featuring our Portals Service Menu and our unique

Find-Up-In-Frome Dr. Pinball Segion



SEGA.

PINBALL, INC.





Joe Blackwell
Technical Support
Manager



Eric Winston Technical Support Engineer



Doug Lemons
Technical Support
Engineer



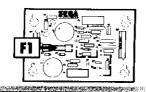
Jay Alfer
Technical Support
Documentation
Administrator

This is a Sample Game Manual. At time of printing, some technical information, schematics and/or drawings may not have been included. Call 1-800-542-5377 (USA & Canada) or 1-708-345-7700 for Technical Support and/or information.



SPI PN°: 780-5060-SP

BACKBOX LAYOUT LOCATIONS: Fuses, Bridges, Relays & ROMs



Display Power Supply Bd.

CPU / Sound Board
No Fuses

I/O Power Driver Board

| *** A | I BRIDGES rated 35A @ 100v *** |
|------------|--|
| B1 | +50v DC High Current Coils |
| B 2 | +20v DC Low Current Coils |
| B 3 | +/-12v DC Sound/Display/Logic |
| B20 | +18v DC Illumination |
| B21 | +5v DC Logic Voltage |
| 9.0 | THE RESIDENCE OF THE PARTY OF T |

CAUTION: For continued protection against risk of fire, replace only with same type of fuse having the same electrical rating!

Backbox



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QUICK REFERENCE FUSE CHART

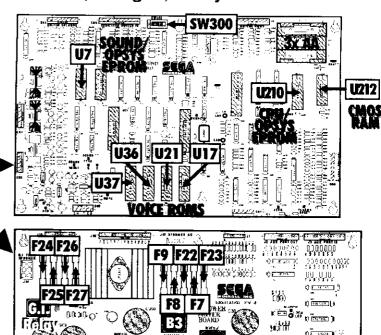
| Source Company | ndhaladadhir da Darkina da As | | |
|----------------|-------------------------------|---------|-----------------------------------|
| F1 | 3∕₄A 250v S.B. | 90v DC | High Voltage Display |
| LO | 11/10/06 | | |
| F6 | 7A 250v S.B. | 50v DC | Primary High Power Coils/Flippers |
| F7_ | 5A 250v S.B. | 20v DC | Low Power Coils |
| F8 | 5A 250v S.B. | 12v DC | Logic Power |
| F9 | 5A 250v S.B. | 12v DC | Logic Power |
| F20 | 3A 250v S.B. | 50v DC | Magnets |
| F21 | 3A 250v S.B. | 50v DC | Coils |
| F22 | 8A 250v S.B. | 18v DC | Controlled Lamps |
| F23 | 4A 250v S.B. | 5v DC | Logic |
| F24 | 5A 250v S.B. | 6.3v AC | G.I. Lamps (BRN-WHT to WHT-BRN) |
| F25 | 5A 250v S.B. | 6.3v AC | G.I. Lamps (YEL to WHT-YEL) |
| F26 | 5A 250v S.B. | 6.3v AC | G.I. Lamps (GRN to WHT-GRN) |
| F27 | 5A 250v S.B. | 6.3v AC | G.I. Lamps (VIO to WHT-VIO) |
| F28 | 3A 250v S.B. | 24v AC | Not Used / Spare |
| | C a | bin | et Fuses |
| 7 | S | | |

| LG | 246.55 | E (E Verser) bridger (Fig.) (Co. 1911) in Extraction |
|-----|--------------|--|
| n/a | 8A 250v S.B. | 115v AC Main Fuse Line (Domestic or USA) |
| n/a | 5A 250y S.B. | 220v AC Main Fuse Line (International) |
| | Gam e | Playfield Fuses |
| n/a | | 50v DC Rt. Flipper (BLU-YEL → RED-YEL) |
| n/a | 3A 250v S.B. | 50v DC Lt. Flipper (GRY-YEL↔RED-YEL) |
| n/a | 3A 250v S.B. | 50v DC Top Left Magnet (VIO-YEL↔BLK) |
| n/a | 3A 250v S.B. | 50v DC Top Right Magnet (VIO-YEL ↔BLK) |

50v DC Motor Magnet (VIO-YEL → BLK)

Find-It-In-Front:
DR. Dr. Pinball

n/a 3A 250v S.B.



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32

F6 F21

F28 F20

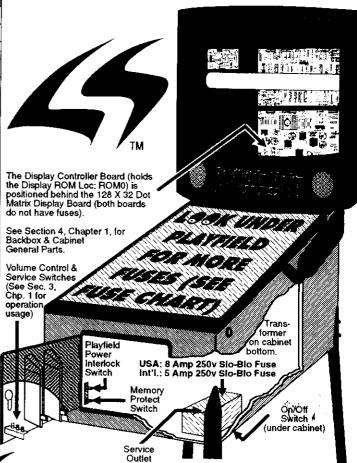
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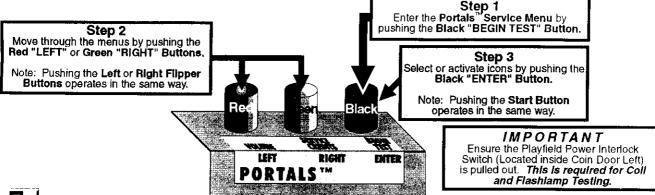
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DR. 🕕



* FIND-IT-IN-FRONT: DR. PINBALL SECTION EXPLAINED *

The key technical data from various parts of the manual were extracted and combined into the "Find-It-In-Front: Dr. Pinball Section." This section (pages DR. ① - ⑩) will assist the technician in locating important technical information needed to troubleshoot the Pinball Machine. Dr. Pinball is also available on the game in the Portals™ Service Menu. This variation is in a Flow Chart Help Format. To get into the Portals™Service Menu:





In our **Portals**™**Service Menu**, selecting the "DR." *Icon* will bring the operator/technician into Dr. Pinball (Flow Chart Menus), the "on-screen" diagnostic aide. This is a feature that will allow you to utilize the power of the micro-processor assisting in troubleshooting a problem with the machine in a Flow Chart format (*Just follow along & answer the questions.*).



First, the operator/technician must enter the Service Mode (for a complete description of the Portals™Service Menu and ICONS see Section 3, Chapter 1). To get into the Service Menu Mode: • Power-up game (if not already) & open the Coin Door. • On the Coin Door is the Portals™Service Switch Set (Red, Green & Black Buttons). Push down the Black "BEGIN TEST" Button. Looking at the Video Display you will momentarily see the introductory screen "Service Menu" with a satellite flying from right to left pulling a banner "Portals™© SEGA PINBALL, INC.," followed by the MAIN MENU.

While in the MAIN MENU, select the "DIAG" *Icon*, then select the Cross "DR." *Icon*. This will bring you (the operator / technician) into DR. PINBALL (Flow Chart Menus) which offers you a choice of three (3) Sub-Menus: Coil "DR.," Switch "DR." and Lamp "DR." *Icons*. Selecting a particular sub-menu will give you a choice of which specific Flipper, Coil, Switch or Lamp circuit needs to be diagnosed. The display will now ask a question or give a procedure to follow such as "Does the lamp turn on?" or "Check bridge rectifier BR-20, if short replace." When Dr. Pinball asks a question or request a procedure the Dr. will expect a response such as "no" or "yes" (see below examples of the *Mini-Icons* which will prompt the operator). You the operator/technician must respond by using your Flipper Buttons to "SELECT" a *Mini-Icon* and the Start Button to "ENTER" your selection.

Note: The "Portals" service switches located on the coin door can also be used to select and enter Mini-Icons. In switch test this is required since flipper and start switches are part of the test.



From the Main Menu In Portals[®] GO TO DIAGNOSTICS MENU



From the Diagnostics Menu GO TO DR. PINBALL







From the Dr. Pinball Menu

GO TO COIL, SWITCH OR LAMP FLOW CHARTS

The following are the Mini-Icons with explanations for the Dr. Pinball Sub-Menus:

Select a Coil, Lamp, Switch or Flipper to diagnose with "-" or "+" lcon; Then select the "RUN" lcon to activate the choice. "PREV" goes back to previous question. "QUIT" exits Portals completely.

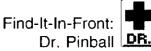
Seen when question is being asked on the Display. Select "YES" or "NO" to answer question given.
"END" lets you select a new item to test.

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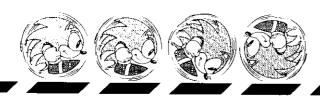
Seen when diagnosis is given. Select any Icon for your next step "?" gives Help.

PULSE NO VIEW PAR DURIN DIVINE

In Coil Flow Chart Menu, select "PULSE" to pulse the coil selected.



INSTALL 4 BALLS!





