

SERVICE BULLETIN BOOK

1996

WMS GAMES PARTS AND SERVICE INC.

WILLIAMS ELECTRONIC GAMES, INC.
MIDWAY MANUFACTURING COMPANY
MAKERS OF WILLIAMS AND BALLY AMUSEMENT GAMES

3401 N. CALIFORNIA AVE.
CHICAGO, IL 60618
SERVICE DEPT. PHONE: (312) 961-1544 FAX: (312) 961-1080

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WILLIAMS AND BALLY GAMES BY SYSTEM

THIS IS A LISTING OF GAMES BY THE CPU SYSTEM IT USED. 11A BOARDS CAN BE USED FOR 11 AND 11A GAMES. 11B BOARDS CAN BE USED FOR 11A, 11B, AND 11C. SYSTEM 9, 11, AND 11C CAN ONLY BE USED FOR THEIR OWN SYSTEMS RESPECTIVELY. WPC CPU'S BEFORE "INDIANA JONES" CAN ONLY BE USED ON GAMES MADE BEFORE "INDY". ANY WPC CPU'S AFTER "INDY" (GAMES WITH A "*" AFTER THEM) ARE DOWNWARD COMPATIBLE. STARTING WITH "WORLD CUP" (GAMES WITH A "S" AFTER THEM) WE WILL BE USING A SECURITY CPU, THESE CPU'S ARE NOT DOWNWARD COMPATIBLE.

<u>GAME</u>	<u>SYSTEM</u>
SPACE SHUTTLE	9
SORCERER	9
COMET	9
STRIKE ZONE	9
HIGH SPEED	11
GRAND LIZARD	11
ROAD KINGS	11
ALLEY CATS	11
PINBOT	11A
MILLIONAIRE	11A
F-14 TOMCAT	11A
FIRE!	11A
TIC TAC STRIKE	11A
BIG GUNS	11A/11B
SPACE STATION	11B
CYCLONE	11B
BANZAI RUN	11B
SWORDS OF FURY	11B
TAXI	11B
JOKERZ	11B
GOLD MINE	11B
TOP DAWG	11B
EARTHSHAKER	11B
BLACK KNIGHT 2000	11B
POLICE FORCE	11B
ELVIRA	11B
TRANSPORTER	11B
BAD CATS	11B
SHUFFLE INN	11B
MOUSIN' AROUND	11B
WHIRLWIND	11B
SHUFFLE INN DELUXE	11B
GAME SHOW	11C
POOL SHARKS	11C
ROLLER GAMES	11C

WILLIAMS AND BALLY GAMES BY SYSTEM (CONTINUED)

<u>GAME</u>	<u>SYSTEM</u>
DINER	11C
RIVERBOAT GAMBLER	11C
BUGS BUNNY	11C
DR. DUDE	11C/WPC
FUNHOUSE	WPC
HARLEY DAVIDSON	WPC
THE MACHINE	WPC
SLUGFEST	WPC
GILLIGAN'S ISLAND	WPC
TERMINATOR 2	WPC
PARTY ZONE	WPC
ADDAMS FAMILY	WPC
STRIKE MASTER	WPC
STRIKE MASTER JR.	WPC
HURRICANE	WPC
THE GETAWAY	WPC
BLACK ROSE	WPC
FISHTALES	WPC
DOCTOR WHO	WPC
CREATURE FROM THE BLACK LAGOON	WPC
WHITE WATER	WPC
HOT SHOT	WPC
DRACULA	WPC
TWILIGHT ZONE	WPC
INDIANA JONES	WPC*
JUDGE DREDD	WPC*
STAR TREK	WPC*
POPEYE	WPC*
DEMOLITION MAN	WPC*
WORLD CUP	WPC(S)
THE FLINTSTONES	WPC(S)
CORVETTE	WPC(S)
ROADSHOW	WPC(S)
THE SHADOW	WPC(S)
DIRTY HARRY	WPC(S)
THEATRE OF MAGIC	WPC(S)
NO FEAR	WPC(S)
INDIANAPOLIS 500	WPC(S)
JACK*BOT	WPC(S)/WPC95
JOHNNY MNEMONIC	WPC(S)
WHO?DUNNIT	WPC(S)
CONGO	WPC95
ATTACK FROM MARS	WPC95

WMS GAMES

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TEL.312-961-1544 FAX.312-961-1080

SERVICE BULLETIN

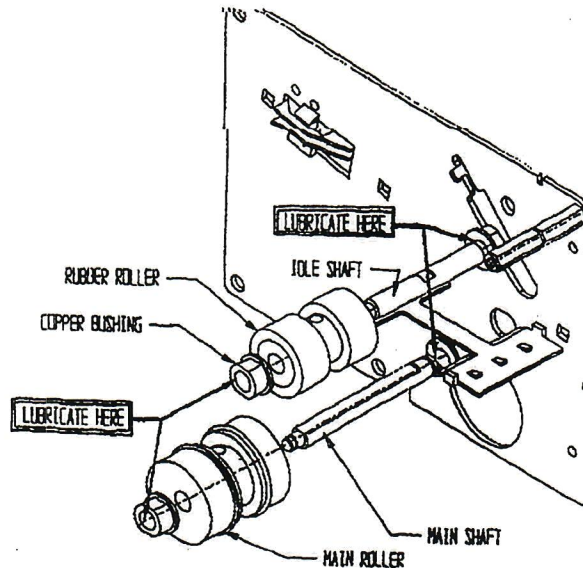
DATE: APRIL 3, 1995

SB #79

GAME: "SCREAMIN' SLOPES"

SUBJECT: TICKET DISPENSER LUBRICATION

THE TICKET DISPENSER ON "SCREAMIN' SLOPES" NEEDS TO BE LUBRICATED WHEN YOU FIRST PUT THE GAME IN OPERATION. THE MANUFACTURER OF THE DISPENSER RECOMMENDS USING OIL WITH A RATING OF EITHER SAE #30 OR SAE #40 ON THE FOUR LUBE POINTS SHOWN ON THE FOLLOWING DRAWING.



THANK YOU,

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SERVICE BULLETIN

DATE: MAY 10, 1995

SB80

GAME: "CRUIS'N USA" (FULL MOTION DRIVING SIMULATOR)

SUBJECT: ACTUATOR LUBRICATION

THE ACTUATORS ON THE "CRUIS'N USA" FULL MOTION DRIVING SIMULATOR HAVE TO BE LUBRICATED REGULARLY. OUR ENGINEERING DEPARTMENT FIRMLY STATES THAT THEY BE LUBED EVERY 3,000 TOTAL PLAYS (STARTS & FREE PLAYS). THE ACTUATOR LUBRICATION INFORMATION THAT FOLLOWS IS A REPRINT OF THE LUBRICATION SECTION FROM THE BASIC TROUBLESHOOTING AND MAINTENANCE MANUAL (PART # 16-10023), WHICH WE SHIPPED OUT ON MARCH 20, 1995. PLEASE REFER TO THAT MANUAL TO KEEP YOUR "CRUIS'N USA" FULL MOTION DRIVING SIMULATOR IN COMPLETE WORKING CONDITION.

NOTE: A GREASE GUN (PART #20-10164) AND A GREASE CARTRIDGE (PART # 20-10162) HAS BEEN SHIPPED WITH YOUR GAME.

THANK YOU,

WMS GAMES PARTS & SERVICE INC.

11.1 Actuator Lubrication

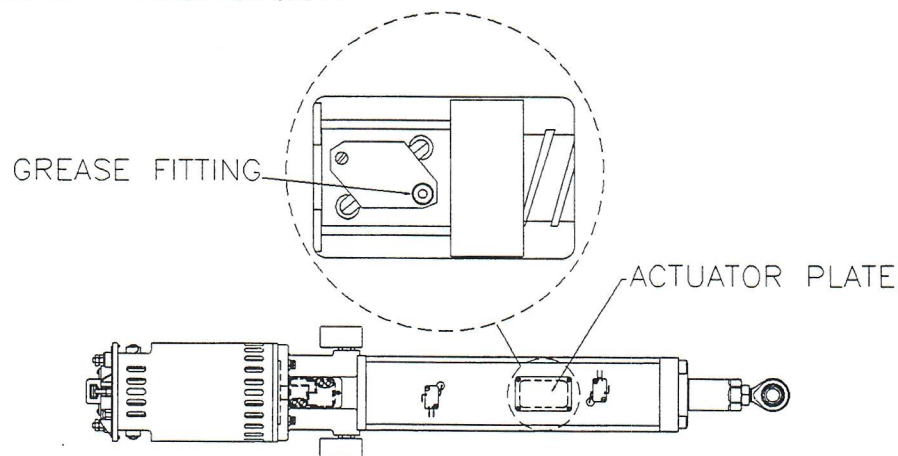


FIGURE 40

The movement in Cruis'n USA Full Motion Simulator is produced by three motorized linear actuators. Each complete actuator assembly consists of a motor-encoder directly coupled to the linear actuator. The main component, within each linear actuator, is an industrial quality recirculating ball screw assembly. This screw assembly is also the most critical component that requires routine maintenance. If the lubrication procedures are carefully followed, your Cruis'n USA Full Motion Simulator will provide years of reliable service.

NOTE: For best results, the grease cartridge and grease gun should not be below 70 - 75 degrees Fahrenheit!

Tools required:	Grease Gun P/N 20-10164	Grease Cartridge P/N 20-10162
	T-25 TR Torx Wrench	Small Phillips Screwdriver
	Flashlight	Clean Rag or Paper Towels

Procedure:

1. Raise the game to the correct height for applying grease. Turn the power switch off and then on again to start the limit switch test. At the upper-most position the movement pauses briefly (1-2 seconds) then proceeds downward. When the game has moved down about one inch (1") beyond the upper-most (or paused) position, turn the power off. This allows the three fail safe mechanisms to engage and hold the game in the proper position for lubrication.
2. From this raised position, all three actuators may be accessed for lubrication upon opening or removing respective covers.

Rear Actuators: Using a T-25 wrench, remove four 10-32 screws (2 per side) from the side tunnel guard doors (Ref. Figure 24). Open one door at a time. Remove the four Phillips head screws which retain the actuator access cover. Remove both access covers to expose the grease fittings (Ref. Figure 40).

Front Actuator: Using a T-25 wrench, remove the two 10-32 screws which retain the front tower cover (Ref. Figure 32). Remove the front tower cover. Remove the four Phillips head screws which retain the actuator access cover. Remove the access cover to expose the grease fitting (Ref. Figure 40).

3. Install the grease cartridge into the grease gun. For best results, the grease and gun should not be below 70 - 75 degrees Fahrenheit! Pump the grease gun handle until all the air is cleared and the grease flows uniformly. Do not mix different types of grease. Use only the recommended type of grease (P/N 20-10162).
4. Place the gun nozzle onto the actuators grease fitting (Ref. Figure 40) and SLOWLY squeeze the handle THREE (3) times ONLY per actuator. Repeat this procedure for all three actuators. Do not allow any foreign matter to fall into the actuator.

IMPORTANT!

TEMPORARILY close BOTH side tunnel guard doors AND replace one 10-32 screw per door Tighten finger-tight only.

5. The FIRST of TWO grease applications will now be distributed over the length of the actuator's ball screw by initiating the limit switch test procedure and slowly raising and lowering the game.

Turn the power switch on to start the limit switch test. At the upper-most position the movement pauses briefly (1-2 seconds) then proceeds downward. When the game has moved down about one inch (1") beyond the upper-most (or paused) position turn the power off.

6. Place the gun nozzle onto the actuators grease fitting and SLOWLY squeeze the handle THREE (3) times ONLY per actuator. Repeat this procedure for all three actuators. Replace each actuator access cover and the Phillips head screws. Tighten the screws using a Phillips screwdriver.
7. Close BOTH side tunnel guard doors AND fasten with four 10-32 screws (two per door). Tighten the screws using the T-25 wrench.
8. Replace the front tower cover and tighten the two 10-32 screws using a T-25 wrench.
9. Turn the power switch on, the game is now properly lubricated. Remember to log the lubrication service into the service log located in the front of this manual.

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TEL.312-961-1544 FAX.312-961-1080

SERVICE BULLETIN

DATE: MAY 8, 1995

SB #81

GAME: "THE SHADOW"

SUBJECT: MINI-PLAYFIELD

ATTACHED WITH THIS BULLETIN ARE 3 INSTRUCTION PROCEDURES RELATING TO THE MINI-PLAYFIELD.

- ◆ DOCUMENT #16-10104.1 - IS AN INSPECTION PROCEDURE TO VERIFY IF THE COIL SLIDE MOTOR ASSEMBLY HAS BEEN ASSEMBLED PROPERLY.
- ◆ DOCUMENT #16-10105.1 - IS AN ASSEMBLY INSTRUCTION PROCEDURE FOR THE MINI PLAYFIELD PINION KIT (PART # A-20417). THIS KIT IS FOR CHANGING THE PLASTIC PINION TO A BRASS PINION GEAR.
- ◆ DOCUMENT #16-10112.1 - IS AN ASSEMBLY INSTRUCTION PROCEDURE FOR THE MINI PLAYFIELD OPTO KIT (PART # A-20424). THIS KIT ADDS AN EXTENSION BRACKET TO THE OPTO TRANSISTOR ASSEMBLY TO HELP MINIMIZE LIGHT INTERFERENCE.

THANK YOU,

WMS GAMES PARTS & SERVICE INC.

Mini-Playfield Assembly Inspection

There may be a case where the COIL SLIDE MOTOR ASSEMBLY (P/N A-17789), a component of the MINI PLAYFIELD ASSEMBLY (P/N A-18382), may have been assembled incorrectly. Please follow the inspection procedure below to determine if your assembly is correct.

1. Unscrew thumb screw (Item 1) from the mini playfield. (See Fig.1) This may be tight the first time it is removed. A straight blade screwdriver may be necessary to remove the thumb screw. Subsequent removals and insertions may be done with just your fingers.

