

Williams[®]

16P-503-110
March, 1981

JUNGLE LORD

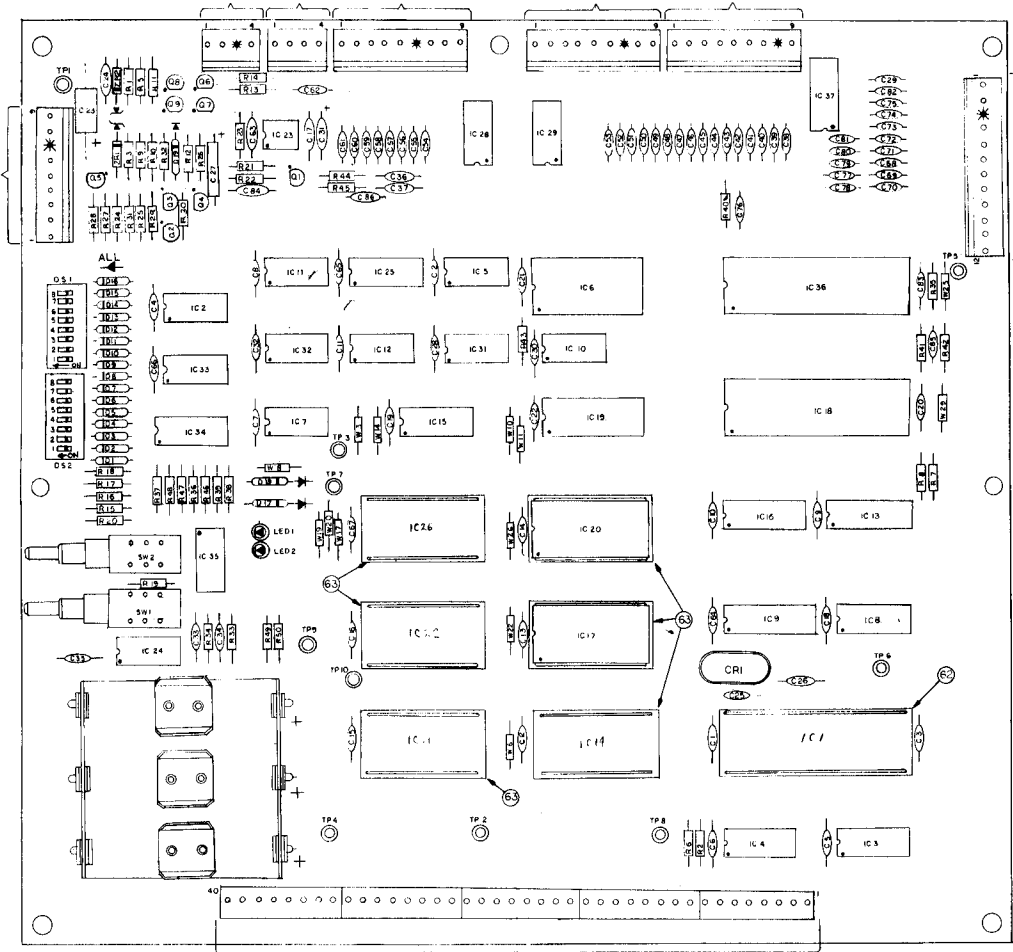
PARTS SUPPLEMENT



Williams[®] 
ELECTRONICS, INC.

3401 N. California Ave., Chicago, IL 60618
Cable Address: WILCOIN, CHICAGO
(312) 267-2240

D 8342 CPU Board Assembly USED IN THE FOLLOWING GAMES "BLACK KNIGHT" "JUNGLE LORD"



NOTE: THIS BOARD MAY BE USED IN ANY EARLIER SOLID STATE GAME WHEN JUMPER CHANGES ARE MADE. TO ORDER COMPLETE ASSEMBLY, SPECIFY D 8343 AND NAME OF GAME.

