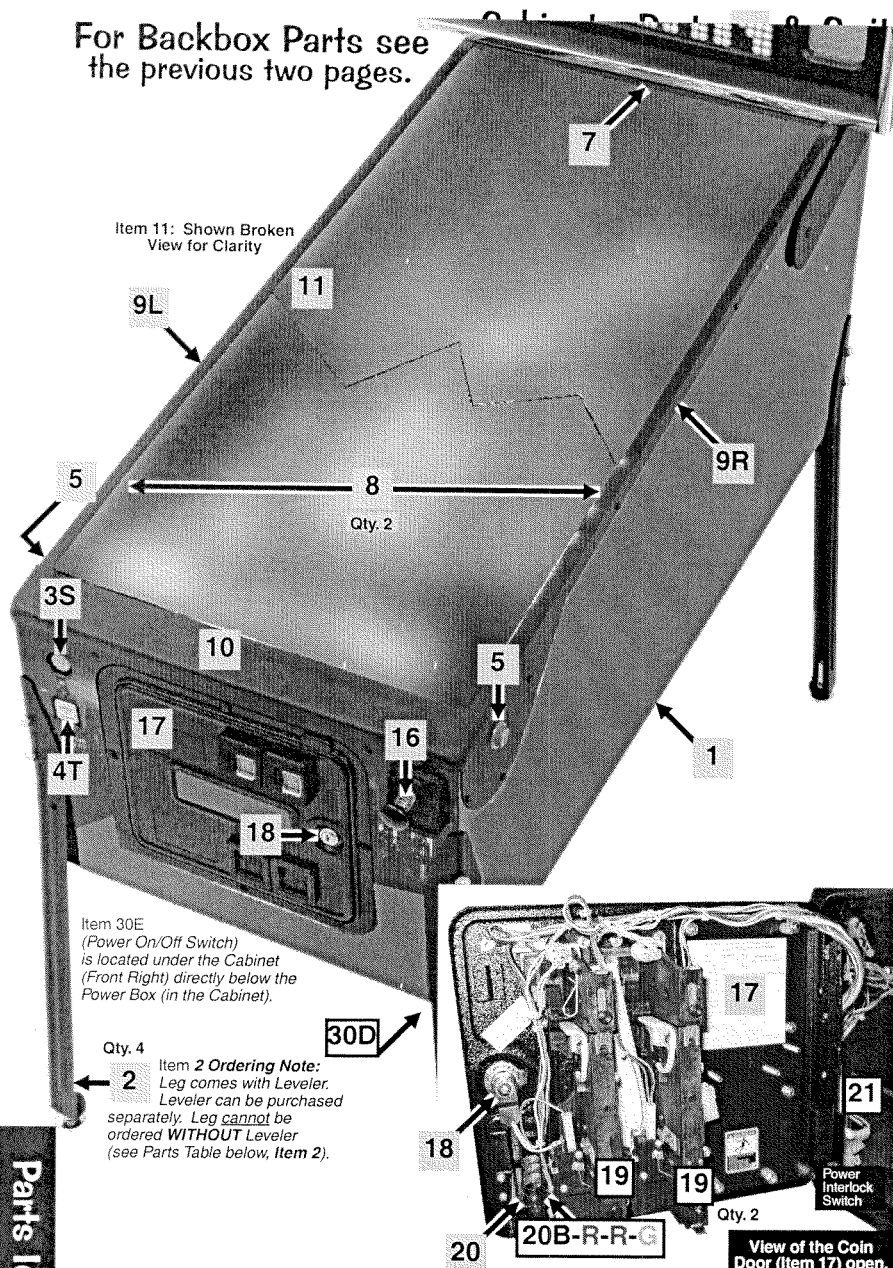
* An asterisk (*) indicates item(s) are not noted in the pictorials.

| Nr. | BACKGLASS PARTS | QTY. | SPI PART Nr. | Nr. | BACKGLASS PARTS | QTY. | SPI PART Nr. |
|---|--|------|--------------|--|---------------------------------------|------|--------------|
| ij* | Glass (Tempered) 25.906" X 19.187" X .125" | 1 | 660-5038-02 | iv* | Bottom Plastic Lift Channel - 26" | 1 | 545-6313-01 |
| jj* | Ironman™ Film Art (#B3) | 1 | 830-52B3-00 | v* | Plastic Edging (Left/Right) - 18-1/8" | 2 | 545-5018-14 |
| jjj* | 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)

Parts Identification

For Backbox Parts see the previous two pages.



Take Note:

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

Legend Note: Items noted with a cyan square are Cabinet Parts. Items noted with a white square are Switches.

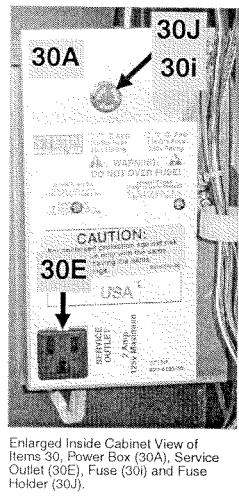
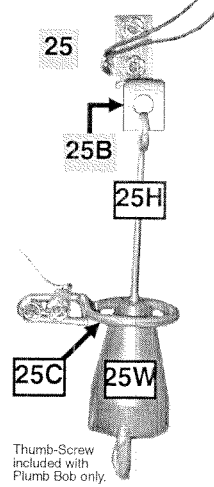
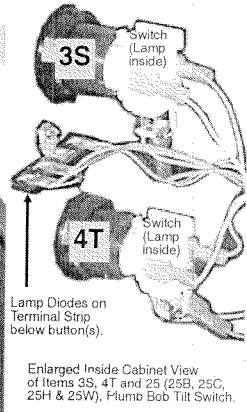
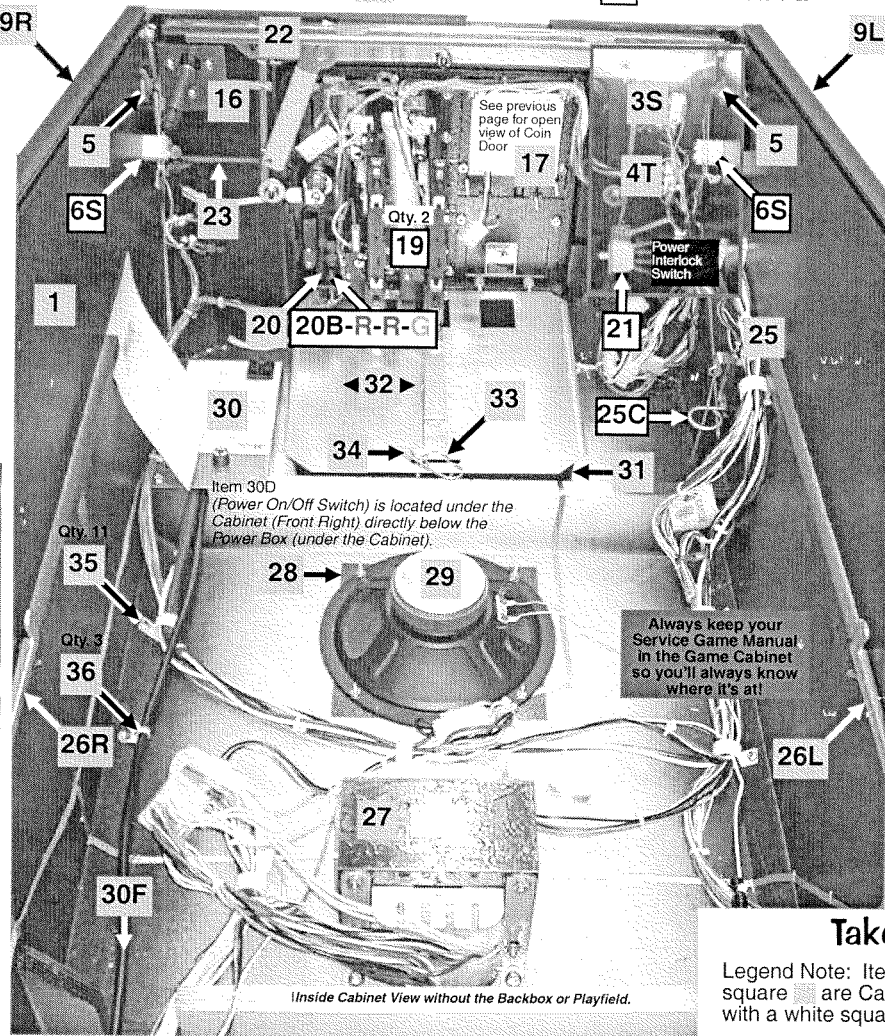
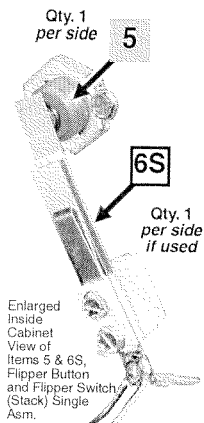
Parts Identification

| Nr. | CAB. PARTS & SWITCHES | QTY. | SPI PART Nr. |
|--|--|------|-----------------|
| 1 | Screened Cabinet Ironman™ (No Parts) | | 525-5395-15P-B3 |
| 2 | Black Leg with Leveler Asm. | 4 | 500-5921-50 |
| Item 2 is secured by: Leg Bolt Back Plate (535-5703-00) 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). | | | |
| 3S | Start Button (Green Round) with Sw. + Lamp | 1 | 500-6388-44-TL |
| 4T | Tournament Button (Yel. Sq.), w/Sw. + Lamp | 1 | 500-6587-06-TL |
| 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 (Diode for Switch, located on Switch.) | | | |
| 5 | Flipper Button (Red) Assembly (No Switch) | 2 | 500-5026-32 |
| 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) | | | |
| 6S | Flipper Switch Single Assembly | 2 | 500-6889-01 |
| Assembly Parts Included: Flipper Switch Stack Single (Paliney Contact) (180-5160-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00) | | | |
| Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00) | | | |
| 6D | Flipper Switch Double Assembly | 0 | 500-6890-01 |
| Assembly Parts Included: Flipper Switch Stack Double (Paliney Contact) (180-5164-01) and Capacitor - Ceramic .05 Mfd 25 volt (130-5001-00) | | | |
| Item 6S/6D are secured to Cab. by: #6 X 1-1/4 SHWH AB (Zinc) (Qty. 2/per) (237-5959-00) | | | |

| Nr. | CAB. PARTS & SWITCHES | QTY. | SPI PART Nr. |
|---|--|------|----------------|
| 7 | Rear Glass Channel 20-3/8" Length | 1 | 545-5038-00 |
| 8 | Plastic Channel 42-5/8" Lg. (Left/Rt.) | 2 | 545-5017-00 |
| 9L | Side Armor (Left) W/O Button Guard | 1 | 535-7297-02 |
| 9R | Side Armor (Right) W/O Button Guard | 1 | 535-7297-02 |
| 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 Carrg. Bolt Black (Qty. 1/per) (231-5021-00) and #10-24 Hex Nut (Qty. 1/per) (240-5202-00) | | | |
| 10 | Front Molding (Black) < NO BUTTON HOLE > | 1 | 515-7495-00 |
| Item 10 includes: Self-Adhesive Foam Rubber 3/8" X 3/16" X 20-3/8" (3) (626-5001-00) Item 10 works with Item 22 (next page) ONLY. | | | |
| 11 | Playfield Glass (Tempered) 21" X 43" X 3/16" | 1 | 660-5001-00 |
| 12 | Hex Key Allen Wrench 5/16" | 1 | 777-0001-00 |
| 13 | Corrugated Tubing Black 1" X 2.6" Lg. | 1 | 605-5008-03 |
| Above Item 13 covers the Cable Wiring Harnesses going into the Backbox from the Cabinet. | | | |
| 14 | Roto Lock Male (R2-0055-02) | 1 | 355-5006-01 |
| 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) | | | |
| 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. ▶

Cabinet - Parts & Switches Continued



Take Note:

Legend Note: Items noted with a cyan square are Cabinet Parts. Items noted with a white square are Switches.

| Nr. | CAB. PARTS & SWITCHES | QTY. | SPI PART Nr. |
|---|--|------|--------------|
| ← PARTS TABLE & VIEWS CONTINUED FROM THE PREVIOUS PAGE. | | | |
| 17 | Coin Door 2-Cht \$V Up-Sik. 4-Button Bracket | 1 | 501-5018-172 |
| Item 17 is secured by: 1/4"-20 X 1-1/4" Carriage Bolt Square Neck (Qty. 4) (231-5003-00) 1/4"-20 Flange Nut (Qty. 4) (240-5300-00) and Fend Washer 1/4" I.D. X 1" O.D. (Qty. 3) (242-5009-00) <i>Note: For Coin Door other than USA call Technical Support for SPI Part Nr.</i> | | | |
| 18 | Lock 5/8" Barrel, 3/4, Fit. Cam | 1 | 355-5055-00 |
| 19 | Coin Door Switch (USA) (Happ) | 2 | 180-5024-01 |
| ALT. SW.: 19C: Coin Door Switch (USA) (Coin Control) (180-5024-00) ALT. SW.: 19J: Coin Door Switch (¥ Japan) (180-5091-00) | | | |
| 20 | 4-Button Bracket (for Service Menu Buttons) | 1 | 535-6860-04 |
| SWITCH: 20B: Push-Button Service Switch (Black) (180-5192-00) SWITCH: 20R: Push-Button Service Switch (Red) (Qty. 2) (180-5192-02) SWITCH: 20G: Push-Button Service Switch () (180-5192-04) | | | |
| <i>Ordering Note: Securing hardware for switches included. Decal in kit sold separately.</i> | | | |
| 21 | Power Interlock-Memory Protect Switch Asm. | 1 | 500-5808-05 |
| Assembly Parts Included: Mounting Bracket (535-9794-00). Power Interlock (Playfield) Switch (180-5136-00) and secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00) | | | |
| 22 | Front Molding Lockdown Asm. | 1 | 500-6881-00 |
| Item 22 is secured by: #10-24 X 1-1/4" Carr. Bolt (Qty. 2) (231-5012-00) and #10-24 Keps Nut (Qty. 2) (240-5207-00) | | | |
| 23 | Lockdown Spring (connected to handle) | 1 | 265-5008-00 |
| Item 23 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1) (234-5101-00) and #10 Washer, 7/32" ID X 1/2" OD X 1/16" Thick (Qty. 1) (242-5003-00) | | | |
| 24 | Grills 2-1/2" X 18" (on Back & Bottom) | 3 | 545-5072-02 |
| Plumb Bob Tilt Switch <i>Individual Parts Only</i> Ind. Parts Only | | | |
| 25 | SWITCH: | | |
| 25B: Bracket for Hanger Wire (535-5221-00) 25C: Contact Wire Form (535-7563-01) 25H: Hanger Wire (535-5319-02) 25W: Plumb Bob Weight (535-5029-00) (includes Thumb-Screw) | | | |
| Item 25B is secured to Cabinet by: #6 X 5/8" SHWH AB (Zinc) (Qty. 4) (234-5002-00) | | | |
| 26L | Slide & Pivot Support Bracket (Left) | 1 | 535-5989-00 |
| 26R | Slide & Pivot Support Bracket (Right) | 1 | 535-5990-00 |
| Items 26L & 26R are secured by: #10-24 X 1-1/4" Carriage Bolt Square Neck Black (3/per) (231-5012-00) and #10-24 KEPS Nut (3/per) (240-5207-00) | | | |

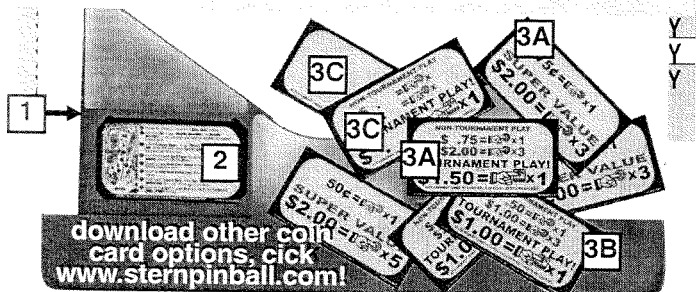
| Nr. | CAB. PARTS & SWITCHES | QTY. | SPI PART Nr. |
|--|--|------|----------------|
| 27 | Transformer 5.7VAC (with Ballast Winding) | 1 | 010-5012-01 |
| Item 27 is secured by: 1/4"-20 X 5/8" PPH MS (Zinc) (Qty. 4) (237-5054-00) and 1/4" Split Lock Washer (Qty. 4) (244-5000-00) | | | |
| 28 | Woofers (Speaker) Grill 7" X 7" | 1 | 545-5072-03 |
| 29 | Woofers 8" ø Round 8010 4Ω | 1 | 031-5007-01 |
| Items 28 & 29 are secured by: #6-32 X 1-1/4" Fin Shank Screw (Qty. 4) (237-5883-00) and #6-32 Keps Nut (Qty. 4) (240-5008-00) | | | |
| Power Input Box Asm. + Univ. Cable 1 515-5360-08 | | | |
| 30A: Power Box (No Parts) Mounting Frame (535-5932-00) 30B*: Line Filter (150-5000-00) 30C*: Varistor* TNR159211KM (Domestic) (150-5001-00) or Varistor TRM15G431KM (Euro) (150-5002-00) | | | |
| 30 | SWITCH: 30D: On/Off Rocker Switch + Bracket Assembly (515-7085-00) | | |
| 30D incl.: Switch, APEM R2101CSNBB (180-5001-03) + Bracket (535-8318-00) 30E: Service Outlet (3-Prong / US) (180-5008-01) / International N/A 30F: Line Cord 10' ROJ 3" + Ring Terminal Asm. (515-6566-00) 30G: Recessed (Black) Cup (rear of Cabinet) (545-5122-00) 30H*: Snap Bushing 9/16" (White) (280-5001-01) 30I: Fuse 8 Amp 250V Slo-Blo (Domestic) (200-5000-05) or Fuse 5 Amp 250V Slo-Blo (International) (Qty. 2) (200-5003-00) 30J: Fuse Holder (205-5001-00) | | | |
| <i>Universal Cable & Jumper Caps (all voltage variations): See the Yellow Pages, Page y 10.</i> | | | |
| 31 | Cash Box Plastic Bottom | 1 | 545-5090-00 |
| 32 | Cash Box Cover (Validator) | 1 | 535-5013-03 |
| 33 | Cash Box Lock Bracket (U-Wire) | 1 | 535-7562-00 |
| Item 33 is secured by: #8 X 5/8" HWH AB (Green) (Qty. 2) (234-5102-04) | | | |
| 34 | Large Hair-Pin Clip | 1 | 535-7772-00 |
| 35 | Clamps [Multiple Sizes] | 28 | 040-5000-XX |
| Item 35 is secured to Item 1 by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) <i>For following sizes, replace -XX with: 3/4" Single = -08 (Qty. 9); 1-1/2" Single = -10 (Qty. 3)</i> | | | |
| 36 | Zip Cable Tie (Screw Down Style) | 4 | 040-5005-00 |
| Item 36 is secured by: #8 X 1/2" SHWH AB (Zinc) (Qty. 1/per) (234-5101-00) | | | |
| 37† | Meter +12VDC with Bracket <i>Optional</i> | opt. | G-0053-013-102 |
| † Meters (Diode included) are optional and were not included in this Pinball Machine. Order without the bracket use G-0053-013-102A. More information or Qs? Call Technical Support. | | | |

Parts Identification

Main Playfield Top - Miscellaneous Parts and Brackets

| Nr. | THE PLAYFIELD | QTY. | SPI PART Nr. |
|------|-------------------------------------|------|----------------|
| Main | P/F Screened w/ Inserts & NO Parts | 1 | 830-5100-B3 |
| P/F | P/F Complete w/ Inserts & ALL Parts | 1 | 505-6004-B3-B3 |

| Nr. | MISC. PARTS (ABOVE) | QTY. | SPI PART Nr. |
|---|------------------------------------|------|---------------|
| 1 | Arch (PLASTIC) | 1 | 545-5995-02 |
| Item 1 is secured to Item 9 below by: #10-32 X 5/16" PFH U/C MS (Zinc) (Qty. 2) (237-6013-00) Usage Note: When replacing the Arch, order new replacement Nelson Protect Strips 7-5/8" (not included) (Qty. 2) (545-5212-04; use -02 for 8-9/16" size) For Decals, see <i>Playfield Top - Plastics Kit, Decals & Mylar Kits</i> . | | | |
| 2 | Inst. Card [Eng./Spanish] IRONMAN™ | 1 | 755-51B3-12-Y |
| Note: Visit www.sternpinball.com for a PDF copy of the Game Instruction Card which will also have any translated Instruction Cards made for this game. Find Game Link or Archives. Spanish 755-51A2-12-Y; German 755-51A2-03-Y; Italian 755-51A2-04-Y; French 755-51A2-05-Y. Ordering Note: If this is a non-US Game, Coin Card(s) Part | | | |



| | | | |
|----|---------------------------|---|-------------|
| 4Y | Mini Mars w/ears (Yellow) | 2 | 550-5031-06 |
| 4R | Mini Mars w/ears (Red) | 3 | 550-5031-02 |
| 4o | Plastic Dome Hat (Orange) | 2 | 550-5032-07 |
| 4y | Plastic Dome Hat (yellow) | 1 | 550-5032-06 |
| 4r | Plastic Dome Hat (Red) | 1 | 550-5032-02 |

| | | | |
|---|--|---|-------------|
| 5 | Light Reflector (Silver Plst.) REF540N | 2 | 545-5409-01 |
|---|--|---|-------------|

6

| | | | |
|--|-----------------------|---|-------------|
| 7 | Bubble Level Assembly | 1 | 500-6815-00 |
| Assembly Parts Included: Level .8mm Empire #0224 (545-6001-01) or Level Mount (545-6068-00). Flange secured by: #6-32 X 1/4" PPH MS (no Sems) Zinc (237-5500-00) and #6-32 Keps Nut (240-5008-00) Item 7 is secured to the Wood Rail by: #6 X 1-3/4" PPH AB (Zinc) (Qty. 2) (232-5009-00) | | | |

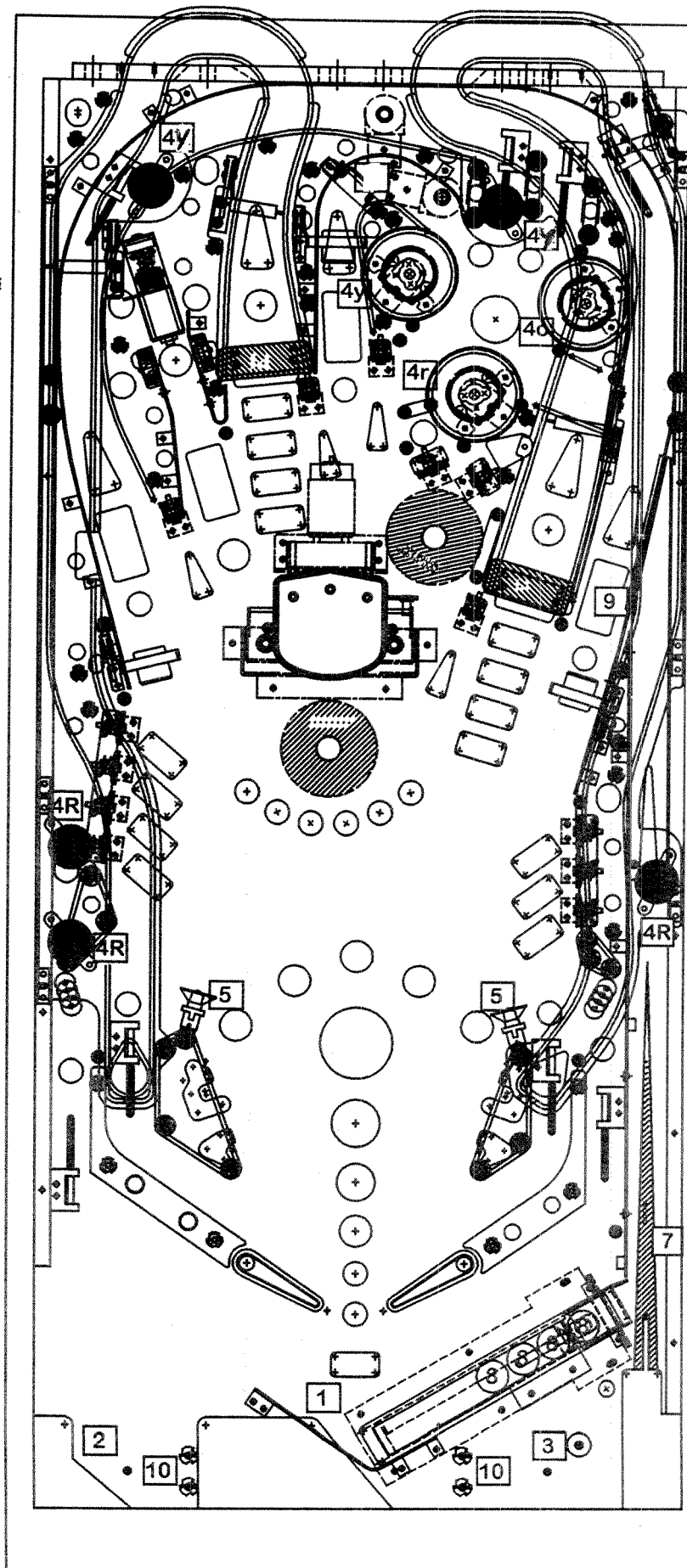
| | | | |
|---|---------------------------|---|-------------|
| 8 | Pinball (Steel) 1-1/16" ø | 4 | 260-5000-00 |
|---|---------------------------|---|-------------|

| Nr. | MISC. BRACKETS (ABOVE) | QTY. | SPI PART Nr. |
|-----|-----------------------------|------|--------------|
| 9 | Shooter Ramp (Shooter Lane) | 1 | 535-8145-00 |

| | | | |
|--|---------------------------|---|-------------|
| 10 | Bracket, Playfield Hanger | 2 | 535-8385-00 |
| Item 10 is secured to the Playfield (P/F) by: #8-32 X 7/8" Unslotted HWH MS Zinc (Qty. 2/per) (237-5890-00) and #8-32 T-Nut (Qty. 2/per) (240-5101-00) | | | |

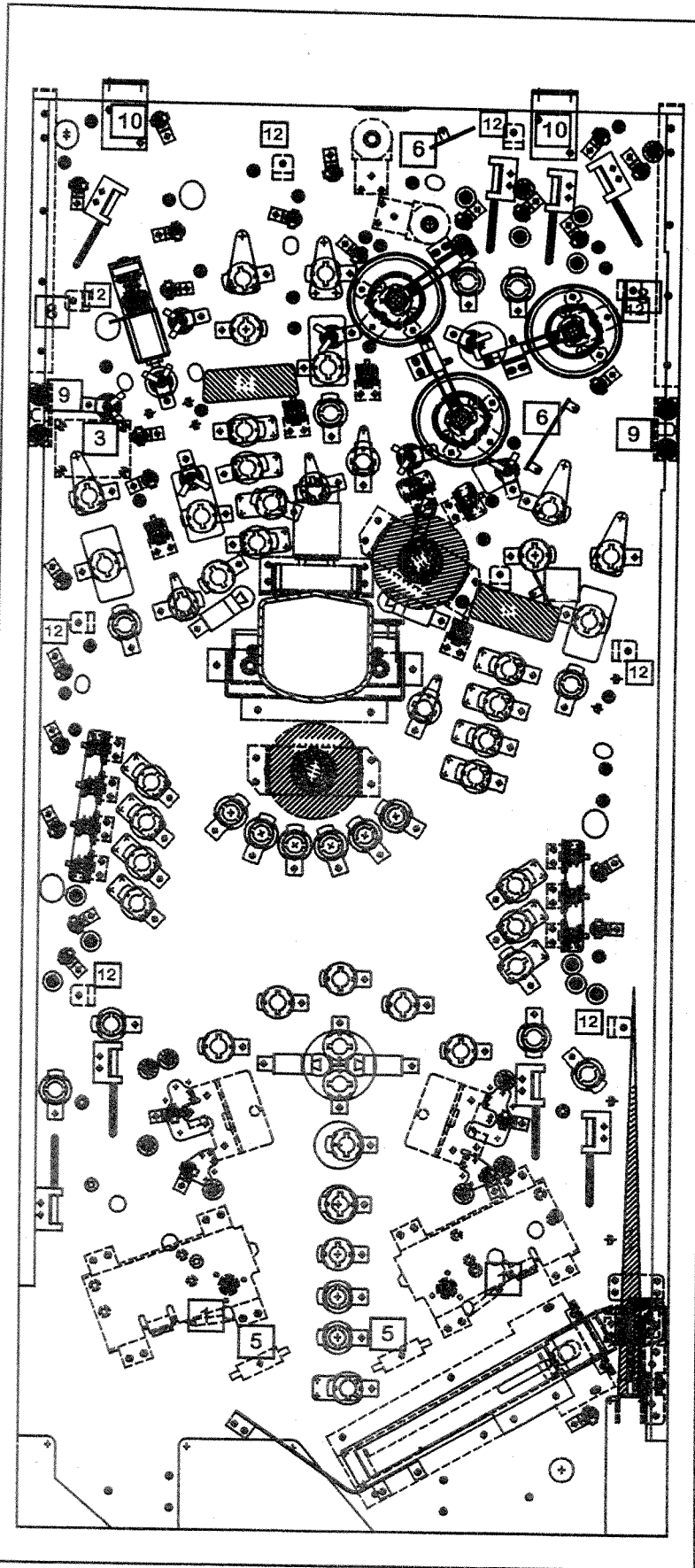
11

12



Parts Identification

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-B3 |
| P/F | P/F Complete w/ Inserts & ALL Parts | 1 | 505-6004-B3-B3 |

| Nr. | MISC. PARTS (BELOW) | QTY. | SPI PART Nr. |
|-----|---|------|--------------|
| 1 | Insulation Fiche Paper (under Lower Flippers) | 2 | 545-5721-00 |
| 2 | Relay + Conn. Asm. | 0 | 190-5007-00 |

| | | | |
|---|---------------------------------|---|-------------|
| 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 | 0 | 511-5223-00 |
|---|---------------|---|-------------|

See the Yellow Pages,

| | | | |
|---|---------------------------|---|-------------|
| 5 | 3A 250v Slo-Blo Fuse | 2 | 200-5000-08 |
| | Fuse Clip Holder (Socket) | 2 | 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 2-Lug (810) Isolated | | 055-5203-00 |
|---|---|--|-------------|

| | | | |
|---|---|---|-------------|
| 6 | Diode Terminal Strip 3-Lug (813) Isolated | 1 | 055-5204-03 |
|---|---|---|-------------|

| | | | |
|---|---|---|-------------|
| 6 | Diode Terminal Strip 5-Lug (824) Isolated | 1 | 055-5204-05 |
|---|---|---|-------------|

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 | | 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 |
|----|--|---|-------------|

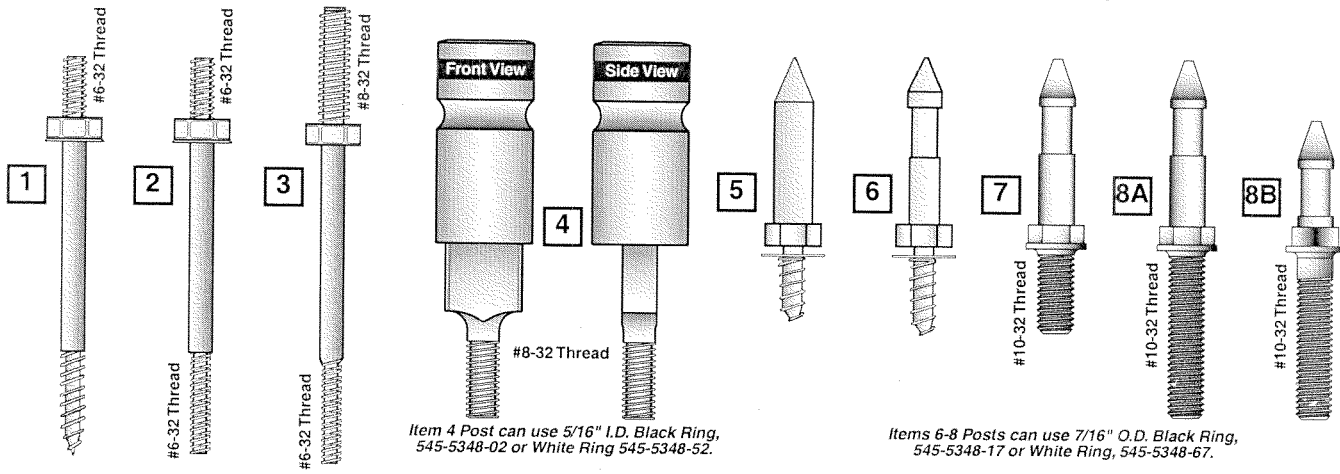
Item 11 secured under the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 2) (234-5101-00)

| | | | |
|----|-------------------------------|----|-------------|
| 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)

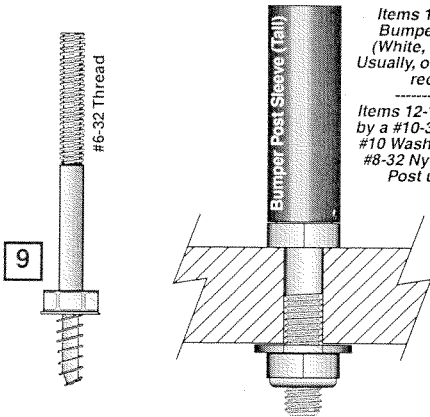
Parts Identification

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



Item 4 Post can use 5/16" I.D. Black Ring, 545-5348-02 or White Ring 545-5348-52.