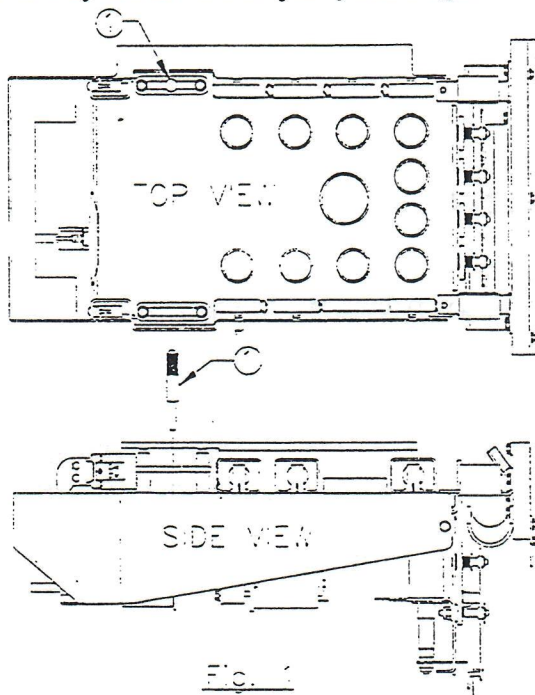


Fig. 1

2. With the main playfield in its service position (i.e. tilted up and moved forward resting on its support brackets), raise mini-playfield and rest it against the back box (See Fig. 2).

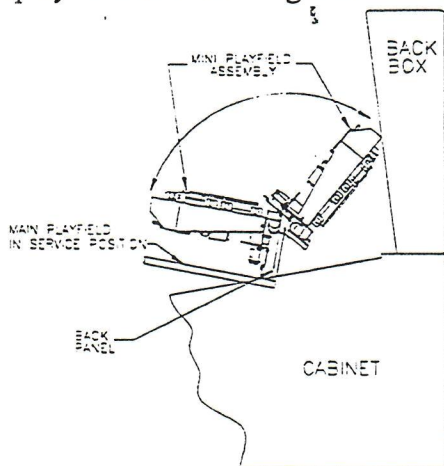
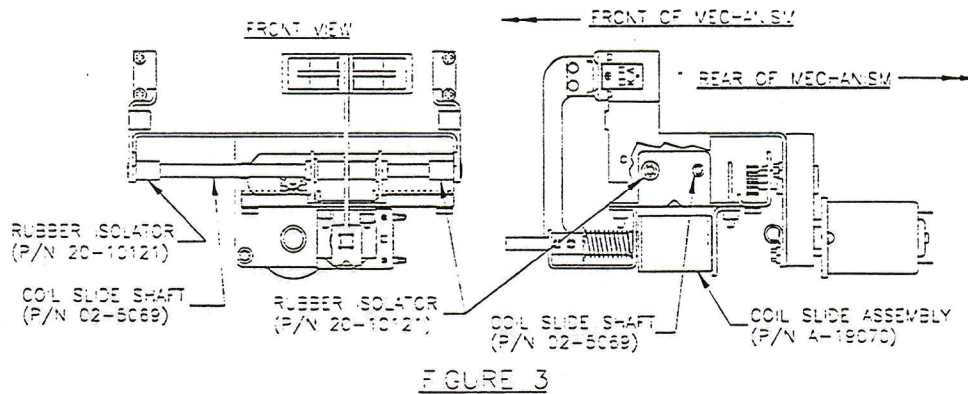


Fig. 2

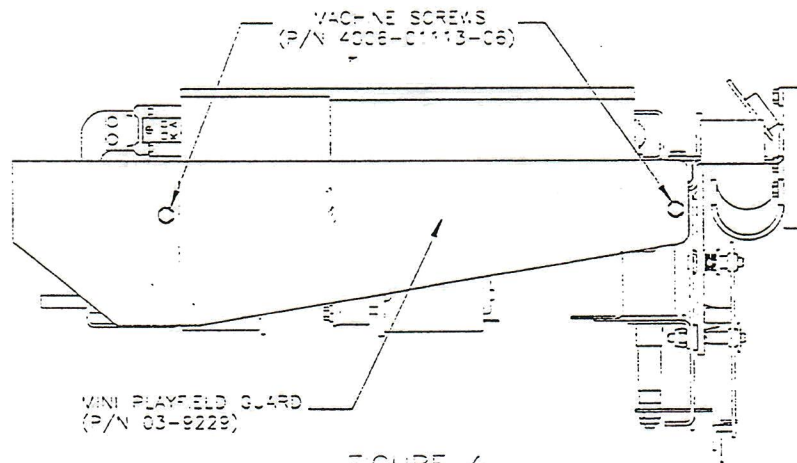
3. You will see that the COIL SLIDE ASSEMBLY (P/N A-19070) slides from side to side on two COIL SLIDE SHAFTS (P/N 02-4947 & 02-5069). The correct assembly will have the COIL SLIDE SHAFT (P/N 02-5069) closest to the front of the mechanism supported by

two RUBBER ISOLATORS (P/N 20-10121), (See Fig.3). If you have the condition represented by Figure 3, your assembly is **CORRECT**. If the two shafts are reversed, i.e. the shaft with the rubber isolators is closest to the rear of the mechanism, the mechanism will have to be disassembled and reassembled correctly.

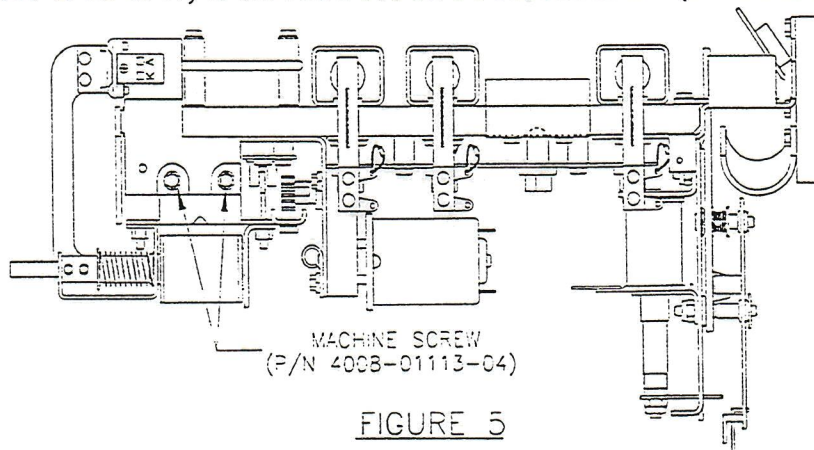


Disassembly Instructions

1. Remove the four MACHINE SCREWS (P/N 4006-01113-06) that secure the MINI PLAYFIELD GUARD (P/N 03-9229) (See Fig.4). Note: There are two screws on each side of the guard. Remove the mini playfield guard.



2. Remove the four MACHINE SCREWS (P/N 4008-01113-04), 2 per side, that attach both COIL SLIDE SHAFT (P/N 02-5069 & 02-4947) to the MOTOR/OPTO ASSEMBLY (P/N A-19170) (See Fig.5).



3. After the removal of the four screws, the COIL/SLIDE ASSEMBLY (P/N A-19070) can be removed from the mini playfield assembly (See Fig. 6).

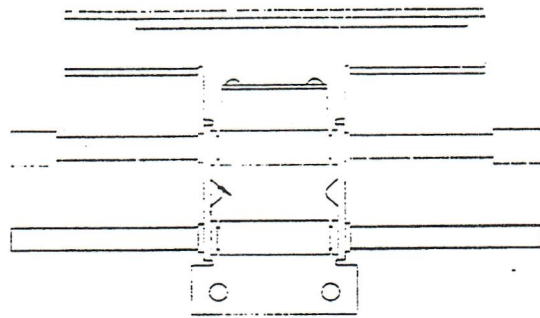


FIGURE 6

4. Remove COIL SLIDE SHAFT (P/N 02-4947) by sliding it through the FLANGE BUSHINGS (P/N 20-9610) and PLASTIC SPACER (P/N 03-9268). Unscrew by twisting manually, counterclockwise, one of the RUBBER ISOLATORS (P/N 20-10121) from the second COIL SLIDE SHAFT (P/N 02-5069). Slide second coil slide shaft through flange bushings and plastic spacers (See Fig. 7).

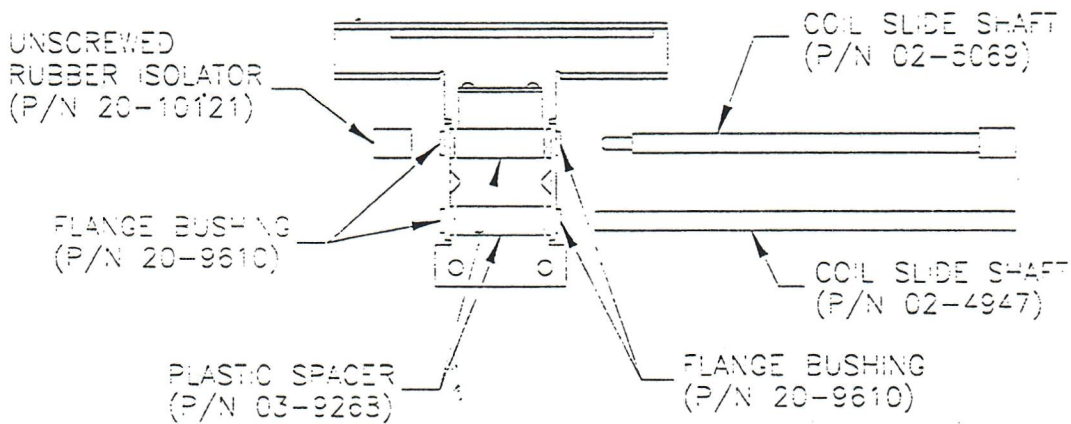


FIGURE 7

5. Switch shafts over and reinsert in correct orientation and reassemble entire mechanism (See Fig. 8).

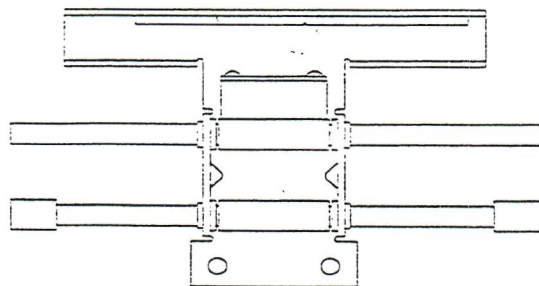
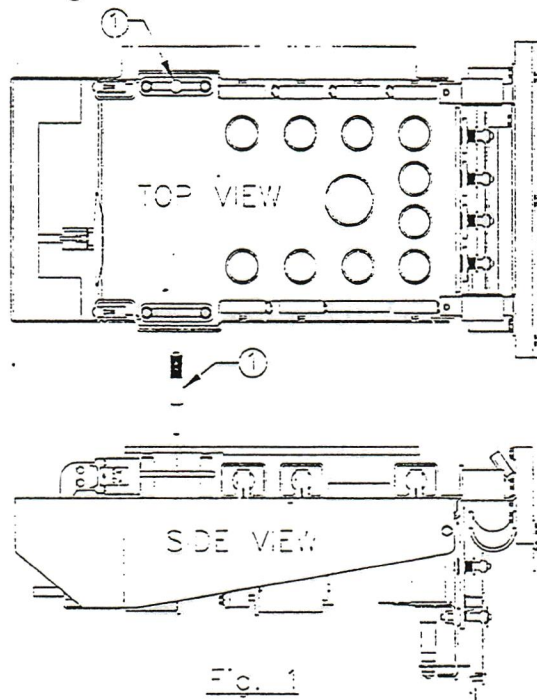


FIGURE 8

Assembly Instructions - Mini Playfield Pinion

A - 2 0 4 1 7

1. Unscrew thumb screw (Item 1) from the mini playfield. (See Fig.1) This may be tight the first time it is removed. A straight blade screwdriver may be necessary to remove the thumb screw. Subsequent removals and insertions may be done with just your fingers.



2. With the main playfield in its service position (i.e. tilted up and moved forward resting on its support brackets), raise mini-playfield and rest it against the back box (See Fig. 2).

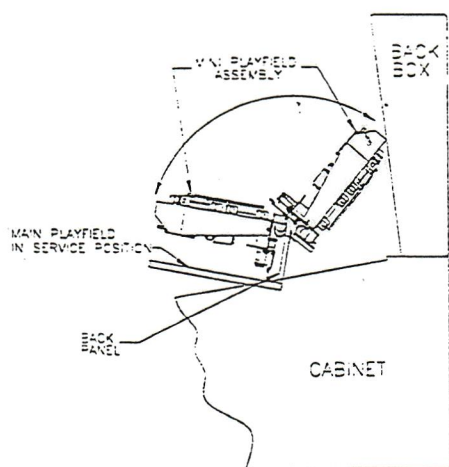


Fig. 2

3. With the mini playfield resting against the backbox, you will be able to see the underside of the mini playfield. Slide the COIL/SLIDE ASSEMBLY (P/N A-19070) all the way to the left hand side of the MINI PLAYFIELD ASSEMBLY(P/N A-18382). Do this manually. You will now be able to see two(2) HEX HEAD MACHINE SCREWS (P/N 4008-01168-10). Using an open ended wrench, box wrench, or nut driver, remove these two screws (See Fig. 3).