PARTS LIST
ARRANGED BY GROUPS OF RELATED PARTS

DRAWING DESIGNATION	PART NUMBER	DESCRIPTION
	D-8342	CPU Sub-Assembly
	5764-09465-X0	Bare P.C. Board CPU
INTEGRATED CIRCUITS		
IC1	5400-09250-00	6808 MPU
IC2	5280-09408-X0	74125 Hex Tristate Buffer
IC3, IC4, IC8	5281-09308-X0	8T97 Hex Tristate Buffer
IC5, IC31	5281-09247-00	74LS02 Quad 2 Input NOR
IC6	5280-09010-00	74154 4 to 16 Decoder
IC7	5280-09235-00	7404 Hex Inverter
IC9	5281-09308-00	74LS245 Octal Buffer
IC10	5310-09237-00	4071 CMOS Quad 2 Input NOR
IC11	5281-09235-00	74LS10 Triple 3 Inverter
IC12	5279-09973-00	7408 Quad And
IC13, IC16	5340-09409-00	2114-45 1K X4 Static RAM
IC15	5281-09246-00	74LS139 Dual 2 to 4 Line Decoder
IC17	5341-09534-00	ROM 4K X 8 Upper
IC18, IC36	5430-08972-00	MC6821 PIA
IC19	5340-09017-00	MC 5101 CMOS RAM
IC20	5341-09553-00	ROM 2K X8 Lower
IC23	5431-09449-00	MC 1455P1 Timer
IC24, IC32, IC33	5280-09073-00	7400 Quad 2 Input NAND
IC25	5310-09236-00	4020 CMOS 14 Bit Counter
IC28, IC29	5019-09238-00	13 DIP Res. Pack, 4.7K OHM
IC34	5280-09407-00	7447 BCD to 7 Seg LED Disp.
IC35	5671-09411-00	Man 72A 7 Seg LED Disp.
IC37	5019-09223-00	15 DIP Res Pack 10K Ohm