※ DIAGNOSTIC AIDS ※

The display reads "OPERATOR ALERT..." — A message displayed during Game Mode or Power-Up to alert the operator of a problem.

OPERATOR ALERT works by monitoring any *switch activated coil* that has the potential to trap a ball when disabled (e.g. in the Auto Launch, Scoop, Eject, etc.). If this assembly has a closed switch indicating a ball is stuck or the switch is *stuck closed*, the **CPU Board** will activate the coil ten times. If the switch remains closed, the game will display a message indicating there is a problem (e.g. "**OPERATOR ALERT AUTO LAUNCH NOT WORKING**"). This not only warns the operator of a problem immediately, but indicates exactly where the operator should look to resolve it.

The display flashes "OPEN THE COIN DOOR" — This indicates that CMOS RAM memory (CPU Loc. U212) has been corrupted.

This is caused by either failure in memory (e.g. batteries are dead or faulty **RAM**) or upon installation of updated version of code. Opening the Coin Door will initiate a Factory Restore, by opening the Memory Protect Switch. Check battery voltage at **CMOS RAM** with power off.

CPU DIP SWITCH SETTINGS, LOC. SW300 CPU/SOUND BOARD CUSTOM FACTORY ADJUSTMENTS BY COUNTRY*

| CPU COUNTRY SETTING: | Pos. | i. | 2 | | 4 | 16 | | 7 | |
|----------------------|------|----|---|----|---|----|---|----|---|
| USA * | ON | | | Ι. | Γ | Γ | Π | | _ |
| | OFF | | • | • | • | • | • | | į |
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | 3 | | 5 | • | 7[| |
| AUSTRIA | ON | • | | Γ | Г | | | | |
| AUSTINA | OFF | | • | • | • | • | • | • | Į |
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | 8 | | • | | 1 | |
| BELGIUM | ON | | • | Γ | | | | П | _ |
| | OFF | • | | | • | • | • | • | į |
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | 8 | | 6 | | Υ | × |
| BRAZIL | ON | | | • | • | | | | • |
| | OFF | | • | | | | ٠ | • | Į |
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | 3 | | | | 7 | |
| CANADA | ON | • | • | | | | | | - |
| CANADA | OFF | | | | | | | | Ī |

| CPU COUNTRY SETTING: | Pos, | 4 | | 4 | | É | 9 | SAK |
|----------------------------------|------|---|---|---|---|---|----|-----|
| FRANCE | ON | | • | • | | | | |
| FNANCE | OFF | | | | • | • | • | |
| CPU COUNTRY SETTING: | Pos. | 7 | 3 | 4 | | 5 | r | |
| GERMANY | ON | • | • | | | | | |
| GENMAN | OFF | | | | • | | • | • |
| CPU COUNTRY SETTING: | Pos. | i | 2 | | Ü | | 6 | 7 1 |
| ITALY | ON | | | | • | | | |
| | OFF | • | • | | | • | • | 0 (|
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | | | 6 | 94 | Y |
| JAPAN | ON | • | | | • | | | |
| JAFAN | OFF | | | | | | | 0 |
| CPU COUNTRY SETTING: | Pos. | 1 | 2 | Ö | | | Ċ | 26 |
| NETHERLANDS (Holland / Dutch) | ON | | | • | | | | |
| (Holland / Dutch) | OFF | | | | | | 0 | 00 |

| CPU COUNTRY SETTING: | Pos. | 1 | 4 | S | (3) | 100 | , e | 3 | 100 | |
|-------------------------------|------|---|----------|----|--------|-----------|----------|---------|-----|---|
| NORWAY | ON | | • | | • | | | | | |
| NORWAY | OFF | | | • | | • | • | • | • | |
| CPU COUNTRY SETTING: | Pos. | 1 | Ž | 3 | | 9 | 7853 | 7 | 8 | |
| SWEDEN | ON | • | • | | • | | | | | |
| STEDEN | OFF | | | | | • | • | • | • | • |
| CPU COUNTRY SETTING: | Pos. | 1 | | a | 0 | 6 | | | | |
| SWITZERLAND | ON | | · (2227) | | | | | | | |
| SWITZERLAND | OFF | • | | | | • | | | • | |
| CPU COUNTRY SETTING: | Pos. | | 7 | 77 | | | | 200 | | |
| UK | ON | • | | • | X0.5.0 | 230.00 | Section. | 200 | | |
| | OFF | | • | | • | • | • | | | |
| CPU COUNTRY SETTING: | Pos. | | | | 7 | | | ž, | | |
| UK (New | ON | | • | • | • | NO PERSON | New York | ******* | | |
| UK (New 50p, 2£ Coin Mech) | OFF | | | | _ | | Õ | | • | |

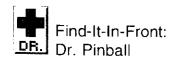
*All countries not noted use the "USA Setting"

ROM SUMMARY TABLE

| I.C. NAME | TYPE | BOARD NAME | LOC. | PART Nº |
|-------------|------|-------------------|------|-------------|
| Game ROM | 1MB | CPU / Sound Board | U210 | 965-0282-60 |
| Voice ROM 1 | 4MB | CPU / Sound Board | U17 | 965-0283-60 |
| Voice ROM 2 | 4MB | CPU / Sound Board | U21 | 965-0284-60 |
| Voice ROM 3 | 4MB | CPU / Sound Board | U36 | 965-0285-60 |
| Voice ROM 4 | 4MB | CPU / Sound Board | U37 | 965-0286-60 |
| Sound EPROM | 512K | CPU / Sound Board | U7 | 965-0287-60 |

Display EPROM 4MB Display Controller Bd. ROM Ø 965-0288-60
Display EPROM Not Used Display Controller Ed. ROM Ø Not Used

FOR:







From the Diagnostics Menu GO TO SWITCH MENU



From the Switch Menu GO TO SWITCH OR ACTIVE SWITCH TEST



From the Switch Menu GO TO DEDICATED SWITCH TEST

| D rode O n T er | minal S trip | SWITC | CH MAT | HIX GI | 3 & UIF | DEDICA | ATED S | WITCH | ES | |
|------------------------------|---|--|--|---------------------------------------|--|--|---|---|-------------------------------|---|
| Column (Drive) | 1: Q1 | 2: Q2 | 3: Q3 | 4: Q4 | 5: Q5 | 6; Q6 | 7: Q7 | 8: Q8 | GND | Ground |
| Row (Return) | GRN-BRN CN5-P1 | GRN-RED CN5-P3 | GRN-ORG CN5-P4 | GRN-YEL CN5-P5 | GRN-BLK CN5-P6 | GRN-BLU CN5-P7 | GRN-VIO CN5-P8 | GRN-GRY CN5-P9 | IC U206 INPUTS | BLK CN6-P1, -P11 |
| 1: U400 WHT-BRN CN7-P9 | LEFT BUTTON (UK ONLY) | NOT USED | GREEN 3-BANK TOP Under P/F 17 | RED 3-BANK LT Under P// 25 | YELLOW 3-BANK TOP Under F/F 33 | UTROUGH: 8 POP EXIT F HOLE S. Under P/F 41 | LEFT SPINNER Above F/F 49 | LEFT OUTLANE | 1: U206 GRY-BRN CN6-P2 | #1 LEFT FLIPPER BUTTON |
| 2: U400 WHT-RED CN7-P8 | 4TH COIN SLOT | NOTUSED | GREEN 3-BANK MID | RED 3-BANK MID Under F/F 26 | YELLOW 3-BANK MID | NOTUSED | RIGHT SPINNER Above P/F 50 | LEFT RETURN LANE | 2: U206 GRY-RED CN6-P3 | #2 LEFT FLIPPER E.O.S (End-of-Stroke) |
| 3: U400 WHT-ORG CN7-P7 | 6TH COIN SLOT on Con (201) | 4-BALL TROUGH #1 (LEFT) | GREEN 3-BANK BOT | RED 3-BANK RT Under F/F | YELLOW 3-BANK BOT Under FIF 35 | 43 | LEFT ORBIT Under F/F 51 | LEFT SLINGSHOT Under Fit 59 | 3: U206 GRY-ORG CN6-P4 | #3 RIGHT FLIPPER BUTTON In Gubinet side DS-3 |
| 4: U400 WHT-YEL CN7-P6 | RIGHT COIN SLOT on Con Core 4 | 4-BALL TROUGH #2 Under F/F 12 | LEFT HAMP ENTER Abevii P/F 20 | NOT USED | TOP LT TURBO BUMPER Under P/F 36 | NOTUSED | RIGHT ORBIT Under P/F 52 | RIGHT OUTLANE Under P/F 60 | 4: U206 GRY-YEL CN6-P6 | #4 RIGHT FLIPPER E.O.S. (End-of-Stroke) in Cabinet side DS-4 |
| 5: U401 WHT-GRN CN7-P5 | CENTER COIN SLOT / DBA | 4-BALL TROUGH #3 Under FVE 13 | LEFT RAMP EXIT Above F/F 21 | NOT USED IK | TOP RT TURBO BUMPER Under P/F 37 | U'TROUGH; ROBOT Under P/F 45 | LAUNCH BUTTON Cabinut Front 53 | RIGHT RETURN LANE Under FVF 61 | NOT USED | NOTUSED: |
| 6: U401 WHT-BLU CN7-P3 | LEFT COIN SLOT on Corn Dress 6 | 4-BALL TROUGH VUK OPTO Under P/F 14 | 72 | LEFT TOP LANE Under P/F 30 | BOT LT TURBO BUMPER Under P/F 38 | CENTER SUPER T VUK SUNDER P/F 46 | START BUTTON Cabinet Front 54 | RIGHT SLINGSHOT Under F/F 62 | 6: U206 GRY-BLU CN6-P8 | #6 VOLUME (RED BUTTON) (In Test: LEFT) on Cont Dietr DS-6 |
| 7: U401 WHT-VIO CN7-P2 | 5TH COIN SLOT on Core Door 7 | 4-BALL STACKING OPTO Under 1/8 15 | | MIDDLE TOP LANE Under P/F 31 | BOT CTA TUABO BUMPER Under P/F 39 | TOP RT VUK Under P/F 47 | SLAM TILT On Coun Door 55 | 63 | 7: U206 GRY-VIO CN6-P9 | #7 SERV. CRED. (GREEN BUTTON) (In Test: RIGHT) on Coan Door DS-7 |
| 8: U401 WHT-GRY CN7-P1 | RIGHT BUTTON (UK ONLY) | SHOOTER LANE Under P/F 16 | | FIIGHT TOP LANE Under P/F 32 | BOT RT TUABO BUMPER Under P/F 40 | Under F/F 47 BOT RT 0 SUPER 1 VUK 5 Under F/F 48 | PLUMB BOB TILT traide Cabinet 5b | ы. ы | 8: U206 GRY-BLK CN6-P10 | #8 BEGIN TEST (BLACK BUTTON) (In Test: ENTER) on Coin Door DS: 8 |