FRONT VIEW

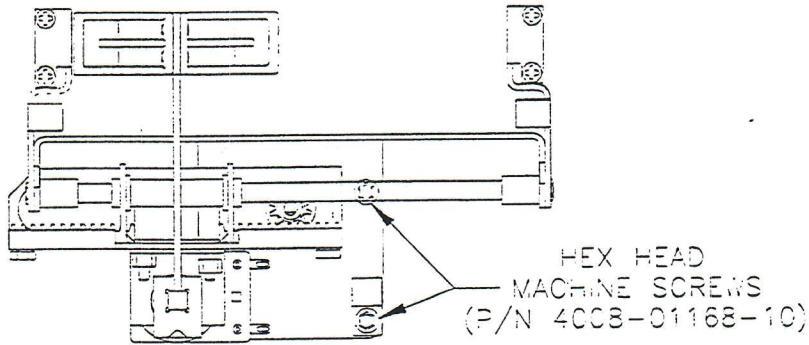


FIGURE 3

4. Slide COIL/SLIDE ASSEMBLY all the way to the right hand side of the MINI PLAYFIELD ASSEMBLY. Also do this manually. You will see two(2) more HEX HEAD MACHINE SCREWS (P/N 4008-01168-10). Remove these two screws also, being careful as not to let the PINION/MOTOR ASSEMBLY (P/N A-19950) fall. Desolder the two motor wire leads. (See Fig. 4)

FRONT VIEW

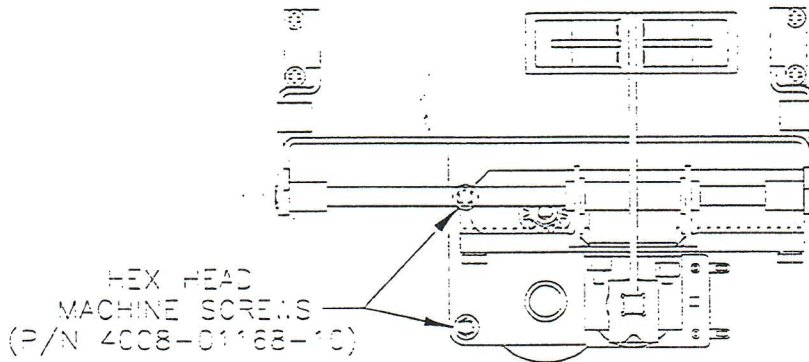


FIGURE 4

5. At this point remove any plastic remnants of the damaged pinion. This will allow the roll pin that attaches the pinion gear to the motor shaft, to be exposed. (See Fig. 5)

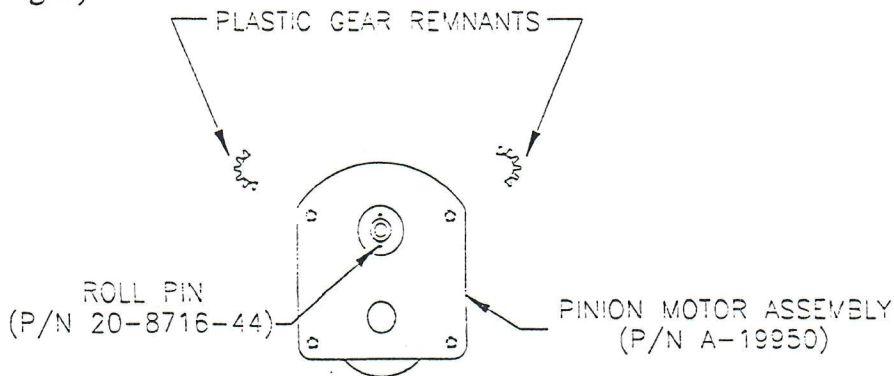


FIGURE 5

6. The motor and shaft must be supported by a vise or any other instrument that will

support the motor and shaft rigidly.

- Using a 3/32 punch and a small hammer, lightly tap the roll pin until it is removed from the motor shaft (See Fig. 6)

USE A 3/32 PUNCH AND
A SMALL HAMMER TO TAP
ROLL PIN OUT OF SHAFT

REMOVED ROLL PIN

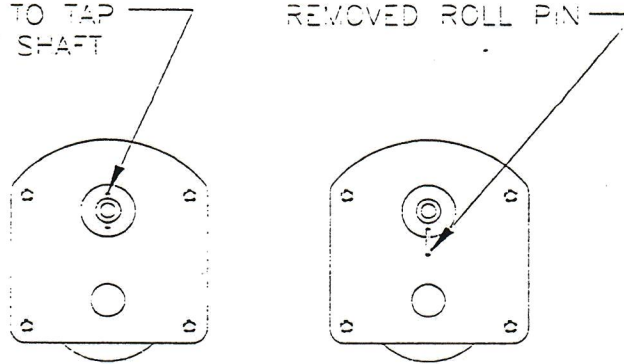


FIGURE 6

- After roll pin is removed, remove the brass sleeve and discard. (See Fig. 7)

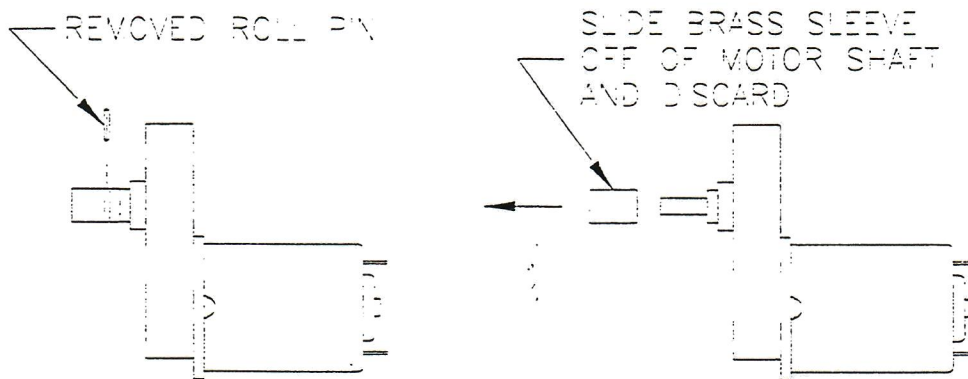


FIGURE 7

- Using the ALCOHOL WIPES (P/N 20-10211) supplied with the REPAIR KIT (P/N A-20417), thoroughly clean the motor shaft. Allow the cleaned motor shaft to air dry (30 to 45 seconds). (See Fig. 8)

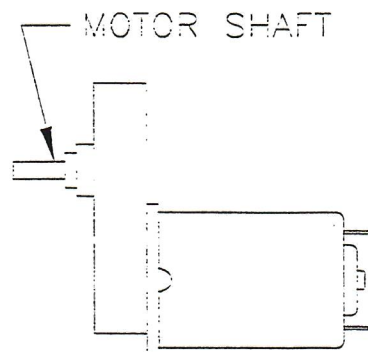


FIGURE 8

- Remove the small tube of LOCTITE 620 (P/N 20-10210), the BRASS PINION GEAR (P/N 02-5186), and the BRASS TIPPED DOG POINT SET SCREW (P/N 4006-01194-02) from the repair kit. Apply the entire amount of LOCTITE

620 from the tube, on to the motor shaft. distributing it uniformly on the entire shaft. With a sliding and twisting motion, slowly install the BRASS PINION GEAR on the shaft, twisting and sliding back and forth several times to evenly distribute the LOCTITE 620. Make sure that the tapped hole in the pinion gear is lined up with the through hole left by the old roll pin. (See Fig. 9) Now install the BRASS TIPPED DOG POINT SET SCREW and tighten down securely, making sure that the top of the screw is flush or below flush with the hub of the pinion and that the brass tip of the screw is seated in the old roll pin hole. Carefully wipe off all excess LOCTITE 620, so as not to get any in the motor or gear teeth. Allow this assembly to dry for 24 hours before re-installing into mini playfield assembly and operating. It is very important that the full dry time is allowed in order for the repair to be completely successful.

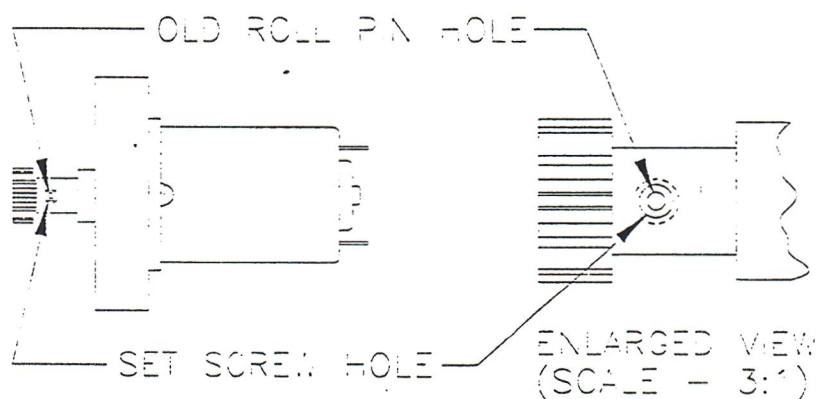


FIGURE 9

11. As an added measure, after step 9 is completed and if facilities and tools allow, a number 52 (.063 diameter) hole can be drilled all the way through the brass pinion gear and motor shaft, using the pilot hole that is already drilled in the brass pinion gear. After the hole is drilled, the new ROLL PIN (P/N 20-8716-44) supplied with the repair kit, can be installed, making sure that it is inserted flush with the pinion hub.

Assembly Instructions - Mini-Playfield Opto

(P/N A-20424)

1. Remove the two (2) SHEET METAL SCREWS (P/N 4106-01013-06) that attach the OPTO TRANSISTOR ASSEMBLY (A-16909), on the left side of the MINI PLAYFIELD ASSEMBLY. (See Fig.1)

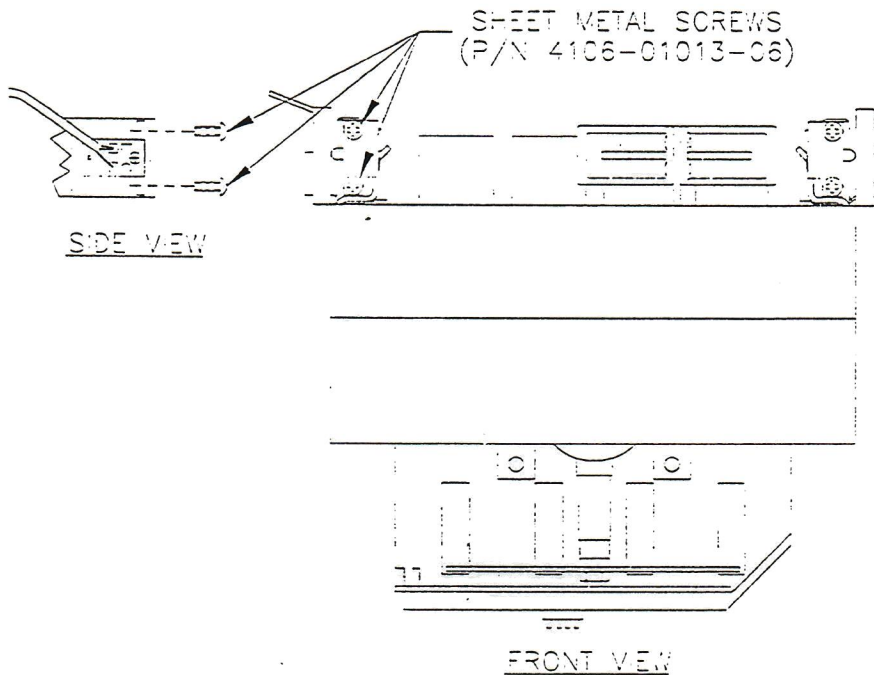


FIGURE 1

2. Reinstall the OPTO TRANSISTOR ASSEMBLY on the EXTENSION BRACKET (P/N 01-14013). The EXTENSION BRACKET can be found in the MINI PLAYFIELD OPTO REPAIR KIT(P/N A-20424) (See Fig.2).

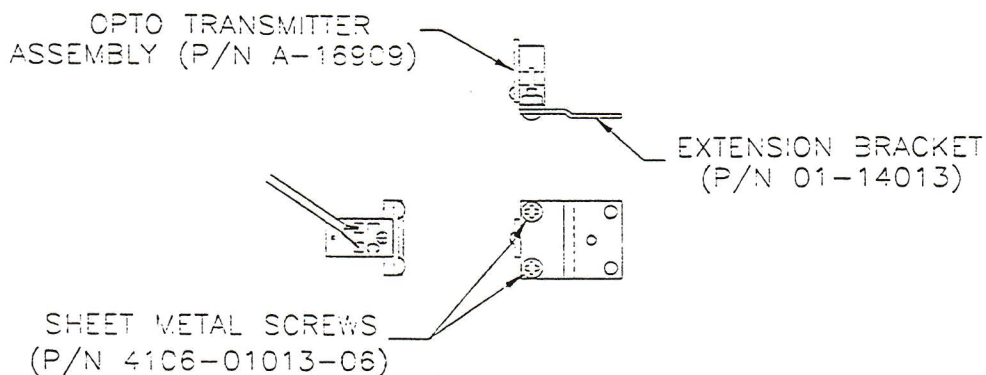
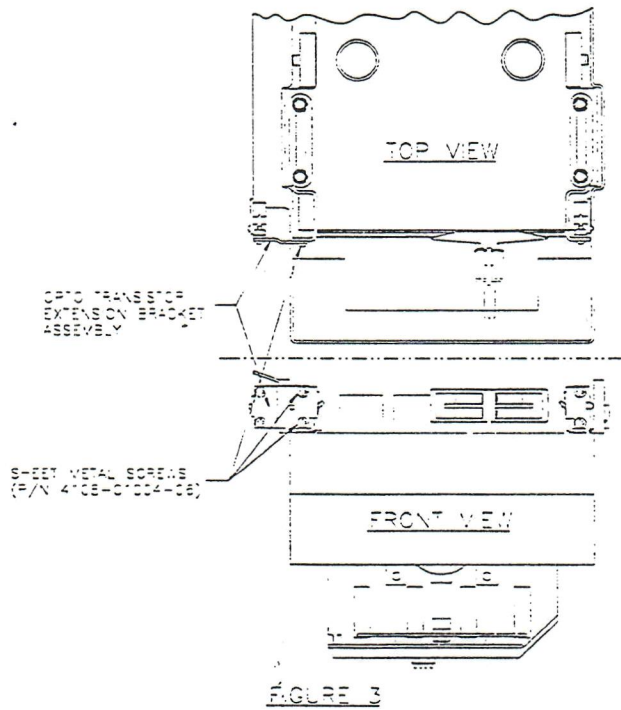


FIGURE 2

When installing the OPTO TRANSISTOR ASSEMBLY, make sure

that the orientation of the EXTENSION BRACKET is as shown in Figure 2.