PARTS LIST

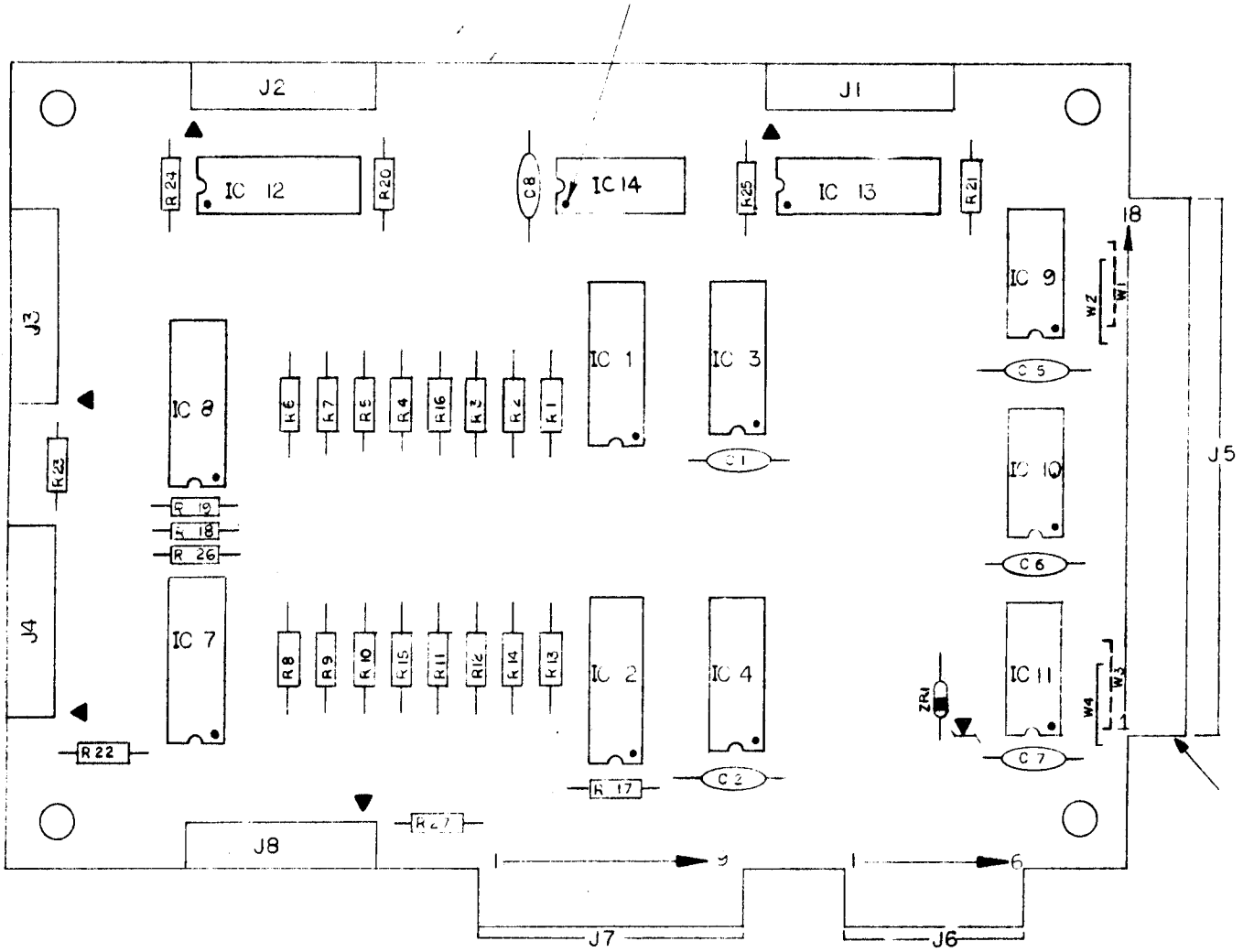
DRAWING DESIGNATION	PART NUMBER	DESCRIPTION
TRANSISTORS		
Q1, Q2	5190-09016-00	2N4 403 PNP Transistor
Q3, Q9	5160-08938-00	2N4 401 NPN Transistor
DIODES		
*D1-*D16, D17, D19	5070-08919-00	IN4148 Diode
D18	5070-09266-00	IN5817 Diode
ZR1	5075-09018-00	IN5996 Zener Diode 6.8V
ZR2	5075-09059-00	IN5990 Zener Diode 3.9V
RESISTORS		
R1, R3	5010-09034-00	Resistor FC 10K Ohm 5% 1/4W
R2, R6- R8, R21, R28	5010-08983-00	Resistor FC 33.3K Ohm 5% 1/4W
R5, R9, R20	5010-09358-00	Resistor FC 1K Ohm 5% 1/4W
R12	5010-09039-00	Resistor FC 10 Ohm 5% 1/4W
R13, R18, R29, R33, R35, R40, R42	5010-08991-00	Resistor FC 4.7K Ohm 5% 1/4W
R19, R30	5010-09036-00	Resistor FC 100 Ohm 5% 1/4W
R23, R26	5010-09113-00	Resistor FC 33K Ohm 5% 1/4W
R24, R31	5010-08997-00	Resistor FC 2.7K Ohm 5% 1/4W
R25, R32, R10, R11	5010-09241-00	Resistor FC 22K Ohm 5% 1/4W
R27	5010-08998-00	Resistor FC 2.2K Ohm 5% 1/4W
R36- R39, R46-R50	5010-09187-00	Resistor FC 150 Ohm 5% 1/4W
R43	5010-09442-00	Resistor FC 330K Ohm 5% 1/4W
R44, R45	5010-09083-00	Resistor FC 470 Ohm 5% 1/4W
CAPACITORS		
C1, C3, C4* C5 - C22		
C28, C30, C32-37 C63-C67 C83	5043-08980-00	Capacitor Ceramic 0.01 MFD 50V
C23	5040-08986-00	Capacitor Elect. 100 MFD 10V
C24	5043-08996-00	Capacitor Ceramic 0.1 MFD 50V
C25, C26	5043-09169-00	Capacitor Ceramic 27 PFD 1KV
C27	5041-09243-00	Capacitor Tant. 10 MFD 10V
C29, C38-C62, C68-C82, C85, C86	5043-09065-00	Capacitor Ceramic 470 PFD
C31	5041-09031-00	Capacitor Tant. 1 MFD 25V
C84	5043-09030-00	Capacitor Ceramic .047 MFD 50V
MISCELLANEOUS		
	5700-08985-00	40 Pin IC Socket
	5700-09004-00	24 Pin IC Socket
IJ1	5791-09026-00	Header 09-64-1083 8 Pin
IJ2, IJ5, IJ7	5791-09027-00	Header 09-65-1091 9 Pin
IJ3, IJ4	5791-09028-00	Header 09-65-1041 4 Pin
IJ8	5791-09043-00	Header 09-65-1121 12 Pin
*DS1, *DS2	5645-09025-00	8 Std Dip Switches
*LED1, *LED2	5671-09019-00	LED-Red
SW1, *SW2	5641-09312-00 or 5641-09024-00 or 5641-09371-00	Switch Momentary
CR1	5520-09020-00	Crystal 3.58 MHZ
	5881-09021-00	Battery Holder
W3, W6, W8, W10, W11	5010-09534-00	Resistor FC, 0 Ohm 1/4W
W14, W17, W19, W20, W25, W26, W29, W22		
TP1 - TP10	5824-09248-00	Test Terminals #1502-1