Items 6-8 Posts can use 7/16" O.D. Black Ring, 545-5348-17 or White Ring, 545-5348-67.

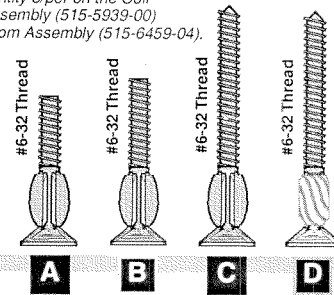


Items 11-16 & 18 Posts can use a Black Bumper Post Sleeve (Tall), 545-5308-00 (White, 545-5308-08 or Red, 545-5308-22) Usually, only Posts which are in the ball path require a Bumper Post Sleeve.

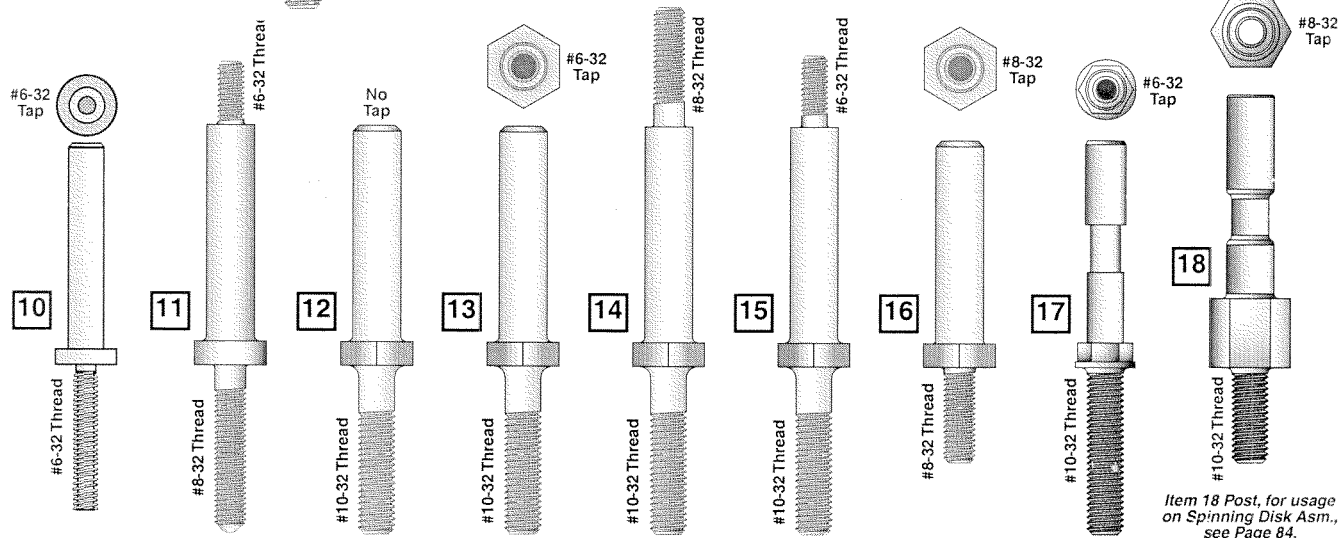
Items 12-15 & 18 Posts are typically secured by a #10-32 Nylon Stop Nut, 240-5203-00 and #10 Washer, 242-5010-00 (Item 11 Post use a #8-32 Nylon Stop Nut, 240-5102-00; Item 16 Post use a #8-32 T-Nut, 240-5101-00).

- 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



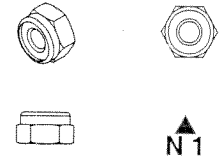
Item 18 Post, for usage on Spinning Disk Asm., see Page 84.

| 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 | Nr. | FIN SHANK SCREWS | SPI PART Nr. |
| 9 | Post [Fasten] #6-32 Thread // Wood Screw | 530-5263-01 | A | #6-32 X 3/4" Fin Shank Screw | 237-5921-02 |
| 10 | Post #6-32 Tap // #6-32 Thread | 530-5127-00 | B | #6-32 X 7/8" Fin Shank Screw | 237-5921-04 |
| 11 | Post [Fasten] #6-32 Thread // #8-32 Thread | 530-5007-00 | 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 |

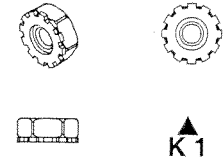
NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER). COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.

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

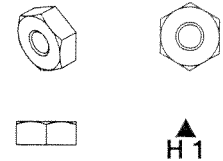
| Nr. | NYLON STOP NUTS* | SPI PART Nr. |
|---|---------------------------------------|--------------|
| N1 | #6-32 Nylon Stop Nut | 240-5005-00 |
| N2 | #6-32 N.S. Nut (with 1/4" Hex Body) | 240-5010-00 |
| N3 | #8-32 Nylon Stop Nut | 240-5102-00 |
| N4 | #10-32 Nylon Stop Nut | 240-5203-00 |
| N5 | #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 Roto 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 |



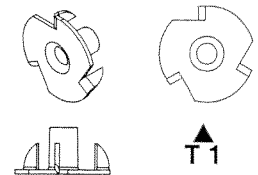
| Nr. | KEPS NUTS* | SPI PART Nr. |
|-----|-------------------------------------|--------------|
| K1 | #6-32 Keps Nut (with Star Washer) | 240-5008-00 |
| K2 | #6-32 Keps Nut (with 1/4" Hex Body) | 240-5011-00 |
| K3 | #8-32 Keps Nut | 240-5104-00 |
| K4 | #10-32 Keps Nut | 240-5208-00 |
| K5 | #10-24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



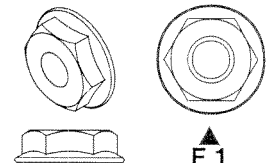
| Nr. | HEX NUTS* | SPI PART Nr. |
|--|--------------------------------|--------------|
| H1 | #6-32 Hex Nut (No Star Washer) | 240-5004-00 |
| H2 | #8-32 Hex Nut | 240-5103-00 |
| H3 | #10-32 Hex Nut | 240-5201-00 |
| H4 | #10-24 Hex Nut | 240-5202-00 |
| <i>Item H4 used with #10-24 X 1" Carriage Bolt 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 Side 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

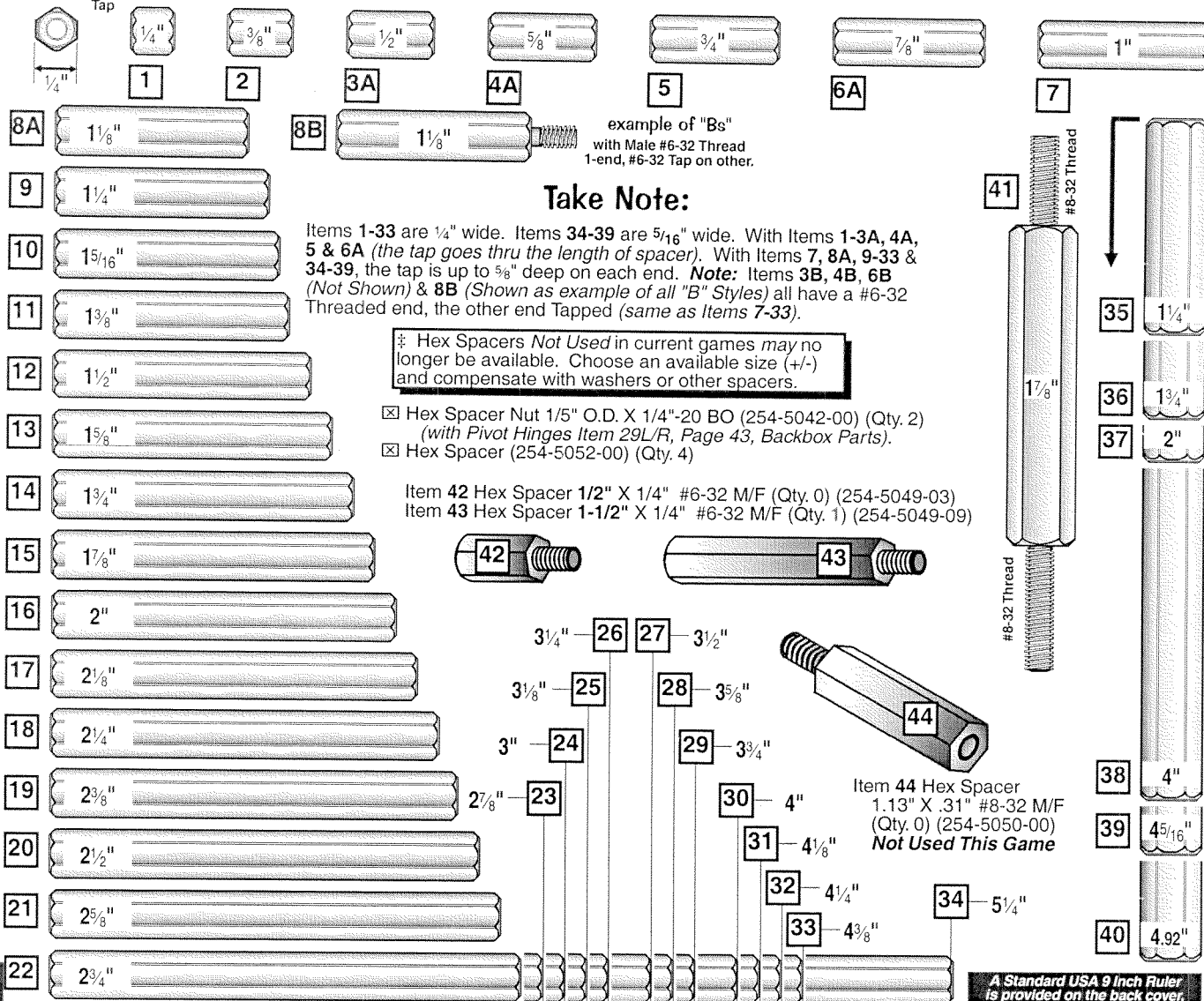
**NOT ALL PARTS LISTED ABOVE ARE USED ON THIS GAME (QUANTITIES PER GAME WILL DIFFER).
COMPARE ACTUAL PART ON GAME TO ABOVE DRAWINGS TO IDENTIFY THE PART NUMBER REQUIRED.**

Playfield Top - Hex Spacers (Actual Size) †

Hex Spacers:

#6-32

Tap



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)

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

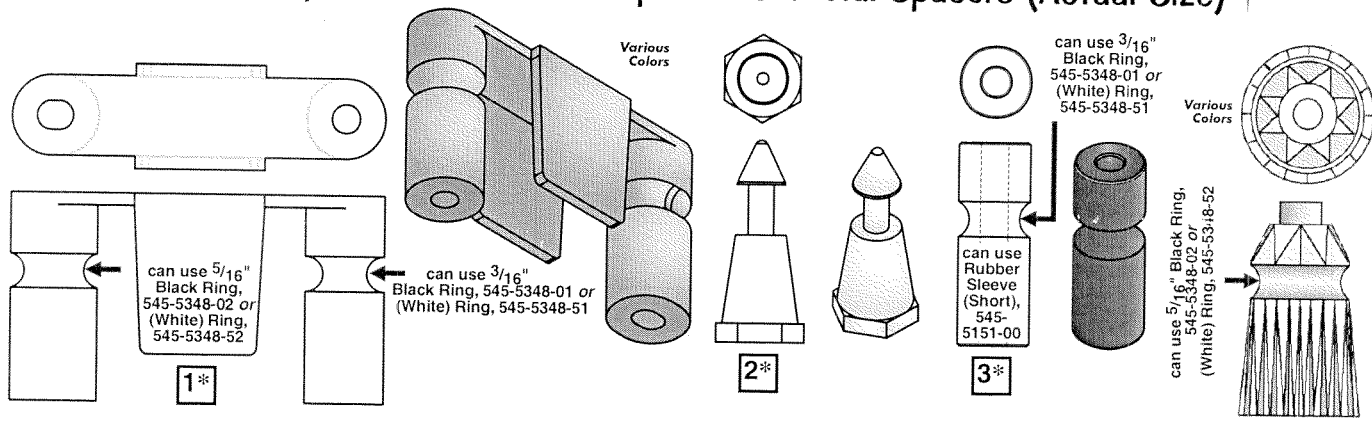
A Standard USA 9 Inch Ruler is provided on the back cover.

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 3/4" 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) †

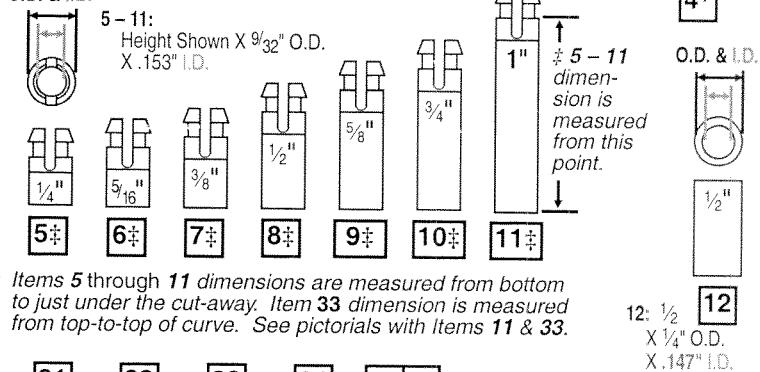


PLASTIC PART COLOR CHART

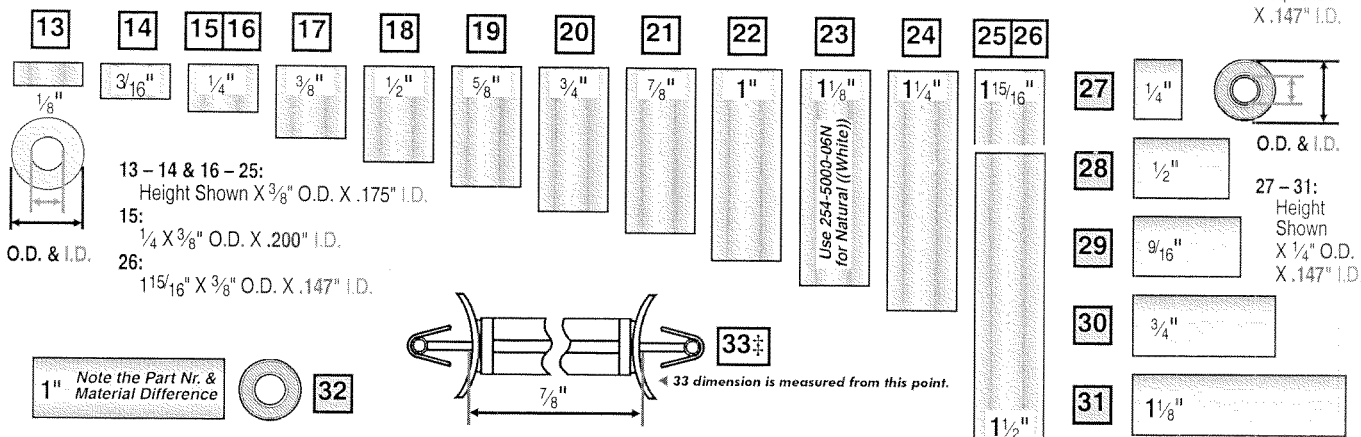
| Nr. | Color | Nr. | Color | Nr. | Color |
|-----|-------|-----|--------------|-----|-------------|
| -00 | Black | -06 | Yellow | -12 | Fluor. Blue |
| -01 | Clear | -07 | Orange | -13 | Teal Green |
| -02 | Red | -08 | (White) | -14 | (Gray) |
| -03 | Amber | -09 | Purple | -15 | Luminescent |
| -04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

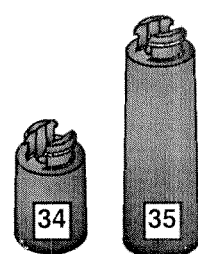


† Items 5 through 11 dimensions are measured from bottom to just under the cut-away. Item 33 dimension is measured from top-to-top of curve. See pictorials with Items 11 & 33.



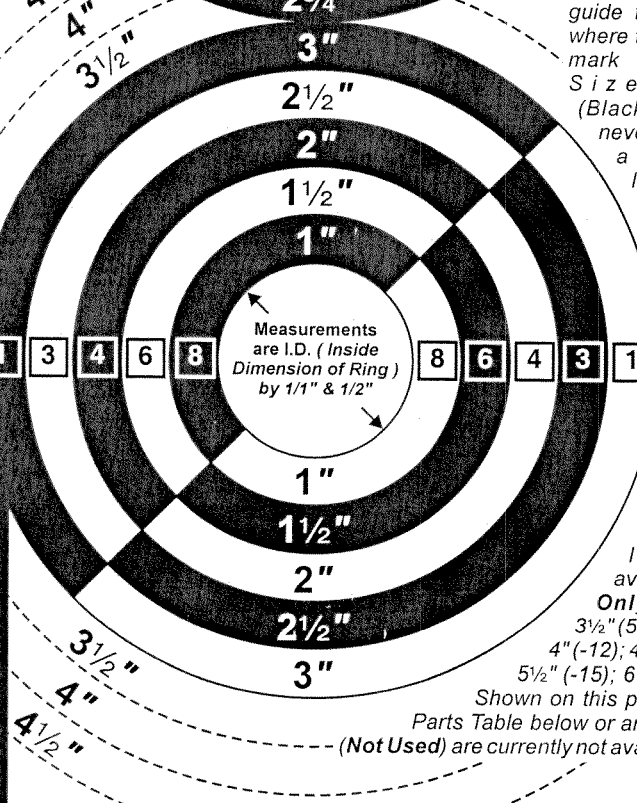
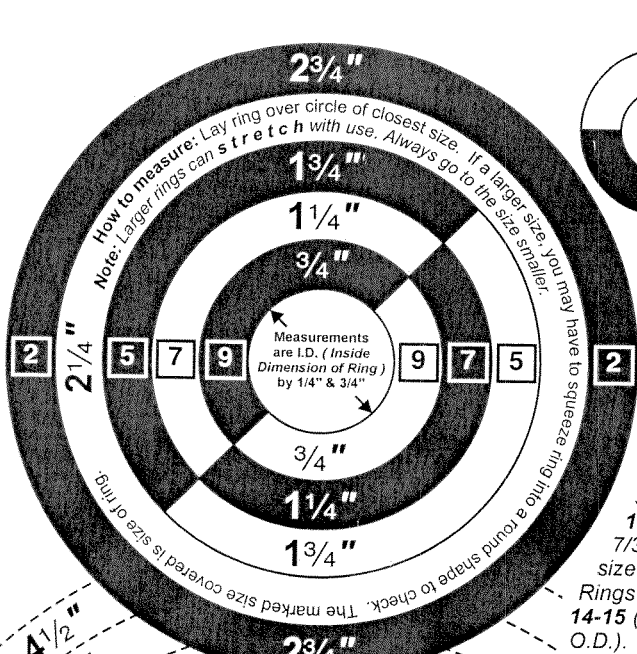
| Nr. | PLASTIC POSTS & SPACERS | SPI PART Nr. | Nr. | PLASTIC POSTS & SPACERS | SPI PART Nr. |
|--|---|--------------|---|--|--------------|
| 1** | Top Lane Plastic Mini-Lite Hood (XX-Color) | 550-5061-XX | 21 | 7/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray) | 254-5000-11 |
| 2** | Mini-Jewel Plastic 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 | 115/16" 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" | |
| 17 | 3/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray) | 254-5000-12 | 35 | Plastic Mounting | 254-5054-00 |
| 18 | 1/2" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray) | 254-5000-01 | | Plastic Spacer, 1.13" | 254-5054-01 |
| 19 | 5/8" X 3/8" O.D. X .175" I.D. Pls. Spacer (Gray) | 254-5000-14 | | Plastic Mounting | |
| 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.

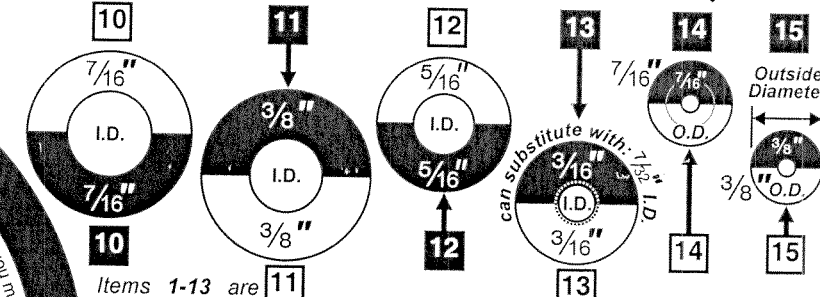


Parts Identification

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



Parts Identification



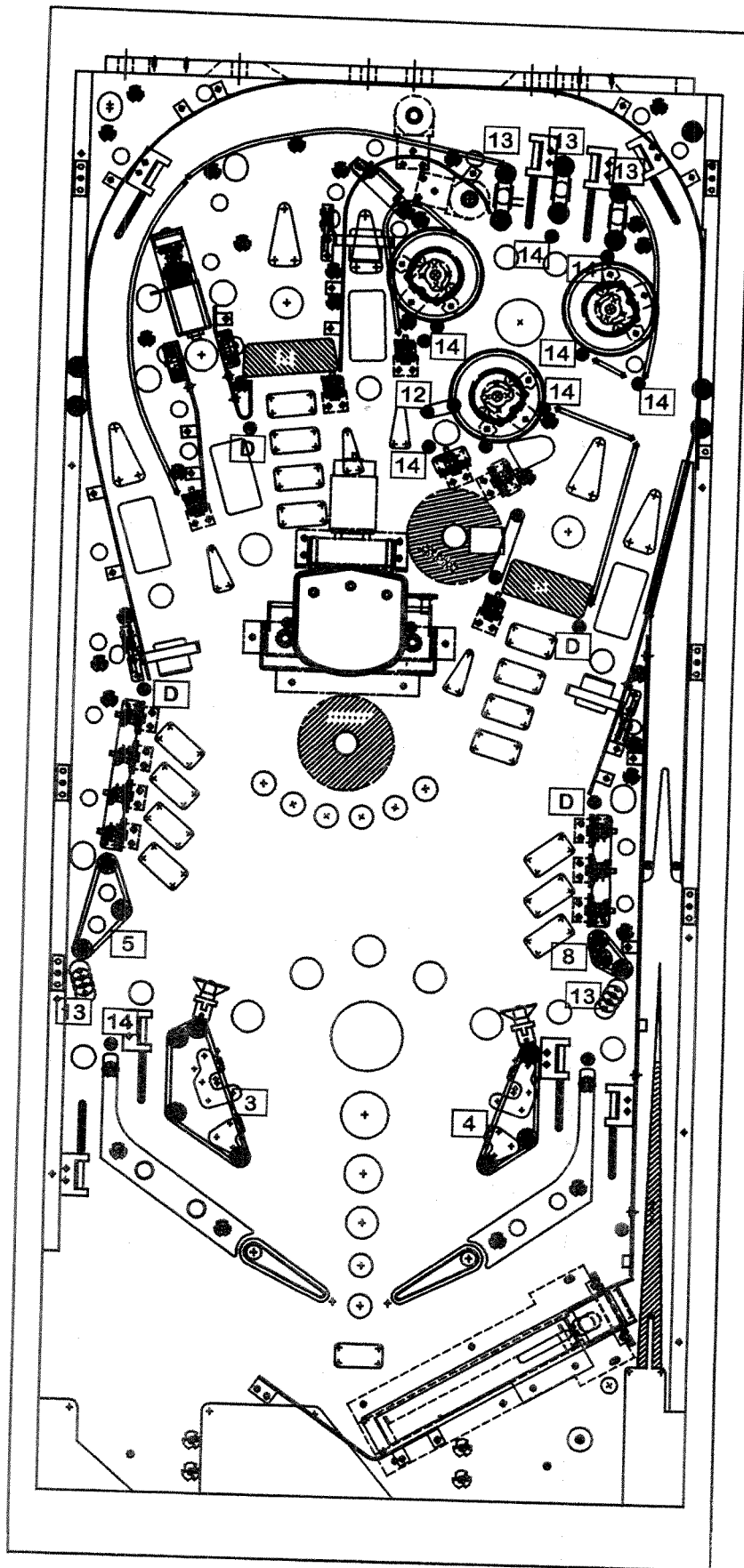
Items 1-13 are measured by the Inside Diameter (I.D.). Items 1-9 and 11 are approximately 1/4" thick. Items 10, 12-15 are approximately 3/16" thick. Item 13 can also be a 7/32" I.D. Ring. The size is imprinted on all Rings except for Items 14-15 (7/16" O.D. & 3/8" O.D.). Use this page as a guide to measure 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.

| 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 |
| | | N/U | |
| 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 | 2 | 545-5348-08 |
| | 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 | N/U | 545-5348-71 |
| 6 | 1 1/2" I.D. Rubber Ring BLK | | 545-5348-07 |
| | 1 1/2" I.D. Rubber Ring WHT | | 545-5348-57 |
| 7 | 1 1/4" I.D. Rubber Ring BLK | 1 | 545-5348-06 |
| | 1 1/4" I.D. Rubber Ring WHT | | 545-5348-56 |
| 8 | 1" I.D. Rubber Ring BLACK | | 545-5348-05 |
| | 1" I.D. Rubber Ring WHITE | | 545-5348-55 |
| 9 | 3/4" I.D. Rubber Ring BLACK | | 545-5348-04 |
| | 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 | N/U | 545-5348-63 |
| 12 | 5/16" I.D. Rubber Ring BLK | 3 | 545-5348-02 |
| | 5/16" I.D. Rubber Ring WHT | | 545-5348-52 |
| 13 | 3/16" I.D. Rubber Ring BLK | 5 | 545-5348-01 |
| | 3/16" I.D. Rubber Ring WHT | | 545-5348-51 |
| 14 | 7/16" O.D. Rubber Ring BLK | 45 | 545-5348-17 |
| | 7/16" O.D. Rubber Ring WHT | | 545-5348-67 |
| | <i>Note: Item 14, 7/16" O.D. Back Rings (Qty. 44 of 49) are used to cushion the Bayonet Sockets under the playfield (between bracket & playfield).</i> | | |
| 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) | 2 | 545-5428-00 |
| | <i>Item A are located on Flipper Assemblies. See next page for location.</i> | | |
| B* | Bumper BLK Pad (Sm. w/ grommet) | 2 | 545-5105-00 |
| | <i>Item B are located on multiple assemblies. See next page for location.</i> | | |

| Nr. | RBR. BUMPER POST SLVS. | QTY. | SPI PART Nr. |
|-----|--|------|--------------|
| D* | Bumper BLACK Post Sleeve (Tall) | 2 | 545-5308-00 |
| | <i>Item D in RED use 545-5308-22; Item D in WHITE use 545-5308-08.</i> | | |
| E* | Bumper Post Sleeve (Short) | | 545-5151-00 |



Parts Identification



IRON MAN

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 Ironman Pinball) 502-6002-B3

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: Quanties, sizes and contents subject to change without notice.