3. Now mount the EXTENSION BRACKET/OPTO TRANSISTOR ASSEMBLY back onto the MINI PLAYFIELD ASSEMBLY using the two (2) SHEET METAL SCREWS (P/N 4108-01004-06) supplied with the REPAIR KIT. (See Fig.3)



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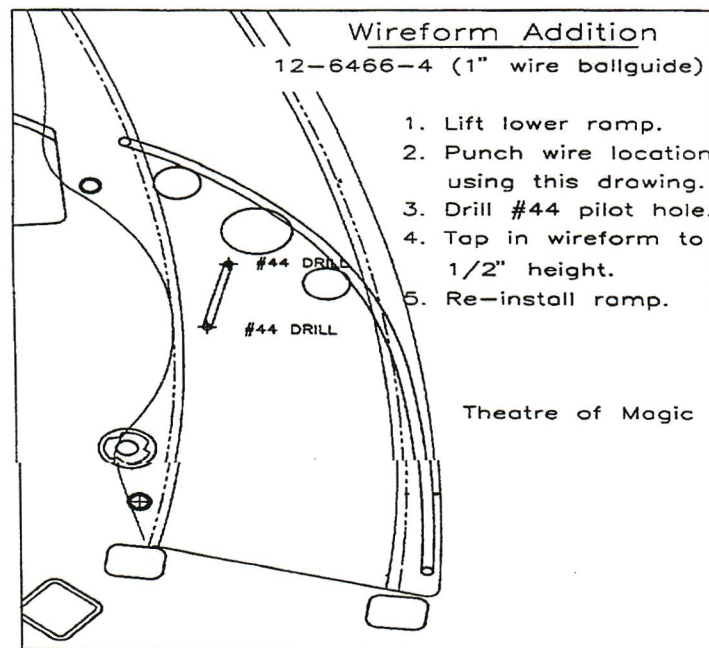
DATE: JUNE 28, 1995

SB82

GAME: "THEATRE OF MAGIC"

SUBJECT: BALL HANG-UP NEAR RIGHT SIDE OF TRUNK.

ON "THEATRE OF MAGIC" A BALL CAN COME TO REST BETWEEN THE RIGHT SIDE OF THE TRUNK AND THE MIDDLE RAMP. BALL SEARCH WILL MOVE THE TRUNK TO LET THE BALL ROLL OUT. DEPENDING UPON THE SPEED OF THE BALL AND THE ANGLE THAT IT ENTERS THIS AREA, IT IS POSSIBLE THAT THE BALL CAN LODGE UNDERNEATH THE RAMP. ON GAMES MANUFACTURED AFTER APRIL 20th A WIRE BALL GUIDE (PART #12-6466-4) WAS INSTALLED TO PREVENT THIS FROM HAPPENING. IF YOU HAVE A GAME MANUFACTURED BEFORE APRIL 20th AND ARE HAVING THIS CONDITION PLEASE REFER TO THE FOLLOWING DRAWING FOR INSTALLATION INSTRUCTIONS. A QUICK TEMPORARY FIX WOULD BE TO PUT SOME FOAM TAPE (PART # 23-6534-3) UNDERNEATH THE RAMP.



THANK YOU,
WMS GAMES PARTS AND SERVICE INC.

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SERVICE BULLETIN

DATE: AUGUST 8, 1995

SB83

GAME: "CRUIS'N USA"

SUBJECT: REPLACEMENT BRUSHES FOR THE STEERING MOTOR.

WE HAVE USED THREE DIFFERENT MANUFACTURERS FOR THE MOTOR ON THE FULL MOTION SIMULATOR AND THE SINGLE SITDOWN STEERING ASSEMBLIES. TO ORDER REPLACEMENT BRUSHES YOU WILL NEED TO KNOW WHICH OF THE MOTORS YOU HAVE. LISTED BELOW ARE THE 3 VENDOR NAMES AND OUR PART NUMBER FOR THE PROPER REPLACEMENT BRUSHES.

<u>VENDOR</u>	<u>WMS. PART NUMBER</u>
GROSCHOPP, INC.	20-10226
RAE CORPORATION	20-10227
VALLEY ELECTROMAGNETICS CORP.	20-10228

THANK YOU,

WMS GAMES PARTS AND SERVICE INC.

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PARTS & SERVICE INC.

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SERVICE BULLETIN

ATTENTION: ALL SITDOWN "CRUIS'N USA" OWNERS

DATE: DECEMBER 7, 1995

SB84

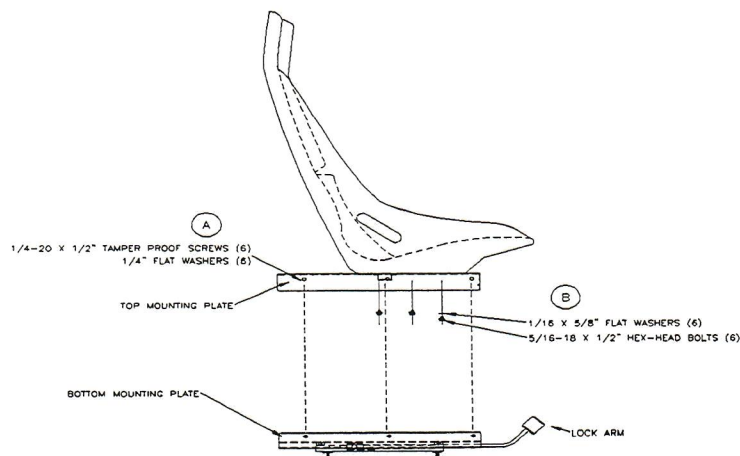
GAME: "CRUIS'N USA"

SUBJECT: SEAT MOUNTING BOLTS

WE HAVE BEEN GETTING REPORTS OF SEAT MOUNTING BOLTS LOOSENING UP. IF THEY LOOSEN UP, THE SEAT CAN COME LOOSE FROM THE TOP MOUNTING PLATE OF THE SLIDE ASSEMBLY. THIS CAN BE VERY DANGEROUS TO THE PLAYER SITTING ON THE SEAT. TO INSURE THAT THE BOLTS DO NOT COME LOOSE, LOCTITE MUST BE ADDED TO THE BOLTS AND TAMPER PROOF SCREWS. THEY MUST BE ALSO BE TORQUED.

PLEASE REFER TO THE DRAWING BELOW AND FOLLOW THESE STEPS.

- 1) REMOVE 6 TAMPER PROOF SCREWS THAT HOLD THE TOP MOUNTING PLATE TO THE BOTTOM MOUNTING PLATE ON THE SEAT SLIDE ASSEMBLY.(ITEM "A" ON DRAWING)
- 2) CAREFULLY LIFT THE SEAT AND TOP MOUNTING PLATE OFF OF THE BOTTOM MOUNTING PLATE.
- 3) REMOVE 6 5/16-18 X 1/2" HEX HEAD BOLTS THAT HOLD THE SEAT TO THE TOP MOUNTING PLATE.(ITEM "B" ON DRAWING)
- 4) PUT LOCTITE BLUE 242-31 ON HEX-HEAD BOLTS AND TORQUE BOLTS TO 9-12 FT-LBS.
- 5) PUT SEAT AND TOP MOUNTING PLATE BACK ONTO THE BOTTOM MOUNTING PLATE.
- 6) PUT LOCTITE BLUE 242-41 ON THE TAMPER PROOF SCREWS AND TORQUE SCREWS TO 5-7 FT-LBS.



THANK YOU,
WMS GAMES PARTS AND SERVICE INC.

W M S G A M E S

PARTS & SERVICE INC.

3401 N. CALIFORNIA AVE. CHICAGO, IL 60618
TEL.312-961-1544 FAX.312-961-1080

SERVICE BULLETIN

DATE: 12-19-95

SB85

GAME: "JOHNNY MNEMONIC"

SUBJECT: THE DATA GLOVE ASSEMBLY

ATTACHED WITH THIS BULLETIN IS THE LATEST MANUAL AMENDMENT FOR "JOHNNY MNEMONIC". THE AMENDMENT CONTAINS QUITE A LOT OF TROUBLESHOOTING INFORMATION PERTAINING TO THE DATA GLOVE.

PLEASE KEEP IN MIND THAT WHILE YOU CAN TEST THE DATA GLOVE WITH THE COIN DOOR OPEN (WITH THE SERVICE SWITCH ACTUATOR INSTALLED), THE DOOR HAS TO BE SHUT IN ORDER FOR THE DATA GLOVE TO OPERATE PROPERLY IN A GAME CONDITION.

THANK YOU,

WMS GAMES PARTS & SERVICE INC.

JOHNNY MNEMONIC Manual Amendment

This amendment updates and/or adds to information in the JOHNNY MNEMONIC Operations Manual. Please keep this amendment with the operations manual.

Page 1-43 **LED List**

LED 2 and LED 3 on the Power Driver board are not used.

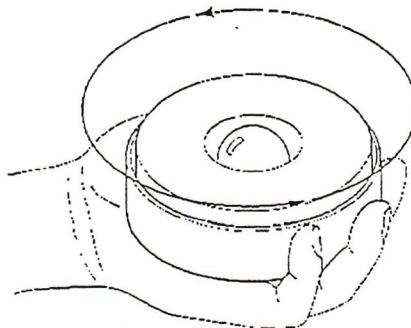
The following troubleshooting information for the Data Glove was not in Section One.

Troubleshooting Data Glove Problems.

The Data Glove Ball Catcher is an electromagnet. When the ball is shot up to the magnet assembly, the electromagnet is turned on to full power. This enables the magnet assembly to catch the ball even if slight positioning errors or popper inconsistencies occur. Once the ball is in the magnet, the ball closes the "Ball in Hand" switch located inside the magnet. When this switch is closed, the magnet is duty cycled in order to prevent overheating of the coil and to prevent magnetizing the ball.

If The Data Glove Does Not Catch The Ball:

1. Verify that the magnet is positioned approximately over the ball popper mechanism, if magnet is not, see the Data Glove Movement troubleshooting section.
2. Check the ball popper assembly located beneath the playfield. Verify that the coil is functional, verify that the opto switch is functional, verify that no wires interfere with the plunger coil movement. This assembly is designed to consistently shoot the ball straight up to the hand. If, from the players vantage point, the popper appears to arc the ball away from the magnet, this implies that the coil is loose, wires are interfering with the plunger, or the entire assembly has been damaged during service.
3. Put the game into the Solenoid test, (be sure the service switch actuator is in place). Hold a ball beneath the magnet assembly. The magnet will grab and release the ball repeatedly. This indicates that the magnet is functional.
4. Check the "Ball in Hand" switch located inside the magnet. Put the game in the Switch test. Hold a ball firmly inside the magnet and roll the ball around inside the magnet cavity. The switch should remain closed as you do this. If the switch opens and closes intermittently, the switch needs to be re-adjusted. To re-adjust the switch, remove the decorative vinyl glove (one Phillips screw). Remove the switch, (remove the 6-32 hex-head screw. Be sure to pull the switch blade down to prevent the switch from getting caught on the core pin), re-adjust the switch blades and re-install the switch. Be careful when re-installing the switch that the fish paper insulator is not damaged or wrinkled. Also verify that the switch does not hang-up on the core pin located in the center of the magnet. The leaf switch should be free throughout the leaf's travel. The best way to check adjustment of this switch is to remove the magnet can from the "Y" drive arm, but leave the cable connected. Turn over the assembly in your hand, place a ball inside and roll the ball around checking switch closures while in the switch test. *NOTE: Do not press the ball while rolling it around. The switch must actuate due to the weight of the pinball only.*



Troubleshooting The Data Glove Assembly.

The Data Glove consists of three major component assemblies. They are:

- The "X" Direction Drive
- The "Y" Direction Drive
- The Hand Magnet

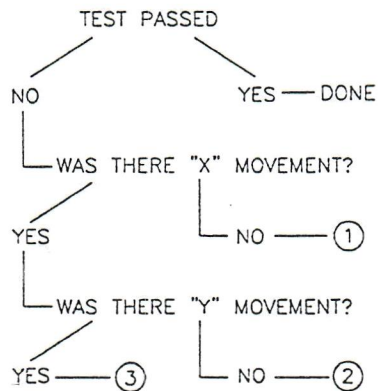
The "X" and "Y" drives are similar. The main components of each drive are a DC gear motor, a drive screw with a floating nut, a coupler, a home switch, and a bi-directional optical encoder.

The magnet assembly consists of an electromagnet fastened to a sheet metal can. The can has a core pin staked in the center and a leaf switch to detect when a ball is in the magnet.

The game diagnostic system is very helpful in determining problems with the system. Each Hand test procedure is described in the Test section of the Operation Manual.

To Troubleshoot Data Glove Movement Problems:

- Check the Error Report
- Run the Self-Test, (be sure the service switch actuator is in place).



- ① Check Fuse 111.
Check relay board connectors.
Check "X" motor wires.
Check "X" coupler set screws.
Check for jammed "X" mechanism.
- ② Check Fuse 111.
Check relay board connectors.
Check "Y" motor wires.
Check "Y" coupler set screws.
Check for jammed "Y" mechanism.
- ③ Check "X" and/or "Y" home switches.
Check "X" and/or "Y" encoder optos.

The following corrections/changes have been made to the Parts Information Section. Please keep this amendment with your manual.

Page 2-3 Under *Miscellaneous Parts*, the part numbers for the Backbox Mounting Bracket, Right and Left were changed, the new part numbers are 01-9011.1-R and 01-9011.1-L respectively. Under *Cabinet Cables*, the Extra Flipper Button Cable has been changed to H-20535.1.

Page 2-22 *Diverter Assembly*
Item 3 was changed to 01-7695-1 Solenoid Bracket.

Page 2-23 *Hand Popper Assembly*
Item 2 was changed to 4008-01119-00 Nut ESN 8-32, the part number and quantity of item 6 has been changed to 04-10322-2 Coil Bracket, 2 used. Item 7 is no longer used; item replaced with 04-10322-2.