* Indicates components not required for operation in BLACK KNIGHT, JUNGLE LORD, and later games.

PARTS LIST
ARRANGED BY GROUPS OF RELATED PARTS

DRAWING DESIGNATION	PART NUMBER	DESCRIPTION
	D-8359	Power Supply Board Sub-Assembly
	5765-09466-X0	Bare P.C. Board
TRANSISTORS		
Q1	5164-09057-00	Transistor SDS - 201 NPN
Q2	5194-09055-00	Transistor MPS D52 PNP
Q3	5194-09058-00	Transistor SDS 202 PNP
Q4	5164-09056-00	Transistor MPS D02 NPN
Q5	5162-09425-00	Transistor Power NPN 2N6087
DIODES		
D1 thru, D6	5070-06258-00	Diode, 1M 40001
ZR1, Z43	5075-09059-00	Diode, Zener 1N5990 3.9B, 5%
ZR2, ZR4	5075-09060-00	Diode, Zener 1N5990 1N 4764 100V, 5%
RESISTORS		
R1, R4	5010-09536-00	Resistor 39K 5% 1W
R2, R5	5010-09051-00	Resistor 680 Ohm 1/2 W
R3, R6	5010-09069-00	Resistor 330K 5% 1/2W
R7	5013-09426-00	Resistor 2.15K 1% 1/4W
R8	5013-09427-00	Resistor 4.99K 1% 1/4W
R9	5010-09541-00	Resistor 2.7K 2% 1/4W
R10	5010-09085-00	Resistor 1.5K 5% 1/4W
R11	5010-09428-00	Resistor 1.5K 2% 1/4W
R12	5010-09508-00	Resistor 270 Ohm 2% 1/4W
R13	5012-09429-00	Resistor 0.12 Ohm 5% 5W
CAPACITORS		
C1, C3	5040-4053-00	Capacitor Elect. 100 MFD 150V
C2, C4, C6	5043-09443-00	Capacitor Disc 0.1 MFD 200V
C5	5040-09070-00 or 5043-09537-00	Capacitor Elect. 100 MFD 100V, Axial Capacitor Elect. 100 MFD 100 V, Radial
C7	5040-09421-00	Capacitor Elect. 100 MFD 25V
C8	5040-09442-00	Capacitor Elect. 47 MFD 50V
C9	5040-09420-00 or 5040-08893-00	Capacitor Elect. 1000 MFD 25V, Radial Capacitor Elect 1000 MFD 25V, Axial
C10	5040-09419-00	Capacitor Elect. 18000 MFD 20V
C12	5040-09423-00	Capacitor Elect. 330 MFD 10V
C14	5070-09446-00	Capacitor 0.1 MFD 50V
C15	5043-09065-00	Capacitor 470 PFD
CONNECTORS		
3J1,	5791-05068-00	Connector 12 Pin
3J2	5791-09038-00	Connector 6 Pin
3J3, 3J8	5791-09027-00	Connector 9 Pin
3J4	5791-09043-00	Connector 12 Pin
3J5	5791-09067-00	Connector 6 Pin
3J6	5791-09074-00	Connector 15 Pin
3J7	5791-09435-00	Connector 3 Pin
3J9	5791-09436-00	Connector 2 Pin
FUSES		
F1	5731-08761	Fuse 0.25A
F2	5731-09128	Fuse 2.5A SB
F3	5730-09071	Fuse 8A
F4	5730-05068 or 5730-06567 or 5730-09127	Fuse 10A Fuse 1.5A Fuse 20A
F5, F6	5731-09432	Fuse 7A SB
F7	5730-09127	Fuse 20A
MISCELLANEOUS		
IC1	5060-09421	Voltage regulator MC1723
VR1	5017-09061	Varistor
K1	5580-09555	Relay 24VDC 10A DPDT
BRI	5100-09418	Rectifier Bridge 35A, 100V
	5705-04431	Heat Sink
	5705-09042	Heat Sink
	5732-09178	Fuse holder
	5700-09445	Socket
	5701-09538	Mica Insulator
	5824-09248	Terminal (Test Point)
	3A-7520-1	Tie Wrap
	400501016-07	5-40x7/16" Screw Round Head
	4405-0117-00	5-40 Hex Nut
	20-9229	Thermal Compound