From the Diagnostics Menu GO TO LAMP MENU



From the Lamp Menu GO TO SINGLE LAMP TEST



From the Lamp Menu GO TO TEST ALL LAMPS



From the Lamp Menu GO TO ROW OR COLUMN TEST

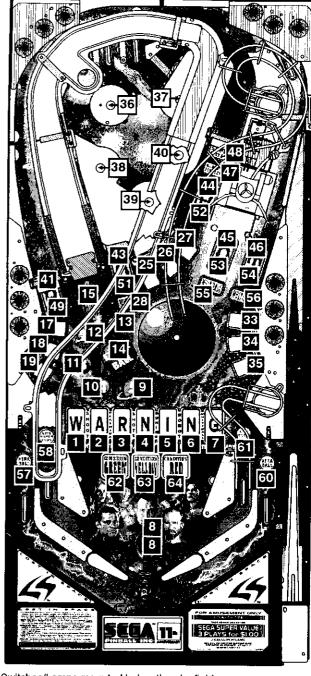
| Diode On Termin | a Sitrip | | LAMF | MATRIX | GRID | · | | |
|-------------------|-----------------------|-----------------------|-----------------------|--|-------------------------------|-----------------------|--|-----------------------------|
| Column (18v) | 1: U17 | 2: U16 | 3: U15 | 4: U14 | 5: U13 | 6: U12 | 7: U11 | 8: U10 |
| Row (GND) | YEL-BAN J13-P9 | YEL-RED J13-P8 | YEL-ORG J13-P7 | YEL-BLK J13-P6 | YEL-GAN J13-P5 | YEL-BLU J13-P4 | YEL-VIO J13-P3 | YEL-GRY J13-P1 |
| 1: Q33 | (W) ARNING | W(A)RNING | WA (R) NING | WAR (N) ING | WARN (I) NG | WARNI (N) G | WARNIN (G) | SHOOT AGAIN |
| RED-BRN J12-P1 | #555 Bulb 1 | #555 Bulb 2 | #555 Bulb 3 | #555 Bulb 4 | #555 Bulb 5 | #555 Bulb 6 | #555 Bulb 7 | #555 Bulb 8 |
| 2: Q34 | PLANET | PLANET | PLANET | PLANET | PLANET | EXTRA BALL | JUPITER SPACESHIP | LAUNCH BUTTON |
| RED-BLK J12-P2 | #555 Bulb 9 | #555 Bulb 10 | #555 Bulb 11 | #555 Bulb 12 | #555 Bulb 13 | #555 Bulb 14 | # Bulb 15 | #555 Bulb 16 |
| 3: Q35 | GREEN 3- BANK TOP | GREEN 3- BANK MID | GREEN 3- BANK BOT | (4) (5) (4 (4) (4) (4) (4) (4) (4) (4) (4) (4) | | rigin in the state of | na na 1947 an signamaños y Cinca NESE a maioris de 1. Sun dis | |
| RED-ORG J12-P3 | #555 Bulb 17 | #555 Bulb 18 | #555 Bulb 19 | <u>20</u> | <u>21</u> | <u>22</u> | <u>23</u> | <u>24</u> |
| 4: Q36 | RED 3- BANK LT | RED 3- BANK MID | RED 3- BANK RT | MYSTERY | | | | |
| RED-YEL J12-P4 | #555 Bulb 25 | #555 Bulb 26 | #555 Bulb 27 | #555 Bulb 28 | <u>29</u> | 30 | 31 | 32 |
| 5: Q37 | YELLOW 3- BANK TOP | YELLOW 3- BANK MID | YELLOW 3- BANK BOT | TOP LT TUR- BO BUMPER IS | TOP RT TUR- D BO SUMPER 15 | BOT LT TUR- BO BUMPER | BOTICTRITUR- BO BUMPER | BOT AT TUR- BO BUMPER IS |
| RED-GRN J12-P5 | #555 Bulb 33 | #555 Bulb 34 | #555 Bulb 35 | #555 Bulb 36 | #555 Bulb 37 | #555 Bulb 38 | #555 Bulb 39 | #555 Bulb 40 |
| 6: Q38 | (RED) | Pastavija zavija | R(O)BOT (RED) | RO(B)OT (RED) | ROB (O)T | ROBO (T) (RED) | LITE MYSTERY (SPINNER) | SUPER POPS |
| RED-BLU J12-P6 | #555 Bulb 41 | 42 | #555 Bulb 43 | #555 Bulb 44 | #555 Bulb 45 | #555 Bulb 46 | #555 Bulb 47 | #555 Bulb 48 |
| 7: Q39 | (R) OBOT (GRN) | Kanana | R(O)BOT (GRN) | RO(B)OT (GRN) | ROB(O)T (GRN) | ROBO (T) (GRN) | ROBOT MULITBALL | CONDITION RED MBALL |
| RED-VIO J12-P8 | #555 Bulb 49 | <u>50</u> | #555 Bulb 51 | #555 Bulb <u>52</u> | #555 Bulb 53 | #555 Bulb <u>54</u> | #555 Bulb 55 | #555 Bulb 56 |
| 8; Q40 | SPECIAL (LT) | LEFT RE- TURN LANE | : 1960: 1465. : | SPECIAL (RT) | RIGHT RE- TURN LANE | CONDITION GREEN | CONDITION YELLOW | CONDITION RED |
| RED-GRY J12-P9 | #555 Bulb 57 | #555 Bulb 58 | 59 | #555 Bulb 60 | #555 Bulb 61 | #555 Bulb 62 | #555 Bulb 63 | #555 Bulb 64 |
| NOT USED | Wash ton | inter aging | reguler about | Marie H. | oran er (aktir to | | | |
| | <u>65</u> | <u>66</u> | <u>67</u> | | <u> 69</u> | <u>70</u> | <u>71</u> | <u>72</u> |
| NOT USED | archard i | AN SPRING I | ago rakigai j | inggrotess: | | | | |
| | 73 | 74 | 75 | 76 | 77 | . 78 | 79 | 80 |



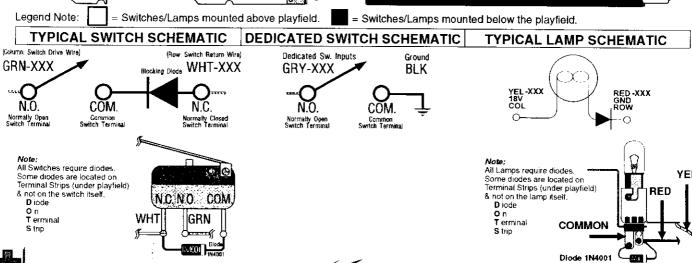


Find-It-In-Front:

DR. Dr. Pinball



DR. 😚





From the Diagnostics Menu GO TO COIL MENU

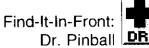


From the Coll Menu GO TO COIL TEST

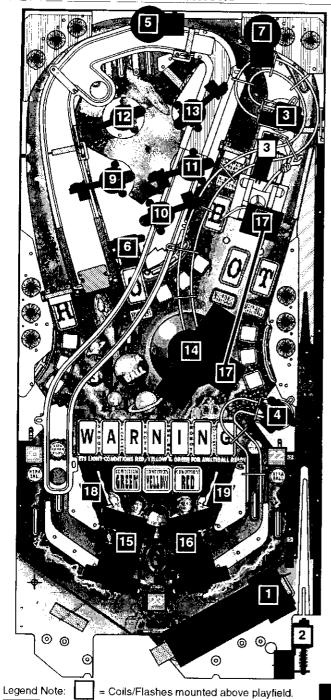


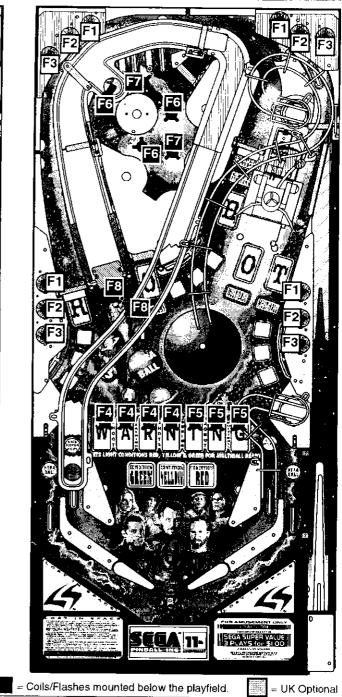
COILS DETAILED CHART TABLE

| | リドク D | EIAILED | CHAH | ייאריי | - - | | | |
|--|---|--|--|---|----------------------------------|---|--|--|
| High Current Coils Group 1 | Drive Trans- istor (D.T.) | Driver Ouput Board | D.T. Control Line Color | D.T. Control Une Connect | Power Line Color | Power Line Connnection | Power Voltage | Coil GA/Turn |
| #1 TROUGH UP-KICKER | Q1 | I/O Pwr. Drvr. | BRN-BLK | J8-P1 | YEL-VIO | J10-P4/5 | 50v DC | 26-1200 090-5044-001 |
| #2 AUTO LAUNCH | Q2 | I/O Pwr. Drvr. | BRN-RED | J8-P3 | YEL-VIO | J10-P4/5 | 50v DC | 24-940 090-5036-00E |
| #3 TOP RT VUK | Q3 | I/O Pwr. Drvr. | BRN-ORG | J8-P4 | YEL-VIO | J10-P4/5 | 50v DC | 26-1200 090-5044-00T |
| #4 BOT RT SUPER VUK | Q4 | I/O Pwr. Drvr. | BRY-YEL | J8-P5 | YEL-VIO | J10-P4/5 | 50v DC | 23-800 090-5001-00E |
| #5 TOP LEFT MAGNET | Q5 | I/O Pwr. Drvr. | BRN-GRN | J8-P6 | VIO-YEL | J10-P3 | 50v DC | 22-650 090-5042-01 |
| #6 LEFT SUPER VUK | Q6 | I/O Pwr. Drvr. | BRN-BLU | J8-P7 | YEL-VIO | J10-P4/5 | 50v DC | 23-800 090-5001-00b |
| #7 TOP RIGHT MAGNET | Q7 | I/O Pwr. Drvr. | BRN-VIO | J8-P8 | VIO-YEL | J10-P3 | 50v DC | 22-650 090-5042-01 |
| #8 EUROPEAN TOKEN DISPENSER | Q8 | I/O Pwr. Drvr. | BRN-GRY | J8-P9 | YEL-VIO | J10-P4/5 | 50v DC | DL4SS 515-6076-01 |
| | Drive Trans- | Driver | D.T. Control | D.T. Cantrol | Power | Power Line | Power | |
| High Current Coils Group 2 | istor (D.T.) | Ouput Board | Line Color | Line Connect | Line Color | Connnection | Voltage | 26-1200 |
| #9 BOT LT TURBO BUMPER | Q9 | I/O Pwr. Drvr. | BLU-BRN | J9-P1 | YEL-VIO | J10-P4/5 | 50v DC | 090-5044-001 26-1200 |
| #10 BOT CTR TURBO BUMPER | Q10 | I/O Pwr. Drvr. | BLU-RED | J9-P2 | YEL-VIO | J10-P4/5 | 50v DC | 090-5044-001 26-1200 |
| #11 BOT RT TURBO BUMPER | Q11 | I/O Pwr. Drvr. | BLU-ORG | J9-P4 | YEL-VIO | J10-P4/5 | 50v DC | 090-5044-001 26-1200 |
| #12 TOP LT TURBO BUMPER | Q12 | I/O Pwr. Drvr. | BLU-YEL | J9-P5 | YEL-VIO | J10-P4/5 | 50v DC | 090-5044-001 26-1200 |
| #13 TOP RT TURBO BUMPER | Q13 | I/O Pwr. Drvr. | BLU-GRN | J9-P6 | YEL-VIO | J10-P4/5 | 50v pc | 090-5044-001 |
| #14 DISC MAGNET | Q14 | I/O Pwr. Drvr. | BLU-BLK | J9-P7 | VIO-YEL | J10-P3 | 50v DC | 22-650 090-5042-01 23-1100 |
| #15 LEFT FLIPPER (50v RED/YEL) | Q15 | I/O Pwr. Drvr. | ORG-GRY | J9-P8 | RED-YEL GRY-YEL | J10-P1/2 | 50v DC | 090-5030-00 |
| #16 RIGHT FLIPPER (50v RED/YEL) | Q16 | I/O Pwr. Drvr. | ORG-VIO | J9-P9 | BEB:XEF | J10-P1/2 | 50v DC | 22-1080 090-5032-00 |
| Low Current Coils Group 1 | Drive Trans- | Driver | D.T. Control | D.T. Control | Power | Power Line | Power | Coil GA/Turn |
| #17 DISC MOTOR RELAY | istar (D.T.) Q17 | Ouput Board I/O Pwr. Drvr. | VIO-BRN | J7-P2 | Line Color BRN | J7-P1 | Voltage 20v DC | or Meter # Relay Bd. 520-5010-00 |
| #18 LEFT SLINGSHOT | Q18 | I/O Pwr. Drvr. | VIO-RED | J7-P3 | BRN | J7-P1 | 20v DC | 23-800 |
| #19 RIGHT SLINGSHOT | Q19 | I/O Pwr. Drvr. | VIO-ORG | J7-P4 | BRN | J7-P1 | 20v DC | 090-5001-00 23-800 090-5001-00 |
| #20 ROBOT (SHAKER) | Q20 | I/O Pwr. Drvr. | VIO-YEL | J7-P6 | ·BRN | J7-P1 | 20v DC | 28-1050 090-5046-00 |
| #21 LT OUTLANE (UK ONLY) | Q21 | I/O Pwr. Drvr. | VIO-GRN | J7-P7 | BRN | J7-P1 | 20v D¢ | 28-1050 |
| | | | | | | | ZUV DU | 200 6046 50 |
| #:\Z\\$\################################# | Q22 | I/O Pwr. Drvr. | VIO-BLU | J7-P8 | BRN | J7-P1 | 20v pc | 28-1050 |
| #22 RT OUTLANE (UK ONLY) #23 UP/DOWN POST (UK ONLY) | | I/O Pwr. Drvr. I/O Pwr. Drvr. | | J7-P8 J7-P9 | BRN BRN | J7-P1 J7-P1 | | 28-1050 090-5046-09 23-1100 |
| #23 UP/DOWN POST (UK ONLY) | Q23 | I/O Pwr. Drvr. | VIO-BLK | J7-P9 | | | 20v DC | 28-1050 09-59-69 23-1100 (69-509)-(9) Meter 5v |
| | | | VIO-BLK | | BRN | J7-P1 | 20v DC 20v DC | 28-1050 09-59-69 23-1100 (69-509)-(9) Meter 5v |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL CONTINUE (ER | Q23 | I/O Pwr. Drvr. | VIO-BLK | J7-P9 | BRN | J7-P1 | 20v DC 20v DC | 28-1050 080-5545-05 23-1100 (90-559)-00 Meter 5V 091-5000-00 Bulb Type |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL CONTINUE FOR THE DESIGNATION OF THE POST OF THE P | Q23 元文公司 Drive Trans- | I/O Pwr. Drvr. | VIO-BLK | J7-P9 | BRN | J7-P1 | 20v DC 20v DC 5 Power | 28-1050 23-1100 (20-5%)-(2) Meter 5v (201-5000-0) Builb Type #906 Builb 165-5004-00 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL CONTAINED THE DESCRIPTION OF TERMS STREET TO BE A PROPERTY OF THE PROP | Q23 CYC III Drive Transistor (D.T.) | I/O Pwr. Drvr. Driver Ouput Board | VIO-BLK VIO-BCRY# D.T. Control Line Color | J7-P9 D.T. Control Line Connect | BRN Power Line Color | J7-P1 Power Line Connnection | 20v DC 20v DC | 28-1050 00-545-63 23-1100 (90-530-0) Meter 5v 091-5000-00 #906 Bulb 165-5004-00 #906 Bulb 165-5004-00 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL COIN METER Decay On Terminal Street holest Flash Lamps (FLASH) #F1 FLASH RED*4 | Q23 Drive Transistor (D.T.) Q25 | I/O Pwr. Drvr. Driver Ouput Board I/O Pwr. Drvr. | VIO-BLK VIO-GRY D.T. Control Line Color BLK-BRN BLK-RED | J7-P9 D.T. Control Line Connect J6-P1 | BRN Power Line Color ORG | J7-P1 Power Line Connnection J6-P10 | 20v DC 20v DC 5v DC Power Voltage 20v DC | 28-1050 00-502-607 23-1100 (20-502)-(2) Meter 50 091-5000-00 Bullb Type #906 Bullb 165-5004-00 #906 Bullb 165-5004-00 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL COIN METER Flash Lamps (FLASH) #F1 FLASH RED*4 #F2 FLASH YELLOW*4 | Q23 C72 Drive Transistor (D.T.) Q25 Q26 | I/O Pwr. Drvr. Driver Ouput Board I/O Pwr. Drvr. I/O Pwr. Drvr. | VIO-BLK VIO-GRY D.T. Control Line Color BLK-BRN BLK-RED BLK-ORG | J7-P9 D.T. Control Line Connect J6-P1 J6-P2 | Power Line Color ORG | J7-P1 Power Line Connnection J6-P10 J6-P10 | 20v DC 20v DC 5v DC Power Voltage 20v DC | 28-1050 23-1100 (20-5:30)(3) Meter 5v (20-5:30)(3) (20-5:30)(4) (2 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL COIN METER Dear On Templat Structure Flash Lamps (FLASH) #F1 FLASH RED*4 #F2 FLASH YELLOW*4 #F3 FLASH GREEN*4 | Q23 Drive Transistor (D.T.) Q25 Q26 Q27 | I/O Pwr. Drvr. Driver Ouput Board I/O Pwr. Drvr. I/O Pwr. Drvr. I/O Pwr. Drvr. | VIO-BLK VIO-GRY D.T. Control Line Color BLK-BRN BLK-RED BLK-ORG | J7-P9 D.T. Control Line Connect J6-P1 J6-P2 J6-P3 | Power Line Color ORG ORG | J7-P1 Power Line Connection J6-P10 J6-P10 J6-P10 | 20v DC 20v DC 5v BC Power Voltage 20v DC 20v DC | 28-1050 23-1100 (9-500-00 Meter 5v 091-5000-00 #906 Bulk 165-5004-00 #906 Bulk 165-5004-00 #89 Bullb 165-5000-85 #89 Bullb 165-5000-85 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL COIN METER Decrease Street Potential Flash Lamps (FLASH) #F1 FLASH RED*4 #F2 FLASH YELLOW*4 #F3 FLASH GREEN*4 #F4 FLASH (WARN) ING*4 | Q28 Drive Transistor (D.T.) Q25 Q26 Q27 Q28 | I/O Pwr. Drvr. Driver Output Board I/O Pwr. Drvr. I/O Pwr. Drvr. I/O Pwr. Drvr. I/O Pwr. Drvr. | VIO-BLK VIO-GRY D.T. Control Line Color BLK-BRN BLK-RED BLK-ORG BLK-YEL | J7-P9 D.T. Control Line Connect J6-P1 J6-P2 J6-P3 J6-P4 | Power Line Color ORG ORG ORG | J7-P1 J16-P7 Power Line Connection J6-P10 J6-P10 J6-P10 J6-P10 | 20v DC 20v DC 5v DC Power Voltage 20v DC 20v DC 20v DC 20v DC | 28-1050 23-1100 23-1100 Meter 5v 991-5000-00 #906 Bulk 165-5004-00 #906 Bulk 165-5004-00 #906 Bulk 165-5004-00 #89 Bulb 165-5000-85 #89 Bulb 165-5000-85 |
| #23 UP/DOWN POST (UK ONLY) #24 OPTIONAL COIN METER Flash Lamps (FLASH) #F1 FLASH RED*4 #F2 FLASH YELLOW*4 #F3 FLASH GREEN*4 #F4 FLASH (WARN) ING*4 #F5 FLASH WARN (ING)*3 | Q23 Drive Transistor (D.T.) Q25 Q26 Q27 Q28 Q29 | I/O Pwr. Drvr. Driver Ouput Board I/O Pwr. Drvr. | VIO-BLK VIO-GRY D.T. Control Line Color BLK-BRN BLK-RED BLK-ORG BLK-YEL BLK-GRN | J7-P9 J7-P10 D.T. Control Line Connect J6-P1 J6-P2 J6-P3 J6-P4 J6-P5 | Power Line Color ORG ORG ORG ORG | J7-P1 J16-P7 Power Line Connnection J6-P10 J6-P10 J6-P10 J6-P10 J6-P10 | 20v DC 20v DC 5vBC Power Voltage 20v DC 20v DC 20v DC 20v DC | 23-1100 (29-519)-(4) (29-519)-(4) Meter 5V (2915-000-00 |