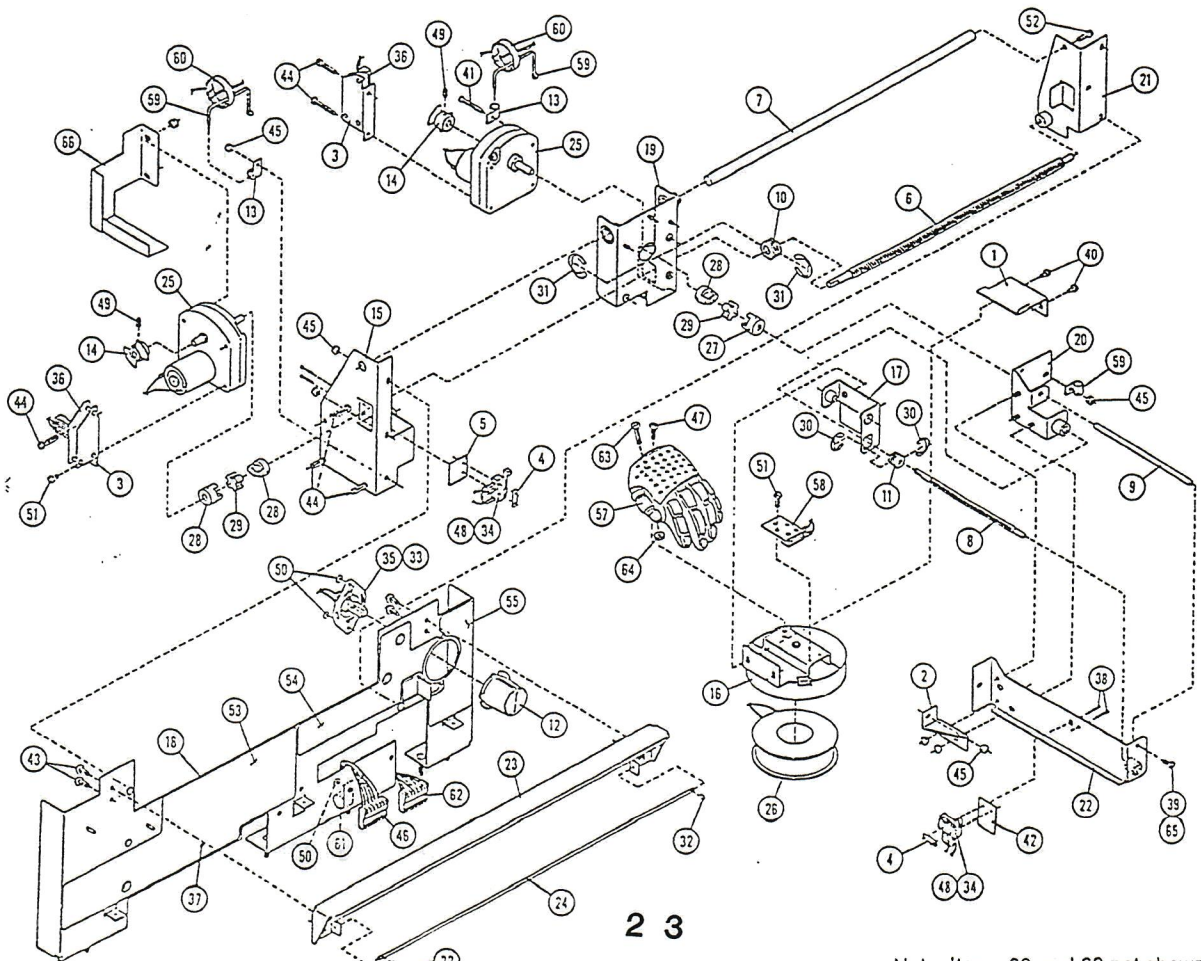
Page 2-24 *Drop Target Assembly w/Cables*
Item C has been changed to H-19692 2-Coil Cable 3".

Page 2-25 *Cyber Space Assembly*
Item 18 has been changed to 04-10214.2 Cyber Space Cover. Quantity of item 20 has been changed to 8. Quantity of item 21 has been changed to 4.

Page 2-26 *Hand Assembly*
Item 14 has been changed to 03-9460 Opto Wheel. Item 46 has been changed to H-20469.3 Back Panel Cable Assembly. Item 49 has changed to 4006-01076-03 SS 10-32 x 3/16. Item 67 has been deleted and, items 68 and 69 were added, they are:

- 68. 01-14225 Opto Guard
- 69. 12-7331 Magnet Wire

Page 2-27 *Hand Assembly*
Revised drawing.



Water Name 00 and 00 not shown

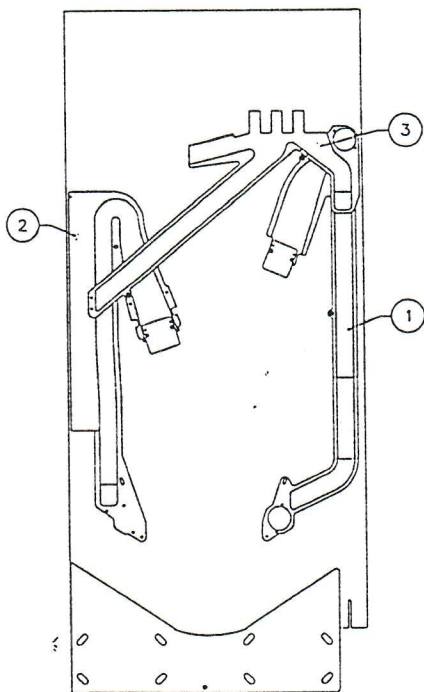
The following information was not available/completed at time of final book production.

Posts

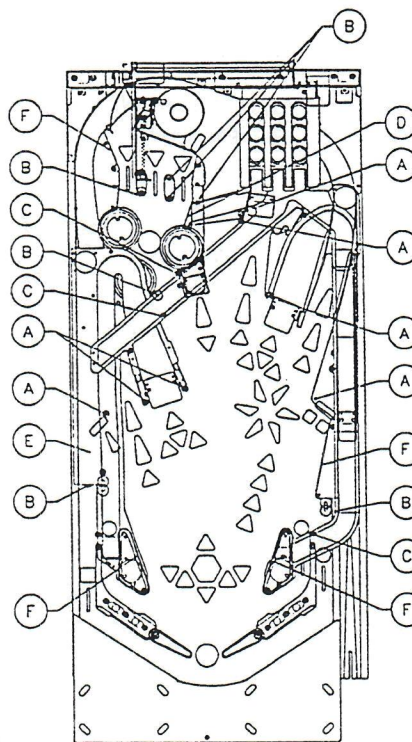
Part Number	Description	Quantity
02-3905	Post #8	2
02-4425-2	Post Fastener 8-32 x 8-32 x 9/32	5
02-4426-2	Post Fastener #8 WS 6-32	1
02-4335-14	M-F #8-32 x .637	4
02-4659-1	Post #10 (3/8 Deep MS Top)	9
02-4660	Single Bumper Post #10	3
02-4677	Rubber Bumper Post	7
02-4677-1	Bumper Post #10	1
02-5107	Adjusting Post	1
02-5205-21	M-M Spacer 8-32 x 2.31" (1/4 Hex)	1
02-5205-34	M-M Spacer 8-32 x 3.12" (1/4 Hex)	2
02-5205-44	M-M Spacer 8-32 x 3.75" (1/4 Hex)	1
02-5205-53	M-M Spacer 8-32 x 4.31"	1
03-8319-25	Post #8 Starred, Tr. Teal Green	1
03-8319-7	Post # Starred	9
03-8365-25	Post #8 Tr. Teal Green	14

Playfields

RAMPS



RUBBER RINGS

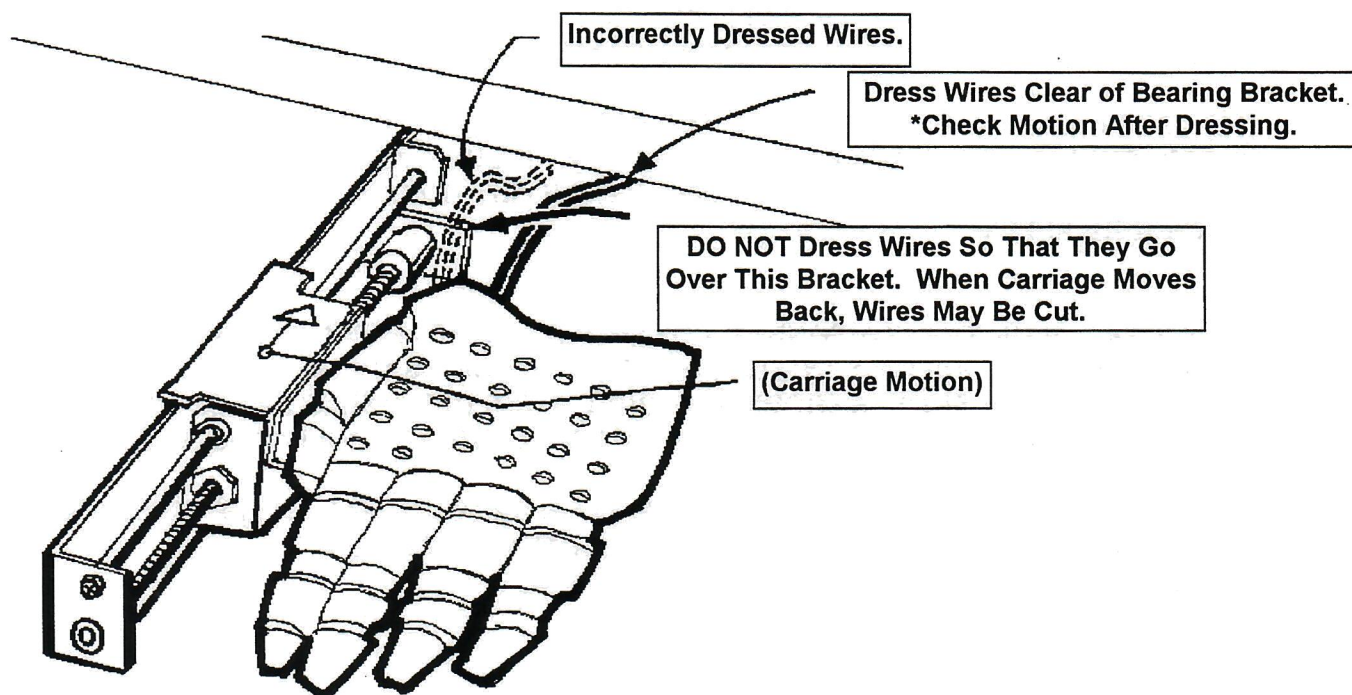


Item	Part Number	Description
1	A-20436	Plastic Ramp Assy., Right
a)	5647-12693-24	Mini Switch
b)	A-20444	Switch Guard Assembly
2	A-20437	Plastic Ramp Assy., Left
a)	5647-12693-24	Mini Switch
b)	A-20441	Switch Bracket Assembly
3	A-20438	Cyber Space Ramp Assy.

Item	Part Number	Description	Qty.
A	23-6556	Black Bumper Sleeve	7
B	23-6641	Black Rubber Bumper	9
C	23-6694-1	Blk. Rubber Grommet	4
D	23-6694-5	Blk. Rubber Ring 3/4"	1
E	23-6694-9	Blk. Rubber Ring 2"	1
F	23-6694-10	Blk. Rubber Ring 2-1/2"	4

JOHNNY MNEMONIC Engineering Bulletin

This engineering bulletin addresses the problem of fuse 104 and/or fuse 105 blowing.



WMS GAMES

PARTS & SERVICE INC.

3401 N. CALIFORNIA AVE. CHICAGO, IL 60618
TEL.312-961-1544 FAX.312-961-1080

SERVICE BULLETIN

DATE: JANUARY 11, 1996

SB86

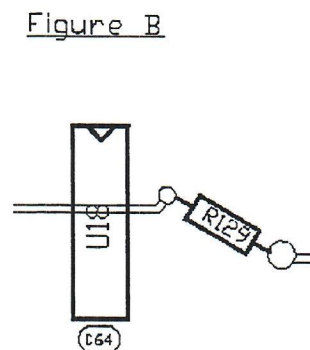
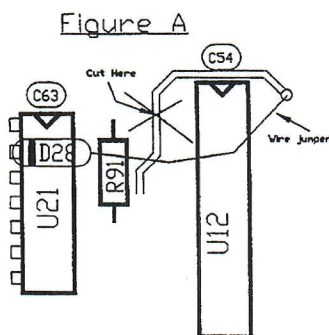
SUBJECT: PREMATURE LOSS OF BATTERY VOLTAGE ON THE WPC 95 CPU BOARD.
(ONLY "JACKBOT" AND "CONGO" SAMPLE GAMES MANUFACTURED BEFORE 12-15-95)

THE CPU BOARDS AFFECTED HAVE THE BARE BOARD PART NUMBER OF 5764-14533-08 (SCREENED ON THE BACK OF THE BOARD). WE BELIEVE ALL THE BOARDS HAVE BEEN MODIFIED IN HOUSE, BUT IN CASE ANY SLIPPED THROUGH, FOLLOW THE PROCEDURE BELOW.

* CUT TRACE ON THE COMPONENT SIDE OF THE PCB AS SHOWN IN FIGURE A. TACK SOLDER THE CATHODE OF A 1N5817 1.0a DIODE (D28 ON DRAWING AND LATER REVISIONS) TO U21 PIN 2 AS SHOWN IN FIGURE A. SOLDER A SHORT PIECE OF INSULATED WIRE FROM THE ANODE END OF D28 TO THE VIA HOLE NEAR U12 PIN 20 AS SHOWN IN FIGURE A.

* SOLDER A 22K 5% 1/4 WATT RESISTOR (R129 ON DRAWING AND LATER REVISIONS) TO THE VIA HOLES IN THE PCB NEAR U18 AS SHOWN IN FIGURE B.

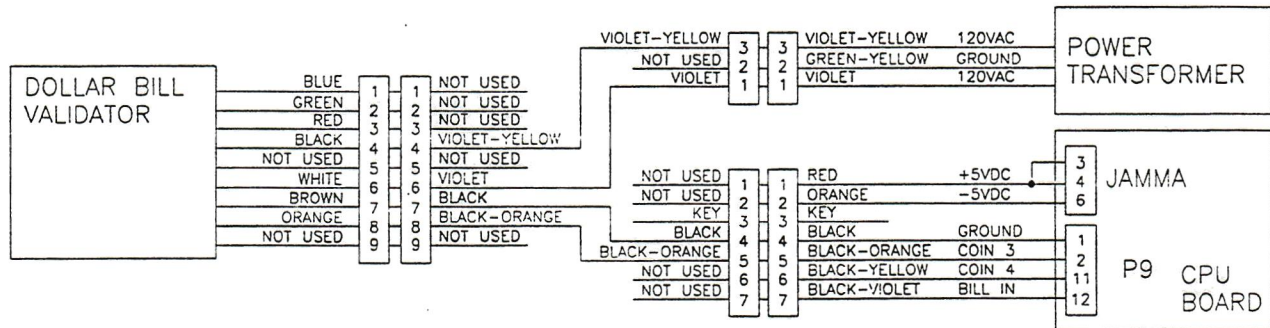
* VERIFY THAT R91 IS A 22M 5% 1/4 WATT RESISTOR.