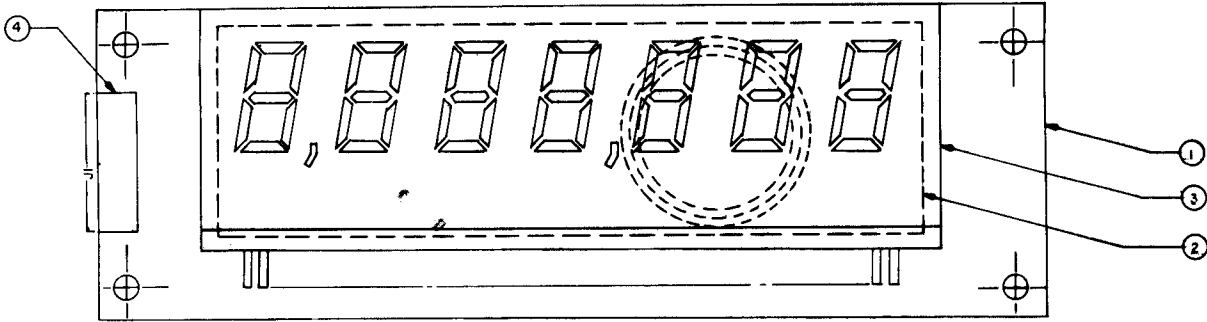
C 8363
MASTER DISPLAY ASSEMBLY
 USED ON GAMES WITH 7-DIGIT SCORING
 "ALIEN POKER" "BLACK KNIGHT" "JUNGLE LORD"



PARTS LIST

<u>DRAWING DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
	IC-2001-152-B	BARE P.C. BOARD
IC9, IC10, IC11	5310-08971-00	MC 14069 HEX. INVERTER
IC3, IC4	5310-08970-00	MC 14543 BCD TO SEVEN SEGMENT LATCH/DECODER/DRIVER
IC1, IC2	5680-08969-00	UDN 7180 GAS DISCHARGE
IC7, IC8	5680-08968-00	UDN-6184A OR UDN-6118A GAS DISCHARGE DISPLAY SEGMENT DR.
IC14	5310-09450-00	MC 14081 QUAD 2-INPUT AND GATE
ZR1	5075-09135-00	1N4740A ZENER DIODE 10V, 5% 1W
C1, C2	5043-08980-00	CAPACITOR CERAMIC, .01 MFD, 50V
C5 THRU C8		
R1-R14	5010-08981-00	RESISTOR, FC, 10K OHM, 10% 1/2 WATT
R15, R16	5010-09149-00	RESISTOR, 15K OHM, 10% 1/2 WATT
R17	5010-09086-00	RESISTOR, FC, 6.8K OHM 10%, 1/4 WATT
R18 THRU R27	5010-08982-00	RESISTOR, FC, 3 MEG OHM, 10% 1/4 WATT
W1, W3	5010-09534-00	RESISTOR, FC, 0 OHM, 1/4W
J1 THRU J4, J8	5791-09347-00	20 PIN RIBBON HEADER