Pinball Location Maintenance Deluxe Kit (for Ironman Pinball) 502-6003-B3

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 Ironman Pinball) 803-5000-B3

Plastics Kit includes: Plastic Sets (830-6105-XX)

Decals*Kit (for Ironman Pinball) 802-5000-B3

Decals Kit includes: Decal Set (820-6561-XX)

Mylar*Kit (for Ironman Pinball) 802-5001-B3

Mylar Kit includes: Full Mylar (820-5815-00)

**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.*

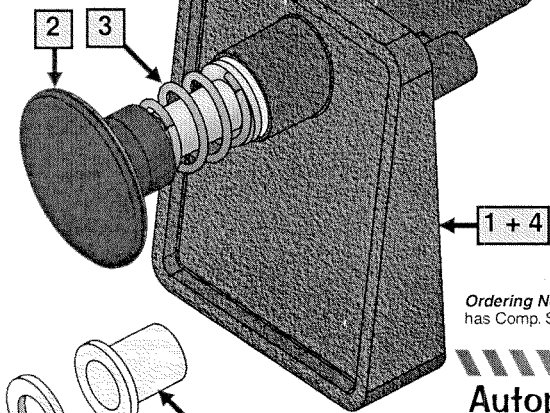
Ball Shooter (Plunger) Assembly, 500-6146-00-04 (Items 1-6)

Securing Hardware for Items 3 & 5 are also shown separated from the Ball Shooter (Plunger) Assembly for clarity.

Assemble into Housing in the following order:

Rod Assembly (see Item 2), Short Spring (see Item 3), Washer (see Item 3), Bushing (see Item 4)

and then ...



and then ...

Bushing (see Item 4), Washer (see Item 5), Long Spring (see Item 5), Washer (see Item 5), Retaining Ring (see Item 5), Plunger Tip (see Item 6)

| 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" σ] | 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" σ Shaft (270-5012-00) | | | |
| 6 | Rubber [Plunger] Tip (Black 50 Duro) | 1 | 545-5276-00 |

Ordering Note: If 500-6146-00-04 is unavailable, order the individual part(s) actually required. ... Identical to 500-6146-00-07 has Comp. Spring [Orange, .038" σ] (266-5001-07) or 500-6146-00-05 has Comp. Spring [Blue, .031" σ] (266-5001-05).

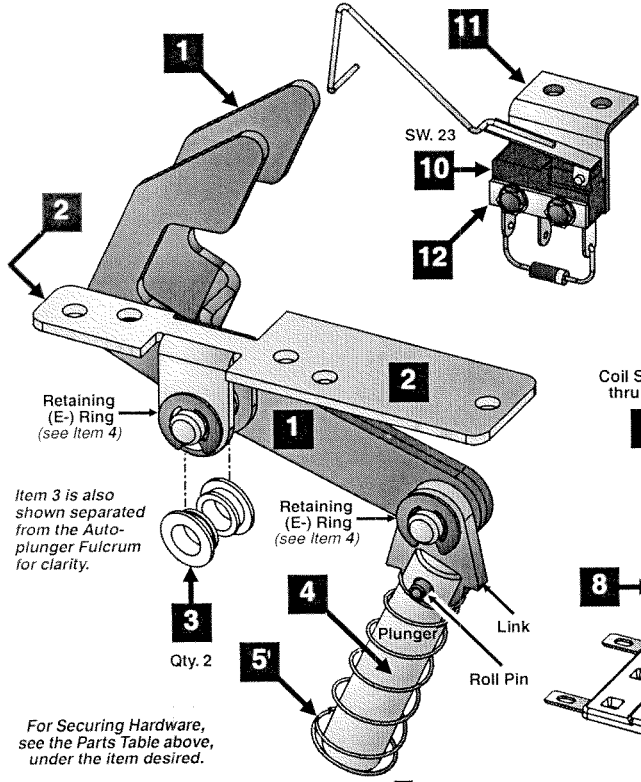
Autoplunger Arm Weld Asm., 500-6091-00 (Items 1-5), Autoplunger Coil Assembly, 500-6092-02-ND (Items 6-9) and Shooter Lane Switch Assembly, 500-6096-00 (Items 10-12)

| Nr. | 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" σ 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" σ Shaft (Qty. 1) (270-5002-00) | | | |
| For Individual Items use: Plunger 1.81" Lg. (530-5025-05), Plunger Link (545-5293-00) and Roll Pin 1/8" σ x 5/8" Lg. (251-5008-00) | | | |
| 5 | Compression (Return) Spring | 1 | 266-5020-00 |
| (ASM. REF. 500-6091-00, Items 1-5) | | | |

| 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 \odot COIL NOTE BELOW FOR DETAILS. | | | |
| 9 | Coil Sleeve | 1 | 545-5031-00 |
| (ASM. REF. 500-6092-02-ND, Items 6-9) | | | |

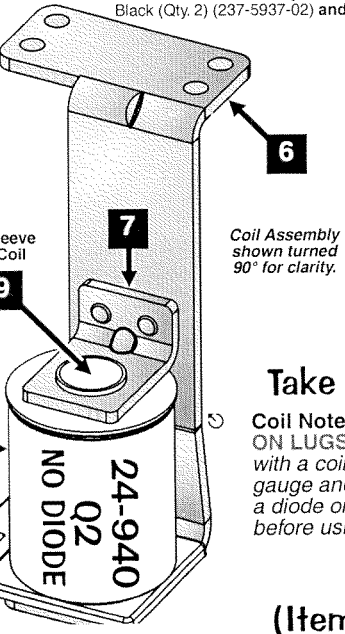
| Nr. | SWITCH PARTS | QTY. | SPI PART Nr. |
|--|---------------------------|------|--------------|
| 10 | Switch (for Shooter Lane) | 1 | 180-5157-00 |
| Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00). | | | |
| 11 | Switch Mounting Bracket | 1 | 535-6173-00 |
| 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) | | | |

Assemblies & Ramps



Item 3 is also shown separated from the Autoplunger Fulcrum for clarity.

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

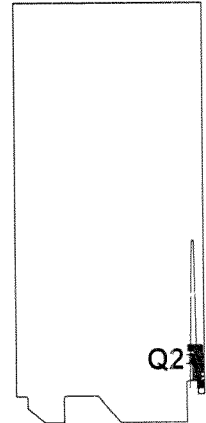


For Securing Hardware, see the Parts Table above, under the item desired.

Coil Assembly shown turned 90° for clarity.

Take Note:

Coil Note: \odot 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.

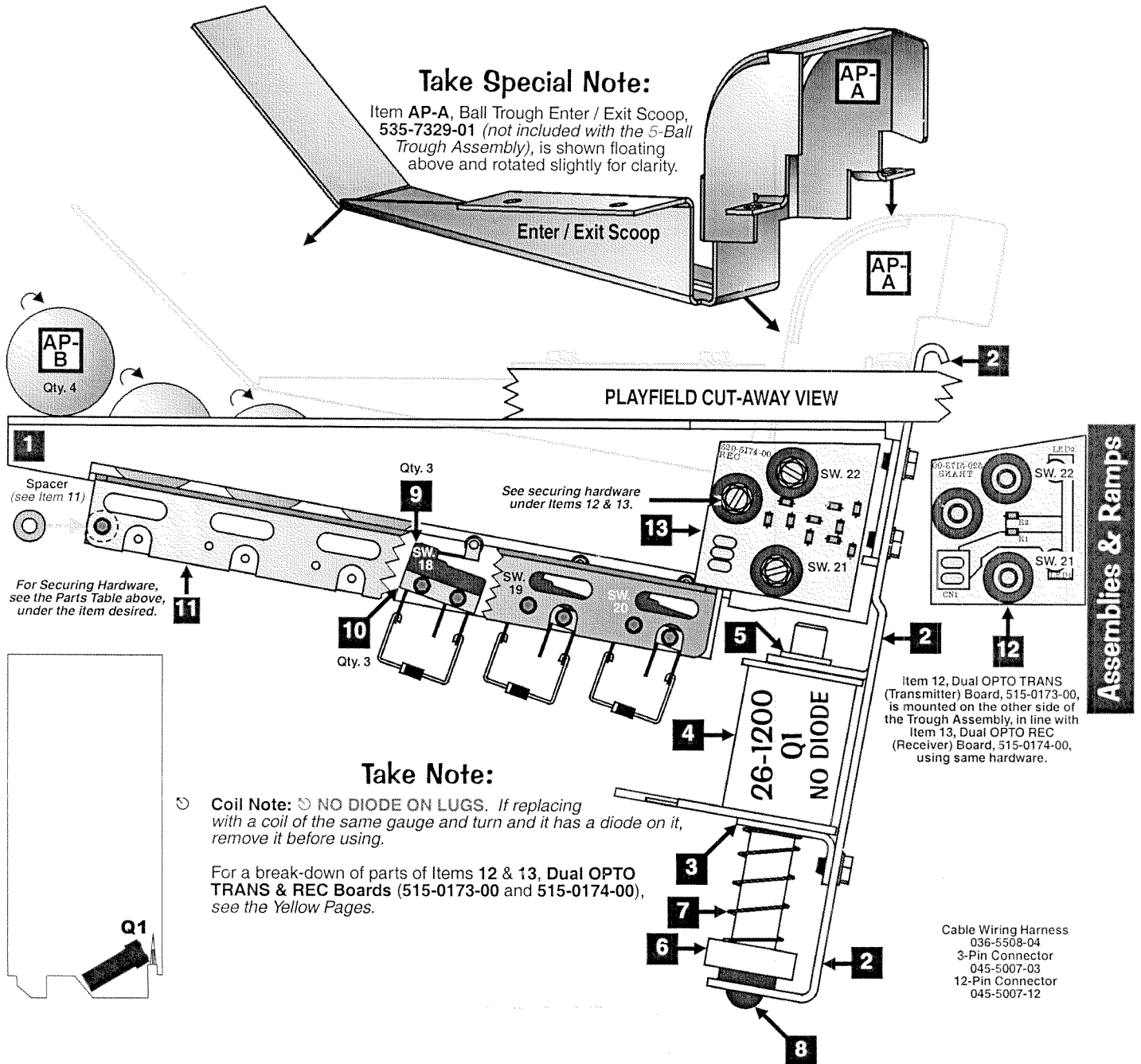


and Associated Table Below.

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 <small>Item 1 is secured below the playfield by: #8 X 1/2" SHWH AB (Zc.) (Qty. 4) (234-5101-00)</small> | 1 | 515-6580-01 | 11 | Trough Ball Guide Plate <small>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)</small> | 1 | 535-7801-00 |
| 2 | Coil Mounting Bracket <small>Item 2 is secured to Item 1 by: #8-32 X 3/8" HWH Swage (Sr.) Zinc (Qty. 4) (237-5975-00)</small> | 1 | 535-7330-01 | 12 | Dual OPTO TRANS Board Assembly | 1 | 515-0173-00 |
| 3 | Coil Retaining Bracket <small>Item 3 is secured to Item 2 by: #8-32 X 1/4" SHWH (Serr) Zinc (Qty. 2) (237-5975-04)</small> | 1 | 535-5203-03 | 13 | Dual OPTO REC Board Assembly <small>Items 12 & 13 are secured by: #6-32 X 5/8" HWH Swg (Ser) Zc. (Qty. 3/per) (237-5976-04) 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)</small> | 1 | 515-0174-00 |
| 4 | Coil, 26-1200 [NO DIODE] <small>COIL DOES NOT REQUIRE A DIODE. SEE Ⓞ COIL NOTE BELOW FOR DETAILS.</small> | 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. | | | |
| 5 | Coil Sleeve (Short) (Formost #10-7077) | 1 | 545-5076-01 | <small>ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.</small> | | | |
| 6 | Steel & Nylon Plunger Asm. (3.57") | 1 | 515-7309-01 | Nr. | ASSOCIATED PART(S) | QTY. | SPI PART Nr. |
| 7 | Compression (Return) Spring | 1 | 266-5020-00 | AP-A | Ball Trough Enter / Exit Scoop | 1 | 535-7329-01 |
| 8 | Rubber Bumper (Grommet) | 1 | 545-5105-00 | <small>Item AP-A secured to the playfield by: #8 X 1/2" SHWH AB (Zinc) (Qty. 4) (234-5101-00).</small> | | | |
| 9 | Micro Switch (Roller Actuator, Lite-Force) <small>Item 9 requires: Heat Shrink Tubing 1/8" ⌀ PUI-24 (Qty. 1*/per) (605-5006-00) Switch has a Diode (1N4004) (112-5003-00). Can be replaced with (1N4001) (112-5001-00).</small> | 3 | 180-5119-02 | AP-B | Steel Balls (1-1/16" ⌀) | 4 | 260-5000-00 |
| 10 | Switch Body Protect Plate | 3 | 535-6539-00 | | | | |

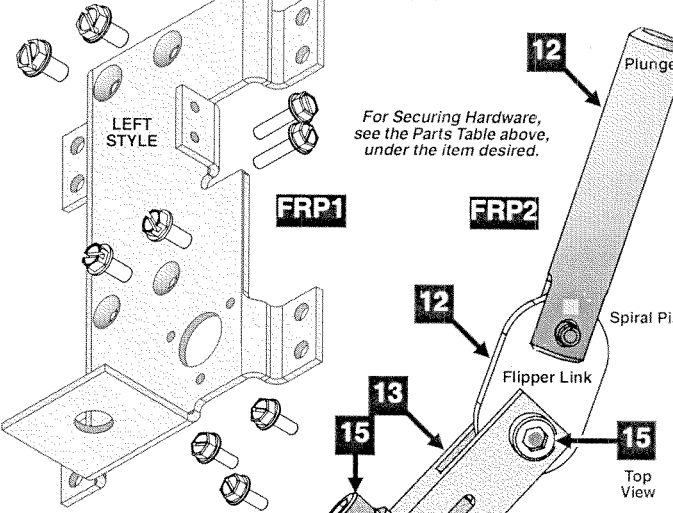


Flipper (Left) Assembly, 500-6543-15-ND (Items 1-15) and Associated Parts: Yellow Flipper Bat & Shaft Asm., 515-5133-06-06 (Items AP-A / AP-B)

| 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) Ordering Note: Individual Part (535-7275-01) is not prethreaded, see Item FRP1. | | | |
| 2 | Flipper Bat Bushing (White Plastic), .25" ϕ 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, 22-1080 [NO DIODE] BLUE | 1 | 090-5032-ND |
| COIL DOES NOT REQUIRE A DIODE. SEE \odot 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" ϕ ID X .281" ϕ OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin ϕ 5/32" X 3/4" Lg. (Qty. 1) (251-5015-02) | | | |
| 13 | Crank Bar (Pawl) | 1 | 530-5070-02 |
| Item 13 requires: Bushing, .192" ϕ ID X .312" ϕ OD X .195" (Qty. 1) (530-5139-00) | | | |
| 14 \odot | Switch Actuator (LEFT) Sub-Assy. | 1 | 515-7257-01 |
| For Individual Items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and \odot Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" ϕ 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) Tool required for Item 15: 5/32" or 4mm Allen Wrench | | | |

Flipper Rebuild Parts for Easier Installation, Save \$:

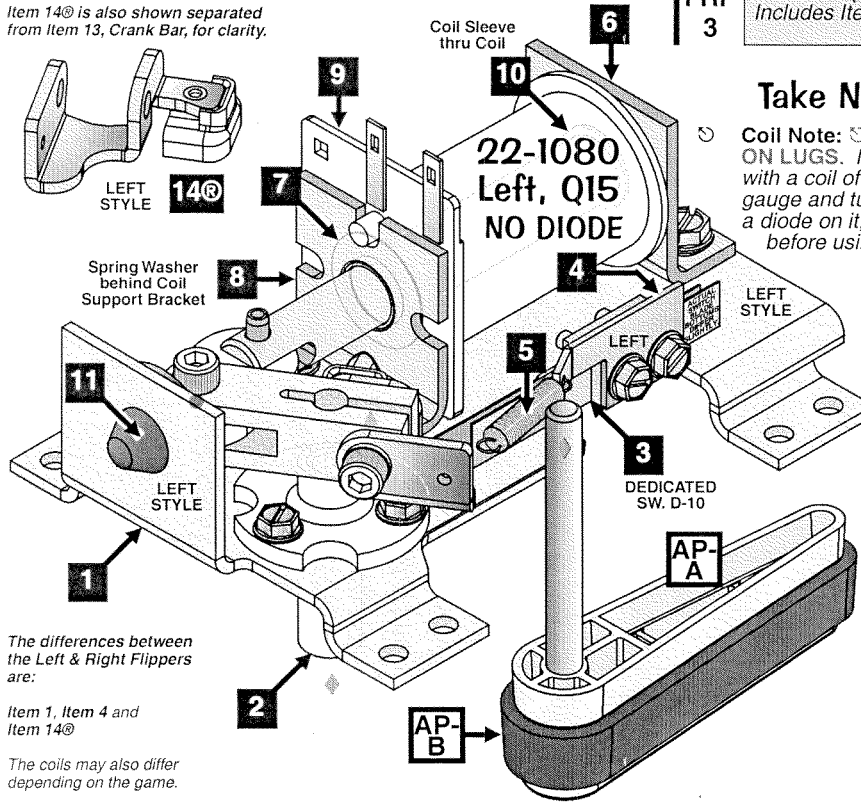
FRP 1 FLIPPER BASE PLATE KIT (LEFT):
Includes Item 1 pre-threaded >+< Securing Hardware for Items 2, 3, 6 & 8. 515-6617-01



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

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



The differences between the Left & Right Flippers are:

Item 1, Item 4 and Item 14 \odot

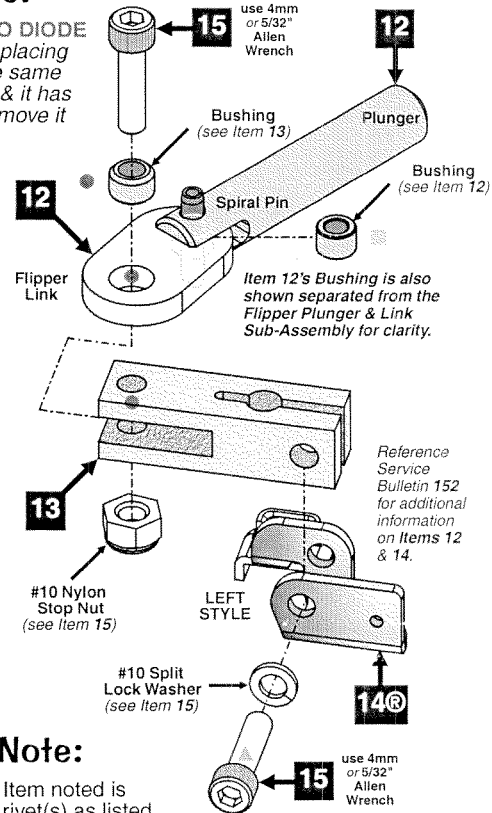
The coils may also differ depending on the game.

ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

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

Take Note:

\odot **Coil Note:** \odot 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.



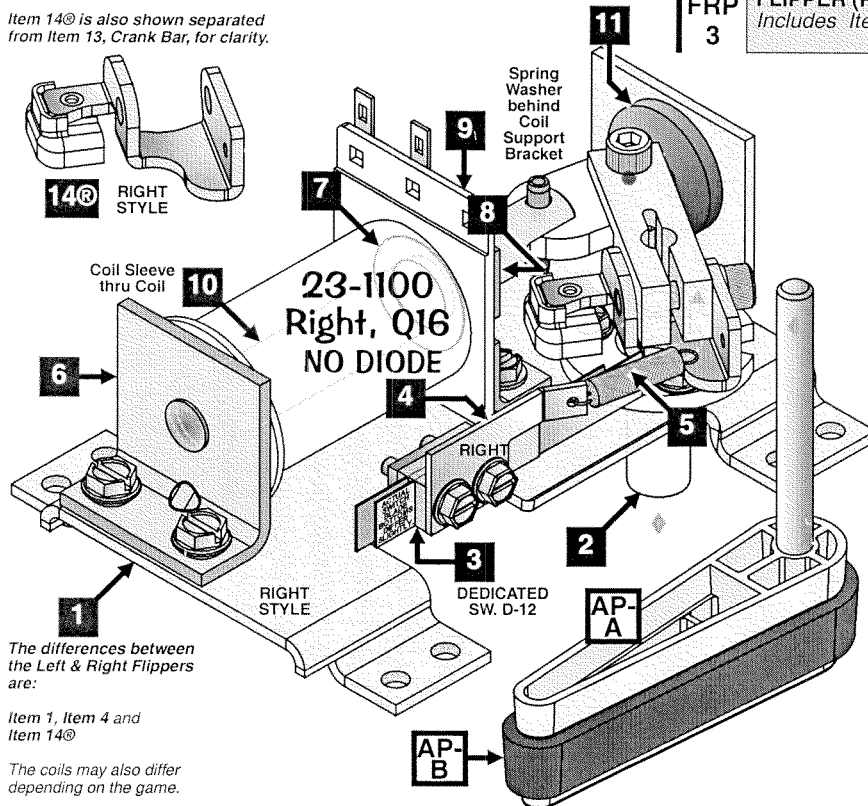
Take Note:

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

Flipper (Right) Assembly, 500-6543-05-ND (Items 1-15) and Associated Parts: Yellow Flipper Bat & Shaft Asm., 515-5133-06-06 (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) Ordering Note: Individual Part (535-7275-00) is not prethreaded, see Item FRP1. | | | |
| 2 | Flipper Bat Bushing (White Plastic), .25" ϕ 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, 23-1100 [NO DIODE] BLUIE | 1 | 090-5030-ND |
| COIL DOES NOT REQUIRE A DIODE. SEE \odot 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" ϕ ID X .281" ϕ OD X .187" (Qty. 1) (530-5532-00) and Spiral Pin ϕ 5/32" X 3/4" Lg. (Qty. 1) (251-5015-02) | | | |
| 13 | Crank Bar (Pawl) | 1 | 530-5070-02 |
| Item 13 requires: Bushing, .192" ϕ ID X .312" ϕ OD X .195" (Qty. 1) (530-5139-00) | | | |
| 14 \odot | Switch Actuator (RIGHT) Sub-Assy. | 1 | 515-7257-00 |
| For individual items use: Actuator & Spring Bracket (LEFT) (535-9038-01) and \odot Switch Actuator (White Plastic) (545-5612-00) and is secured to the Bracket by: Rivet, 1/8" ϕ 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) Tool required for Item 15: 5/32" or 4mm Allen Wrench | | | |

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

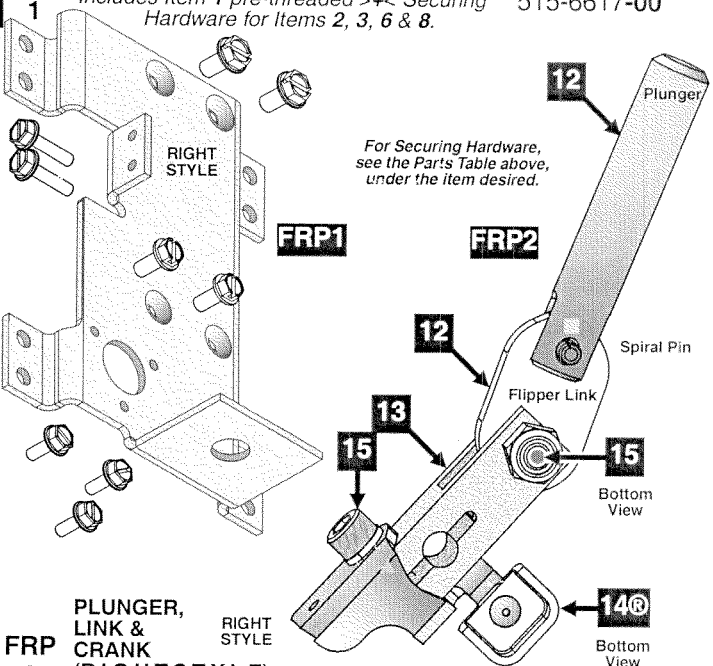


ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLY.

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

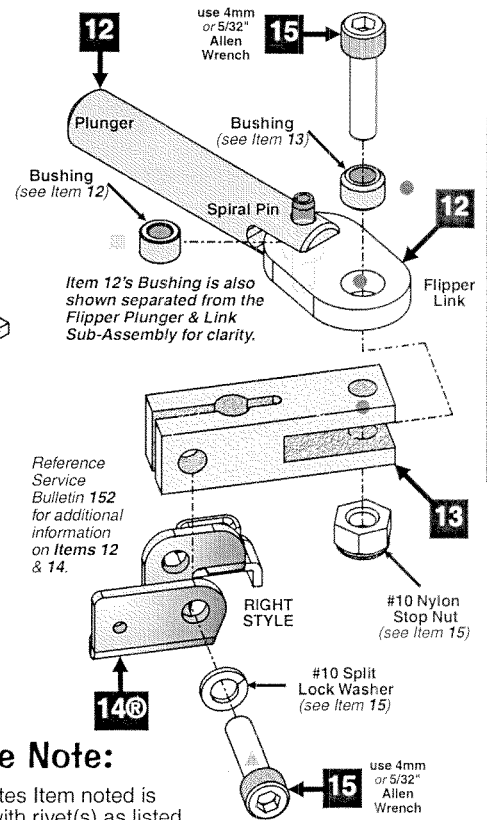
Flipper Rebuild Parts for Easier Installation, Save \$:

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



Assemblies & Ramps

Take Note:

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

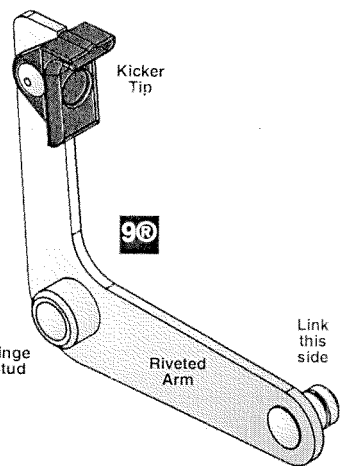
Slingshot (Lower Left & Right) Assemblies, 500-5849-00-ND (Qty. 2) (Items 1-9)

| 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 |
| 2 | Coil Retaining Bracket | 1/per | 535-5203-03 | 7 | Slingshot Stack (Blade) Switch | 2/per | 180-5054-00 |
| 3 | Coil, 23-800 [NO DIODE] | 1/per | 090-5001-ND | 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). | | | |
| 4 | Coil Sleeve | 1/per | 545-5031-00 | 8 | Switch Body Protect Plate | 2/per | 535-5045-00 |
| 5 | Plunger & Link Assembly | 1/per | 515-5338-00 | Items 7 & 8 are secured to Item 1 by: #6-32 X 5/8" HWH Swage (Qty. 4) (237-5976-04) | | | |
| 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) | | | | 9Ⓡ | Riveted Arm & Tip Assembly | 1/per | 515-5340-01 |
| Ordering Note: If 515-5338-00 is unavailable, order the individual part(s) actually required. | | | | For Individual Parts use (requires drilling out rivet & re-rieviting): Arm (515-5341-01), Kicker Tip (545-5216-01) and Rivet, 1/8" ø x 1/4" Lg. (249-5003-00) The Riv. Arm is secured to Item 1 by: Retaining Ring, 1/4" ø Shaft (Qty. 1) (270-5002-00) | | | |
| Ordering Note: If 515-5340-01 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. | | | |

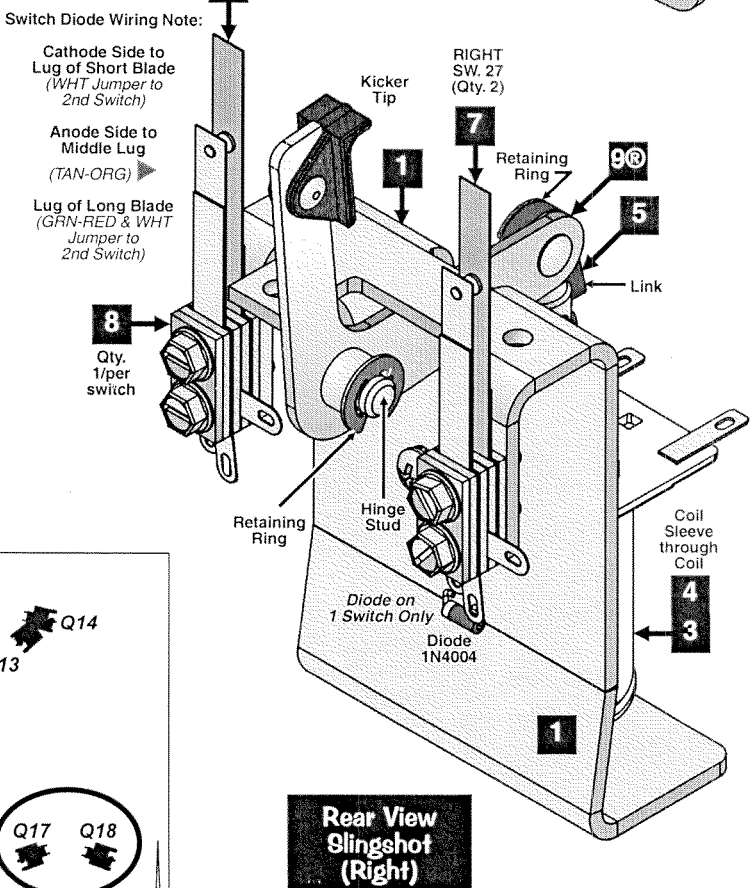
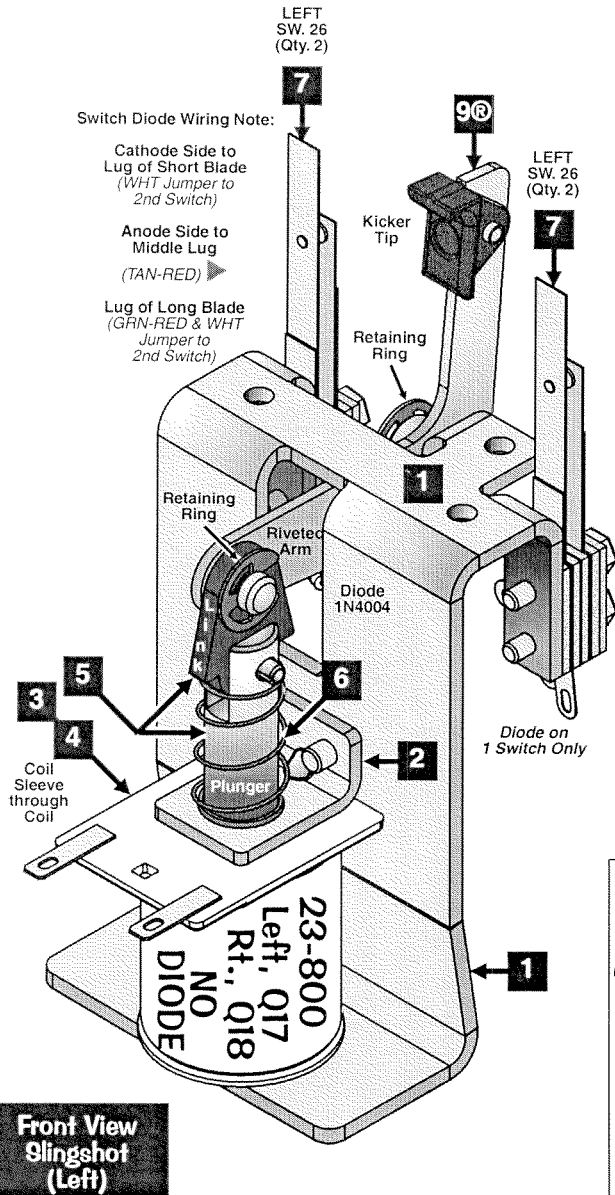
Take Note:

- ☺ **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.