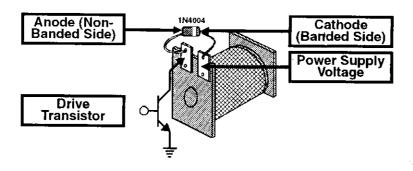




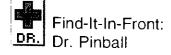




TYPICAL COIL WIRING

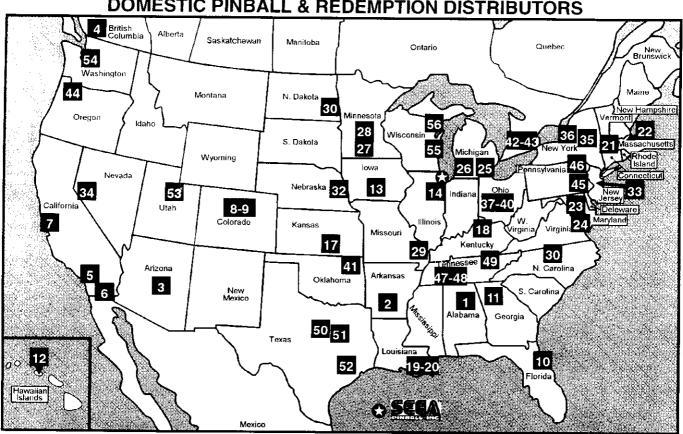


Note:
All Coils require diodes. Some diodes are located on Terminal Strips (under playfield) & not on the coil itself.
Diode
On
Terminal
Strip