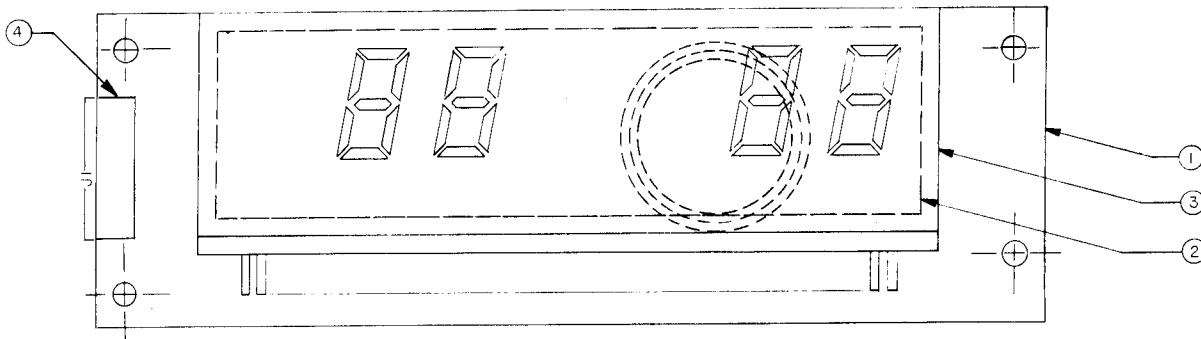
C 8364
PLAYER SLAVE DISPLAY ASSEMBLY
 USED ON GAMES WITH 7-DIGIT SCORING
 "ALIEN POKER" "BLACK KNIGHT" "JUNGLE LORD"



PARTS LIST

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	5762-009463-00	Bare PC Board
2	23-6545	Adhesive Foam, Display Mounting
3	5670-09439-00	7 Digit Display
4	5791-09438-00	20 Pin Ribbon Header

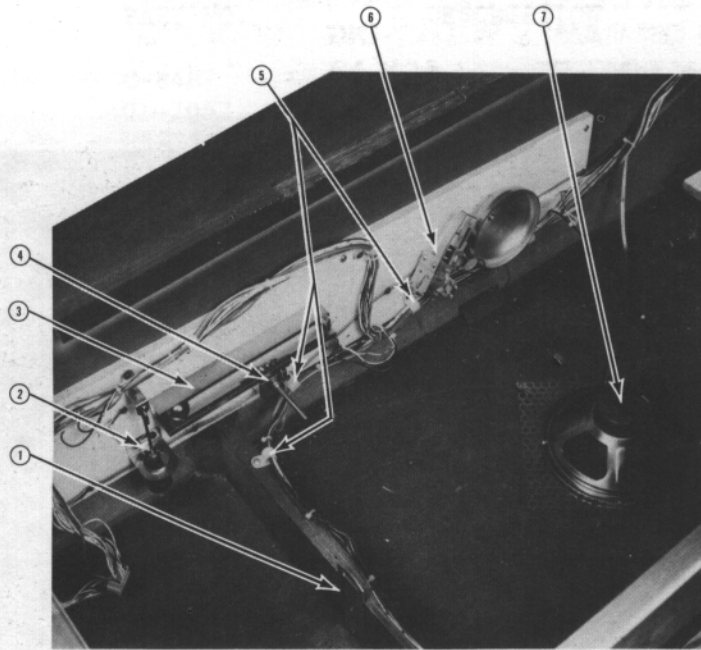
C 8365
CREDIT/MATCH SLAVE DISPLAY
 USED ON GAMES WITH 7-DIGIT SCORING
 "ALIEN POKER" "BLACK KNIGHT" "JUNGLE LORD"