Sec. 4: Drawings ...



Front View Slingshot (Left)

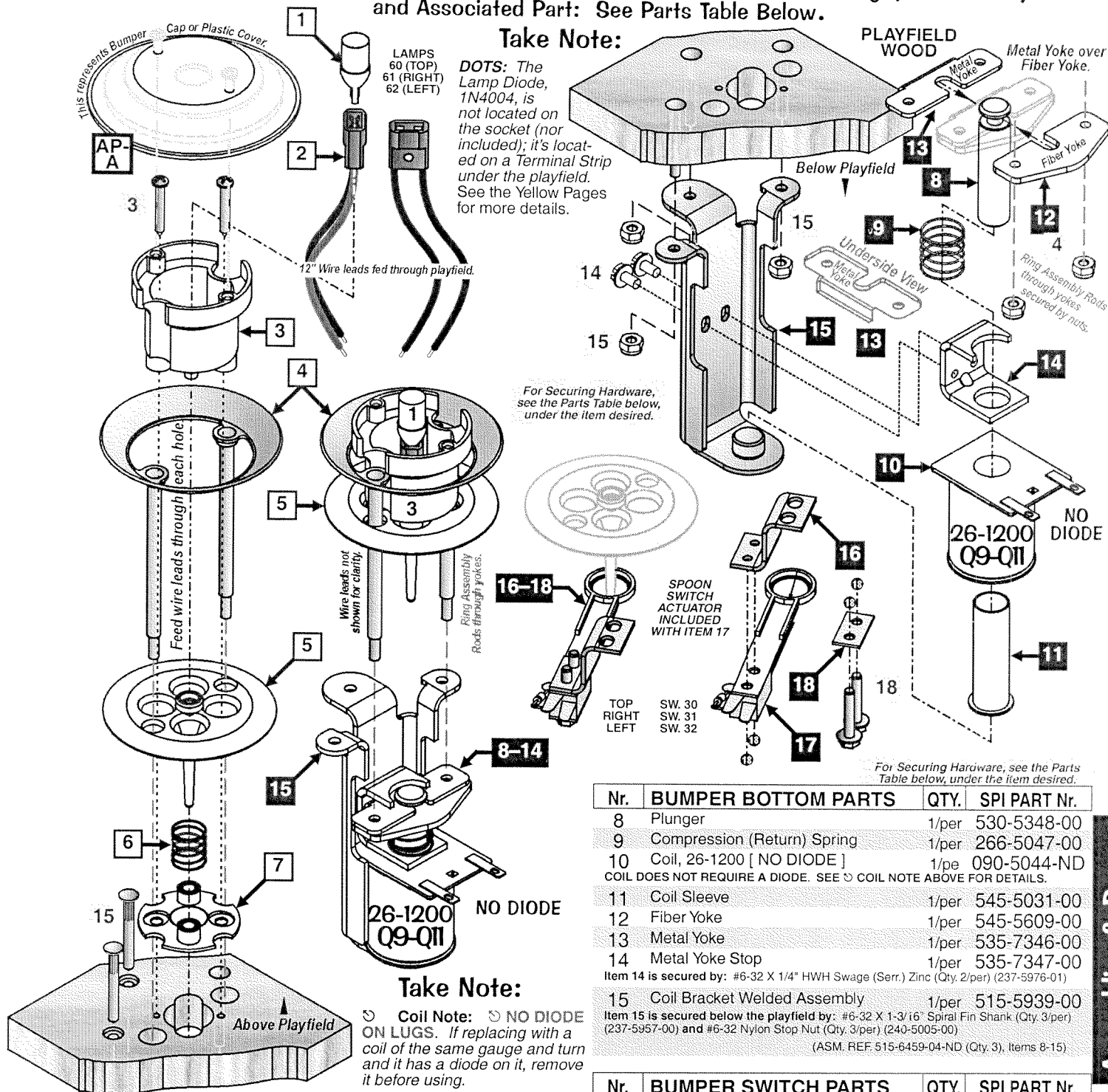
Rear View Slingshot (Right)

Left, Right & Bottom Bumper & 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 the Yellow Pages 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/per | 112-5024-08 |
| 2 | Wedge Base Socket | 1/per | 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) | | | |

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) (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) | | | |

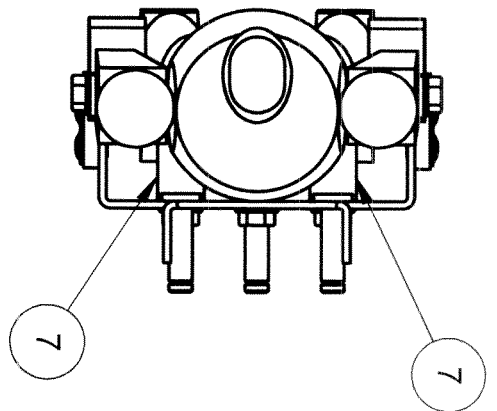
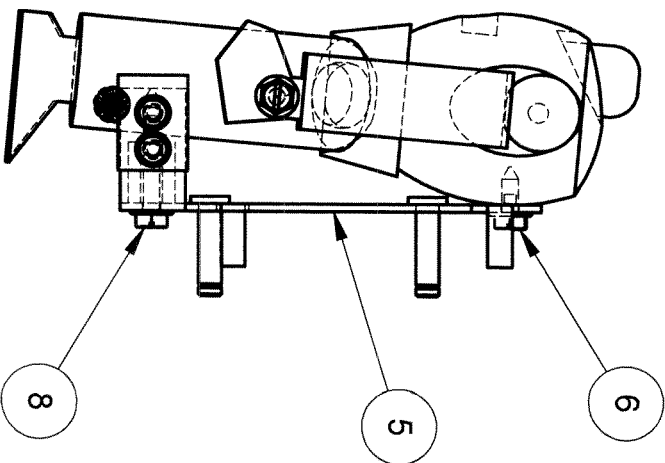
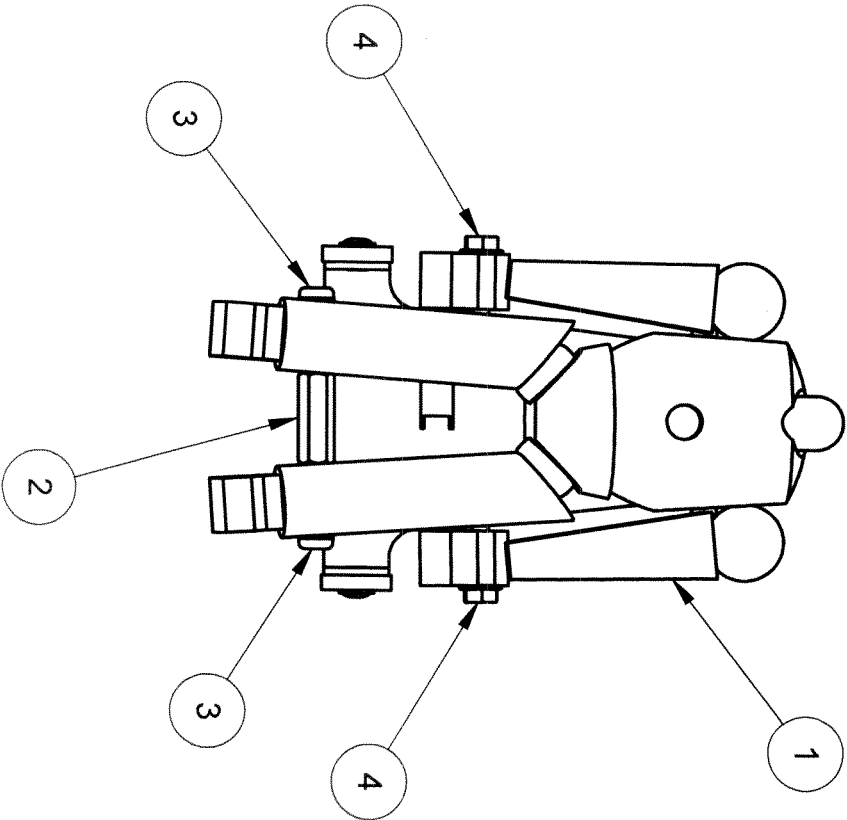
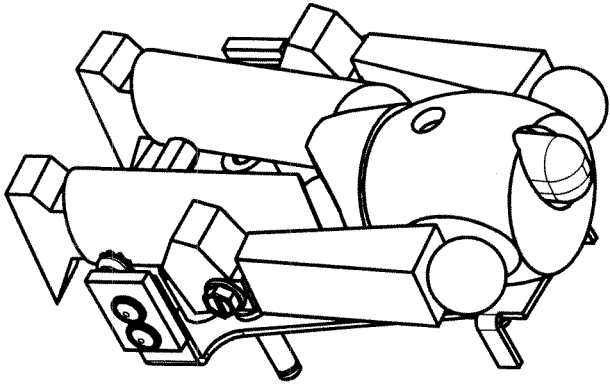
ASSOCIATED PARTS ARE NOT INCLUDED WITH THE ABOVE ASSEMBLIES.

| Nr. | ASSOCIATED PART(S) | QTY. | SPI PART Nr. |
|--|---|------|--------------|
| AP-A | Kit: Plastics (includes -10, -11 & -12) | 1 | 803-5000-A2 |
| Note: Individual Plastics (830-6071-XX) are not available individually, ordering of kit is required. | | | |
| Item AP-A is secured Item 3 by: #5 X 7/8" PRH AB (Zinc) (Qty. 2/per) (237-5826-00) | | | |

Assemblies & Ramps

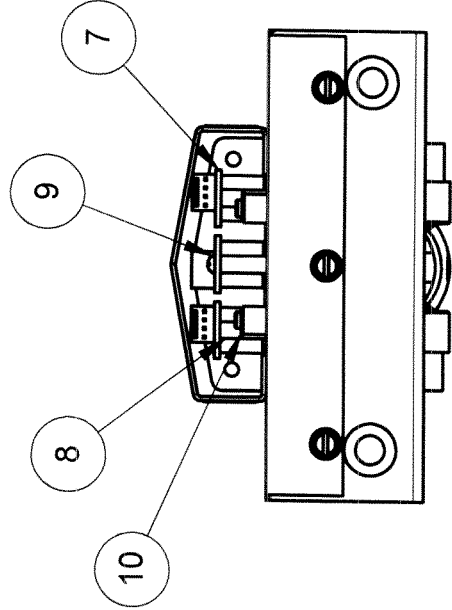
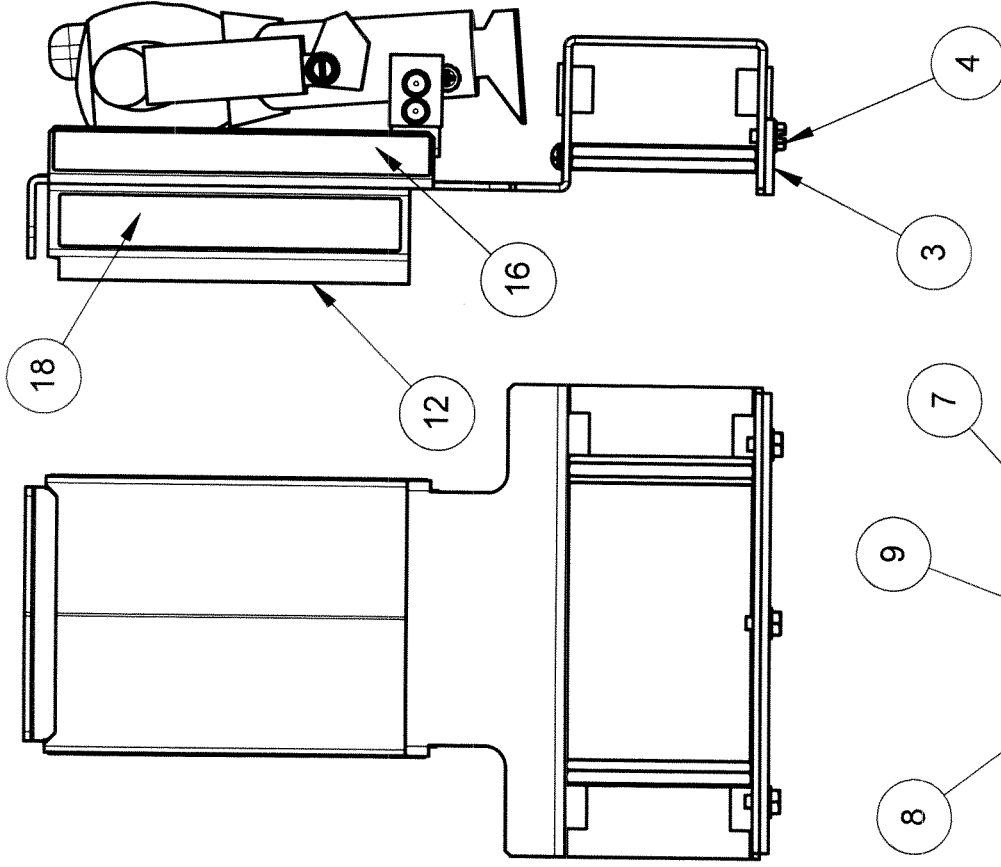
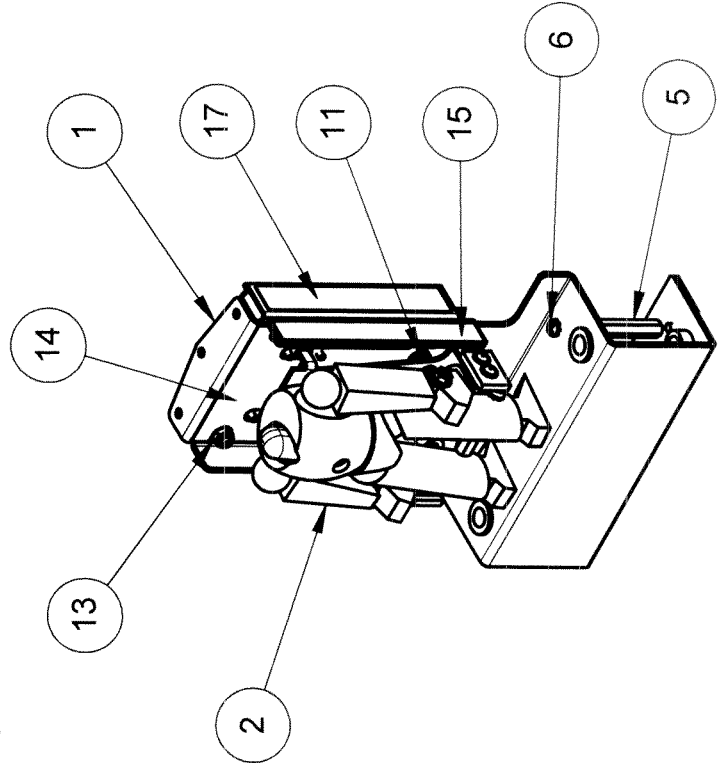
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | 880-5115-01 | IRON MONGER TOY, MODIFIED | 1 |
| 2 | 254-5008-04 | HEX SPACER - 3/4 " | 1 |
| 3 | 232-5203-00 | SCREW, 6-32 X 5/8 PPH SEMS ZINC | 2 |
| 4 | 234-5002-00 | SCREW, #6 X 5/8" HWH | 2 |
| 5 | 510-5111-00 | RIVETED ASSY, MONGER MOUNT | 1 |
| 6 | 234-5000-00 | SCREW, #6 X 3/8" HWH | 1 |
| 7 | 254-5000-01 | NYLON SPACER - BLACK - 3/8 OD X .175 ID X 1/2" | 2 |
| 8 | 234-5005-00 | SCREW, #6 X 1" HWH AB | 2 |

ASSY, IRON MONGER, FASTENED
511-6758-00



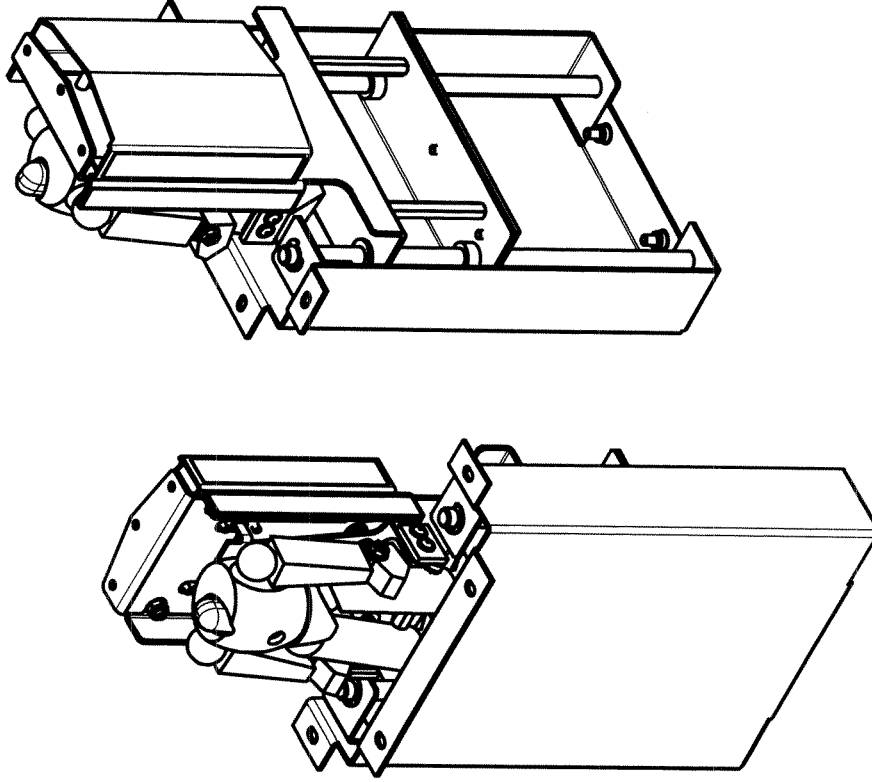
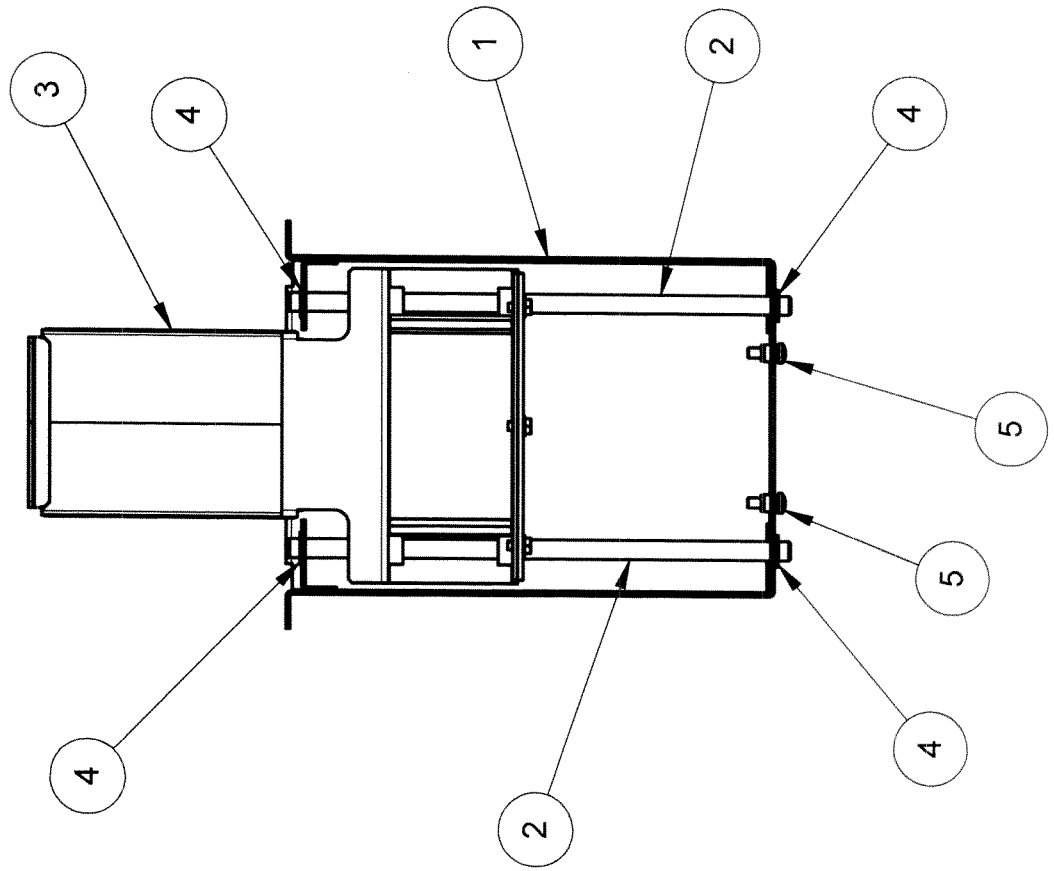
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|----------------|-------------------------------------|------|
| 1 | 535-0369-00 | LIFT BRACKET, IRON MONGER | 1 |
| 2 | 511-6758-00 | ASSY, IRON MONGER, FASTENED | 1 |
| 3 | 545-6811-00 | GLIDE STRIP, MONGER LIFT | 1 |
| 4 | 237-5976-01 | SCREW, 6-32 X 1/4 HWH SWAGE | 3 |
| 5 | 254-5008-07 | HEX SPACER - 2" | 2 |
| 6 | 232-5201-00 | SCREW, 6-32 X 3/8" PPH MS SEMS | 2 |
| 7 | 520-5292-00 | OPTO INTERRUPTOR BOARD - IDLER DISC | 3 |
| 8 | 254-5061-08 | SPACER, #4 ID, 3/16" OD X 1/2" | 6 |
| 9 | 237-5863-00 | SCREW, 4-40 X 3/4 PRH | 6 |
| 10 | 270-5001-00 | RETAINING E-RING, 3/16" SHAFT OD | 3 |
| 11 | 266-5095-00 | COMPRESSION SPRING, IRON MONGER | 3 |
| 12 | 535-0381-00 | BRACKET, REAR SHIELD, MONGER | 1 |
| 13 | 240-5005-00 | 6-32 NYLOK STOP NUT | 4 |
| 14 | 820-6561-35 | DECAL #35, IRON MONGER | 1 |
| 15 | 820-6561-37 | DECAL #37, IRON MONGER | 1 |
| 16 | 820-6561-38 | DECAL #38, IRON MONGER | 1 |
| 17 | 820-6561-39 | DECAL #39, IRON MONGER | 1 |
| 18 | 820-6561-40 | DECAL #40, IRON MONGER | 1 |
| 98* | 040-5001-00 | CABLE TIE, 4" | 1 |
| 99* | 036-5547-10-B3 | FLEXIBLE OPTO CABLE | 1 |

* ITEM NOT SHOWN



ASSEMBLY, IRON MONGER LIFT
511-6757-00

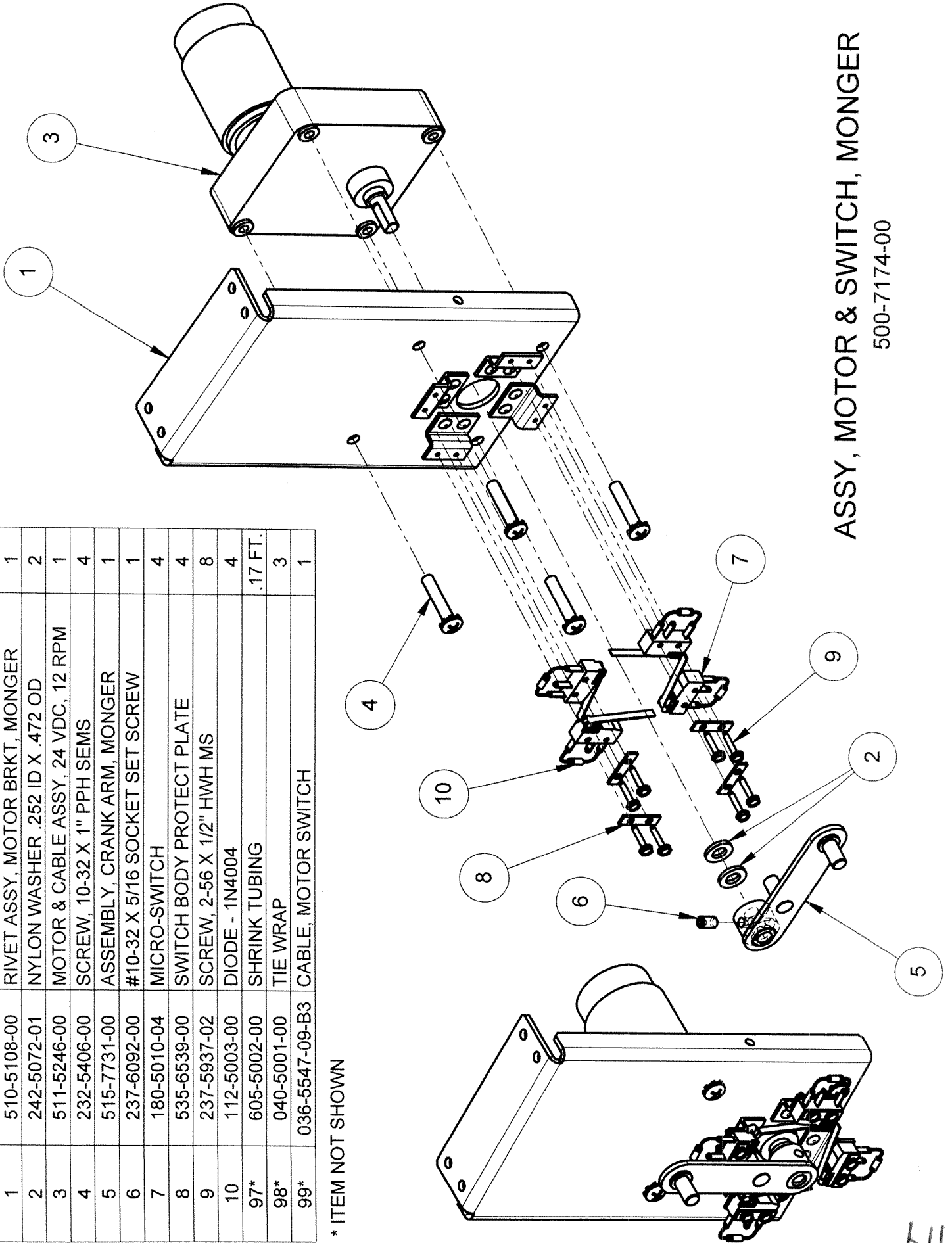
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---------------------------------|------|
| 1 | 515-7730-00 | WELDMENT, GUIDE SUPPORT, MONGER | 1 |
| 2 | 530-6561-00 | GUIDE ROD, IRON MONGER | 2 |
| 3 | 511-6757-00 | ASSEMBLY, IRON MONGER LIFT | 1 |
| 4 | 270-5003-00 | RETAINING RING 5/16" | 4 |
| 5 | 237-5602-00 | SCREW, 8-32 X 1/2 PPH MS, ZINC | 2 |