DOMESTIC PINBALL & REDEMPTION DISTRIBUTORS



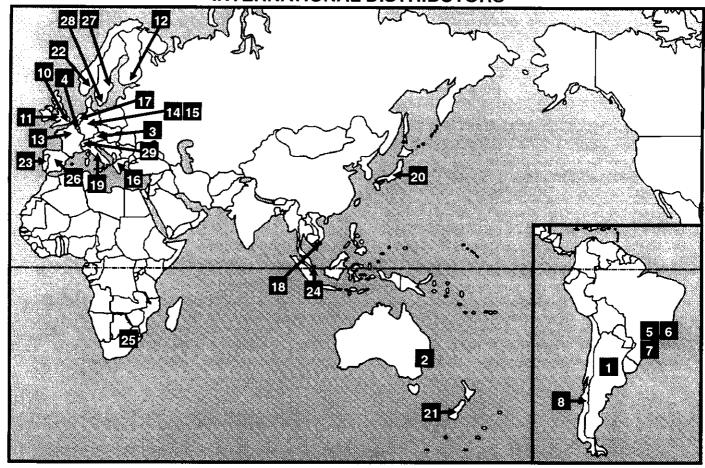
| # | ST | ATE/PROVINCE AND CITY | NAME | PHONE | # | ST | ATE/PROVINCE AND CITY | NAME | PHONE |
|----|-----|--------------------------|---------------------------|--------------|----|-------|--------------------------|---------------------------|--------------|
| 1 | AL | Birmingham | Birmingham Vending | 205-324-7526 | 29 | МО | St. Louis | Shaffer Distributing, Co. | 314-645-3393 |
| 2 | AR | N. Little Rock | Godwin Distributing | 501-753-1138 | 30 | NC | Archdal | Operators Distributing | 910-884-5714 |
| 3 | ΑZ | Phoenix | Betson West | 602-233-0190 | 31 | ND | Fargo | M.H. Associates, Inc. | 701-282-7877 |
| 4 | BC | Burnaby (Can.) | Can, Coin Machine | 604-420-4008 | 32 | NE | Omaha | Greater American Dist. | 402-553-2812 |
| 5 | | Buena Park | Betson West | 714-228-7500 | 33 | NJ | Springfield | Mondial Int'l. Dist. | 973-467-9700 |
| _6 | CA | San Diego | Betson West | 619-459-0871 | 34 | NV | Reno | Reno Game Sales | 702-829-2080 |
| 7 | | S. San Francisco | Betson West | 415-952-4220 | 35 | NY | Garden City Park | T & M Distributing | 516-747-0034 |
| 8 | col | Denver | Col. Game Exchange | 303-893-4300 | 36 | INT | Rochester | Mondial Dist. | 716-586-1100 |
| 9 | | Denver | Mountain Coin | 303-427-2133 | 37 | | Cincinnati | Atlan Distribution | 513-771-1909 |
| 10 | FL | Orlando | Birmingham Vending | 407-425-1505 | 39 | ОН | Cleveland | Atlas Distributing | 800-278-8282 |
| 11 | GA. | Marietta | Game Exchange/SE, Inc. | 770-594-7215 | 38 |] 🗀 . | Columbus | Chaffar Diatributing Ca | 614-421-6800 |
| 12 | HI | Ewa Beach | 50th State Coin Op. | 808-682-4561 | 40 | | Macedonia | Shaffer Distributing, Co. | 330-467-4850 |
| 13 | IA | Des Moines | Greater American Dist. | 515-244-2828 | 41 | ОК | Tulsa | Galaxy Distributing, Co. | 918-835-1166 |
| 14 | IL_ | Chicago | Atlas Distributing | 773-276-5005 | 42 | ON | Rexdale (Can.) | New Way Sales | 416-674-8000 |
| 15 | IN | Indianapolis | Atlas Distributing | 317-786-6892 | 43 | ON | Toronto (Can.) | Starburst Coin Machines | 416-251-2122 |
| 16 | | Indianapolis | Shaffer Distributing, Co. | 317-899-2530 | 44 | OR | Portland | American Coin | 503-233-7000 |
| 17 | KS | Wichita | United Distributors, Inc. | 316-263-6181 | 45 | PA | Bensalem | Mondial Int'l. Dist. | 215-638-1122 |
| 18 | KY | Louisville | Atlas Distributing | 502-966-5266 | 46 | FA | Wilkes-Barre | Roth Novelty | 717-824-9994 |
| 19 | LA | Metairie | AMA Distributors, Inc. | 504-835-3232 | 47 | | Memphis | Games Sales Co., Inc. | 901-525-8351 |
| 20 | | | New Orleans Novelty | 504-888-3500 | 48 | TN | Mempilis | Green G.A.M.E.S. | 901-353-1000 |
| 21 | МА | E. Long Meadow | Gekay Sales | 413-525-2700 | 49 | | Nashville | Sammons-Pennington | 615-244-3020 |
| 22 | | Norwood | Mondial Int'l, Dist. | 781-769-9966 | 50 | | Corsicana | Master Şales | 903-874-4740 |
| 23 | MD | Baltimore | State Sales | 410-646-4100 | 51 | TX | Dallas | Commercial Music | 214-741-6381 |
| 24 | | | Weiner Distributing | 410-525-2600 | 52 | | Houston | H.A. Franz, & Co. | 713-523-7366 |
| 25 | м | Redford | Atlas Distributing | 313-794-4880 | 53 | UT | Salt Lake City | Struve Distributing | 801-328-1636 |
| 26 | | Wyoming | Atlas Distributing | 616-241-1472 | 54 | WA | Seattle | American Coin | 206-764-9020 |
| 27 | | Bloomington | Hanson Distributing | 612-884-6604 | 55 | WI | Green Bay | Pioneer Sales & Svc. | 920-468-5200 |
| 28 | MN | Minneapolis | Sandler Vending | 612-996-0010 | 56 | | Menomonee Falls | Pioneer Sales & Svc. | 414-781-1420 |



For Parts and Service, call your local distributor. The numbered locations are general areas. View table and map for corresponding numbered distributor. If your state/province does not have a distributor, call the nearest state/province. Distributors and phone numbers are subject to change. Call Sega Pinball, Inc. Technical Support with any questions or if your distributor cannot help you, at **1-800-542-5377** (USA or Canada or elsewhere at 1-708-345-7700).

Find-It-In-Front: Dr. Pinball DR

INTERNATIONAL DISTRIBUTORS

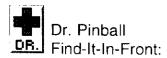


| # | COUNTRY AND CITY | NAME | PHONE (-011) | | | |
|----|------------------------|---|-----------------|--|--|--|
| _1 | Argentia, Urquiza | Florencia | 54-232-5532 | | | |
| 2 | Australia, Matraville | stralia, Matraville Amusement Machine Dist. | | | | |
| 3 | Austria, Grazerstrasse | Rupp Austria | 43-34-528-6105 | | | |
| 4 | Belgium, Brussels | Splin S.A. | 32-43-62-7677 | | | |
| _5 | | Parkland | 55-11-792-42864 | | | |
| 6 | Brazil, Sao Paulo | Unimax | 55-11-533-5615 | | | |
| 7 | | Universe | 55-11-575-0731 | | | |
| 8 | Chile, Santiago | Cuinsa | 56-2-696-0167 | | | |
| 9 | Crille, Garriago | Universe Electronics | 56-2-235-7822 | | | |
| 10 | England, London | Electrocoin | 44-181-965-2055 | | | |
| 11 | So. Wales, Cardiff | Electrocoin | 44-22-261-5100 | | | |
| 12 | Finland, Espoo | Pelika Ray Oy | 35-8-943-7091 | | | |
| 13 | France, Aubervilliers | PLF Sa | 33-14-811-3131 | | | |
| 14 | Germany, Berlin | Bally Wulff | 49-3-062-0020 | | | |
| 15 | Germany, Hannover | Bally Wulff | 49-511-358-5343 | | | |

| # | COUNTRY AND CITY | NAME | PHONE (-011) |
|----|-------------------------|----------------------|----------------|
| 16 | Greece, Athens | Greece Coin | 30-1-554-1608 |
| 17 | Holland, Sittart | Veltmeijer Automaten | 31-46-452-6444 |
| 18 | Hong Kong, Kwai Fong | Bondeal Limited | 85-2-487-9089 |
| 19 | Italy (RSM), Serravalle | Technoplay Sa | 39-54-990-0361 |
| 20 | Japan, Tokyo | Data East, Corp. | 81-35-370-0708 |
| 21 | New Zealand, Auckland | Amco Machine Supp. | 64-9-846-7606 |
| 22 | Norway, Oslo | Vendcomatic | 47-2-216-0830 |
| 23 | Portugal, Amadora | Jacinto & Martins | 35-11-495-1868 |
| 24 | Singapore, Singapore | Valibel Technologies | 65-748-8404 |
| 25 | South Africa, Lalucia | Unimac | 27-3-152-5544 |
| 26 | Spain, Madrid | Sente S.A. | 34-1-541-7112 |
| 27 | Sweden, Bromma | Axlon | 46-8-704-6580 |
| 28 | Sweden, Malmo | Truemax AB | 46-40-153-635 |
| 29 | Switzerland, Harkingen | Novomat Ag | 41-62-398-4061 |



For Parts and Service, call your local distributor. The numbered locations are general areas. View table and map for corresponding numbered distributor. If your country does not have a distributor, call the nearest country. Distributors and phone numbers are subject to change. Call Sega Pinball, Inc. Technical Support with any questions or if your distributor cannot help you, at 1-708-345-7700.





POWER REQUIREMENTS



This game *must be connected to a properly grounded outlet to reduce shock hazard* & insure proper game operation. See Sec. 5, Schematics & Troubleshooting, Chp. 3, Cabinet Wiring (Transformer Power Wiring), for transformer connections required for Normal, High, and Low Line conditions.