PARTS LIST

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	5762-009468-00	Bare PC Board
2	23-6545	Adhesive Foam, Display Mounting
3	5670-09448-00	4 Digit Display
4	5791-09438-00	20 Pin Ribbon Header
5	23-6546	Adhesive Foam, Front

CABINET PARTS



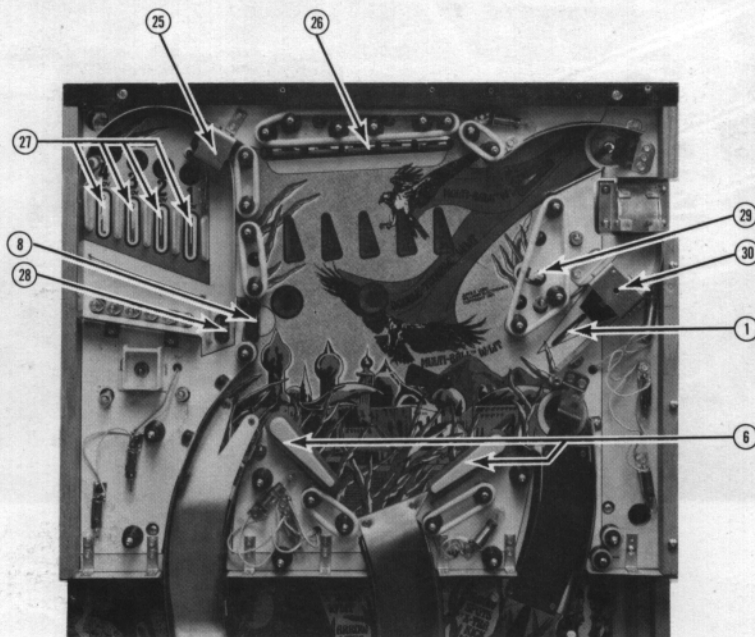
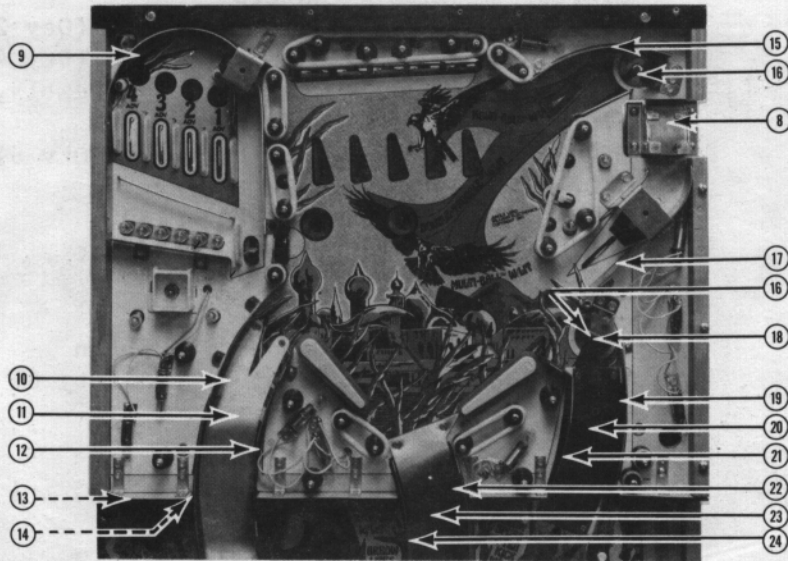
PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	01-3493-1	Cashbox Lock Bracket
2	A-8476	Plumb Bob Assembly, C/O:
	12-6231	Wire, Plumb Bob
	20-6502-A	Plumb Bob
3	4406-01120-00	Wing Nut, 6X 32 (Qty 2)
	B 6572	Roll Tilt Assembly, C/O:
	SW-1A119	Switch, Roll Tilt
	5070-06258-00	Diode, IN 4001
	01-3670-1	Switch Plate, flat
	01-3893	Roll Tilt Bracket
	06-17	Side Lug
4	4104-01020-00	Machine Screw 4X1/2"
	A-8550	Potentiometer and Bracket Assembly, C/O:
	01-6058	Mounting Bracket
5	5104-09170-00	Potentiometer, 5K 10%, 1W
	03-7520-2	Tie Wrap, Nylon
6	C-8461	Bell Assembly, C/O:
	B-8459	Relay Frame Assembly
	B-8460	Bell and Mounting Plate Assembly
	B-8462	Armature Assembly, Incl:
	01-6376	Residual Plate
	01-7044	Bell Sticker
	4006-01003-03	Machine Screw, 6-32X3/16" (Qty 2)
	SM-29-100-DC	Coil Assembly
	SW-10A-52	Bell Switch
	10-363	Spring, Extension
	20-6516	Tinnerman Speed nut
	5043-09072-00	Capacitor, 0.1 MFD, 500V
	4006-01003-04	Machine Screw 6-32 X 1/4" (Qty 3)
4008-01021-00	Machine Screw 8-32 X 1/2"	
4105-01001-144	Machine Screw 5-40 X 7/10" (Qty 2)	
7	5555-09382-01	Speaker, 4-0hm, 6"