ASSEMBLY, IRON MONGER LIFT
500-7173-00

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|----------------|------------------------------------|---------|
| 1 | 510-5108-00 | RIVET ASSY, MOTOR BRKT, MONGER | 1 |
| 2 | 242-5072-01 | NYLON WASHER .252 ID X .472 OD | 2 |
| 3 | 511-5246-00 | MOTOR & CABLE ASSY, 24 VDC, 12 RPM | 1 |
| 4 | 232-5406-00 | SCREW, 10-32 X 1" PPH SEMS | 4 |
| 5 | 515-7731-00 | ASSEMBLY, CRANK ARM, MONGER | 1 |
| 6 | 237-6092-00 | #10-32 X 5/16 SOCKET SET SCREW | 1 |
| 7 | 180-5010-04 | MICRO-SWITCH | 4 |
| 8 | 535-6539-00 | SWITCH BODY PROTECT PLATE | 4 |
| 9 | 237-5937-02 | SCREW, 2-56 X 1/2" HWH MS | 8 |
| 10 | 112-5003-00 | DIODE - 1N4004 | 4 |
| 97* | 605-5002-00 | SHRINK TUBING | .17 FT. |
| 98* | 040-5001-00 | TIE WRAP | 3 |
| 99* | 036-5547-09-B3 | CABLE, MOTOR SWITCH | 1 |

* ITEM NOT SHOWN

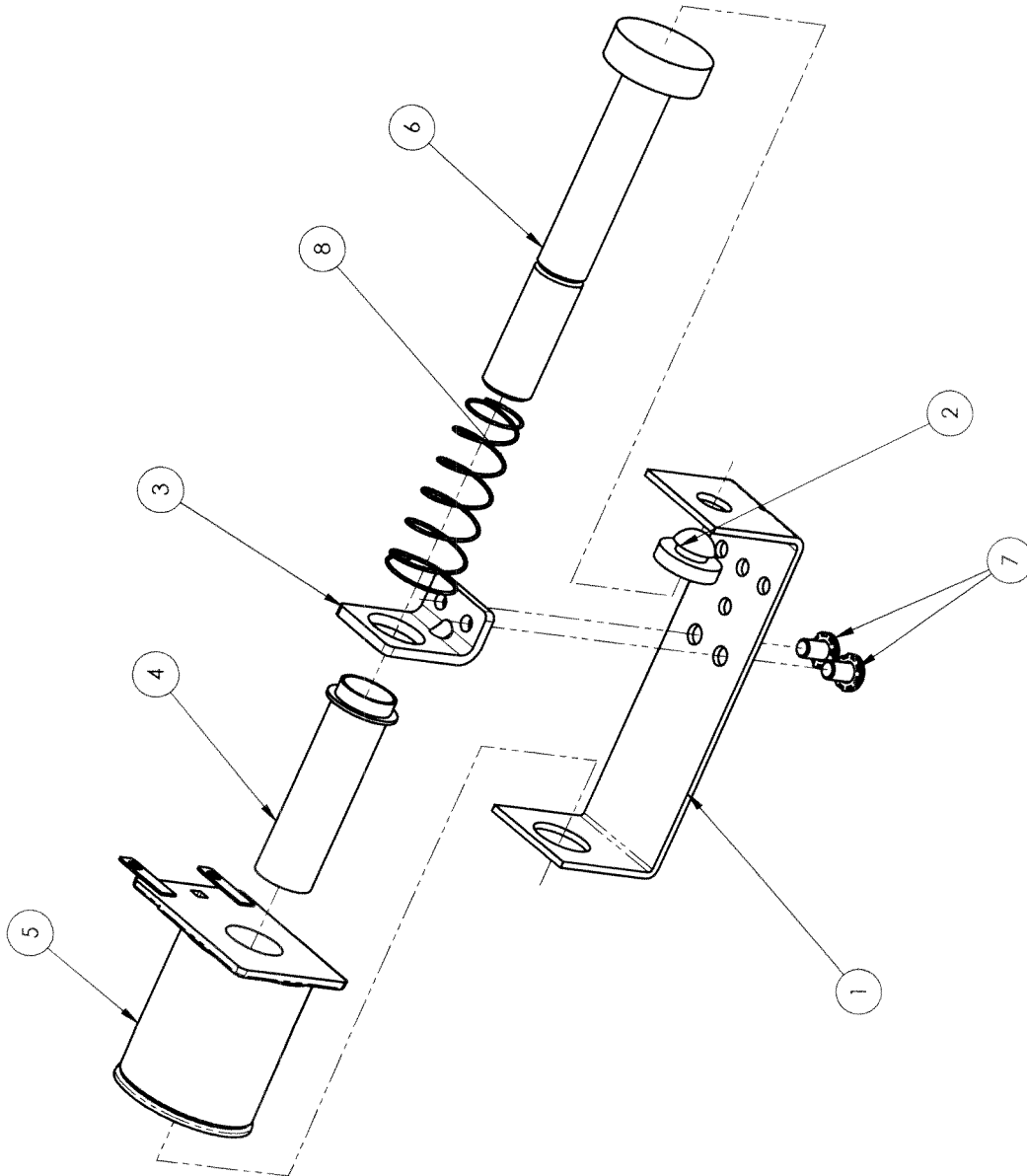


ASSY, MOTOR & SWITCH, MONGER

500-7174-00

111

b12

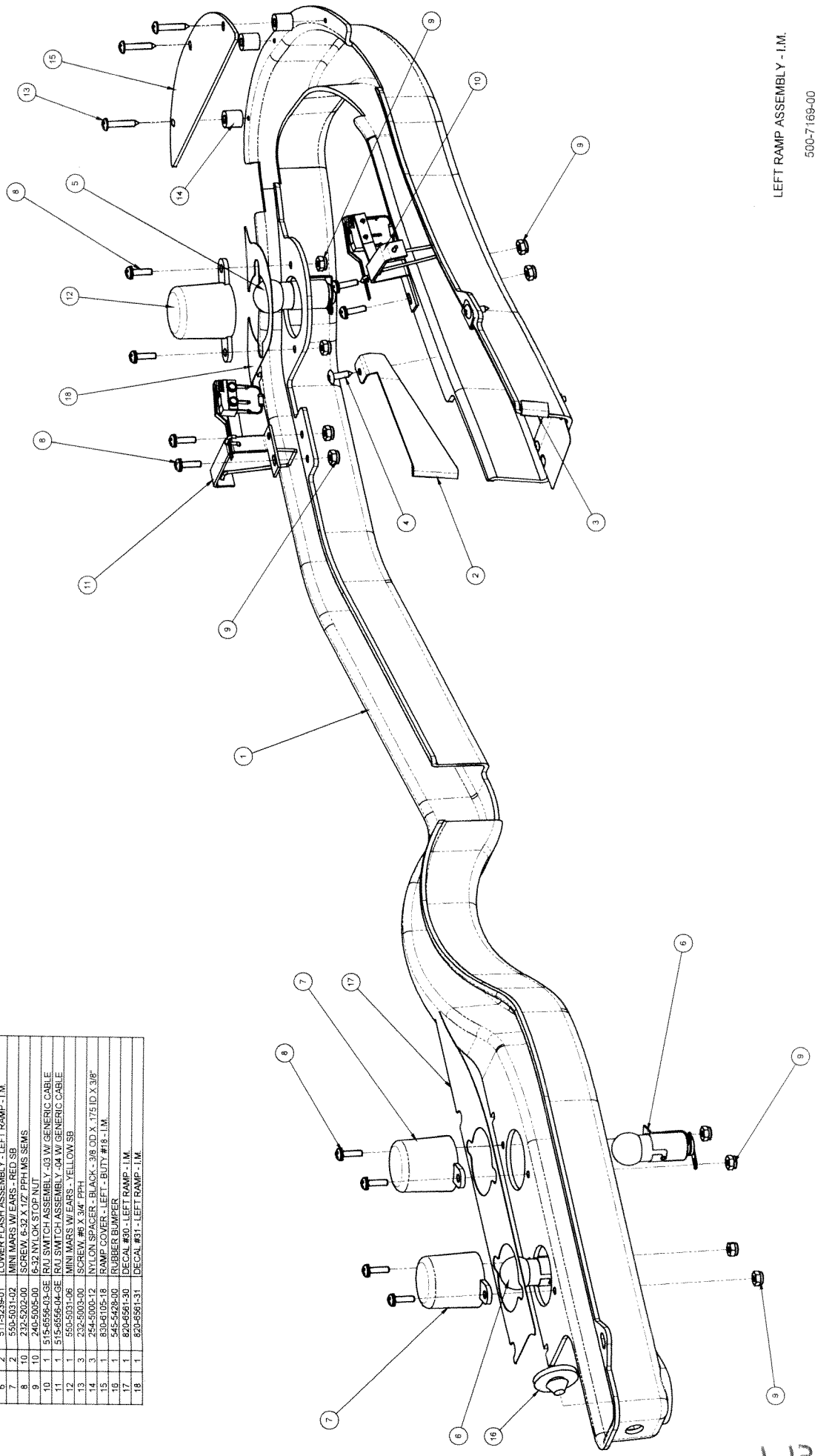


| ITEM # | QTY | PART # | DESCRIPTION |
|---------|-----|-------------|-----------------------------|
| 1 | 1 | 535-6730-00 | FRAME - KICK BIG BRACKET |
| 2 | 1 | 545-5105-00 | RUBBER BUMPER |
| 3 | 1 | 535-5203-03 | COIL RETAINING BRACKET |
| 4 | 1 | 545-5076-01 | COIL SLEEVE |
| 5 | 1 | 090-5001-ND | COIL - 23-800, NO DIODE |
| 6 | 1 | 515-7318-00 | PLUNGER ASSEMBLY |
| 7 | 2 | 232-5300-00 | SCREW, 8-32 X 1/4" PPH SEMS |
| 8 | 1 | 266-5020-00 | COMPRESSION SPRING-CONICAL |
| NOT SHN | 1 | 036-5542-00 | CABLE - GENERIC - COIL |

KICKER ASSEMBLY

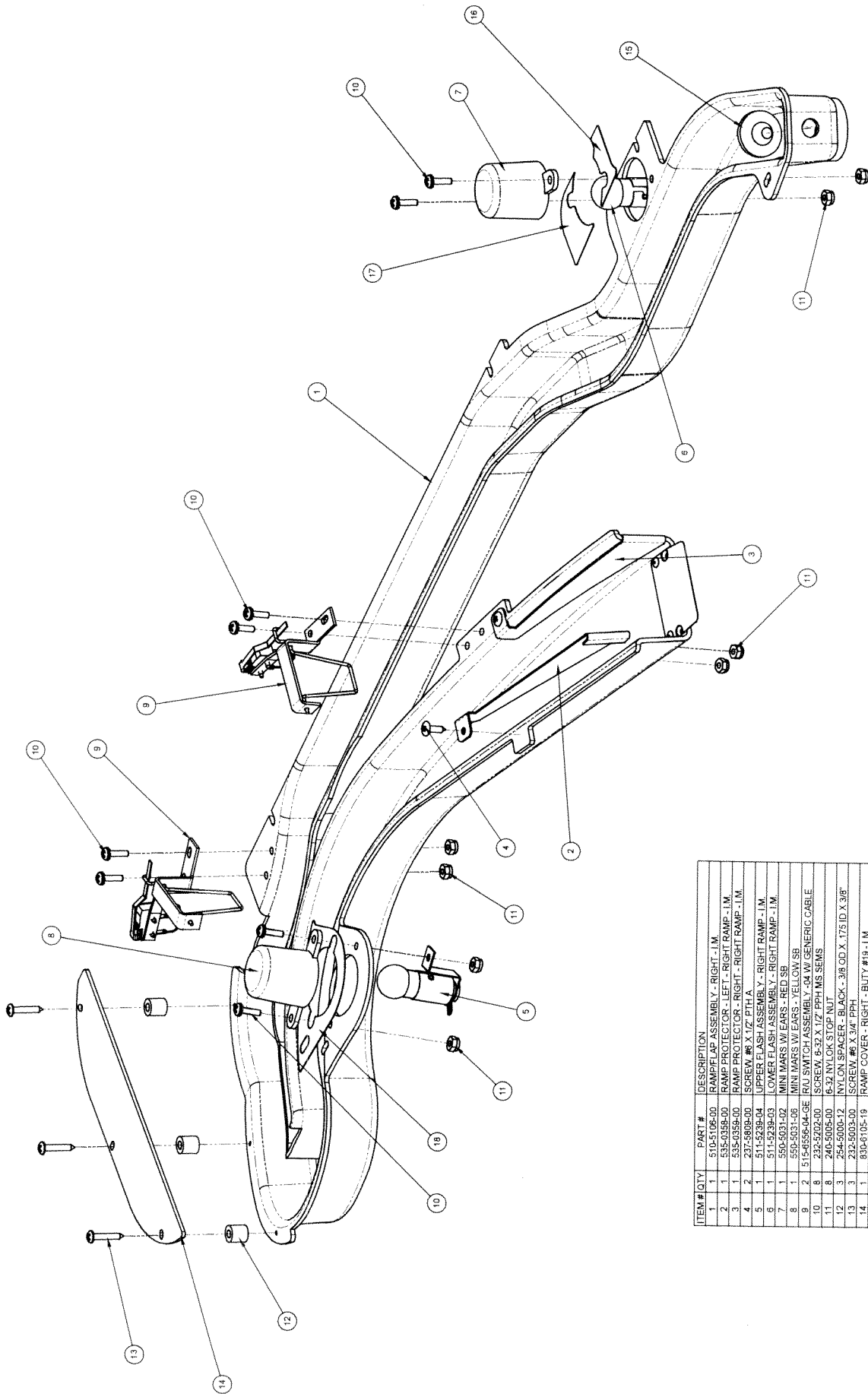
500-6697-01-ND

| ITEM # | QTY | PART # | DESCRIPTION |
|--------|-----|----------------|---|
| 1 | 1 | 510-5105-00 | RAMP/LAP ASSEMBLY - LEFT - I.M. |
| 2 | 1 | 312-0355-00 | RAMP PROTECTOR - LEFT - LEFT RAMP - I.M. |
| 3 | 1 | 312-0356-00 | RAMP PROTECTOR - RIGHT - LEFT RAMP - I.M. |
| 4 | 2 | 232-5800-00 | SCREW #8 X 3/4" PPH |
| 5 | 2 | 511-5235-02 | UPPER FLASH ASSEMBLY - LEFT RAMP - I.M. |
| 6 | 2 | 511-5235-01 | LOWER FLASH ASSEMBLY - LEFT RAMP - I.M. |
| 7 | 2 | 550-5031-02 | MINI MARS W EARS - RED SB |
| 8 | 10 | 232-5202-00 | SCREW 6-32 X 1/2" PPH MS SEMS |
| 9 | 10 | 245-5005-00 | 6-32 NYLON STOP NUT |
| 10 | 1 | 515-6556-03-GE | R/U SWITCH ASSEMBLY -03 W/GENERIC CABLE |
| 11 | 1 | 515-6556-04-GE | R/U SWITCH ASSEMBLY -04 W/GENERIC CABLE |
| 12 | 1 | 550-5031-06 | MINI MARS W EARS - YELLOW SB |
| 13 | 3 | 232-5003-00 | SCREW #8 X 3/4" PPH |
| 14 | 3 | 254-5000-12 | NYLON SPACER - BLACK - 3/8" OD X .175 ID X 3/8" |
| 15 | 1 | 830-6105-18 | RAMP COVER - LEFT - BUTY #18 - I.M. |
| 16 | 1 | 545-5428-00 | RUBBER BUMPER |
| 17 | 1 | 820-6561-30 | DECAL #30 - LEFT RAMP - I.M. |
| 18 | 1 | 820-6561-31 | DECAL #31 - LEFT RAMP - I.M. |



LEFT RAMP ASSEMBLY - I.M.
500-7169-00

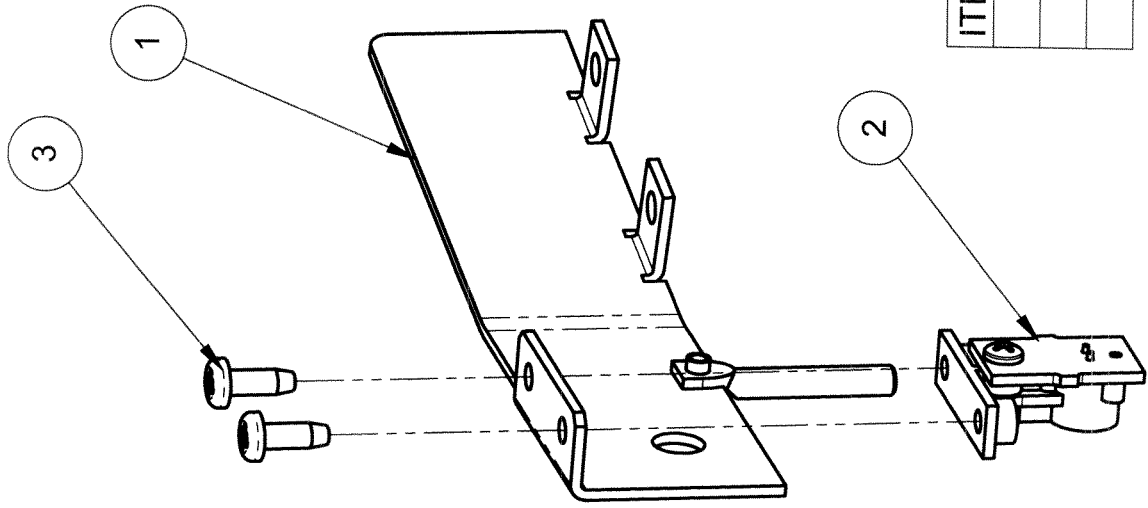
B13



| ITEM # | QTY | PART # | DESCRIPTION |
|--------|-----|----------------|--|
| 1 | 1 | 510-5106-00 | RAMP FLASH ASSEMBLY - RIGHT - I.M. |
| 2 | 1 | 535-0358-00 | RAMP PROTECTOR - LEFT - RIGHT RAMP - I.M. |
| 3 | 1 | 535-0358-00 | RAMP PROTECTOR - RIGHT - RIGHT RAMP - I.M. |
| 4 | 2 | 237-5809-00 | SCREW, #6 X 1/2" PTH A. |
| 5 | 1 | 511-5239-04 | UPPER FLASH ASSEMBLY - RIGHT RAMP - I.M. |
| 6 | 1 | 590-5031-02 | LOWER FLASH ASSEMBLY - RIGHT RAMP - I.M. |
| 7 | 1 | 590-5031-05 | MINI MARS W/ EARS - RED SB |
| 8 | 2 | 515-6556-04-GE | IR/L SWITCH ASSEMBLY - 64 W/ GENERIC CABLE |
| 9 | 2 | 232-5202-00 | SCREW, 6-32 X 1/2" PPH MS SEMS |
| 10 | 8 | 240-5005-00 | 6-32 NYLON STOP NUT |
| 11 | 8 | 254-5000-12 | NYLON SPACER - BLACK - 3/8 OD X 1.75 ID X 3/8" |
| 12 | 3 | 232-5003-00 | SCREW, #6 X 3/4" PPH |
| 13 | 3 | 830-6105-19 | RAMP COVER - RIGHT - BUTY #19 - I.M. |
| 14 | 1 | 545-5428-00 | RUBBER BUMPER |
| 15 | 1 | 820-6561-32 | DECAL #32 - RIGHT RAMP - I.M. |
| 16 | 1 | 820-6561-33 | DECAL #33 - RIGHT RAMP - I.M. |
| 17 | 1 | 820-6561-34 | DECAL #34 - RIGHT RAMP - I.M. |
| 18 | 1 | 820-6561-34 | DECAL #34 - RIGHT RAMP - I.M. |

RIGHT RAMP ASSEMBLY - I.M.

500-7170-00



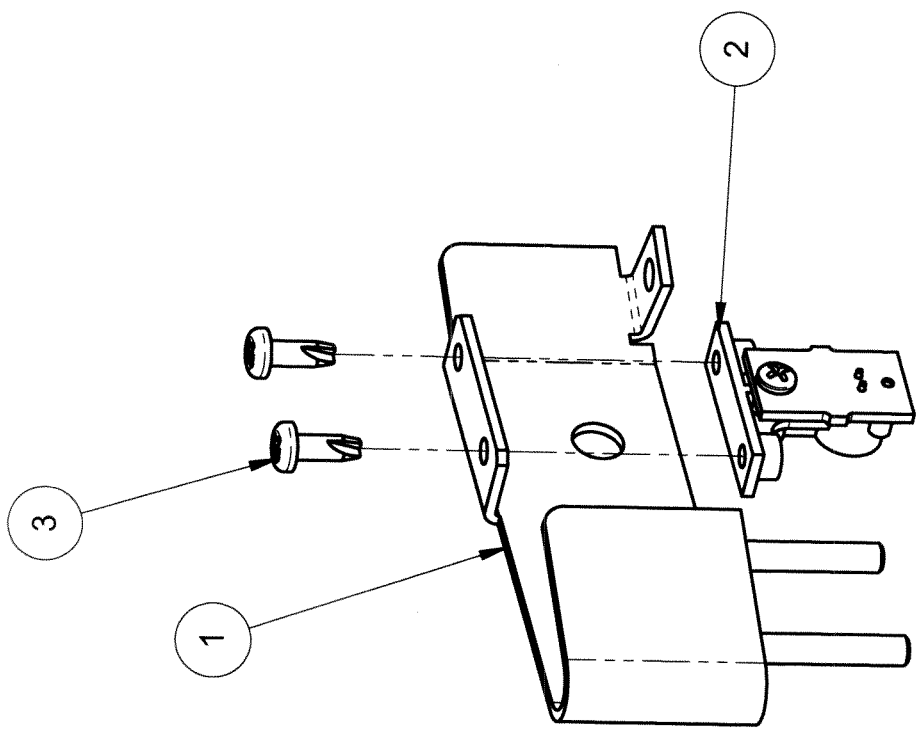
| ITEM # | QTY | PART # | DESCRIPTION |
|--------|-----|-------------|----------------------------------|
| 1 | 1 | 535-0351-02 | BALL GUIDE #2 - KICKER - I.M. |
| 2 | 1 | 500-6775-01 | OPTO TRANSCIEVER ASSY, 15" LEADS |
| 3 | 2 | 237-5880-00 | SCREW, #6 X 3/8 PPH T-25 |

b15

BALL GUIDE ASSEMBLY #2 - I.M.

511-5237-02

b16

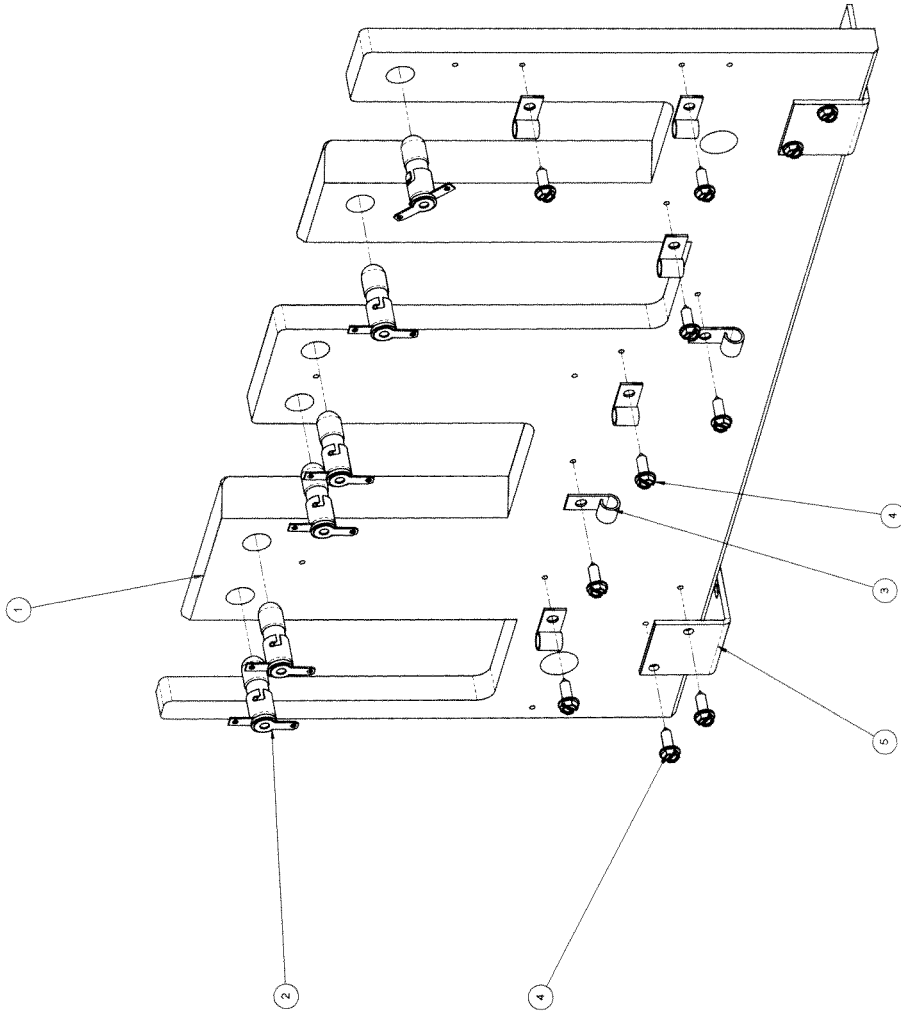


| ITEM # | QTY | PART # | DESCRIPTION |
|--------|-----|-------------|----------------------------------|
| 1 | 1 | 535-0351-03 | BALL GUIDE #3 - KICKER - I.M. |
| 2 | 1 | 500-6775-01 | OPTO TRANSCIEVER ASSY, 15" LEADS |
| 3 | 2 | 237-5880-00 | SCREW, #6 X 3/8 PPH T-25 |

BALL GUIDE ASSEMBLY #3 - KICKER - I.M.

511-5237-03

| ITEM # | QTY | PART # | DESCRIPTION |
|---------|------|---------------|---------------------------------|
| 1 | 1 | 525-5689-00 | BACK PANEL - I.M. |
| 2 | 6 | 519-5000-00HF | SOCKET & BULB ASSY, CLEAR |
| 3 | 7 | 040-5000-03 | 1/4" CABLE CLAMP |
| 4 | 11 | 234-5101-00 | SCREW #8 X 1/2" SLT HWH AB ZINC |
| 5 | 2 | 535-8864-00 | BRACKET - BACK PANEL SUPPORT |
| NOT SHN | 8 FT | 600-5003-00 | BRAIDED WIRE - 20 GA. |
| NOT SHN | 14 | 631-5000-00 | STAPLE - 3/16 |
| NOT SHN | 1 | 038-547-04-B3 | CABLE - BACK PANEL - I.M. |



BACK PANEL ASSEMBLY - I.M.

500-7168-00

b17



APPENDIX A



Pinball Game Firmware (White Star Board System* Only) Table

See website for the latest International Code or Updated USA version / checksums

Table with columns: ROM, Chip Size, Program Part N, USA ver. & Check Sum, Bd. Loc., Raw Part N. Rows include Apollo 13, Golden Eye, Twister, ID4: Independence Day, Space Jam, The Star Wars Trilogy - Special Edition (S.E.), The Lost World: Jurassic Park, The X-Files, Starship Troopers, Viper Night Drivin', Lost In Space, Godzilla, and South Park.

Table with columns: ROM, Chip Size, Program Part N, USA Ver. & Check Sum, Bd. Loc., Raw Part N. Rows include Harley-Davidson (Notes 4, 5, 6), Striker Xtreme, NFL, Sharkey's Shootout, High Roller Casino, Austin Powers, MONOPOLY, Playboy, RollerCoaster Tycoon, The Simpsons Pinball Party, Terminator 3: Rise of the Machines, and The Lord of the Rings.

Sound & Voice 1-4 identical to above H-D® Original.

footnotes : 1 — 8 see the bottom of the next page (A2).