CRUIS'N SIT-DOWN

DOLLAR BILL VALIDATOR WIRING INFORMATION

After installing the MARS DOLLAR BILL VALIDATOR (VFM-2) according to the manufacturing instructions, connect the cable as follows:



Now go into the Adjustments Menu and select the Custom Pricing option. The menu will appear similar to the following:

CUSTOM PRICING	
LEFT CHUTE UNITS	1
RIGHT CHUTE UNITS	1
CENTER CHUTE UNITS	4
FOURTH CHUTE UNITS	1
UNITS PER CREDIT	2
UNITS PER BONUS	0
MINIMUM UNITS	0
CREDITS TO START	1
CREDITS TO CONTINUE	1
LEFT CHUTE COUNTER	1
RIGHT CHUTE COUNTER	1
CENTER CHUTE COUNTER	4
FOURTH CHUTE COUNTER	1
SHOW FRACTION	YES
SELECT CUSTOM PRICING	YES
EXIT TO MAIN MENU	

In the Custom Pricing Adjustments Menu (above) set the Center Chute Units, the Units Per Credit, and the Select Custom Pricing (examples shown below).

VALUE	CENTER CHUTE UNITS	UNITS PER CREDIT	SELECT CUSTOM PRICING
1 PLAY AT 25¢	4	1	YES
1 PLAY AT 50¢	4	2	YES
1 PLAY AT 75¢	4	3	YES

After setting the pricing information, exit the main menu and test the DBV.

Note: In the Audits Menu, the Center Chute Units will accumulate in the Right Chute audits.

HARD DRIVE HANDLING GUIDELINES

Hard drives are especially sensitive to rough handling and electrostatic discharge (ESD). To avoid these hazards, adhere to the following guidelines:

ELECTROSTATIC DISCHARGE (ESD)

- Keep the drive in an antistatic bag until you are ready to install it in your system.
- Do not attach any cables to the drive while it is still in its antistatic bag.
- Do not put any other objects inside the antistatic bag with the drive.

HANDLING

- Keep liquids away from the drive.
- Do not put anything on top of the drive - especially another drive.
- Do not drop a disk drive. Some drives can be damaged by being dropped from an inch above a hard surface.
- Hold a drive by its edges without touching the circuit board or connector pins.
- When putting down the drive, place it, circuit board down, onto an antistatic cushion. Do not set the drive on its edge.

INSTALLING

- When installing the drive, remove it from the antistatic bag.
- Turn off the power before connecting the drive to the system.
- Do not connect cables to the drive, or disconnect cables from the drive, while power is on.

STORING, PACKING, AND TRANSPORTING DRIVES

- If you are using the single pack carton, do not pack more than one drive per carton.
- Pack the drive in an antistatic bag. Then, put it in an approved shipping container.
- Do not throw, drop, puncture, or walk on shipping boxes.

Note. You should use the same degree of care when handling a drive that may be defective that you use when handling a new, working drive.

AMENDMENTS

ROAD SHOW MANUAL AMENDMENT

The following changes were made to ROAD SHOW after the manual was printed. Please keep this amendment with your game manual.

Page 1-11 B.4 Feature Audits

01	Buy-in Extra Ball	19	Flying Rocks Lit
02	Multiballs	20	Today's High Score
03	Cities Started	21	Balls Saved
04	Flying Rocks Started	22	West Coast City
05	Collected Wheel	23	Super Payday
06	Made Skill	24	Blast Extra Ball Lit
07	Lock 1	25	Bridge Extra Ball Lit
08	Lock 2	26	Wheel Extra Ball Lit
09	1st Multiballs	27	Flying Rocks Extra Ball Lit
10	2nd Multiballs	28	Bob's Extra Ball Lit
11	Jackpots	29	Bob's Extra Ball
12	Rematch	30	Blast for Extra Ball
13	Multiball Restarts	31	Time Per Credit
14	Bob's Visits	32	1 Buy-in Games
15	Bob's Bought	33	2 Buy-in Games
16	Bridge Out	34	3 Buy-in Games
17	2X Plus Blast	35	>4 Buy-in Games
18	Cities Lit		

Page 1-28 A.2 Feature Adjustments

A.2 10 Cnt Between Wheels has been renamed Bridge Out for Wheel

Page 2-23 A-19127 Red's Head

Item 22, Spring Bar was part number 10-425. Item 22, Spring Bar part number *is now* 10-494.

Page 2-25 A-19128 Ted's Head

Item 22, Spring Bar was part number 10-425. Item 22, Spring Bar part number *is now* 10-494
Items 34 Blade Drive Rod, and 35 Extension Spring were added to picture.

Page 2-51 Rubber Rings

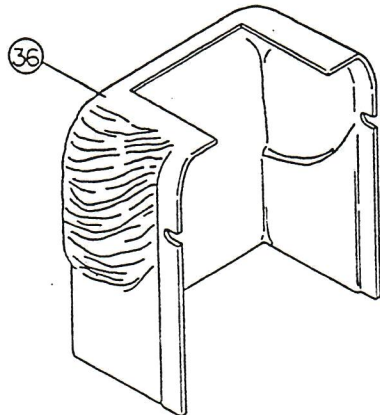
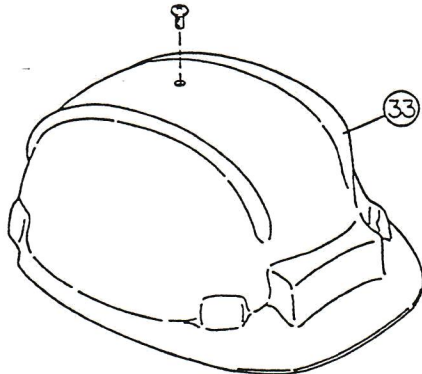
Rubber Rings page was missing from manual.

Page 3-24 A-18543-2 Eddy Sensor Board

Q2 should be a 2N3906 transistor not a 2N3904 transistor.

A-19127 "Red" Head Assembly

<u>Item</u>	<u>Part No.</u>	<u>Description</u>	<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	A-13735	Coil Bracket Assembly (5)	21	10-424	Compression Spring (2)
2	A-14026	Centering Bracket Ass'y	22	10-494	Spring Bar
3	A-14027	Eye Bracket Assembly	23	11-1220	Wood Base
4	A-14028	Plunger Assembly	24	12-7239	Eye Link Wire (2)
5	A-14029	Plunger Stop Bracket Ass'y	25	20-8790-1	Nyliner (2)
6	A-14030	Main Lid Plunger Ass'y	26	20-9668	Eyelet 1/8 x 1/4 (2)
7	A-19126.2	Head Bracket Assembly	27	31-1611-1	Lip/Mandible
8	A-19257-2	Eye Assembly (2)	28	A-13941	Eject Assembly
9	A-19258	Crank Assembly	29	01-9785	Switch Mounting Bracket
10	A-17918	Hat Bracket	30	5070-06258-00	Diode 1N4001 1.0A
11	H-19531	Head Cable Assembly	31	5647-12693-32	Mini-Micro Switch
(a)	5791-13202-00	6-Pin Connector	Related Parts:		
(b)	5791-10772-00	2-Pin Connector	32	03-8472	Jaw Link
(c)	5791-12570-00	2-Pin Connector	33	03-9289	Hard Hat
12	SM-30-1100-DC	Coil Assembly (3)	34	20-10142	Hair Assembly
13	SM-31-900-DC	Coil Assembly	35	31-2018-1	Decorated Head - Front
14	01-13416	Crank Liner	36	31-2018-2	Decorated Head - Back
15	01-9959-1	Insulator (2)	Miscellaneous Hardware:		
16	02-5103	Double Plunger	02-4499	Pivot Pin	
17	03-7520-2	Nylon Tie Wrap (5)	20-8712-18	"E" Ring 3/16" Shaft (2)	
18	03-8469-1	Eyelids	20-8712-25	"E" Ring 1/4" Shaft (3)	
19	03-8486	Centering Flange	4006-01003-05	MS 6-32 x 5/16 P-PHS (14)	
20	10-423	Extension Spring (2)	4006-01035-03	MS 6-32 x 3/16 P-Tr Hd	
			4006-01035-05	MS 6-32 x 5/16 P-Tr Hd (4)	
			4008-01003-12	MS 8-32 x 3/4 P-PHS (6)	
			4106-01114-08	TCS #6 x 1/2 PL-H (2)	
			4408-01119-00	Nut 8-32 ESN	
			4700-00005-00	FW .141 x .437 x .032 (2)	
			4700-00072-00	FW .265 x .500 x .032 (3)	



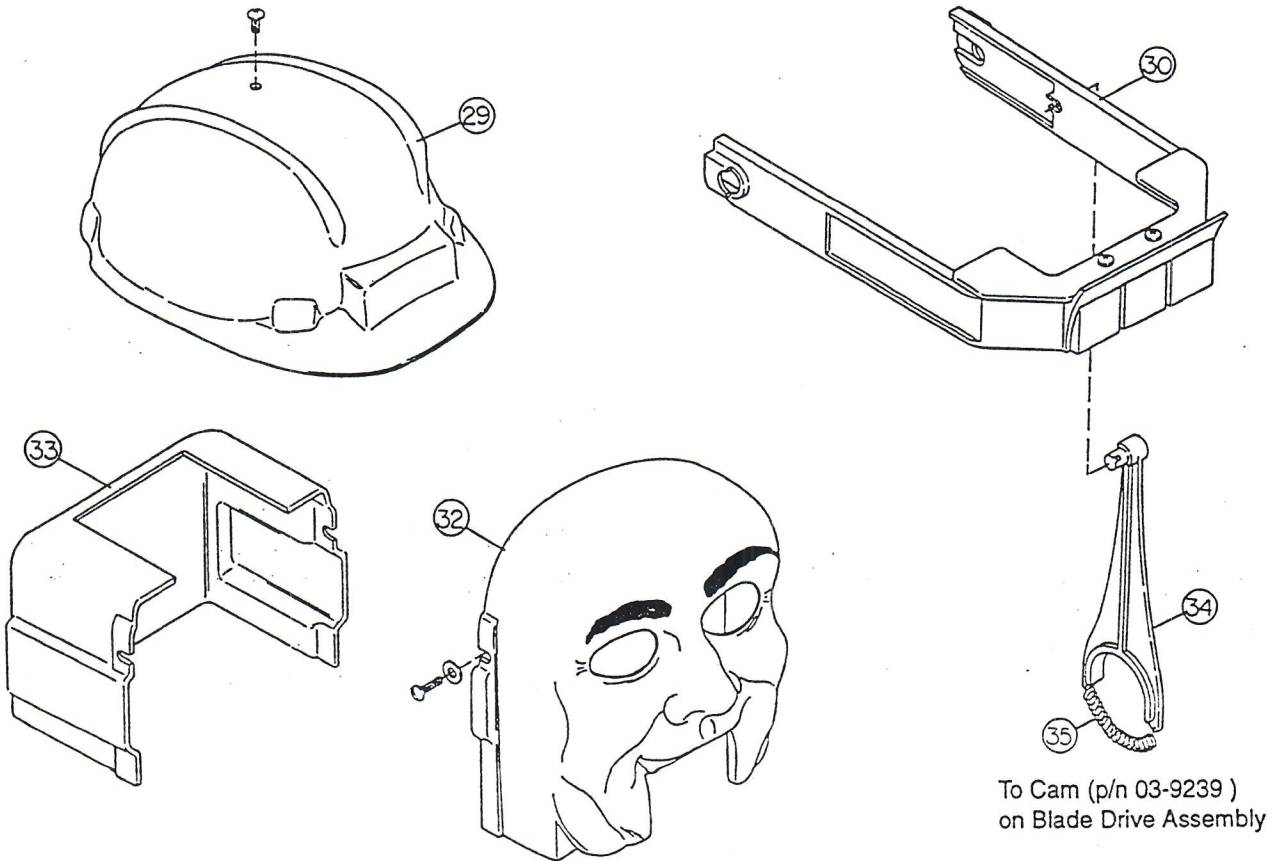
A-19128 "Ted" Head Assembly

<u>Item</u>	<u>Part No.</u>	<u>Description</u>	<u>Related Parts:</u>		
1	A-13735	Coil Bracket Assembly (5)	28	03-8472	Jaw Link
2	A-14026	Centering Bracket Ass'y	29	03-9280	Hard Hat
3	A-14027	Eye Bracket Assembly	30	A-18615	Dozer Blade Assembly
4	A-14028	Plunger Assembly	31	01-13158	Deflector
5	A-14029	Plunger Stop Bracket Ass'y	32	31-2017-1	Decorated Head - Front
6	A-14030	Main Lid Plunger Ass'y	33	31-2017-2	Decorated Head - Back
7	A-19126.2	Head Bracket Assembly	34	03-9238	Rod - Blade Drive
8	A-19257-1	Eye Assembly (2)	35	10-408	Extension Spring
9	A-19258	Crank Assembly	*	A-18832	Blade Drive Assembly
10	A-17918	Hat Bracket			
11	H-19530	Head Cable Assembly			
12	SM-30-1100-DC	Coil Assembly (3)			
13	SM-31-900-DC	Coil Assembly			
14	01-13416	Crank Liner			
15	01-9959-1	Insulator (2)			
16	02-5103	Double-Plunger			
17	03-7520-2	Nylon Tie Wrap (5)			
18	03-8469-2	Eyelids			
19	03-8486	Centering Flange			
20	10-423	Extension Spring (2)			
21	10-424	Compression Spring (2)			
22	10-494	Spring Bar			
23	11-1220	Wood Base			
24	12-7239	Eye Link Wire (2)			
25	20-8790-1	Nyliner (2)			
26	20-9668	Eyelet 1/8 x 1/4 (2)			
27	31-1611-1	Lip/Mandible			

*See p. 2-28 in the Operations Manual.

Miscellaneous Hardware:

02-4499	Pivot Pin
20-8712-18	"E" Ring 3/16" Shaft (2)
20-8712-25	"E" Ring 1/4" Shaft (3)
4006-01003-05	MS 6-32 x 5/16 P-PHS (14)
4006-01035-03	MS 6-32 x 3/16 P-Tr Hd
4006-01035-05	MS 6-32 x 5/16 P-Tr Hd (4)
4008-01003-12	MS 8-32 x 3/4 P-PHS (6)
4700-00005-00	FW .141 x .437 x .032 (2)
4700-00072-00	FW .265 x .500 x .032 (3)



NO FEAR

Manual Amendment

This amendment is for manual #16-50025-101

PAGE 1-7 and Attention Notice: Revision System

The system for showing the software revision level has changed. The notation should be 1.0 A.

PAGE 1-20 and 1-21: Preset value for A.2 11 "Cliff Award At"

The value for A.2 11 "Cliff Award At" has changed. This effects all three difficulty tables.