Find-It-In-Front:

E

Dr. Pinball

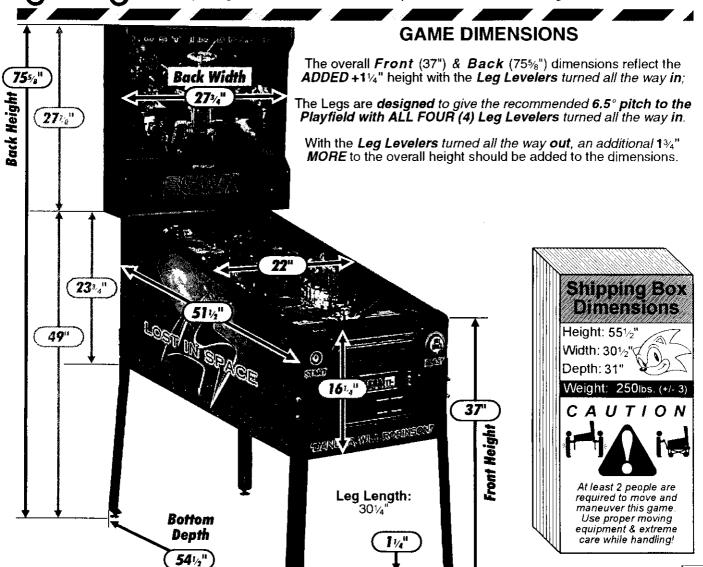
| Normal Line: | 110v AC - 12 | 110v AC - 125v AC @ 60Hz | | |
|---|--------------------------------|---|--|--|
| Domestic | AVG OPERATION | MAX OPERATION | | |
| uses an 8AMP 250v Slo-Blo Fuse. | CURRENT: 2.8AMP | CURRENT: 8AMP | | |
| | WATTAGE: 329W | WATTAGE: 940W | | |
| High Line: | 218v AC - 240v AC @ 50Hz | | | |
| Export | AVG OPERATION | MAX OPERATION | | |
| uses 5AMP 250v Slo-Blo Fuses. | CURRENT: 1.8AMP | CURRENT: 5AMP 8AMP* England & Hong WATTAGE: 1145w 1832w* an 84 F. | | |
| ("England & Hong Kong use an 8AMP 250v S/B Fuse.) | WATTAGE: 412w | WATTAGE: 1145w 1832w* Kong use | | |
| Low Line: | 95v AC - 108v AC @ 50Hz / 60Hz | | | |
| Export Japan Only | AVG OPERATION MAX OPERATION | | | |
| uses an 8AMP 250v Slo-Blo Fuse. | CURRENT: 2.6AMP | CURRENT: 8AMP | | |
| | WATTAGE: 264w | WATTAGE: 812w | | |

BEFORE TRANSPORTING

DR. 🛈

TRANSPORTATION

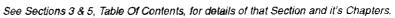
To reduce the possibility of damage, observe ALL precautions whenever transporting the game. Read & follow Section 1, Chapter 1, Game Assembly Procedures. & How to Secure the Backbox for Transporting. Remove the legs & secure the game within the transporting vehicle. Save and retain all printed information on the game.







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| * Coil & Flash Lamp Locations * Typical Coll Wiring | DR | . V |
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Game Set-Up

Game Assembly Procedures

(Reference Find-It-In-Front: Dr. Pinball)

- 1. Open the top of the carton and lay it on its side with the bottom of the cabinet down. Using the plastic banding strip as a handle, slide the game out of the carton. *CAUTION:* At least 2 people are required to move and maneuver game. Use proper moving equipment & extreme care when handling. Pinball game is 300 lbs.+.
- 2. Remove all packing material. The four (4) Cabinet Leg Assemblies (Leg Levelers are attached) are in the corner packing material of the crate. A large Allen Wrench (use for securing the backbox) is inserted and taped to the rear of the cabinet. Leg Bolts, Steel Balls and any miscellaneous parts are in the cash box.
- Support rear of cabinet and attach rear legs using two leg bolts for each leg. Support front of cabinet and attach front legs using two leg bolts for each leg.

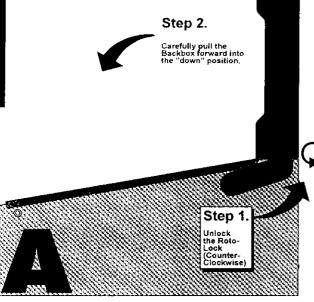
 →Per C €: "The appliance has to be placed in a horizontal position."
- 4. While assuring that no cables are being pinched, carefully raise the backbox and secure it in its upright position with the Allen Wrench in the hole in the back of the cabinet and rotating the wrench 270° (¾ turn).
- 5. Remove the Coin Door Keys from the playfield glass, and open the Coin Door. Remove the Backbox Keys hanging inside the Coin Door, unlock the Backbox and open.
- 6. Check all connectors in the backbox for loose wire terminations. Reseat any loose wire by pushing in on the terminal. Push on all connectors plugged into the CPU/Sound Board, I/O Power Driver Board, and the Display Power Bd. to check that they are properly seated. Ensure Fluorescent Light Tube is seated correctly. Check that all fuses are seated properly. Close and lock the Backbox and secure its' keys back inside the Coin Door.
- 7. Remove the Front Molding & carefully remove the playfield glass and set it aside.
- 8. Remove all shipping tie downs, shipping blocks, packing foam, shipping instruction pages, etc. (if any) inside the cabinet. *READ ALL PRINTED INFORMATION!* Shipping instructions, labels and/or decals describe warnings, cautions, and/or important information specific to the game. **This Game:** *Before* you move to **Step 9** There is a **Playfield Shipping Bracket** attached to the playfield and secured to the cabinet by three (3) #8 x 5/8" Green screws. *Access through the Coin Door.* These *screws must be removed. Do not remove* the Shipping Bracket from the playfield (use for future shipping). Save these screws by taping to the side of the cabinet (by holes) or putting the screws into the cash box (save them with the shipping notice regarding this procedur
- 9. Raise the playfield and support it, by lifting the Prop Rod (located either on the left or right side, inside the cabinet) and placing the notched end into the hole on the under playfield. See the illustration "Easy Access Service System" opposite this page.
- 10. Visually inspect all cabinet cables and connector terminations; ensure no wires or cables are pinched and that cable harnesses are not pulled tight.
- 11. Remove the Plumb Bob tilt from the parts package and install on the pendulum wire on the inside left of the cabinet. Check the plumb tilt and adjust as required. See Section 4, Chapter 1, Parts Identification & Location.
- 12. Lower the playfield and ensure game is level side-to-side by adjusting Leg Levelers, if required. See the illustration "Leg Leveler Adjustment" opposite this page.
- 13. With the Leg Levelers turned all the way in (1.25" from floor to bottom of leg), the game pitch is 6.5°; depending on the condition of the floor, adjust the Leg Levelers as required.

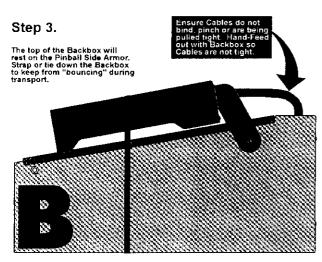
The playfield incline affects difficulty of play. Use the recommended incline; Game difficulty is best varied using game adjustments.

- 14. If desired, perform any self tests at this time. See Section 3, Chapter 1, Portals™ Service Menu Introduction, and Chapter 2, Go To Diagnostics Menu, for instructions on how to enter "Begin Play Test" and "Game Specific" to test components on the game.
- 15. **INSTALL 4 BALLS** on the playfield near the outhole and carefully reinstall the playfield glass. (Amount of balls are always specified on decal attached to the lock down assembly.)
- 16. If desired, make Game Pricing (Standard and/or Custom) and Add-A-Ball, Novelty, or X-Ball Play adjustments at this time. See Section 3, Chapter 4, Go To Adjustments Menu, for instructions on how to enter adjustments. Follow instructions in the tables provided in the manual for suggestions of customizing changes.



How to Secure the Backbox for Transporting





See Section 4, Chapter 1, Backbox (Back Side/Front Side) Assemblies, for part numbers.

Leg Leveler Adjustment

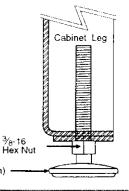
This cabinet is designed to automatically have a 6.5° pitch without any Leg Leveler adjustment!

Attach the four (4) Leg Assemblies to cabinet corners with the eight (8) leg bolts provided. See Section 4, Chapter 1, Cabinet - General Parts, for part numbers.

YOUR PLAYFIELD PITCH IS NOW AT 6.5° AS REQUIRED FOR PROPER GAME PLAY!

Verify 6.5° pitch. Minor adjustment(s) may be necessary depending on the location floor being level.

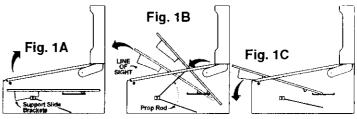
For custom adjustment greater than >6.5° can be acheived by turning out the rear leg leveler(s), however, it is not recommended.