APPENDIX B

Semi-Conductors / Integrated Circuits (I.C.) / Relays Cross-Reference Table

| Table No | Type | Source Number | STERN® PINBALL | NTE® | ECG® | Radio Shack® | RCA® |
|--|--|--|-------------------|---|------------------|--------------|-----------|
| RECTIFICATION, BLOCKING, DAMPENING DIODES AND/OR LIGHT EMITTING DIODES (LEDs) | | | | | | | |
| 1 | Diode | 1N4001 | 112-5001-00 | NTE552 | ECG552 | - - - - - | SK9000 |
| | Diode | 1N4004 | 112-5003-00 | NTE116 | ECG116 | 276-1103 | SK3312 |
| | Diode | 1N5401 | 112-0056-00 | NTE5801 | ECG5801 | 276-1143 | SK9004 |
| | Diode | 1N5404 | 112-5004-00 | NTE5804 | ECG5804 | 276-1144 | SK9007 |
| | Diode | T6A10L | 112-5006-01 | NTE5812 | ECG5812 | - - - - - | - - - - - |
| | Diode | FR302 | 112-5009-00 | NTE588 | ECG588 | - - - - - | SK5014 |
| | Diode, Signal | 1N914 | 112-5014-00 | - - - - - | - - - - - | - - - - - | - - - - - |
| LED | MT5000UR or TLRH180P (T1-3/4 GaAlAs) | 165-5052-00 <i>(old SPI Part No: 165-5100-00)</i> | - - - - - | - - - - - | 276-066B | - - - - - | |
| ZENER DIODES | | | | | | | |
| 2 | Diode | 1N4742A 12v | 112-0061-00 | NTE142A | ECG142A | 276-563 | SK12V |
| | Diode | 1N4760B 68v | 112-0062-00B | NTE5092A | ECG5092A | - - - - - | SK68V |
| | Diode | 1N4764A 100v | 112-0049-00A | NTE5096A | ECG5096A | - - - - - | SK100V |
| | Diode | 1N5228 3.9v | 112-0053-00 | NTE5007A | ECG5007A | - - - - - | SK3A9 |
| | Diode | 1N5234B 6.2v | 112-0047-00B | NTE5013A | ECG5013A | 276-561 | SK6A2 |
| | Diode | 1N5379 110v | 112-0072-00 | NTE5157 | ECG5157 | - - - - - | SK110X |
| | Diode | 1N6267A 6.8v | 112-5011-00 | NTE4902 | ECG4902 | - - - - - | - - - - - |
| | Diode | 1N4752A 33v | 112-5010-00A | NTE147A | ECG147A | - - - - - | SK33V |
| Diode | 1N4736 6.8v 1w | 112-5007-00 | NTE5071A | ECG5071A | - - - - - | - - - - - | |
| TRANSISTORS - TYPE FET, NPN, PNP AND/OR SCR | | | | | | | |
| 3 | FET Trans. | STP20N10L | 110-0106-00 | NTE2987 | ECG2987 | - - - - - | - - - - - |
| | FET Trans. | STP19N06L | 110-0088-00 | NTE2985 | ECG2985 | - - - - - | - - - - - |
| | FET Trans. | VN02N | 110-0089-00 | - - - - - | - - - - - | - - - - - | - - - - - |
| | NPN Trans. | 2N4401 | 110-0073-00 | NTE85 | ECG85 | 276-2009 | SK3124A |
| | NPN Trans. | 2N6427 | 110-0070-00 | NTE48 | ECG48 | - - - - - | SK4906 |
| | NPN Trans. | MJE340 | 110-0071-00 | NTE157 | ECG157 | - - - - - | SK3747 |
| | NPN Trans. | MPSA42 | 110-0082-00 | NTE287 | ECG287 | - - - - - | SK3232 |
| | NPN Trans. | 2N3904 | 110-0069-00 | NTE123AP | ECG123AP | 276-2009 | - - - - - |
| | NPN Trans. | TIP122 | 110-0067-00 | NTE261 | ECG261 | 276-2068 | SK3896 |
| | NPN Trans. | MJE15030 | 110-0101-00 | NTE375 | ECG375 | - - - - - | SK9118 |
| | PNP Trans. | 2N5401 | 110-0078-00 | NTE288 | ECG288 | - - - - - | SK3434 |
| | PNP Trans. | MJE15031 | 110-0103-00 | NTE292 | ECG292 | - - - - - | SK3441 |
| | PNP Trans. | MJE350 | 110-0072-00 | NTE374 | ECG374 | - - - - - | SK9042 |
| | PNP Trans. | MPSA92 | 110-0100-00 | NTE288 | ECG278 | - - - - - | SK3434 |
| | PNP Trans. | TIP42 | 110-0068-00 | NTE332 | ECG332 | - - - - - | SK9236 |
| | PNP Trans. | TIP32C | 110-0081-00 | NTE292 | ECG292 | - - - - - | SK3441 |
| | PNP Trans. | TIP36C | 110-0077-00 | NTE393 | ECG393 | - - - - - | SK3961 |
| | SCR Trans. | 2N5060 | 110-0074-00 | NTE5400 | ECG5400 | 276-1067 | SK3950 |
| SCR Trans. | SCR2800B | 110-0083-00 | NTE5461-8 | ECG5461-8 | - - - - - | - - - - - | |
| BRIDGE RECTIFIERS (BR) | | | | Comments: | | | |
| 4 | BR (Present) | DB3501 or CM3501 | 112-5000-00 | For White Star I/O Bds., BR = 35 Amp @ 100v P.I.V. | | | |
| | RELAYS | | | | Comments: | | |
| 5 | Relay | FRL-264 D024/02CK | 190-5002-00 | For PPB, Power Supply, & White Star I/O Boards, Relay = 24v DC 10 Amp DPDT | | | |
| | Relay | FRL-264 D006/04CV | 190-5001-00 | For CPU Boards, Relay = 6v DC 5 Amp 4 Pole DT | | | |





APPENDIX C

Production Start Date, Manual Part No., ROM Size & Positions and Jumper W6 Installed Note‡ (White Star Board System & S.A.M. System Only*)



| Game Name White Star Bd. System™ | Production Start Date and Manual Part Nr. | CPU/Sound Board Sound U7 512K CPU/Sound Board Game U210 1MB CPU/Sound Board Voice ROMS: | | | | Jumper Installed (‡ see Note) | |
|---|--|---|-----|-----|----------|-------------------------------------|-------|
| | | U17 | U21 | U36 | U37 | | |
| <p>* Note: For complete Appendix Information for Games <i>Laser War</i> through <i>Batman Forever</i>, see any Service Game Manual between <i>Apollo 13</i> through <i>Ripley's Believe It or Not!</i> or on-line at our website www.sternpinball.com/parts.htm; also available on CD-R, 970-2003-00 (<i>The Simpsons™ Pinball Party</i>, <i>T3®</i> and <i>The Lord of the Rings™</i>).</p> | | | | | | | |
| 29 | Apollo 13 (A13) | NOV 95 780-5044-00 | 4MB | 4MB | 4MB | Not Used | n / a |
| 30 | Golden Eye | FEB 96 780-5042-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 31 | Twister | APR 96 780-5041-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 32 | ID4: Independence Day | JUL 96 780-5045-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 33 | Space Jam | OCT 96 780-5043-00 | 4MB | 4MB | 4MB | Not Used | n / a |
| 34 | The Star Wars Trilogy - Sp. Ed. | FEB 97 780-5056-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 35 | The Lost World: Jurassic Park | JUN 97 780-5053-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 36 | The X-Files | AUG 97 780-5046-00 | 4MB | 4MB | Not Used | Not Used | n / a |
| 37 | Starship Troopers | NOV 97 780-5059-00 | 4MB | 4MB | 4MB | Not Used | n / a |
| 38 | Viper Night Drivin' | FEB 98 780-5035-00 | 4MB | 4MB | 4MB | 4MB | n / a |
| 39 | Lost In Space | JUN 98 780-5060-00 | 4MB | 4MB | 4MB | 4MB | n / a |
| 40 | Godzilla | SEP 98 780-5040-00 | 4MB | 4MB | 4MB | 4MB | n / a |
| 41 | South Park | JAN 99 780-5071-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 42a | Harley-Davidson® | AUG 99 780-5067-01 | 8MB | 8MB | 8MB | 8MB | W6 |
| 42b | Harley-Davidson®2nd Ed. | SEP 02 780-5067-10 | 8MB | 8MB | 8MB | 8MB | W6 |
| 42c | Harley-Davidson®3rd Ed. | OCT 04 780-5087-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 43a | Striker Xtreme | MAR 00 780-5068-01 | 8MB | 8MB | 8MB | 8MB | W6 |
| 43b | NFL | OCT 00 780-5073-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 44 | Sharkey's Shootout | JUL/OCT 00 780-5072-01 | 8MB | 8MB | 8MB | Not Used | W6 |
| 45 | High Roller Casino | JAN 01 780-5065-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 46 | Austin Powers™ | MAY 01 780-5074-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 47 | MONOPOLY® | SEP 01 780-5075-00 | 8MB | 8MB | 8MB | Not Used | W6 |
| 48 | Playboy | FEB 02 780-5076-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 49 | RollerCoaster Tycoon™ | AUG 02 780-5078-00 | 8MB | 8MB | 8MB | Not Used | W6 |
| 50 | The Simpsons™ Pinball Party | JN 03/JL 07 780-5077-08 | 8MB | 8MB | 8MB | 8MB | W6 |
| 51 | T3®: Rise of the Machines™ | MAY 03 780-5079-00 | 8MB | 8MB | 8MB | 8MB | W6 |
| 52 | The Lord of the Rings™ | NOV 03 780-5080-00 | 8MB | 8MB | 8MB | 8MB | |
| 53 | Ripley's Believe It or Not!® | APR 04 780-5081-00 | 8MB | 8MB | 8MB | 8MB | |

‡ Additional Information for Installed Jumper (above games 41-51):

• Installed W6 so 8MB ROMS can be utilized. See the CPU/Sound Board Schematic (Sheet 2 of 3, Address Location 3E) in the games' Service Game Manual. Games 52 - 57 CPU/Sound Board differ than <51 (See Appendix D).

See Apdx. A for more detailed information on Pinball Game Firmware (ROM Name, Size, Part Numbers, USA Version & Checksum and Board Locations).

| Game Name White Star Board System™ | Production Start Date and Manual Part Nr. | CPU/Sound Board Sound U7 512K CPU/Sound Board Game U210 1MB CPU/Sound Board Voice ROMS: | | | | |
|--|--|---|-----|-----|-----|-----|
| | | U17 | U21 | U36 | U37 | |
| 54 | Elvis® | AUG 04 780-5084-00 | 8MB | 8MB | 8MB | 8MB |
| 55 | The Sopranos™ | FEB 05 780-5085-00 | 8MB | 8MB | 8MB | 8MB |
| 56 | NASCAR® | JUL 05 780-5086-00 | 8MB | 8MB | 8MB | 8MB |
| 56 SE | Dale Jr. NASCAR® Special Edition | AUG 07 780-5097-00 | 8MB | 8MB | 8MB | 8MB |
| 57 | Grand Prix | SEP 05 780-5091-00 | 8MB | 8MB | 8MB | 8MB |

See Apdx. A for more detailed information on Pinball Game Firmware (ROM Name, Size, Part Numbers, USA Version & Checksum and Board Locations).

| Game Name S.A.M. System | Production Start Date and Manual Part Nr. | S.A.M. System CPU/Sound Board Boot EPROM U9 | | | |
|----------------------------|--|--|-----|-----------------------------|---------|
| | | 965-BOOT-SAM (Programmed) | | | |
| 58 | World Poker Tour™ (WPT) | JUN 06 780-5088-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 59 | The Simpsons™ Kooky Carnival | APR 06 780-5090-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 60 | ©Disney's Pirates of the Caribbean | AUG 06 780-5092-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 61 | Famil Guy™ | DEC 06 780-5093-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 62 | Spider-Man™ | MAY 07 780-5094-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 62 SE | Black Spider-Man™ | NOV 07 780-50A6-00 | 8MB | B-02 V2.1+ chksum \$F625 | LOC: U9 |
| 63 | Wheel of Fortune™ | NOV 07 780-5098-00 | 8MB | B-02 V2.3+ chksum \$B83B | LOC: U9 |
| 64 | SHREK™ | JAN 08 780-50A5-00 | 8MB | B-02 V2.3+ chksum \$B83B | LOC: U9 |
| 65 | Indiana Jones™ | APR 08 780-50A4-00 | 8MB | PE-2 V3.1+ chksum \$4CF6 | LOC: U9 |
| 66 | BATMAN™ | AUG 08 780-50A3-00 | 8MB | PE-2 V3.1+ chksum \$4CF6 | LOC: U9 |

Games 58 – current, S.A.M. System : CPU/Sound & I/O Power Driver PCBs differ than White Star (previous Games 29 – 57); Disp. Controller Not Required.





APPENDIX D

Board Type (White Star Board System* Only) Table



| Game Name | Flipper | I/O Power Driver | CPU/Sound Stereo | Disp. Power Supply | Dot Matrix Display | Display Controller | OPTO Transmitter | OPTO Receiver | OPTO Application |
|------------|-----------------------------|---|------------------|---|------------------------------|----------------------------|----------------------------|----------------------------|---------------------------------|
| Apollo 13 | 520-5080-00 2-Flipper | 520-5137-00 | 520-5136-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 5-Ball Trough over Up-Kicker |
| | Miscellaneous PC Boards: | Light Boards 520-5130-01, -04 & -05 Magnet Interface, 7-Segment Display & Light Bd. 520-5130-06 Magnet Driver Board 520-5130-02 Switch Membrane Board 520-5130-03 | | | | Relay Board 520-5010-00 | | | |
| Golden Eye | 520-5080-00 2-Flipper | 520-5137-00 | 520-5136-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 5-Ball Trough over Up-Kicker |
| | Miscellaneous PC Boards: | Light Boards 520-5128-05 through -08 | | Mag. Processor X2 Driver Bd. 520-5143-00 | Relay Board 520-5010-00 | | | | |

GAMES HEREON NO LONGER REQUIRE THE FLIPPER BOARD WITH THE WHITE STAR BOARD SYSTEM™

| Game Name | I/O Power Driver | CPU/Sound Mono | Disp. Power Supply | Dot Matrix Display | Display Controller | OPTO Transmitter | OPTO Receiver | OPTO Application | Misc OPTO & App. |
|--|-----------------------------|--|---|--------------------------------|--|------------------------------|------------------------------|---------------------------------|--|
| Twister | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 5-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Light Boards 520-5145-01 through -07 | | Mag. Drv. Bd. 520-5143-00 | Relay Board 520-5010-00 | | | | |
| Independence Day (ID4) | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Light Boards 520-5149-01 through -10 | | Servo Mtr. Bd. 520-5152-00 | | 520-5082-00 Long Hop opto | 520-5083-00 Long Hop opto | Alien Head Enter | |
| Space Jam | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 5-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | 2X 7-Segment Display Board 520-5153-00 | | | | | | | |
| The Star Wars Trilogy - Special Ed. | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Relay Board 520-5010-00 | | | | | | | |
| The Lost World: J.P. | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | 520-5162-00 2-Pos. Motor Sensor on Snagger Motor |
| | Miscellaneous PC Boards: | DC Relay Bd. 520-5066-00 | Shaker Mtr. Bd. 520-5065-00 | | | | | | |
| The X-Files | 520-5137-01 | 520-5136-10 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | 520-5155-00 3-Pos. Motor Sensor on File Cab. Motor |
| | Miscellaneous PC Boards: | | | | | 520-5082-00 Long Hop opto | 520-5083-00 Long Hop opto | File Cabinet Enter | |
| Starship Troopers | 520-5137-01 | 520-5136-15 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-02 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | 4X 7-Segment Display Board 520-5166-00 | | | | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | L/R Orbit Lane Enter | |
| Viper Night Drivin' | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Relay Board 520-5010-00 | | | | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | Jump Ramp | |
| Lost In Space | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Relay Board 520-5010-00 | | | | | | | |
| Godzilla | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Shaker Mtr. Bd. 520-5065-00 | | | | | | | |
| South Park | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 5-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | | | | | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | Kenny Under Trough Enter | |
| Harley-Davidson® 1st-3rd* Editions | 520-5137-01 | 520-5136-16 *520-5300-00* | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | Relay Board 520-5010-00 | | Shaker Mtr. Bd. 520-5065-00 | Diode Board 520-5146-00 | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | Motorcycle Enter | |
| Striker Xtreme (NFL) | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 520-5155-00 3-Pos. Motor Sensor on Goalie Motor |
| | Miscellaneous PC Boards: | DC Relay Bd. 520-5066-00 | Relay Board 520-5010-00 | Diode Board 520-5146-00 | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | Goalie Under- Trough Enter | |
| Sharkey's Shootout | 520-5137-64 | 520-5136-64 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 520-5194-00 4-Pos. Motor Sensor on ? -Ball Motor |
| | Miscellaneous PC Boards: | Relay Board 520-5010-00 | | Sol. Exp. Bd. 520-5192-00 | | | | | |
| High Roller Casino | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 520-5194-00 4-Pos. Motor Sensor on Roulette Wheel Motor |
| | Miscellaneous PC Boards: | Dot Display (5X7) in Slot Mach. 520-5197-00 | | | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | 520-5196-00 3-Pos. OPTO | 520-5195-00 3-Pos. OPTO | Ball Lock under Roulette | Up/Dn Ramp in Slot Mach. |
| Austin Powers™ | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 520-5212-00 Pulse-Stretcher OPTO on Spini-Me |
| | Miscellaneous PC Boards: | Relay Bd. (X3) 520-5010-00 | | | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | 520-5082-00 Long Hop opto | 520-5083-01 Long Hop opto | Time Machine Ramp | |
| MONOPOLY® | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | DC Relay Bd. 520-5066-00 | Mini-Dot Display (3 by 5X7) 520-5197-00 (Electric C- Sign) | | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | 520-5218-00 4-Pos. OPTO | 520-5210-00 4-Pos. OPTO | Bank Door | |

Table continued on the next page.





APPENDIX D

Board Type (White Star Board System* & S.A.M. System** Only) Table



| Game Name | I/O Power Driver | CPU/Sound (old & new) | Disp. Power Supply | Dot Matrix Display | Display Controller | OPTO Transmitter | OPTO Receiver | OPTO Application | Misc OPTO & App. |
|--------------------------------------|--------------------------|-------------------------------|--|------------------------------|---|------------------------------|------------------------------|---------------------------------|--|
| Playboy | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | DC Relay Bd. 520-5066-00 | Relay Bd. 520-5010-00 | | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | | | | |
| RollerCoaster Tycoon™ | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 520-5222-00 1-Position Switch Detect on Wheel Spin |
| | Miscellaneous PC Boards: | DC Relay Bd. 520-5066-00 | Mini-Dot Display (3 by 5X7) 520-5221-00 (Ramp Enter Sign) | | for UK ONLY- Solenoid Expander Bd. 520-5192-00 | 520-5082-00 Long Hop OPTO | 520-5083-01 Long Hop OPTO | Behind 1-Bank Drop Target | |
| The Simpsons™ Pinball Party | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | LED Bd. 520-5219-00 | Color Dot Display (4 by 5X7) 520-5225-00 (TV Set) | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | | | | |
| Terminator® 3: Rise of the Machines™ | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | | | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | 515-7307-00 Single OPTO | 515-7308-00 Single OPTO | TXCannon Trough | |
| The Lord of the Rings™ | 520-5137-01 | 520-5136-16 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 500-6746-00 (White Trans.) 500-6747-00 (Black Rec.) |
| | Miscellaneous PC Boards: | 19-LED PCB 520-5242-00 | OPTO Transmitter / Receiver Amplifier PCB 520-5239-00 | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | 515-7307-00 Single OPTO | 515-7308-00 Single OPTO | Orthanc Tower Trough | |
| Ripley's Believe It or Not!® | 520-5137-01 | 520-5300-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 500-6775-00 OPTO Trnscvr |
| | Miscellaneous PC Boards: | 520-5236-00 X3 Dot Display | OPTO Transmitter / Receiver Amplifier PCB 520-5239-01 | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | 520-5234-00 3-Pos. OPTO | 520-5234-00 3-Pos. OPTO | Vari-Target | 520-5235-03 X3 Aux. Drvr |
| Elvis® | 520-5137-01 | 520-5300-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | | | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | | | | |
| The Sopranos™ | 520-5137-01 | 520-5300-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | |
| | Miscellaneous PC Boards: | | | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | | | | |
| NASCAR® and [NDSE] | 520-5137-01 | 520-5300-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 500-6775-00 OPTO Trans. (Qty. 16) Switch Detect. |
| | Miscellaneous PC Boards: | 520-5235-03 X3 Aux. Drvr | OPTO Transmitter / Receiver Amplifier PCB 520-5239-01 | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | | | | |
| Grand Prix | 520-5137-01 | 520-5300-00 | 520-5138-00 | 520-5052-00 128 X 32 Dots | 520-5055-03 | 515-0173-00 Dual OPTO | 515-0174-00 Dual OPTO | 4-Ball Trough over Up-Kicker | 500-6775-00 OPTO Trans. (Qty. 16) Switch Detect. |
| | Miscellaneous PC Boards: | 520-5235-03 X3 Aux. Drvr | OPTO Transmitter / Receiver Amplifier PCB 520-5239-01 | | for UK ONLY ◀◀◀ Aux. Driver Bd. 520-5068-01 | | | | |

| Game Name | I/O Power Driver** | CPU / Sound** | Disp. Power Supply | Dot Matrix Display | Dual OPTO Transmitter | Dual OPTO Receiver | Dual OPTO Transceiver | OPTO Transceiver Miscellaneous |
|------------------------------------|--------------------------|---------------------------------------|---|----------------------------------|------------------------------|------------------------------|--|---|
| World Poker Tour™ (WPT) | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | 500-6775-00 4 Switch Pairs (Qty. 8) | 520-5251-00 'U' 1/per PCB Jail Bars Up Ace/Hole Mech 520-5252-04 'U' 4/per PCB Drop Targets 4- & 8- Banks |
| | Miscellaneous PCBs : | 520-5254-00 50V Step-Up Drv | 520-5250-14 14LED 5X7 Disp. | 520-5239-01 OPTO Amplifier | 520-5247-00 Ace/Hole Mech | 520-5248-00 Ace/Hole Mech | | |
| The Simpsons™ Kooky Carnival | 520-5249-00 Back Door | 520-5246-00 Back Door | 520-5138-00 Cabinet Rear | 520-5052-00 128 X 32 Dots | | | 520-5253-00-ASY Coin Drop (Qty. 11) | |
| | Miscellaneous PCBs : | 515-5742-00 Shaker PCB | 500-6700-00 Relay (incl. Wiring + Conn.) | | | | | |
| ©Disney's Pirates of the Caribbean | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | 500-6775-00 5 Switch Pairs (Qty. 10) | |
| | Miscellaneous PCBs : | 520-5239-01 OPTO Amp. (X3) | 511-5024-03 Relay (incl. Wiring + Conn.) | 520-5238-00 : H-E-A-R-T LED PCB | | | | |
| Family Guy™ & SHREK™ | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | 500-6775-00 3 Switch Pairs (Qty. 6) | 520-5252-01 'U' 1/per PCB Drop Target 1-Bank |
| | Miscellaneous PCBs : | 520-5239-01 OPTO Amp. (X2) | 520-5261-00 Stepper Motor | 511-5042-01 Trgt. Sensor (X2) | | | 500-6775-01 1 Switch Pair (Qty. 2) | 520-5252-04 'U' 4/per PCB Drop Target 4-Bank |
| | | 511-5046-00 : Mini Playfield Lamp PCB | | | | | | |
| Spider-Man™ & Black Spider-Man | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | 500-6775-00 3 Switch Pairs (Qty. 6) | |
| | Miscellaneous PCBs : | 520-5239-01 OPTO Amp. (X2) | | | | | | |
| Wheel of Fortune™ | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | 500-6775-01 2 Switch Pairs (Qty. 4) | 520-5255-00 In-Line OPTO PCB Drop Target Module (1/per) 520-5283-00 Wheel of Fortune LED & OPTO Transceiver PCB |
| | Miscellaneous PCBs : | 520-5239-01 OPTO Tr/Amp. | 520-5274-00 Mini-Dot Display 5X7 X5 PCB | | | | | |
| Indiana Jones™ | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 5-Ball Trough | 515-0174-00 5-Ball Trough | 500-6775-01 2 Switch Pairs (Qty. 4) | 520-5251-01 'U' Interruptor PCB Swordsman Assembly |
| | Miscellaneous PCBs : | 520-5287-00 Lamp X20 | 520-5289-00 LED (X2 Flash) (Qty. 4) | | | | | |
| BATMAN™ | 520-5249-00 Backbox | 520-5246-00 Backbox | 520-5138-00 Backbox | 520-5052-00 128 X 32 Dots | 515-0173-00 4-Ball Trough | 515-0174-00 4-Ball Trough | | 520-5291-00 'U' Interruptor PCB Driver Disc (Joker Motor) Asm. 520-5292-00 'U' Interruptor PCB Idler Disc (Joker Motor) Asm. |
| | Miscellaneous PCBs : | | 520-5290-00 Crane OPTO & LED Lamp | | | | | |



APPENDIX D

Board Type Table

| Game Name | Flipper | Sound | Power Supply | Display X-Digit |
|-------------------------------------|---|--|--------------|--|
| • Laser War | 2-Flipper Board Not Required | <i>initial:</i> 520-5002-00 <i>replaced with:</i> 520-5002-02 <i>520-5002-01 was not used.</i> | 520-5000-00 | Master: 520-5004-00 plus: 520-5005-00 (Qty. 2): 7 Digit Alpha/Numeric 520-5006-00 (Qty. 2): 7 Digit Numeric 520-5007-00 (Qty. 1): 4 Digit Numeric |
| • Secret Service • Torpedo Alley | 3-Flipper Board Not Required | 520-5002-02 | | 520-5014-01 7 Digit Alpha/Numeric Combined |
| • Time Machine | 2-Flipper Board Not Required | | | 520-5030-00 16 Digit Alpha/Numeric Combined |
| • Playboy 35th Anniversary * | 520-5033-00 2-Flipper <i>(*only for 100 games of Playboy 35th Anniv. & ABC Mon. Night Football)</i> | | | |
| • ABC Monday Night Football * | | | | |
| • Robocop | | | | |
| • Phantom of the Opera | | | | |
| • Back to the Future | | 520-5002-03 | | |
| • The Simpsons | | | | |

| Game Name | Flipper | Sound | Power Supply | Dot Matrix Display | Display Controller | OPTO Transmitter | OPTO Receiver | OPTO Application | |
|--|--|--|-------------------------|-------------------------|----------------------------|----------------------------|---------------------------------|------------------|-------------|
| • Checkpoint • Teenage Mutant Ninja Turtles | 520-5033-00 2-Flipper | 520-5002-03 | 520-5047-00 | 520-5042-00 128 X 16 | 520-5055-00 | | | | |
| • Batman • Star Trek 25th Anniv. • Hook | | 520-5050-01 | | | | | | | |
| • Lethal Weapon 3 | | 520-5050-02 | 520-5047-01 | | | | | | |
| • Star Wars • Rocky & Bullwinkle & Friends | | | 520-5052-00 128 X 32 | | | | | | |
| • Jurassic Park | | 520-5076-00 3-Flipper | | 520-5047-02 | | | | | 520-5055-01 |
| • Last Action Hero | | 520-5070-00 2-Flipper | 520-5050-03 | | | | | | |
| • Tales from the Crypt | | 520-5076-00 3-Flipper | 520-5077-00 | 520-5047-03 | | | | | 520-5092-01 |
| • The Who's Tommy | | 520-5076-00 3-Flipper | | | | | | | |
| • WWF Royal Rumble | | 520-5070 / 5080 -00 4-Flipper (2X2) | 520-5077-00 | 520-5047-03 | | | | | 520-5092-01 |
| • Guns N' Roses | | 520-5076-00 3-Flipper | | | | | | | |
| • Maverick | 520-5076-00 3-Flipper | 520-5050-03 | 520-5047-03 | 520-5092-01 | 520-5102-00 Single OPTO | 520-5103-00 Single OPTO | Paddle Boat Wheel Enter | | |
| • Mary Shelley's Frankenstein | 520-5076-00 3-Flipper | 520-5077-00 | | | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 5-Ball Trough over Up-Kicker | | |
| • Baywatch | 520-5070 / 5080 -00 4-Flipper (2X2) | 520-5126-02 | 520-5047-03 | 520-5092-01 | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | 4-Ball Trough over Up-Kicker | | |
| • Batman Forever | 520-5076-00 3-Flipper | | | | 520-5124-00 Single OPTO | 520-5125-00 Single OPTO | | | |

Miscellaneous Boards (Lamp Boards & Relay Boards) not listed above can be found in each individual game manual.