Adj. #	Adj Description	Ex. Easy	Easy	Medium	Hard	Ex. Hard
A.2 11	Cliff Award At	2	3	4	6	8

PAGE 1-30: Adjustments Added

The following Feature Adjustments have been added.

A.2 21 Disable Left Magnet

Allows user to disable the left magnet.

Choices are: YES, NO
Factory Default: NO

A.2 22 Disable Center Magnet

Allows user to disable the center magnet

Choices are: YES, NO
Factory Default: NO

A.2 23 Disable Right Magnet

Allows user to disable the right magnet

Choices are: YES, NO
Factory Default: NO

A.2 24 MK3 Codes Shown

The NO FEAR game will periodically give out parts of special codes to be used in the MORTAL KOMBAT 3 game. This adjustment allows the user to disable this option and not have the game put out any MORTAL KOMBAT 3 related information.

Choices are: YES, NO
Factory Default: YES

A.2 25 Attract Mode Sound

This allows the user to keep the game making any game-sounds during game over.

Choices are: YES, NO
Factory Default: YES

PAGES 2-36, 2-37, 3-2, and Inside Back Cover: Switch Matrix and Switch Locations

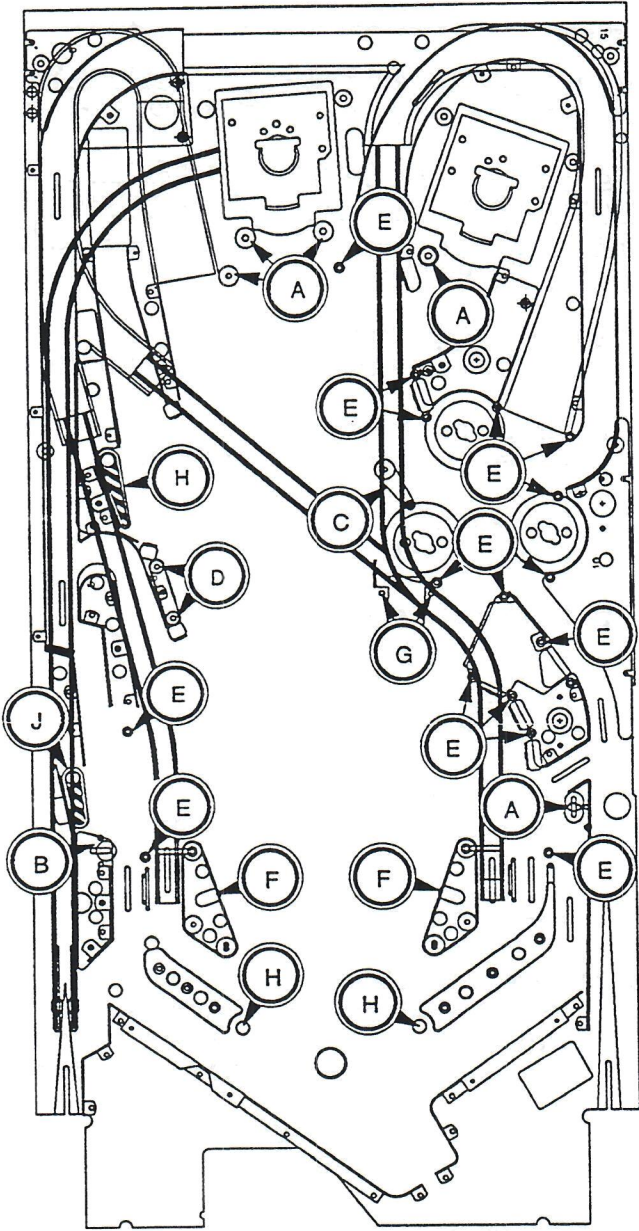
Switch #67 "Right Ramp Exit" is no longer in the game, therefore, not used in the switch matrix.

PAGES L, M, and N: New Shotmaps

The following pages L, M, and N, are shotmaps that have been added.

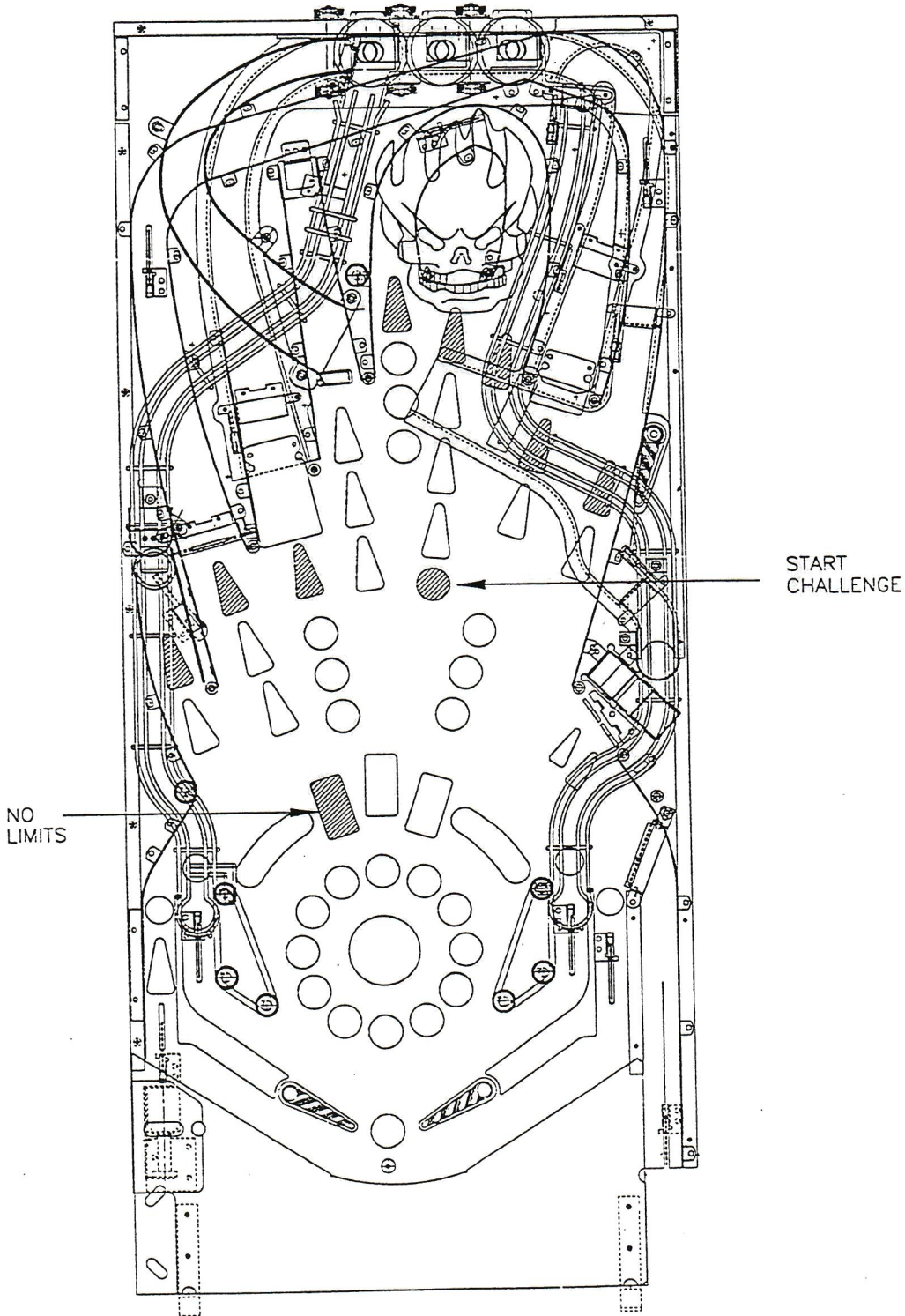
RUBBER RINGS

<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Qty.</u>
A	23-6300	White Rubber Ring, 5/16"	10
B	23-6301	White Rubber Ring, 3/4"	2
C	23-6302	White Rubber Ring, 1"	4
D	23-6305	White Rubber Ring, 2"	2
E	23-6535	Rubber Bumper Grommet	16
F	23-6641-1	White Rubber Ring	2
G	23-6556	Black Sleeve	2
H	23-6519-4	Flipper Ring - Large	3
J	23-6553-4	Flipper Ring - Small	1



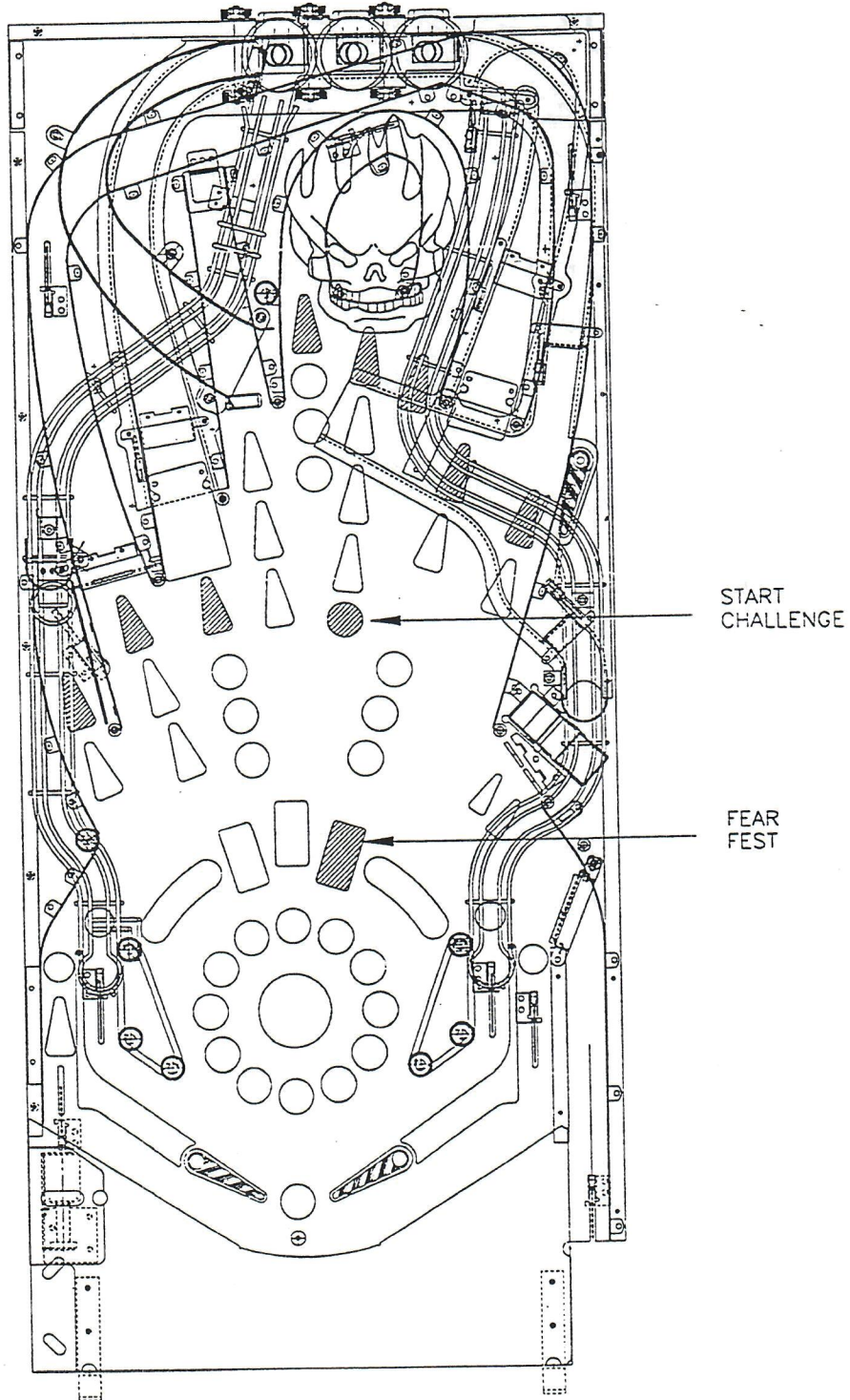
NO LIMITS (CHALLENGE 1)

When NO LIMITS is flashing, and the player shoots START CHALLENGE, all shots except SKYDIVE, are lit, and the player enters Multiball. Each shot made awards NO LIMIT JACKPOT and adds a million to the Jackpot value. The value starts at 20 Million. Play continues until all but one ball is drained. The player must now make six shots, spelling NO FEAR, to light FEAR FEST.