Leg Leveler (turned all the way in)

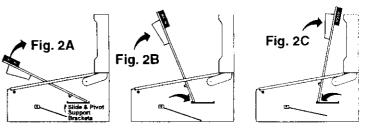
Easy Access Service System - 3 Positions

Carefully lift the playfield using the Left and Right Ball Guides upward.



Positions 1 & 2

When lifted high enough, the *Playfield Support Slide Brackets* (Fig. 1A) can be seen & can clear the cabinet front. At this time, pull the playfield toward the front of the cabinet, checking that the mechanical components clear the cabinet front, then rest the playfield on the *Playfield Support Slide Brackets* at the front channel of cabinet (Fig. 1C); Or, the *Prop Rod* (located on the right inside of cabinet) can be used by positioning the *Prop Rod* end into the receiving playfield hole (Fig. 1B).



Position 3

With the playfield at rest, hold the sides & pull toward the front of the cabinet (approx. 6" to 8"), until resistance is felt from *Edge Slide Brackets* stopping against the *Slide & Pivot Support Brackets* located on either side of the cabinet (Fig. 2A). At this time, *swivel the playfield* toward the Backbox, then rest on the top edge (Fig. 2B & 2C).

Game Operation & Features

Start of Game Features Starting a Normal Game

Insert coin(s). The game generates a sound for the first coin & for each subsequent coin with the display indicating the number of credits posted. Press the START BUTTON and a start-up sound is produced, and the posted credits are reduced by one. Subsequent players can be added (up to 6 can play!) by pressing the START BUTTON before the end of ball 1 (with sufficient credit in the game).

The display now indicates the player or # of players selected from the total depressions of the START BUTTON. The display indicates the ball in play, and a ball is served to the *Shooter Lane*. An introduction is shown followed by Skill Shot Graphics and/or instructions. Pressing the START BUTTON after ball 1 of any player will start a new game (if credits are available), *but only* if the START BUTTON is depressed for 2-3 seconds. This delay is to avoid accidental "re-starts" of a game. (Note: Any ½ credit remaining during game play after the end of ball 1, or power down, will be eliminated.)

Starting Team Play (Doubles!)

Team Play is a four player game. The totals for players 1 & 3 (Team 1) and players 2 & 4 (Team 2) are displayed individually as well as the combined score for both teams. Team Play only works in a 4-Player game. In all other cases, the individual scores are shown.

Starting League/Tournament Play

After credit is posted, while holding in the LEFT FLIPPER BUTTON, press the START BUTTON. League Play has now begun. The differences between Normal Game Play and League/Tournament Play are: There is no "auto-percentaging" (awarding extra balls, specials, etc. to players with very low scores on the second or third ball). Mystery Features are awarded in a set order rather than random in Normal Game Play. Percentage Game Features are not automatically advanced as they are for the Regular Play Features.

Starting Pinball Wizard Play

After credit is posted, while holding in the **RIGHT FLIPPER BUTTON**, press the **START BUTTON**. Pinball Wizard Play has now begun. The same as League/Tournament Play, but oooooooh! so much gosh darn harder!

During Game Features Feature Mode & Combination Shots

Features are lit on the playfield and started by completing certain play shots (e.g. completion of target banks, orbit(s), ramp(s) and/or any combination of the shots). Combination shots (combos) are a series of shots completed in many different variations. For example, a shot to the Ramp with the ball being returned to the Left Inlane then immediately shot to the Orbit of the playfield returning to a Flipper and then shot to another Ramp would be a hard combo shot worthy of many points. These combinations vary per game. For feature modes & combos certain points or awards are given after completion.

Multiball

Multiball is started after completion of certain Feature Modes or may be a mode itself depending on game rules/play. Multiball may vary with the amount of balls used in Multiball depending on game style. Typically, if Multiball play was short, a "restart" option is given. Watch the Display for instructions on the restart.

Replay Feature

Replay awards are given as the player exceeds a High Score Level during game play. This can be adjusted with Adjustment 3, Replay Awards (Default=CREDIT, adjustable). Players exceeding the High Score Levels can receive: CREDIT, EXTRA BALL, or SPECIAL. Adjust to NONE if a replay award is not desired.

Video Mode

The video modes *may* require the player to "*play on-screen*". The interactive video play *may* require the player to use the flipper buttons to play the mode.

End of Game Features Game Endings

When all player(s) have played all balls (including any Extra Balls), the game ends. If power is interrupted during the course of a game, it will end that game (**see Starting a Normal Game**). Closure of the Plumb Bob Tilt Switch according to the number of tilts set (Default = 2, adjustable) or its prolonged closure will end the current Ball-In-Play. Closure of the Slam Tilt Switch on the coin door ends the current game(s).

Match Feature

At the end of each ball, earned bonuses are collected. At the end of the last ball of a game (including any extra balls, if applicable), earned bonuses are collected, then the system produces a random 2-digit number (a multiple of 10; 00 to 90). Matching the last 2 digits of the player's score with this number awards a credit. In Adj. 11, Match Percentage (Default=7%, adjustable) can be changed from 0-10%. Changing the percentage to 0% displays the "Match Animation" at the end of the game, however, will never match (to award a credit). Changing this adjustment to OFF will not display the "Match Animation" nor award a credit.

Continued Next Page.



End of Game Features Continued

Entering Initials

If player achieved a new high score in any of the 3 categories (Regular, Novice or Wizard), the player may enter his/her initials. To enter your initials, use the Left & Right Flipper Buttons to choose letter or character as seen on the Dot Display. Hitting the Start Button locks in the letter or character and proceeds to the next letter. The game then proceeds into the *Game-Over Mode* and then to the *Attract Mode*. (Note: A custom message (adjustable) can be displayed during the *Attract Mode*; enter letters in the same fashion.)

Manual Percentaging

This game is equipped with a Manual Percentage Adjustment. As with our previous games, you can either set operator adjustments for a replay percent or you can set a fixed replay score. See Section 3, Chapter 4, Go To Adjustments Menu, Adjustments 1 & 2. If you set operator adjustments for a particular replay percent, the game will compute a recommended score to keep the game at that replay percentage. If a change is recommended and the game coin door is opened, the display will indicate if the replay is too high or low and make a sound to alert the operator. By pressing the Start Button, the score to beat will be changed to a more appropriate level. If you close the Coin Door or enter the **Portals[™] Service Menu**, no score change will be made. You may choose to ignore the recommended change; for example, you may not think last week's players were the usual crowd. Just close the door and the message will disappear without altering the existing level. Or you may choose to make a different score to beat adjustment; this is done by utilizing Adj. 2, Replay Levels.

Instruction Card

Below is a COPY of the game instruction card which is included with every game. If your card is lost or damaged, simply COPY this page and *cut out* the Instruction Card as a *temporary replacement* until a *new card is ordered*. (Suggestion: COPY & CUT along the dotted line and fold in the center to keep the "COPY" sturdy.)

COPY &





OST IN SPACE

CONDITION RED MULTIBALL Shoot the "Green" Targets until Condition Green is reached. Then shoot the "Yellow" Targets until Condition Yellow is reached. Finally, shoot the "Red" Targets to light Multiball. During Multiball, shoot the Jupiter 2 Ramp to collect the Jackpot. Completing all Targets during Multiball increases the Jackpot.

ROBOT MULTIBALL Spelling R~O~B~O~T lights the Robot for Robot Multiball. During Robot Multiball, each Flashing Shot collects the Jackpot & adds one letter to WARNING. Completing W~A~R~N~I~N~G lights the Robot for unlimited Super Jackpots.

FIGHTER MULTIBALL Each Top Lane or lit Right Spinner Shot ("Super Pops") adds one Bumper for increased scoring. Completing all Bumpers as indicated begins Fighter Multiball. During Fighter Multiball, each Bumper Hit increases the Jackpot. Shoot any Flashing Shot to collect.

Note: Playing all three of above Multiballs during one ball awards "Enter Initials".

PLANETS Shooting the Ramp advances one Planet. Complete the indicated number of shots to receive an award. Extra Ball may be obtained from this feature.

MYSTERY The Right Return Lane lights Mystery for one Shot. Completing the Right Spinner when lit qualifies Mystery until collected. Mystery gives player a random award.

Note to Beginners: To score better, shoot at the (((FLASHING SHOTS))) !!
Be sure to LOOK UP at the Dot Display for instructions when possible.

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Playfield Overview

Overview

Below is the *Lost in Space Playfield Map* showing all the Major Items & where the pinball can travel in this game. The balance of this Chapter will show the playfield as it is built up (with 1 view of underneath). For component names & parts mentioned, review Sec. 4, Chapters 1 (Pink Section) & Chapter 2 (Blue Section).