APPENDIX E

Flipper Coil (White Star Board System* & S.A.M. System** Only) Table



Typical Coil Diode 1N4004 unless noted otherwise (Diode Top = above lugs next to windings; Diode Below (Bottom) = under lugs opposite of windings).

| STANDARD COILS (TYPICAL APPLICATIONS) | | | LARGE COILS (FLIPPERS & SPECIAL APPLICATIONS) | | |
|---|---------|--|---|-----------------|--|
| Ga.-Turn | Res (Ω) | SPI Part Number and Comments | Ga.-Turn | Res (Ω) | SPI Part Number and Comments |
| 20-400 | 1.0 Ω | 090-5021-use : -00 Diode Top | 21-900 | call Ω | 090-5020-use : -01 3-Lugs + 1N4004 & 1N5404 Diodes -10 Diode Top <BROWN><RED> |
| 22-500 | 1.7 Ω | 090-5017-use : -00 Diode Top | 22-750 / 30-2600 | 2.6 Ω 92.0 Ω | 090-5011-use : -00 DUAL WND COIL // 3-Lugs Diode x2 |
| 22-600 | 2.2 Ω | 090-5017-use : -0B Diode Below // -0T Diode Top | | | |
| 23-700 | 3.1 Ω | 090-5022-use : -0B Diode Below // -0T Diode Top | 22-900 | 3.45 Ω | 090-5020-use : -20T Diode Top <YELLOW> // -20-ND No Diode |
| 23-750 | 3.4 Ω | 090-5019-use : -00 Diode Top | | | |
| 23-800 | 3.6 Ω | 090-5001-use : -0B Diode Below // -0T Diode Top // -NL No Lugs 11" Leads // -ND No Diode | 22-1080 | 4.2 Ω | 090-5032-use : -0B D. Below // -0T D. Top <YEL-GRN> -NL No Diode |
| 23-840 | 4.0 Ω | 090-5005-use : -00 Diode Top | | | |
| 23.5-765 | 3.6 Ω | 090-5037-use : -03 Diode Top | 23-620 / 30-2600 | 2.4 Ω 75.0 Ω | 090-5006-use : -00 DUAL WND COIL // 3-Lugs Diode x2 |
| 24-900 | 5.0 Ω | 090-5002-use : -02 Diode Top // -10 No Lugs 14" Leads | | | |
| 24-940 | 5.5 Ω | 090-5036-use : -0B Diode Below // -0T Diode Top use 090-5051-01 No Lugs 11" Leads | 23-700 / 30-2600 | 3.0 Ω 83.5 Ω | 090-5013-use : -00 DUAL WOUND COIL // Diode Top |
| 25-1240 | 9.3 Ω | 090-5034-use : -00 Diode Below | | | |
| 26-1200 | 10.3 Ω | 090-5044-use : -0B Diode Below // -0T Diode Top // -NL No Lugs 11" Leads // -ND No Diode | 23-800 / 30-2600 | 2.4 Ω 90.5 Ω | 090-5012-use : -00 DUAL WOUND COIL // Diode Top |
| 27-1300 | 14.2 Ω | 090-5003-use : -0T Diode Top | | | |
| 27-1400 | 14.7 Ω | 090-5015-use : -00 Diode Below | 23-1100 | 5.1 Ω | 090-5030-use : -0T Diode Top <ORANGE> -ND No Diode |
| 27-1400 | 14.7 Ω | 511-5031-00 Special App.: No Diode / Lugs + Conn. | | | |
| 27-1500 | 16.3 Ω | 090-5004-use : -0B Diode Below // -0T Diode Top | 23-1200 | 7.1 Ω | 090-5008-use : -00 Diode Top <BLACK> |
| 29-2000 | 33.6 Ω | 090-5016-use : -00 Diode Top | | | |
| LARGE, MEDIUM & MINI COILS (MAGNET APPLICATIONS) | | | 23-1500 | 4.4 Ω | 090-5062-use : -00 Diode Top <BLUE> |
| 20.5-480 | 2.9 Ω | 090-5064-use : -02 No Lugs or Core; 14" Leads // Large | | | |
| 22-650 | 4.3 Ω | 090-5042-use : -00 No Lugs or Core; 6" Leads // Large -01 No Lugs or Core; 12" Leads // Large | 24-1570 | 9.5 Ω | 090-5025-use : -00 Diode Top <BLUE> |
| 24-780 | 8.0 Ω | 090-5061-use : -00 No Lugs or Core; 6" Lds. // Medium | | | |
| 29-1000 | 15.2 Ω | 090-5059-use : -00 Lugs + Diode + Magnet Core // Mini | 25-1400 | call Ω | 090-5067-use : -0T Diode Top <RED> |
| 31-1500 | 52.0 Ω | 090-5054-00 : Straight Lugs + Diode + Mag Core // Mini 090-5055-00 : 90° Lugs + Diode + Magnet Core // Mini | | | |
| MINI COILS (RESET / TRIP APPLICATIONS) | | | 25-1600 | call Ω | 090-5068-use : -0T Diode Top <WHITE> |
| 27-950 | call Ω | 090-5046-use : -01 Diode Top | | | |
| 28-1050 | 11.5 Ω | 090-5046-use : -00 Diode Top | 27-880 | call Ω | 500-6976-01 No Lugs or Diode + 6" Leads & Conn. |
| 27-880 | call Ω | 500-6976-01 No Lugs or Diode + 6" Leads & Conn. | | | |
| 31-590 | call Ω | 090-5010-use : -00 Diode Top | 32-1250 | 35.0 Ω | 515-6916-01 : includes Flap & Screw <YELLOW> |
| 32-1250 | 35.0 Ω | 515-6916-01 : includes Flap & Screw <YELLOW> | | | |
| 32-1800 | 50.2 Ω | 090-5031-use : -0B Diode Below // -0T Diode Top (515-6110-00) use 515-# to include mounting & armature brackets | 33-1590 | 59.0 Ω | 515-6916-00 : includes brackets <WHITE> |
| 33-1590 | 59.0 Ω | 515-6916-00 : includes brackets <WHITE> | | | |

Please Note: Ohm values may vary +/- .03 depending on meter calibration.
 Ordering Note: Coils typically should not come with Coil Sleeves. IF A SLEEVE EXISTS, ensure it is the correct sleeve for the application usage. For the correct Coil Sleeve, refer to the Game Assembly Drawing the coil exists on and order separately.



Flipper Coil (White Star Board System* Only) Table

| GAME NAME | Nº of Flippers | FLIPPERS | | FLIPPERS no E.O.S. Switch | |
|---|----------------|----------------------------------|----------------------------------|------------------------------|----------------------------------|
| | | SPI Nº / GAUGE-TURNS / Color | | SPI Nº / GAUGE-TURNS / Color | |
| | | LOWER LEFT | LOWER RIGHT | UPPER LEFT | UPPER RIGHT |
| Apollo 13 | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Golden Eye | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Twister | 2 | 090-5020-20T 22-900 -YELLOW- | 090-5032-0T 22-1080 -YEL-GRN- | Not Used | Not Used |
| ID4: Independence Day | 3 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5020-30 23-900 -GREEN- |
| Space Jam † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | 090-5020-20T 22-900 -YELLOW- | Not Used | Not Used |
| The Star Wars Trilogy - Special Edition † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The Lost World: Jurassic Park † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The X-Files † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Starship Troopers † | 3 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | 090-5032-0T 22-1080 -YEL-GRN- |
| Viper Night Drivin' † | 2 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | Not Used |
| Lost In Space † | 2 | 090-5030-0T 23-1100 -ORANGE- | 090-5032-0T 22-1080 -YEL-GRN- | Not Used | Not Used |
| Godzilla † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| South Park † | 2 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | Not Used |

† Coil Part Numbers ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part Numbers ending with a "B" signifies the Diode is on the bottom of the lugs.

Table continued on the next page.





APPENDIX E

Flipper Coil (White Star Board System* & S.A.M. System** Only) Table



| GAME NAME | N ^o of Flippers | FLIPPERS w/E.O.S. Switch | | FLIPPERS no E.O.S. Switch | |
|--|------------------------------|--|------------------------------------|--|-------------------------------------|
| | | SPI N ^o / GAUGE-TURNS / Color | | SPI N ^o / GAUGE-TURNS / Color | |
| | | LOWER LEFT | LOWER RIGHT | UPPER LEFT | UPPER RIGHT |
| Harley-Davidson® † and 1st through 3rd Editions | 2 | 090-5032-0T 22-1080 -YEL-GRN- | 090-5030-0T 23-1100 -ORANGE- | Not Used | Not Used |
| Striker Xtreme (NFL) † | 3 | 090-5032-0T 22-1080 -YEL-GRN- | 090-5030-0T 23-1100 -ORANGE- | 090-5030-0T 23-1100 -ORANGE- | Not Used |
| Sharkey's Shootout † | 3 | 090-5030-0T 23-1100 -ORANGE- | SAME | 090-5030-0T 23-1100 -ORANGE- | Not Used |
| High Roller Casino † | 2 | 090-5032-20T 22-900 -YELLOW- | 090-5032-0T 22-1080 -YEL-GRN- | Not Used | Not Used |
| Austin Powers™ † | 2 | 090-5020-30 23-900 -GREEN- | 090-5030-0T 23-1100 -ORANGE- | Not Used | Not Used |
| MONOPOLY® † | 3 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5062-0T 23-1500 -BLUE- |
| Playboy † | 2 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | Not Used |
| RollerCoaster Tycoon™ † | 4 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | 090-5067-0T 25-1400 -RED- | 090-5068-0T 25-1600 -WHITE- |
| The Simpsons™ Pinball Party † | 6** (5 with Flipper Bats) | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5030-0T 23-1100 -ORANGE- |
| | | ** The Homer Head Assembly is affixed to an Upr. Rt. Style Flipper (no E.O.S. Switch): | | Flippers (Mini-Bats) on 2nd Level Playfield: | |
| | | | ** 090-5020-20T 22-900 -YELLOW- | 090-5041-00T 25-1800 -BLU-GRN- | 090-5025-00 24-1570 -BLUE- |
| Terminator® 3: Rise of the Machines™ † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The Lord of the Rings™ † | 2 | 090-5020-20T 22-900 -YELLOW- | SAME | Not Used | Not Used |
| Ripley's Believe It or Not!® † | 3 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5067-00T 25-1400 -RED- |
| Elvis® † | 4 | 090-5020-20T 22-900 -YELLOW- | SAME | 090-5020-30 23-900 -GREEN- | SAME |
| The Sopranos™ † | 2 | 090-5032-0T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| NASCAR® and [NDSE] † | 2 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | Not Used |
| Grand Prix † | 2 | 090-5030-0T 23-1100 -ORANGE- | SAME | Not Used | Not Used |
| † Coil Part Numbers ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part Numbers ending with a "B" signifies the Diode is on the bottom of the lugs. | | | | | |
| ** S.A.M. System Games DO NOT REQUIRE DIODES. If you use a coil from your stock which has a diode, remove it ONLY FOR S.A.M. System Games. | | | | | |
| World Poker Tour™ (WPT)** | 4 | 090-5032-ND 22-1080 [NO DIODE] | SAME | 090-5030-ND 23-1100 [NO DIODE] | SAME |
| ©Disney's Pirates of the Caribbean** | 2 | 090-5030-ND 23-1100 [NO DIODE] | SAME | Not Used | Not Used |
| Family Guy™ ** and Shrek™ ** | 3 Norm. | 090-5030-ND 23-1100 [NO DIODE] | SAME | 090-5062-ND 23-1500 [NO DIODE] | Not Used |
| | 2 Mini | 090-5046-01-ND 27-950 [NO DIODE] | SAME | | |
| Spider-Man™ ** and Black Spider-Man™ ** | 3 | 090-5032-ND 22-1080 [NO DIODE] | SAME | Not Used | 090-5032-ND 22-1080 [NO DIODE] |
| Wheel of Fortune™ ** | 2 | 090-5032-ND 22-1080 [NO DIODE] | SAME | Not Used | Not Used |
| Indiana Jones™ ** | 2 | 090-5032-ND 22-1080 [NO DIODE] | SAME | Not Used | Not Used |
| BATMAN™ ** | 2 | 090-5032-ND 22-1080 [NO DIODE] | SAME | Not Used | Not Used |



APPENDIX E

Generic Coil Cross-Reference Guide † ‡

Flipper Coil Table † ††

| GAME NAME | Nº of Flippers | FLIPPERS w/E.O.S. Switch | | FLIPPERS no E.O.S. Switch | |
|---|----------------|----------------------------------|---------------------------------|------------------------------|----------------------------------|
| | | SPI Nº / GAUGE-TURNS / Color | | SPI Nº / GAUGE-TURNS / Color | |
| | | LOWER LEFT | LOWER RIGHT | UPPER LEFT | UPPER RIGHT |
| Laser War ‡ | 2 | 090-5011-00 22-750 / 30-2600 | SAME | Not Used | Not Used |
| Secret Service ‡ | 3 | 090-5006-00 23-620 / 30-2600 | SAME | Not Used | 090-5006-00 23-620 / 30-2600 |
| Torpedo Alley ‡ | 3 | 090-5011-00 22-750 / 30-2600 | 090-5013-00 23-700 / 30-2600 | Not Used | 090-5012-00 23-800 / 30-2600 |
| Time Machine ‡ | 2 | 090-5011-00 22-750 / 30-2600 | SAME | Not Used | Not Used |
| ‡ These coils are dual-wound. | | | | | |
| Playboy 35th Anniversary †† | 2 | 090-5020-02 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| ABC Monday Night Football †† | 2 | 090-5020-02 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| †† A very small % of these games used a 090-5020-20 coil which used a proto-type Solid State Flipper System. The two types of coils both are 22-900 coils; the only difference is the addition of the 1N5404 Diode on the (-02) coils which was used in the Deger Design. | | | | | |
| Robocop | 2 | 090-5020-20 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| Phantom of the Opera | 2 | 090-5020-20 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| Back to the Future | 2 | 090-5020-20 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| The Simpsons | 2 | 090-5020-20 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| Checkpoint | 2 | 090-5020-20 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| Teenage Mutant Ninja Turtles | 2 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | Not Used |
| Batman | 2 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | Not Used |
| Star Trek 25th Anniversary | 2 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | Not Used |
| Hook | 2 | 090-5030-00 23-1100 -ORG-ORG- | 090-5020-30 23-900 -GRN-GRN- | Not Used | Not Used |
| Lethal Weapon 3 | 2 | 090-5030-00 23-1100 -ORG-ORG- | SAME | Not Used | Not Used |
| Star Wars | 2 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Rocky & Bullwinkle & Friends | 2 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | Not Used |
| Jurassic Park | 3 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | 090-5030-00 23-1100 -ORG-ORG- |

Table continued on the next page.



APPENDIX E

Flipper Coil Table †

| GAME NAME | N ^o of Flippers | FLIPPERS w/ E.O.S. Switch | | FLIPPERS no E.O.S. Switch | |
|---|-----------------------------|---|------------------------------------|--|------------------------------------|
| | | SPI N ^o / GAUGE-TURNS / Color | | SPI N ^o / GAUGE-TURNS / Color | |
| | | LOWER LEFT | LOWER RIGHT | UPPER LEFT | UPPER RIGHT |
| Last Action Hero | 2 | 090-5020-30 23-900 -GRN-GRN- | SAME | Not Used | Not Used |
| Tales from the Crypt | 3 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | 090-5041-00 25-1800 -BLU-GRN- |
| The Who's Tommy | 3 | 090-5020-30 23-900 -GRN-GRN- | SAME | 090-5041-00 25-1800 -BLU-GRN- | Not Used |
| WWF Royal Rumble | 4 | 090-5032-00 22-1080 -YEL-GRN- | SAME | 090-5041-00 25-1800 -BLU-GRN- | SAME |
| Guns N' Roses | 3 | 090-5032-00 22-1080 -YEL-GRN- | SAME | 090-5030-00 23-1100 -ORG-ORG- | Not Used |
| Maverick | 3 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | 090-5032-00 22-1080 -YEL-GRN- |
| Mary Shelley's Frankenstein | 3 | 090-5030-00 23-1100 -ORG-ORG- | SAME | Not Used | 090-5030-00 23-1100 -ORG-ORG- |
| Baywatch | 4 | 090-5030-00 23-1100 -ORG-ORG- | 090-5020-30 23-900 -GRN-GRN- | 090-5025-00 24-1570 -See Note- | 090-5030-00 23-1100 -ORG-ORG- |
| Batman Forever | 3 | 090-5032-00 22-1080 -YEL-GRN- | 090-5020-20 22-900 -YEL-YEL- | Not Used | 090-5020-30 23-900 -GRN-GRN- |
| Apollo 13 | 2 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Golden Eye | 2 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Twister | 2 | 090-5020-20 22-900 -YEL-YEL- | 090-5032-00 22-1080 -YEL-GRN- | Not Used | Not Used |
| ID4: Independence Day | 3 | 090-5032-00 22-1080 -YEL-GRN- | SAME | Not Used | 090-5020-30 23-900 -GRN-GRN- |
| Space Jam † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | 090-5020-20T 22-900 -YEL-YEL- | Not Used | Not Used |
| The Star Wars Trilogy - Special Edition † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The Lost World: Jurassic Park † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The X-Files † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| Starship Troopers † | 3 | 090-5030-00T 23-1100 -ORG-ORG- | SAME | Not Used | 090-5032-00T 22-1080 -YEL-GRN- |
| Viper Night Drivin' † | 2 | 090-5030-00T 23-1100 -ORG-ORG- | SAME | Not Used | Not Used |
| Lost In Space † | 2 | 090-5030-00T 23-1100 -ORG-ORG- | 090-5032-00T 22-1080 -YEL-GRN- | Not Used | Not Used |
| Godzilla † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| South Park † | 2 | 090-5030-00T 23-1100 -ORG-ORG- | SAME | Not Used | Not Used |
| Harley-Davidson® † and Harley-Davidson® 2nd Ed. † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | 090-5030-00T 23-1100 -ORG-ORG- | Not Used | Not Used |
| Striker Xtreme (NFL) † | 3 | 090-5032-00T 22-1080 -YEL-GRN- | 090-5030-00T 23-1100 -ORG-ORG- | 090-5030-00T 23-1100 -ORG-ORG- | Not Used |
| Sharkey's Shootout † | 3 | 090-5030-00T 23-1100 -ORG-ORG- | SAME | 090-5030-00T 23-1100 -ORG-ORG- | Not Used |
| High Roller Casino † | 2 | 090-5020-20T 22-900 -YEL-YEL- | 090-5032-00T 23-1080 -YEL-GRN- | Not Used | Not Used |
| Austin Powers™ † | 2 | 090-5020-30 23-900 -GRN-GRN- | 090-5030-00T 23-1100 -ORG-ORG- | Not Used | Not Used |
| MONOPOLY® † | 3 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5062-00T 23-1500 -BLU-BLU- |
| Playboy † | 2 | 090-5030-00T 23-1100 -ORG-ORG- | SAME | Not Used | Not Used |
| RollerCoaster Tycoon™ † | 4 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | 090-5067-00T 25-1400 -RED-RED- | 090-5068-00T 25-1600 -WHT-WHT |
| The Simpsons™ Pinball Party † | 6* (5 with Flipper Bats) | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5030-00T 23-1100 -ORG-ORG- |
| | | * The Homer Head Assembly is affixed to an Upr. Rt. Style Flipper (no E.O.S. Switch): | | Flippers (Mini-Bats) on 2nd Level Playfield: | |
| | | | * 090-5020-20T 22-900 -YEL-YEL- | 090-5041-00T 25-1800 -BLU-GRN- | 090-5025-00T 24-1570 -See Note- |
| Terminator® 3: Rise of the Machines™ † | 2 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | Not Used |
| The Lord of the Rings™ † | 2 | 090-5020-20T 22-900 -YEL-YEL- | SAME | Not Used | Not Used |
| Ripley's Believe It or Not!® † | 3 | 090-5032-00T 22-1080 -YEL-GRN- | SAME | Not Used | 090-5067-00T 25-1400 -RED-RED- |

† Coil Part N^os ending with a "T" signifies the Diode is on the top of the lug (on the coil-winding side); Coil Part N^os ending with a "B" signifies the Diode is on the bottom of the lugs.



APPENDIX F

Motor Specification (White Star Board System* Only) Table



| Game Name | Function | Specifications | Part Number |
|--|---|--|--|
| Apollo 13 | Rocket Up/Down Movement | Bowman Motor 24VAC 60Hz 3W 6 RPM CCW | 515-6383-00 <i>incl. Connector</i> |
| | Moon Unit Rotational Orbit | Multi Products Motor 24VAC 50/60Hz 3W 6 RPM CCW | 515-6487-00 <i>incl. Connector</i> |
| | Shaker | Johnson Motor (Vibrator) 10.5VDC 10 AMP 2950 RPM CW | 041-5029-00 MOTOR ONLY |
| Golden Eye | Satellite Left/Right Movement | Bowman Motor 24VAC 60Hz 3W 6 RPM CW | 515-6528-00 <i>incl. Connector</i> |
| Twister | Spinning Disc with Magnet | Multi Products Motor 24VAC (041-5026-00) 50/60Hz 3W 325 RPM CCW | 515-6347-00 <i>incl. Connector</i> |
| | Backbox Fan (Tornado Wind) | Multi Products Motor 24VAC (041-5052-00) 50/60Hz 3W 3600 RPM CW | 515-6531-00 <i>incl. Connector</i> |
| ID4: Independence Day | Alien Head Open/Close Movement | Servo Motor (94322) | 041-5045-00 MOTOR ONLY |
| <i>SPACE JAM (NO MOTOR USED)</i> | | | |
| The Star Wars Trilogy - S.E. | X-Wing Left/Right Movement | Bowman Motor 24VAC (041-5058-00) 60Hz 3W 10 RPM CCW | 515-6383-01 <i>incl. Connector</i> |
| The Lost World: Jurassic Park | Snagger & Center Link Lift Up/Down Movement | Multi Products Motor 20VDC (041-5059-03) 9 RPM Non-Directional | 515-6715-03 <i>incl. Connector</i> |
| | Shaker | Johnson Motor (Vibrator) 10.5VDC 10 AMP 2950 RPM CW | 041-5029-00 MOTOR ONLY |
| The X-Files | X-File Cabinet Lift Up/Down Movement | Multi Products Motor 20VDC 9 RPM CCW | 041-5057-00 MOTOR ONLY |
| Starship Troopers | Warrior Bug Forward/Reverse Movement | Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15° | 515-6794-00 <i>incl. Connector</i> Requires 7" Shaft: 530-5503-00 |
| <i>VIPER NIGHT DRIVIN' (NO MOTOR USED)</i> | | | |
| Lost In Space | Spinning Disc with Magnet | Multi Products Motor 24VAC (041-5046-00) 50/60Hz 3W 325 RPM CCW | 515-6347-00 <i>incl. Connector</i> |
| Godzilla | Shaker ‡ | Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM CW (w/DRL PTS) ‡ | 041-5029-01 MOTOR ONLY |
| <i>SOUTH PARK (NO MOTOR USED)</i> | | | |
| Harley-Davidson® 1st through 3rd Editions | Shaker ‡ | Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM CW (w/DRL PTS) ‡ | 041-5029-01 MOTOR ONLY |
| | Motorcycle Lift Up/Down Movement | Autotrol 24VAC (041-5072-02) 20 RPM CCW | 515-7025-00 <i>incl. Connector</i> |
| Striker Xtreme (NFL) | Goalie (Linebacker) Left to Right Movement | Multi #3590 12VDC (041-5075-00) 60 RPM | 515-7071-00 <i>incl. Connector</i> |
| Sharkey's Shootout | Mystery Ball Rotating Movement | Hankscraft Motor Model-E 24VAC (041-5076-00) 50/60Hz 3W 20 RPM CW | 515-7095-00 <i>incl. Connector</i> |
| High Roller Casino | Roulette Wheel Rotating Movement | Multi Products Motor 20VDC (041-5078-00) 17 RPM CCW | 515-7153-00 <i>incl. Connector</i> |
| | Up/Dn. Ramp in Slot Mach. Lift Up/Down Movement | Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15° | 515-6794-00 <i>incl. Connector</i> Requires Shaft 4¼": 530-5503-01 |
| Austin Powers™ | Time Machine Rotating Movement | Multi Products Motor 24VAC (041-5079-00) 50/60Hz 20RPM CCW | 515-7141-00 <i>incl. Connector</i> |
| | Laser Beam Left to Right Directional | Autotrol Motor 24VAC (041-5081-00) 50/60Hz 4W 10RPM Bi-Directional | 515-7171-00 <i>incl. Connector</i> |
| | Dr. Evil Target Lift Up/Down Movement | Hankscraft Motor Model-E 24VAC (041-5030-00) 50/60Hz 6RPM CCW | 515-5900-00 <i>incl. Connector</i> |
| Monopoly® | Mini-Flipper (Waterworks) Rotating Movement | Multi Prod. Motor & Gear Box #7000 EX00159A 20VDC 50/60Hz 85RPM CC/CCW | 041-5083-00 MOTOR ONLY |
| Playboy | Triangular Billboard Rotating Movement | Autotrol Motor (BD511 150-1387) 24VAC 50/60Hz 12RPM Bi-Directional | 041-5086-02 MOTOR ONLY |
| | Centerfold Mechanism Open/Close Movement | Multi Products (3680) Motor 12v DC 10/12 RPM CC/CCW | 041-5075-04 MOTOR ONLY |
| | Tease Drop Screen Lift Up/Down Movement | Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 4.6W (041-5062-00), Series 36000: 1.4"ø (Non-Captive Shaft not included) HSI #36864-12 (Unipolar) Travel per Step: .004 Step Angle: 15° | 515-6794-00 <i>incl. Connector</i> Requires 7" Shaft: 530-5503-00 |

‡ Please Note: ".01" Shaker Motor is **Not Compatible** with old Shaker Motor 041-5029-00 (Shaker Motor Assy. 515-5893-00). THIS NEW MOTOR CAN ONLY BE USED IN NEW SHAKER MOTOR ASSY. 515-5893-01.

Table continued on the next page.





APPENDIX F

Motor Specification (White Star Board System* & S.A.M. System** Only) Table



| Game Name | Function | Specifications | Part Number |
|---|---|---|---|
| ROLLERCOASTER TYCOON™ (NO MOTOR USED) | | | |
| THE SIMPSONS™ PINBALL PARTY (NO MOTOR USED) | | | |
| Terminator® 3: Rise of the Machines™ | Backbox Ball Shooter Up/Down Movement | Multi Products Motor 24VAC (041-5079-01) 21 RPM CW | 515-7317-00 <i>incl. Connector</i> |
| The Lord of the Rings™ | Balrog (Motor & Gate) Open/Close Movement | Multi Prod. Motor 20VDC Series 600B (or equiv.) 50/60Hz 10 RPM Bi-Directional | 041-5088-01 MOTOR ONLY |
| RIPLEY'S BELIEVE IT OR NOT!® (NO MOTOR USED) | | | |
| Elvis® | Elvis™ Front/Back Movement | Haydon Switch & Instrument, Inc. Stepper Motor 12VDC 10W (041-5089-00), (Non-Captive Shaft not included) HSI #46868-12-002 | 500-6809-00 <i>incl. Connector</i> Requires 7.25" Shaft: 530-5658-00 |
| | ▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00 | Multi #3811 0630 Motor (Vibrator) 12VDC (041-5029-01) 3100 RPM (w/DRL PTS) | 515-5893-01 <i>incl. Connector</i> |
| The Sopranos™ | Bada Bing! Girls x2 Rotating Posts Movement | Autotrol Synchronous Motor 24VAC 4W 50/60Hz 45.7/54.9 RPM Bi-Directional | 041-5092-00 <i>w/1" Shaft + 12" Leads</i> |
| NASCAR® and [NDSE] | Back Panel Rotating (Car) Windmill (Skill Ball Enter) | Multi Products Motor & Gear Box 20VDC Model #8000 (EX-04-073) 10 RPM | 041-5093-00 MOTOR ONLY |
| Grand Prix | Back Panel Rotating (Car) Windmill (Skill Ball Enter) | Multi Products Motor & Gear Box 20VDC Model #8000 (EX-04-073) 10 RPM | 041-5093-00 MOTOR ONLY |
| World Poker Tour™ (WPT) (NO MOTOR USED) | | | |
| The Simpsons™ Kooky Carnival | Bart on Skateboard Left/Right Movement | Multi Products Motor with Crank 24VAC (041-5095-01) 50/60Hz 3W 14 RPM | 500-6947-01 <i>incl. Connector</i> |
| | Left & Right Ramps Up/Down Movement | Multi Products Motor 24VAC (041-5048-01) 50/60Hz 3W 15 RPM CCW (Qty. 2 in game) | 515-7558-00 <i>incl. Connector</i> |
| | Shaker <i>(details in SKC Manual, Page 24)</i> | Multi #3811 0630 Motor (Vibrator) 12VDC 3100 RPM (w/DRL PTS) | 041-5029-01 MOTOR ONLY |
| ©Disney's Pirates of the Caribbean | Spinning Disk | Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic | 511-5024-04 <i>incl. Connector</i> |
| | Pirate Ship Sinking/Raising Movement | Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.86" Shaft) | 041-5101-00 MOTOR ONLY |
| Family Guy™ and Shrek™ | Stewie Figurine Left & Right Movement | Stepper Motor NPM PF35T-48D4STD 5V RVB (041-5102-00 Reference Only) | 511-5043-00 <i>incl. Connector</i> |
| Spider-Man™ and Black Spider-Man™ | Doc Ock, Sandman & 3-Bank Up/Down Movement | Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-00 Reference Only) | 511-5063-00 <i>incl. Connector</i> |
| | ▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00 | Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic | 515-5893-01 <i>incl. Connector</i> |
| Wheel of Fortune™ | Wheel (LED & OPTO) Spinning Movement | Stepper Motor Lin. Eng. 4118S-70-RO (041-5105-00 Reference Only) | 511-5072-00 <i>incl. Connector</i> |
| Indiana Jones™ | Ark (Pinball Elevator) Up/Down Movement | Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft) | 041-5107-00 MOTOR ONLY |
| | Temple Newton Captive Ball Up/Down Movement | Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-00 Reference Only) | 511-5063-00 <i>incl. Connector</i> |
| | Swordsman Gate Open/Close Movement | Sync. Motor 24VAC 50/60Hz 3W 12 RPM CW (041-5103-02 Ref. Only) Modified Motor Shaft | 511-5063-02 <i>incl. Connector</i> |
| | ▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00 | Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic | 515-5893-01 <i>incl. Connector</i> |
| BATMAN™ | Crane Motor (Type 1) Forward & Back. Movement | Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft) | 041-5107-01 MOTOR ONLY |
| | Crane Motor (Type 2) Forward & Back. Movement | Multi Products Motor & Gear Box 24VDC Reversible Model #7000D-DCM 12 RPM 35MM (.63" Shaft) KEYED (includes Key #404 (535-0256-00)) | 041-5107-02 MOTOR ONLY |
| | Reveal (Joker) Open/Close Movement | Multi Products & Gear Motor 24VDC Model #7000 12 RPM with 26mm Diam. ø | 041-5108-00 MOTOR ONLY |
| | ▶▶▶ OPTIONAL ◀◀◀ Shaker Motor Kit 502-5027-00 | Multi #3811R 0630 Motor (Vibrator) 12VDC (041-5029-04) 3100 RPM (w/DRL PTS) -04 is RoHS compliant; can substitute with -01 domestic | 515-5893-01 <i>incl. Connector</i> |