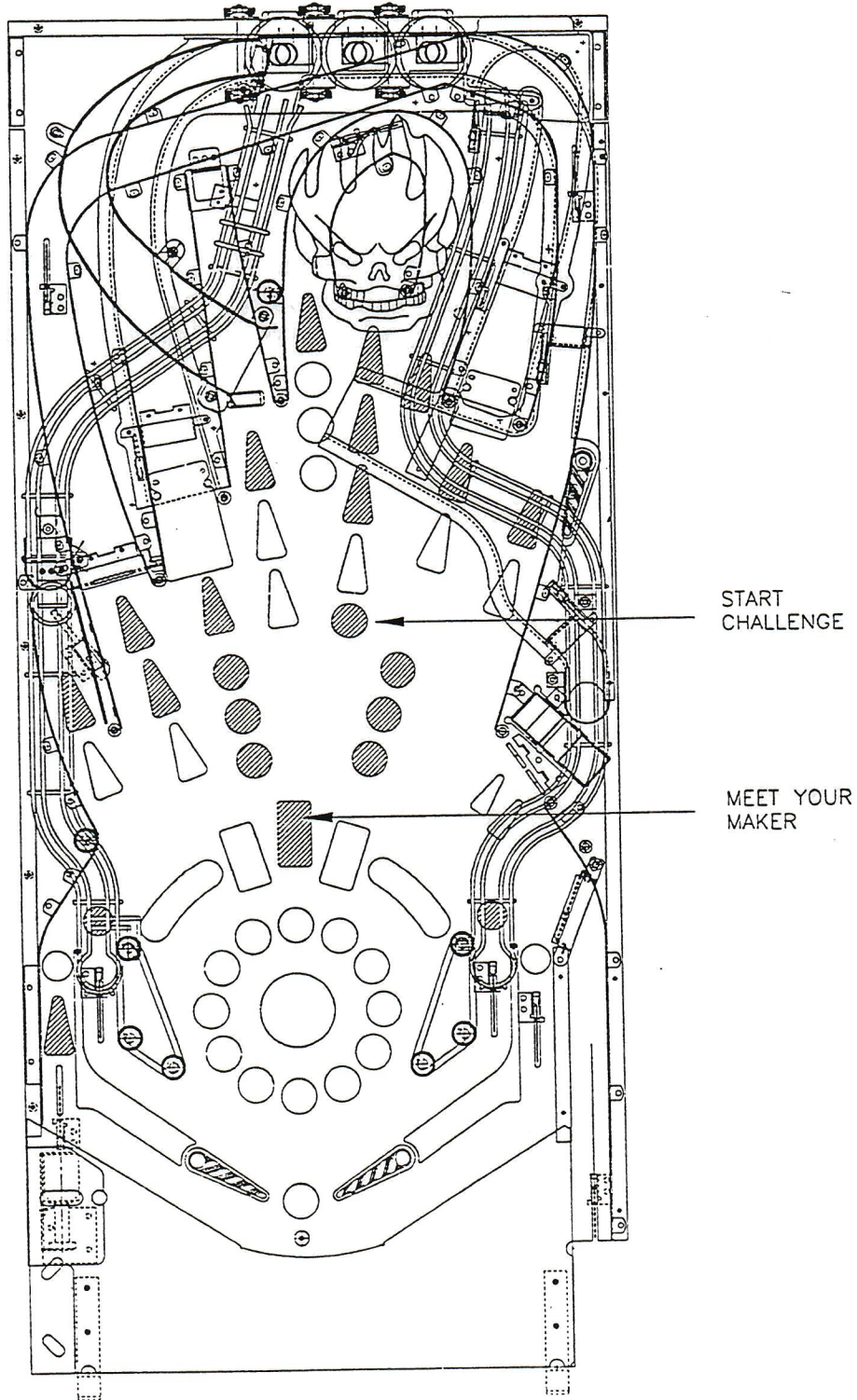
FEAR FEST (CHALLENGE 2)

When FEAR FEST is flashing and the player shoots START CHALLENGE, the player enters a Multiball where the SKULL and the HILL CLIMB are lit for Jackpots. Once a Jackpot is made, the player must make eight shots, spelling FEAR FEST to relight the Jackpots. All shots add to the Jackpot value. FEAR FEST ends when all but one ball is drained. The player must now make six shots, spelling NO FEAR to light MEET YOUR MAKER.



MEET YOUR MAKER (FINAL CHALLENGE)

When MEET YOUR MAKER is flashing, and the player shoots START CHALLENGE, Extra Ball, Super Spinner, Kickback, and all Jackpots are lit. Supercross Ramps are automatically advanced to Left Turn/Right Turn status, and Return Lanes are lit. The player enters Multiball play where all switches hit are worth big points. Play continues until the player drains all but one ball.

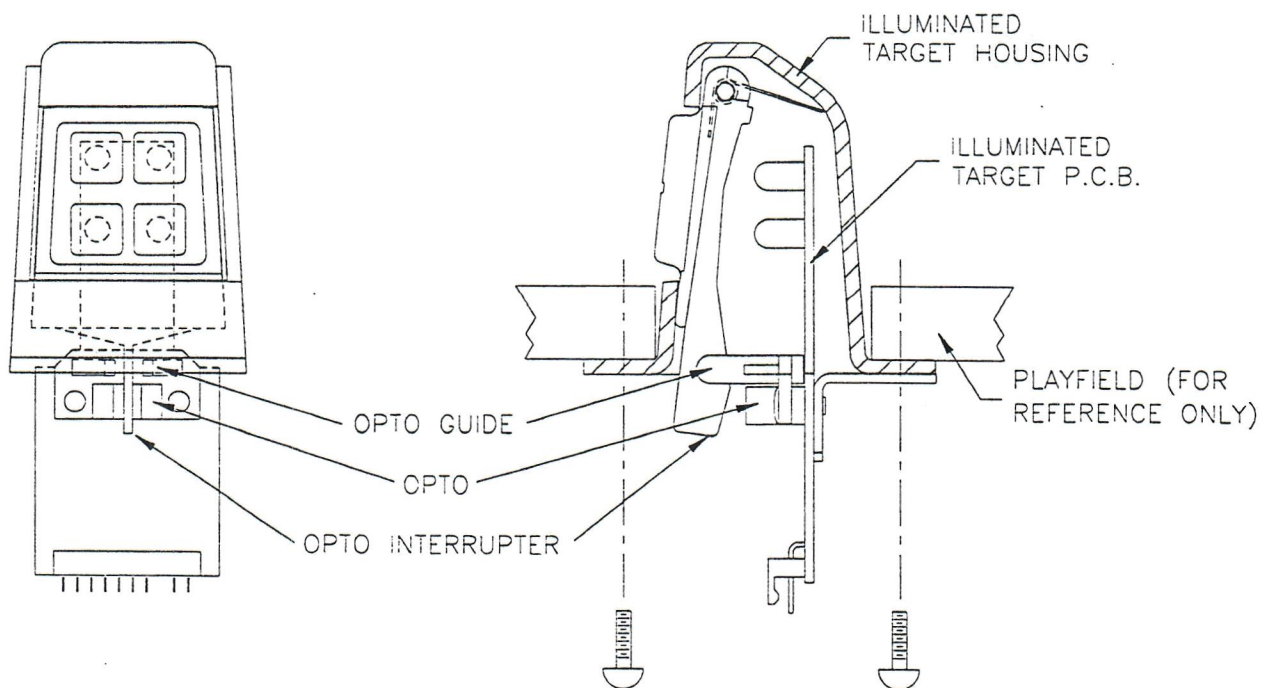


INDIANAPOLIS 500®

ILLUMINATED TARGET REPLACEMENT KIT (#A-20679)

This kit is to replace the Illuminated Target Assembly on Indianapolis 500 games manufactured before July 24th, 1995. It has been modified with an opto guide to provide added strength against hard ball hits.

To replace, simply detach the wiring harness and remove the four screws from the old target assembly. Place the P.C.B. into the housing, making sure that the opto interrupter is in the middle of the opto guide (see below). Screw in place and reattach the wiring harness.



CONGO

Manual Amendment

These corrections and additions affect the final Congo Manual (16-50050-101). Please keep this amendment with your Congo Manual.

Inside Front Cover

DIP switch settings and jumpers should read: EPROM Jumper Setting for G11.

Page 1-1

Game ROM 1, (G11) part number is A-5343-50050-1
Music/Speech ROM, (SU2, SU3, SU4) type is 27c080.

Page 1-10

The following Feature Audits are new.

B.4 30 Diamond Champ Credits

B.4 31 Special Mode Starts

B.4 32 Novice Mode

Page 1-28

A.2 20 Novice Mode

The Novice mode lets players choose a skill level (Novice or Regular) using the flippers. Novice play allows the players a one-ball game for a guaranteed amount of time. This setting is good for new players learning the game.

Settings: OFF; 1 min; 1-1/2 min; 2 min; 2-1/2 min; 3 min.
Factory Default: Off

NOTE: Anything other than off adds audit B.4 32 Novice Mode.

A.2 21 Amy Feed Disabled

When this adjustment is set to YES, the game will not operate the "up" direction of the Two-way Popper mechanism. All balls arriving at the Two-way Popper will be ejected in the "down" direction. This adjustment is provided for use when the Amy ramp or the Two-way Popper are broken. This will allow the game to continue playing until the mechanism can be repaired.

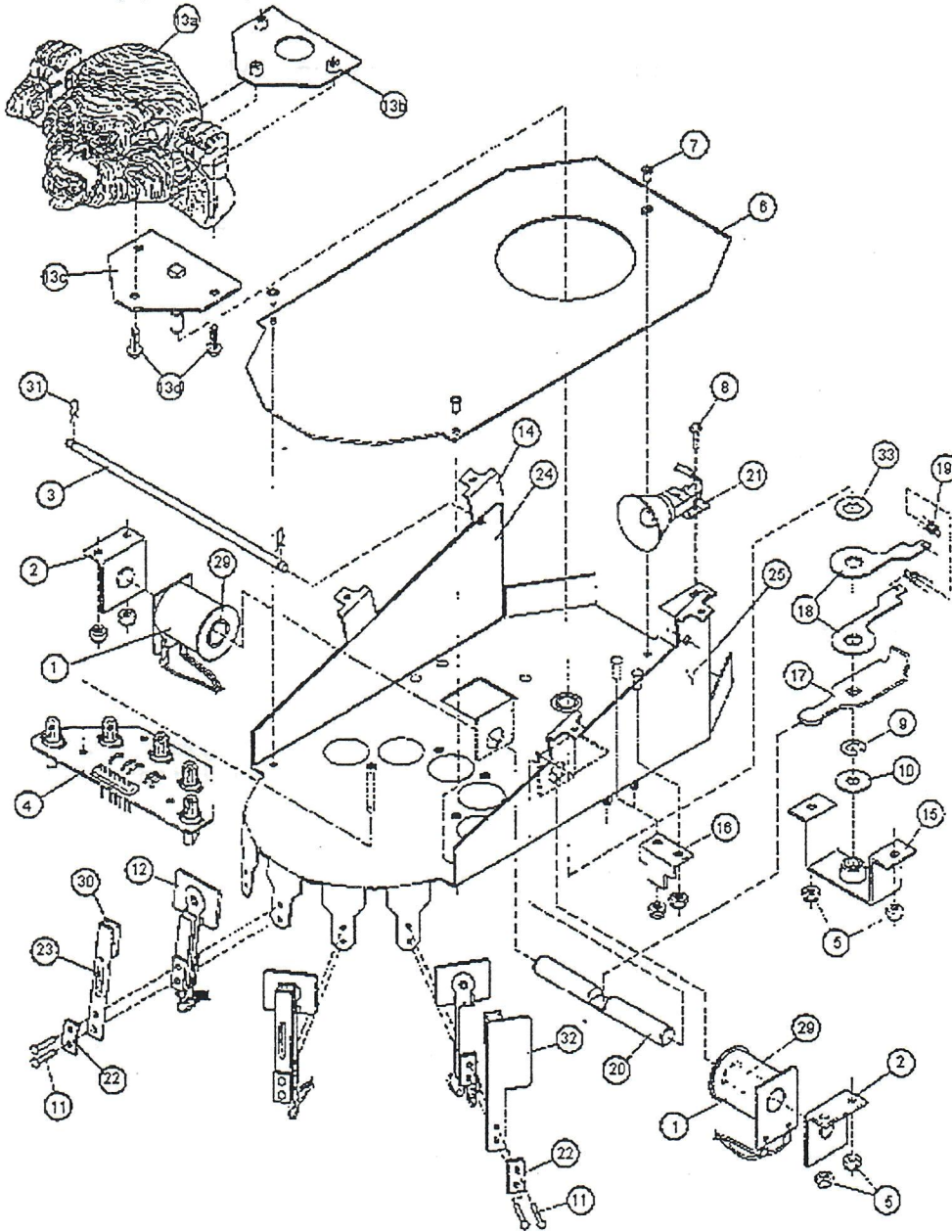
Setting: YES, NO
Factory Default: NO

A.2 22 Mini Playfield Disabled

When this adjustment is set to YES, the game will not operate the underground mini-playfield device in game play. This adjustment is provided for use when the mini-playfield is broken or removed from the game. This will allow the game to continue playing until the mechanism can be repaired.

Setting: YES, NO
Factory Default: NO

The Gorilla Assembly (A-20614) exploded view drawing was not available when the manual was printed.



Item	Part Number	Description	Item	Part Number	Description
1	AE-25-1000	Coil Assembly (2)	14	04-10324.1	Gorilla Pan
2	A-18957	Stop Bracket (2)	15	04-10330.1	Gorilla Bearing Bracket
3	02-5245.1	Ball Deflector Rod	16	01-14204	Gorilla Return Stop
4	A-20603	Lamp Board Assembly	17	01-14205.2	Gorilla Actuator Arm
a	5768-14738-00	5-Lamp PCB	18	01-14206.1	Gorilla Return Arm (2)
b	24-8767	PCB Twist Socket (5)	19	10-362	Extension Spring
c	24-8768	#555 Bulb (5)	20	02-5244	Gorilla Plunger
d	5070-09054-00	Diode, 1N4004, 1.0A (5)	21	04-10094-1	Reflector & Socket Assembly
e	5791-10871-07	7-Pin Header	22	01-3670	Curved Switch Plate (5)
5	4408-01119-01	Nut 8-32 ESN (8)	23	01-8657	Switch Limit Stop (3)
6	31-2530	Plastic Liner	24	31-2531-1	Decal
7	07-6704-04	Pop Rivet 1/8" x 1/4" (3)	25	31-2531-2	Decal
8	4008-01168-06	MS 8-32 x 3/8" PL-HH-S	26	03-9454	Ty-Wrap
9	20-8712-25	"E" Ring 1/4" Shaft	27	H-18219-1	Flasher Cable Assembly
10	4700-00033-00	FW .265 x .750 x .067	28	H-20734.1	Gorilla Cable Assembly
11	07-6688-27	Rivet 1/8" x 9/16" (10)	29	03-7066	Gorilla Tubing (2)
12	SW-1A-203-6	Target Switch (5)	30	23-6684-2	Edge Protector (5)
13	A-20681	Gorilla Shaft Sub-assembly	31	12-6227	Hair Pin Clip (2)
a	31-2524	Gray Gorilla	32	01-14282	Switch Ball Stop (2)
b	04-10325	Gorilla Mounting Plate	33	4700-00080-00	FW .390 x .750 x .059
c	04-10327.1	Gorilla Shaft Plate			
d	4008-01113-08	MS 8-32 x 1/2" PL-HWH (3)			

GAME ADDENDUM

***This addendum effects games made between May 1994 and
October 1995.***

This addendum is to correct errors in the Schematic Manual, the Operations Manual, and the Fuse Label located in the backbox.

Schematic Manual - Page 5; Sheet 1 of 3 of the Power Driver Board

Fuse 105 (F105) controls the low power solenoids and is output at J107-3. Fuse 104 (F104) controls the high power solenoids and is output at J107-2.

Backbox Fuse Label and Operations Manual, Section 1, Fuse list.

The fuse numbers listed for the solenoids on the Power Driver board are incorrect. They should be; F104, for solenoids 1 through 8; and F105, is for solenoids 9 through 16.