APPENDIX F

Motor Specification Table

The following table only list games that used motors. Part Numbers starting with "515-" will include the Wiring Harness & Connector.

| Game Name | Function | Specifications | Part N ^o |
|------------------------------|---|---|---------------------|
| ABC Monday Night Football | Goal Post Up/Down Movement | Motor 24v A.C. 60 RPM CW | 515-5222-00 |
| Phantom of the Opera | Organ Up/Down Movement | Bowman Motor 24v 60Hz 3W 11 RPM CCW | 515-5256-00 |
| Checkpoint | Mag Wheel (in Backbox) | Motor D.C. (KEN) | 041-5005-00 |
| | Shaker | Johnson Motor (Vibrator) | 041-5002-00 |
| Teenage Mutant Ninja Turtles | Spinning Pizza Ball Deflector | Gear Motor 24v A.C. 325 RPM CW | 515-5397-00 |
| Batman | Bar Target Up/Down Movement | Bowman Motor 24v 60Hz 3W 11 RPM CCW | 515-5256-00 |
| Star Trek 25th Anniversary | Swinging Target | Bowman Motor 24v 22½ RPM | 515-5534-00 |
| | Transporter F/X | Gear Motor 24v A.C. 3½ RPM | 500-5421-00 |
| | Cooling Fan (for Transporter F/X) | 4½" Motor 12v | 041-5014-00 |
| Lethal Weapon 3 | Spinning Light | Motor 2½ v A.C. 4000 RPM CCW | 041-5017-00 |
| Star Wars | Bar Target Up/Down Movement | Bowman Motor 24v 60hz 3W 11 RPM CCW | 515-5256-00 |
| | R2D2 Robot Left/Right Movement | Bowman Motor 24v A.C. 22½ RPM CW | 515-5571-00 |
| | Death Star Rotation | Bowman "G" Motor 24v A.C. 60Hz 6 RPM CW | 515-5570-00 |
| Rocky & Bullwinkle & Friends | Nell Log "Cutting Blade" Forward/Back Movement | Autotrol Model E Motor 24v 60hz 4W 3 RPM CCW | 041-5023-00 |
| Jurassic Park | T-Rex Left/Right Movement | Multi Motor 5v D.C. | 041-5025-00 |
| | T-Rex Up/Down Movement | Bowman Motor 24v 11 RPM CW | 041-5026-00 |
| | Shaker | Johnson Motor (Vibrator) | 041-5002-00 |
| Last Action Hero | Crane Left/Right Movement | Multi Products Motor 12v D.C. #3312 OSC | 041-5027-00 |
| | Shaker | Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW | 041-5029-00 |
| Tales from the Crypt | Tombstone Up/Down Movement | Bowman Motor 24v A.C. 6 RPM CCW | 515-5900-00 |
| | Shaker | Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW | 041-5029-00 |
| The Who's Tommy | Mirror Up/Down Movement | Bowman Motor 24v A.C. 6 RPM CCW | 515-5900-00 |
| | Flipper Blinders | Servo Motor (94102) | 041-5032-00 |
| | Spinning Airplane Propellers | Motor D.C. | 041-5033-00 |
| WWF Royal Rumble | Shaker | Johnson Motor (Vibrator) 10.5v D.C. 10 AMP 2950 RPM CW | 041-5029-00 |
| Maverick, The Movie | Turning Paddle Wheel | Motor 24v A.C. 10 RPM | 041-5036-00 |
| Mary Shelley's Frankenstein | Creature Head Left/Right Movement | Servo Motor (94102) | 041-5032-00 |
| Batman Forever | Cannon Left/Right Movement | Bowman Motor 24v A.C. 60Hz 3W 6 RPM CCW | 515-6383-00 |

APPENDIX G

Part Number Prefix Classification Codes

I. Electrical Source, Energy & Signal Converters

- 010- Transformers
- 031- Speakers
- 090- Solenoids (Coils)
- 150- Filters, Outlets, Varistors, Thermistors
- 200- Fuses

II. Conductors, Connectors & Insulators

- 034- Line Cords
- 036- Cable Assemblies & Wiring Harnesses
- 041- Motors
- 045- Connectors (All Types)
- 055- Lugs (M/F), Pins (M/F), Discs, Ring Terminals, Terminal Strips, etc.
- 060- Polarizing Keys and Conn. Covers
- 077- Lamp Sockets

III. Circuits & Circuit Elements

- 100- ICs
- 110- Transistors
- 112- Diodes (All Types including LEDs & Modules)
- 121- Resistors
- 123- Resistors (Variable & Adjustable)
- 124- Regulators & Bridge Rectifiers
- 125- Capacitors (Radial Lytics & Ferrites)
- 126- Piezo Crystal
- 127- Heatsinks
- 130- Capacitors (Tectates & Ceramics)
- 140- Oscillators (Clocks/Crystals)
- 165- Light Bulbs
- 180- Switches
- 181- Switch Membranes (Pads) & Piezo Sensors
- 190- Relays
- 960- EPROM (*Raw Part*)
- 965- EPROM (*Programmed Part*)

IV. Bolts, Screws, Nuts, Washers & Nails

- 231- Bolts
- 232- Screws (Pan Head)
- 234- Screws (HWH)
- 237- Screws (Misc.)
- 240- Nuts (Misc.)
- 242- Washers (Flat, Round)
- 244- Washers (Split Lock)
- 245- Nyloners
- 246- Washers (Lockers, External Tooth)
- 281- Nails

V. Mechanical Components

- 249- Rivets
- 251- Pins (Dowel), Finishing Nails, Hairpins, Spring Pins and Clevis Pins
- 254- Stand-Offs, Spacers and Shims
- 260- Steel Ball (All Types Steel, Glowing, Delrin, etc.)
- 265- Springs (Extension)
- 266- Springs (Compression)
- 267- Springs (Torsion)
- 269- Springs (Washers - Belleville, Wave)
- 270- Retaining Rings
- 280- Grommets, Bushings and Nyloners
- 283- Bearings

VI. Handles, Locks, Catches, Latches, Keys

- 355- Handles, Locks, Catches, Latches and Keys

VII. Fabricated Parts

- 390- Hinges
- 501- Coin Doors
- 515- Sub-Assemblies
- 520- Printed Circuit Boards (PCBs)
- 522- Display Glass
- 525- Wood Parts
- 530- Screw Machined Parts
- 535- Fabricated Parts
- 545- Molded (Extruded) Plastic and Rubber Parts (Rings, Sleeves, etc.)
- 550- Molded (Inserts)

VIII. In-House Assemblies

- 500- End Product (Systems and Models)
- 502- Kits (Created In-House)
- 505- Cabinets (complete)
- 510- Riveted Sub-Assemblies (In-House)
- 511- Sub-Assemblies (In-House)
- 515- Sub-Assemblies*

*2 or more 515-'s but still a sub-assembly.

IX. Bulk Materials

- 600- Braided Wire & Ground Straps
- 601- Stranded Wire
- 602- Ribbon Cable
- 604- Telephone Line Cord
- 605- Sleeving (Shrink Tubing)
- 625- Velcro (non-adhesive)
- 626- Foam Rubber, Foam Pads, Rubber Bumpers (Blue Pads), Tape (All Types) Velcro (adhesive) and String / Rope








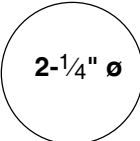
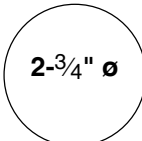
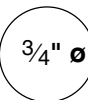
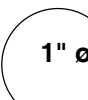
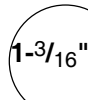
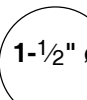
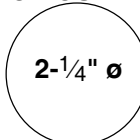
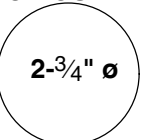

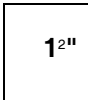
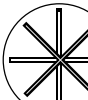
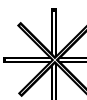
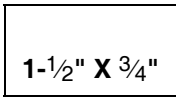
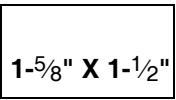
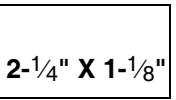
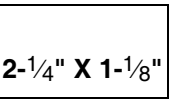
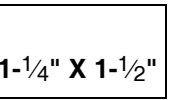
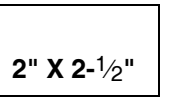


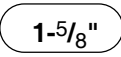
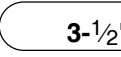
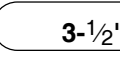




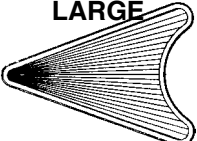
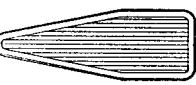
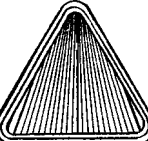
X. Miscellaneous

- 000- Tools (*see also 777-*) and Supplies
- 040- Clamps, Ties & Clips
- 042- Pulleys
- 091- Coin Mechs
- 205- Fuse Holders
- 631- Staples
- 660- Glass (Playfield, Backglass, etc.)
- 675- Cleaners
- 705- Packing & Shipping Items
- 755- Instruction, Coin Cards, Ins. Sheets
- 756- Information Sheets, Service Bulletins, Instruction Sheets in Kits and Templates
- 777- Tools (Wrenches and Drivers)
- 780- Manuals
- 802- Decal Kits (comprised of 820's)
- 820- Decals, Mylar and Labels (Sheets/Sets)
- 803- Plastic Kits (comprised of 830's)
- 830- Plastic Pieces (Butyrate Sheets/Sets)
- 880- Toys, Models, Figurines, etc.
- 900- Game Posters



APPENDIX H

Playfield Inserts (Plastic Light Covers)

| | | | | | |
|--|--|--|---|--|--|
| Patterns: STARBURST  STIPPLE  | STARBURST CIRCULAR  550-5000-XX | STARBURST CIRCULAR  550-5001-XX | STARBURST CIRCULAR  550-5002-XX | STARBURST CIRCULAR  550-5003-XX | STARBURST CIRCULAR  550-5004-XX |
| STARBURST CIRCULAR  550-5005-XX | STARBURST CIRCULAR  550-5006-XX | PLAIN CIRCULAR  550-5007-XX | PLAIN CIRCULAR  550-5008-XX | PLAIN CIRCULAR  550-5009-XX | PLAIN CIRCULAR  550-5010-XX |
| PLAIN CIRCULAR  550-5011-XX | PLAIN CIRCULAR  550-5012-XX | STIPPLE CIRCULAR  550-5048-XX | STIPPLE 1" SQUARE  550-5019-XX | ROLLOVER BUTTON BASE  550-5026-XX | WHITE STAR (only in white)  545-5015-00 |
| STIPPLE RECTANGULAR  550-5018-XX | STIPPLE RECTANGULAR  550-5051-XX | STARBURST RECTANGULAR  550-5044-XX | PLAIN RECTANGULAR  550-5049-XX | PLAIN RECTANGULAR  550-5050-XX | PLAIN RECTANGULAR  550-5063-XX |
| STARBURST MINI SHIELD  550-5024-XX | STARBURST LARGE SHIELD  550-5025-XX | MINI HOT DOG  550-5020-XX | BEVEL HOT DOG  550-5021-XX | PLAIN HOT DOG  550-5022-XX | BANANA  550-5023-XX |
| STARBURST ARROW-SMALL  550-5013-XX | STARBURST ARROW-LARGE  550-5070-XX | STARBURST ARROW-HEAD SMALL  550-5014-XX | STARBURST ARROW-HEAD LARGE  550-5015-XX | STARBURST BULLET  550-5016-XX | STARBURST TRIANGLE  550-5017-XX |

Note: The shapes and sizes shown above are not to scale. Some shapes may no longer be available in every color.

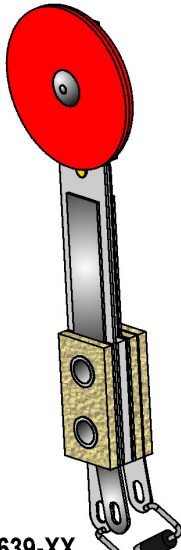
Instructions: Parts which may come in various colors (i.e. targets, some posts, playfield inserts, etc.) end in a 2-digit number which correspond to the color of that part. The "-XX" in part number which may come in various colors should be replaced with the desired 2-Digit number corresponding to the color desired below. *Not all colors may be available.*

| PLASTIC PART COLOR CHART | | | | | | | | | | | |
|--------------------------|----------------------|-----|-------|-----|--------|-----|---------------|-----|-------------|-----|--------------|
| Nº | Color | Nº | Color | Nº | Color | Nº | Color | Nº | Color | Nº | Color |
| -00 | Black or Solid Clear | -03 | Amber | -06 | Yellow | -09 | Purple | -12 | Fluor. Blue | -15 | Luminescent |
| -01 | Clear | -04 | Green | -07 | Orange | -10 | Fluor. Orange | -13 | Teal Green | -16 | Gold |
| -02 | Red | -05 | Blue | -08 | White | -11 | Fluor. Green | -14 | Gray | -17 | Trans. Brown |

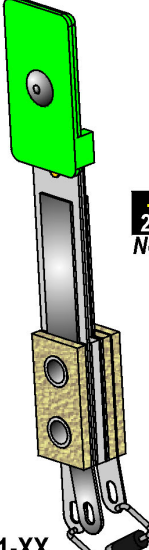
APPENDIX I

Anti-Loft Stand-Up Targets

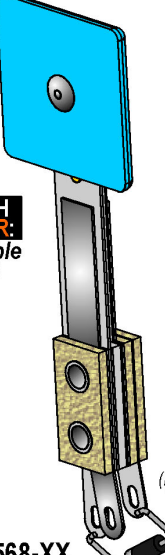




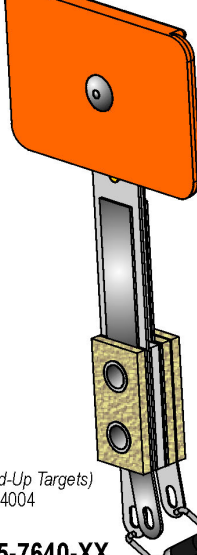
515-7639-XX
1" Ø ROUND
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*



515-7581-XX
1" X 1/2" NARROW RECTANGLE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*



515-7568-XX
1" X 1" SQUARE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*



515-7640-XX
1" X 1-1/2" WIDE RECTANGLE
ANTI-LOFT STAND-UP
SWITCH & TARGET
RIVETED ASSEMBLY*

Ordering Note:
-XX REPLACE WITH
2-DIGIT FOR COLOR:
Not all colors available
(colors shown not exact)

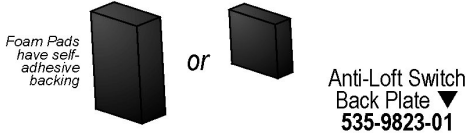
| | |
|-----|--------|
| -02 | Red |
| -03 | Amber |
| -04 | Green |
| -05 | Blue |
| -06 | Yellow |
| -07 | Orange |
| -08 | White |

(Required on all Stand-Up Targets)
▼ Switch Diode, 1N4004
112-5003-00

*Some targets may require the lugs position be changed to the left or to the right, depending on the application; these targets will have a different part number and are called out in the game manual they are used in (see Section 4, Chapter 1, Parts Identification & Location, Playfield... -Switches.) Review the game manual for the game desired for the original target used or application.

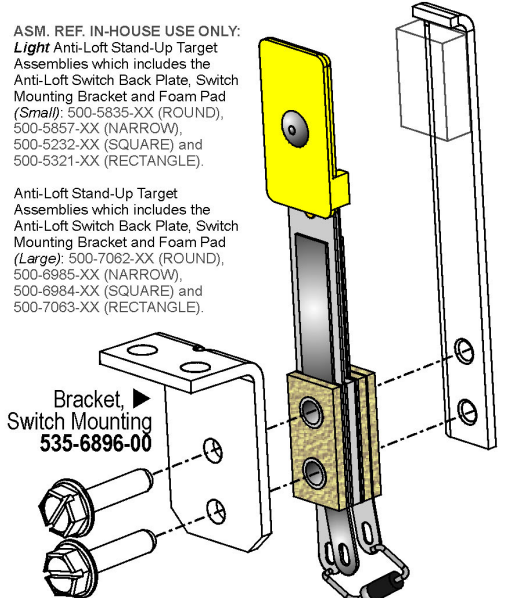
For Anti-Loft Application use
Large Foam Pad,
5/8" X 7/16" X 3/16" Thick
626-5078-00

For > Light < Anti-Loft Application use
Small Foam Pad,
7/16" X 7/16" X 1/8" Thick
626-5029-00

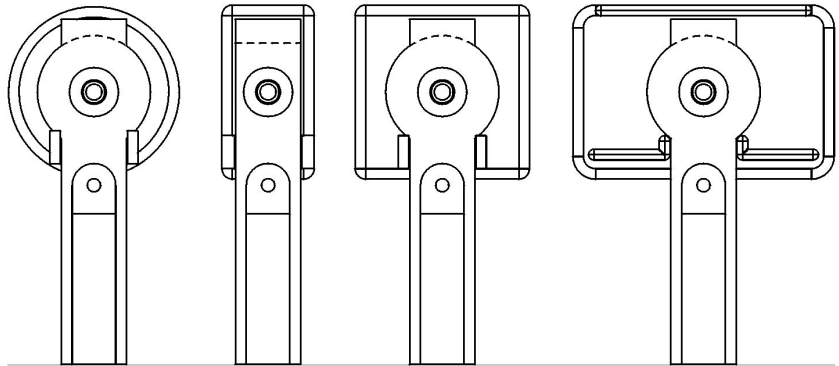


ASM. REF. IN-HOUSE USE ONLY:
Light Anti-Loft Stand-Up Target Assemblies which includes the Anti-Loft Switch Back Plate, Switch Mounting Bracket and Foam Pad (Small): 500-5835-XX (ROUND), 500-5857-XX (NARROW), 500-5232-XX (SQUARE) and 500-5321-XX (RECTANGLE).

Anti-Loft Stand-Up Target Assemblies which includes the Anti-Loft Switch Back Plate, Switch Mounting Bracket and Foam Pad (Large): 500-7062-XX (ROUND), 500-6985-XX (NARROW), 500-6984-XX (SQUARE) and 500-7063-XX (RECTANGLE).



▲ #6-32 X 5/8" Slotted HWH Swage (Zinc) Screws (Qty. 2/per) **237-5976-04**



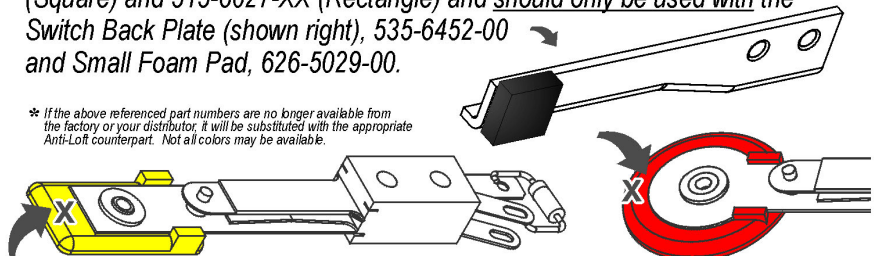
REAR VIEWS OF ANTI-LOFT TARGET & SWITCH ASSEMBLIES

The material of the Anti-Loft Switch has been extended higher to be used with the Anti-Loft Switch Back Plate. **IMPORTANT:** Switch & Target Assemblies (X) without the extension (the predecessors) **SHOULD NOT** be used with an Anti-Loft Switch Back Plate (shown left).

APPENDIX REFERENCE FOR PINBALL GAMES WHICH USED THE BELOW SWITCH & TARGET ASSEMBLIES NOTE:

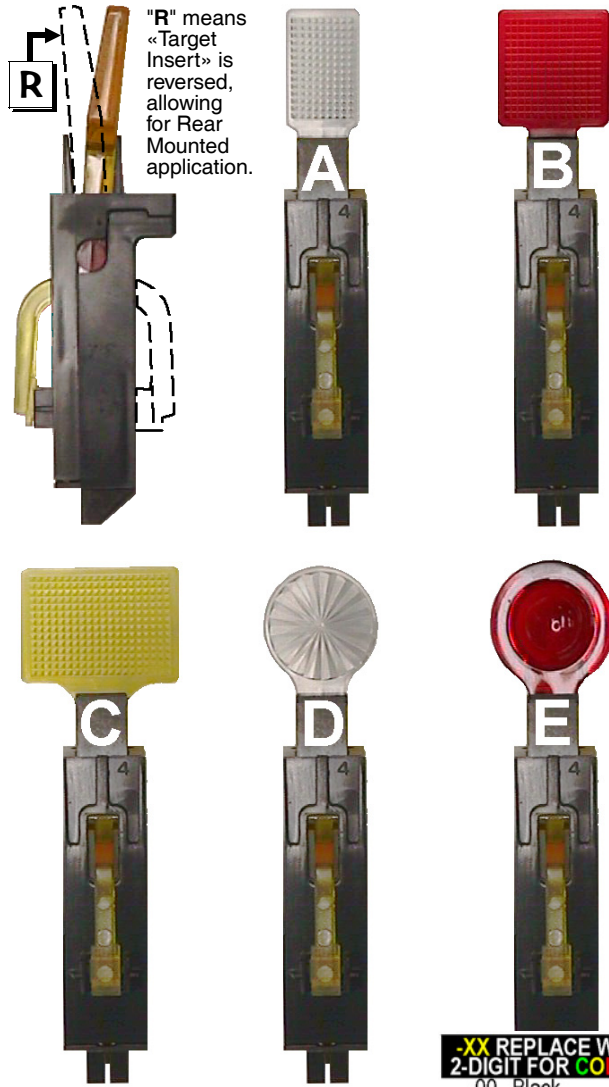
The Switch & Target Assemblies (X) without the extension have the following part numbers*: 515-5966-XX (Round), 515-5967-XX (Narrow), 515-5162-XX (Square) and 515-6027-XX (Rectangle) and should only be used with the Switch Back Plate (shown right), 535-6452-00 and Small Foam Pad, 626-5029-00.

* If the above referenced part numbers are no longer available from the factory or your distributor, it will be substituted with the appropriate Anti-Loft counterpart. Not all colors may be available.



APPENDIX I

Modular Stand-Up Targets



"R" means «Target Insert» is reversed, allowing for Rear Mounted application.

To Replace the « Target Insert » or change Target Orientation :

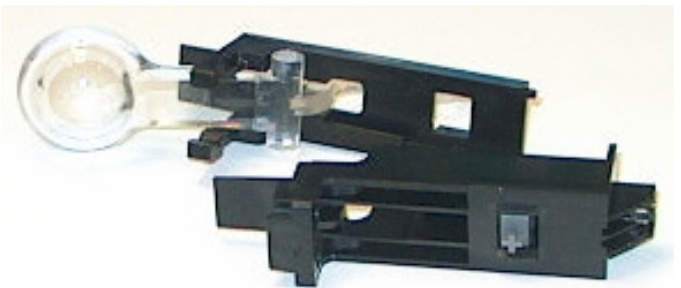
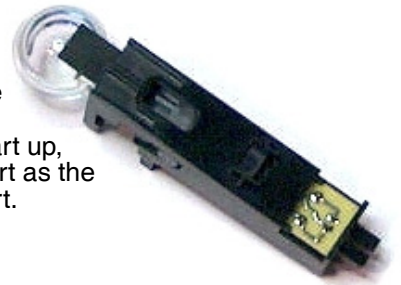
Items A-E Note: For the Target Assembly use the "500-" SPI Part Number(s) shown in the Parts Table below. To receive the Target Assembly with the « Target Insert » « Reversed » simply add a "R" at the end of the Part Number. See Side View picture left to compare (dashed line shows target reversed). For just the «Target Insert» use the "545-" SPI Part Number.



To reverse it yourself or to just change the insert:

1. With a small flat head screwdriver, push into the small tab at the bottom of the target front and give a slight twist motion to "pop" the two halves.

2. Push the Target Insert bottom in at the same time while you slide the top (front) part up, then let go of the insert as the two halves come apart.



3. Replace target or reinsert it into the other size while sliding the two halves back together.

Note: If you were reversing the orientation, don't forget to also turn the Switch Actuator PCB 180°. Test Switch.

Take Note:

- Items A-E come in various colors. These targets may not be available in every color. The "-XX" in should be replaced with the desired 2-Digit number for the color desired as described in the Color Chart below. As of print date, the following colors were used :
 -01 Clear (A, D); -02 Red (A, B, C, D, E); -03 Amber (D, E);
 -04 Green (A, B); -05 Blue (C); -06 Yellow (A, C),
 -09 Purple (B, D); -11 Fluorescent Green (A, B, D)
- For location(s) and type of Stand-Up Targets used, if any, see Section 4, Chapter 1, Parts Identification & Location.

-XX REPLACE WITH 2-DIGIT FOR COLOR:

- 00 Black
 - 01 Clear
 - 02 Red
 - 03 Amber
 - 04 Green
 - 05 Blue
 - 06 Yellow
 - 07 Orange
 - 08 White
 - 09 Purple
 - 10 Fluor. Orange
 - 11 Fluor. Green
 - 12 Fluor. Blue
 - 13 Teal Green
 - 14 Gray
 - 15 Luminescent
 - 16 Gold
- Note: Not all colors available.

| Nr. | STAND-UP TARGET PARTS | SPI PART Nr. |
|-----|---|--------------|
| A | Modular Stand-Up Target Narrow Assembly | 500-6138-XX |
| | Stand-Up Target Narrow (Insert) | 545-6138-XX |
| B | Modular Stand-Up Target Square Assembly | 500-6139-XX |
| | Stand-Up Target Square (Insert) | 545-6139-XX |
| C | Modular Stand-Up Target Rectangle Asm. | 500-6228-XX |
| | Stand-Up Target Rectangle (Insert) | 545-6228-XX |
| D | Modular Stand-Up Target Round Assembly | 500-6075-XX |
| | Stand-Up Target Round (Insert) | 545-6075-XX |
| E | Modular Stand-Up Target 1" Spherical Asm. | 500-6189-XX |
| | Stand-Up Target 1" Spherical (Insert) | 545-6189-XX |

APPENDIX J



Coin Cards for USA & International (Euro & Non-Euro) Pricing Defaults

If more than one Pricing Scheme is available for countries listed, the asterisk listed beside the option, denotes the Factory Default Setting.

VISIT OUR WEBSITE TO DOWNLOAD ALL THE LATEST COIN CARDS (INCLUDING COIN CARDS FOR OLDER GAMES).

| | | | | | | | | | | | |
|---|-----------|---|-----------|---|--------|--|----------------------------|--|---------|--|---------|
| USA 10* (Canada Custom) 755-5400-11-Y | | USA 5 (Canada Custom) 755-5400-08-Y | | USA & Canada Custom 755-5400-04-Y | | USA 3, 4 or 5 (Can. Cust.) 755-5400-03-Y | | Canada 2* (USA Custom) 755-5400-10-Y | | Canada 1 (USA 2 or 8) 755-5400-09-Y | |
| Custom All Countries 755-5400-06-Y | | Australia 1* & 2 755-5406-00-Y | | Croatia 755-5410-00-Y | | Czech Republic 755-5415-00-Y | | Denmark 1* & 2 755-5402-00-Y | | Hong Kong 755-5414-00-Y | |
| Japan 1 & 2* 755-5408-01-Y | | Lithuania 755-5416-00-Y | | Middle East 755-5400-06-Y | | New Zealand 1* & 2 755-5406-00-Y | | Norway 1* & 2 755-5403-01-Y | | Norway 1* & Custom 755-5403-02-Y | |
| Norway 3 & 4 755-5403-03-Y | | Norway 2 755-5403-00-Y | | Romania 755-5417-00-Y | | Russia 755-5411-00-Y | | South Africa 1* & Custom 755-5409-01-Y | | Sweden 1* & 2 755-5404-00-Y | |
| Switzerland 1* & 2 755-5405-00-Y | | Taiwan, R.O.C. 755-5412-00-Y | | Turkey 755-5413-00-Y | | United Kingdom 5* 755-5407-01-Y | | United Kingdom 1 & 3 755-5407-00-Y | | United Kingdom Custom 755-5407-02-Y | |
| EURO 1 | EURO 2 | EURO 3 | EURO 4 | EURO 5 | EURO 6 | EURO 7 | EURO 8 | EURO 9 | EURO 10 | EURO 11 | EURO 12 |
| BELGIUM ITALY 1 PORTUGAL GERMANY 1* | GERMANY 2 | THE NETHER- LANDS | GERMANY 3 | | | | FINLAND GREECE SPAIN | AUSTRIA ITALY 2 | FRANCE | | |
| Euro Setting 1 755-5401-01-Y | | Euro Setting 2 755-5401-02-Y | | Euro Setting 3 755-5401-03-Y | | Euro Setting 4 755-5401-04-Y | | Euro Setting 5 755-5401-05-Y | | Euro Setting 6 755-5401-06-Y | |
| Euro Setting 7 755-5401-07-Y | | Euro Setting 8 755-5401-08-Y | | Euro Setting 9 755-5401-09-Y | | Euro Setting 10 755-5401-10-Y | | Euro Setting 11 755-5401-11-Y | | Euro Setting 12 755-5401-12-Y | |

Section 3, Chapter 4, GO TO ADJUSTMENTS MENU, Adj. 18, Game Pricing, USA & International (non-Euro) and Euro 1-12 Summary & International (Euro) Standard Pricing Select Tables, summarizes Standard or Custom Pricing Schemes & the Dip Switch Setting required.

Download all Coin Cards from our website:
<http://www.sternpinball.com/coinagecards.shtml>

Appendix J:

1 or order SPI Part No.: 970-2007-00 (970-2002-00 thru 970-2006-0) CD-Rom through your Local Distributor.

Coin Cards (USA & Intn'l Pricing Defaults)