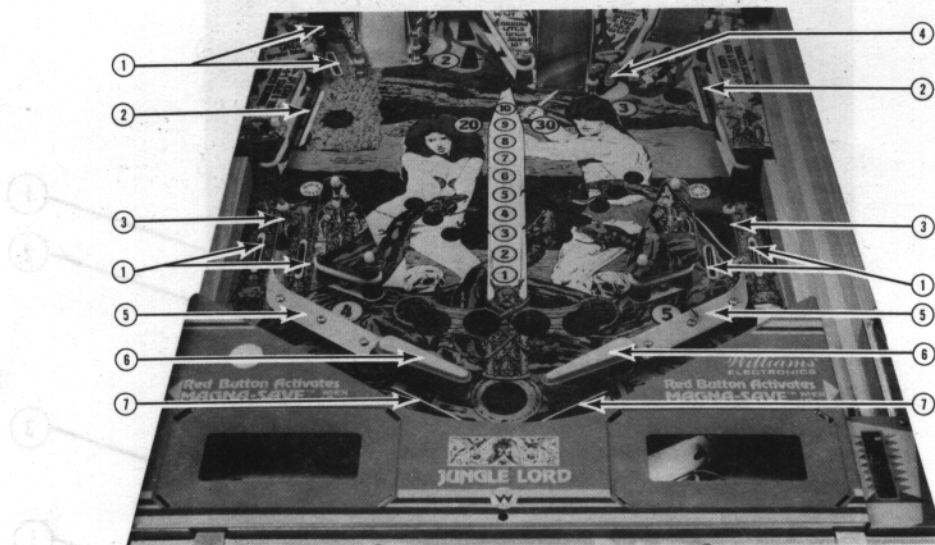
PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	C-8487	Transformer Shield Assembly, c/o:
	01-7057	Shield
	03-7363-16	Edge Protector (Qty 2)
	03-7365-17	Edge Protector (Qty 4)
2	C8500	Transformer Assembly, Incl:
	5791-09316-00	6-Pin Connector
	5820-09080-00	Terminal Pins (Qty 6)
3	5102-08895-00	Line Filter, 5A
4	5017-09044-00	Varistor, 130V
5	5851-09184-00	Outlet AC Utility, 3W
6	B-6448-1	Fuse Clip
7	5730-09252-00	Fuse 8A,125V
8	5792-09318-00	Connector 6-Pin
9	5821-09081-00	Terminal Pin (Qty 6)

UPPER PLAYFIELD

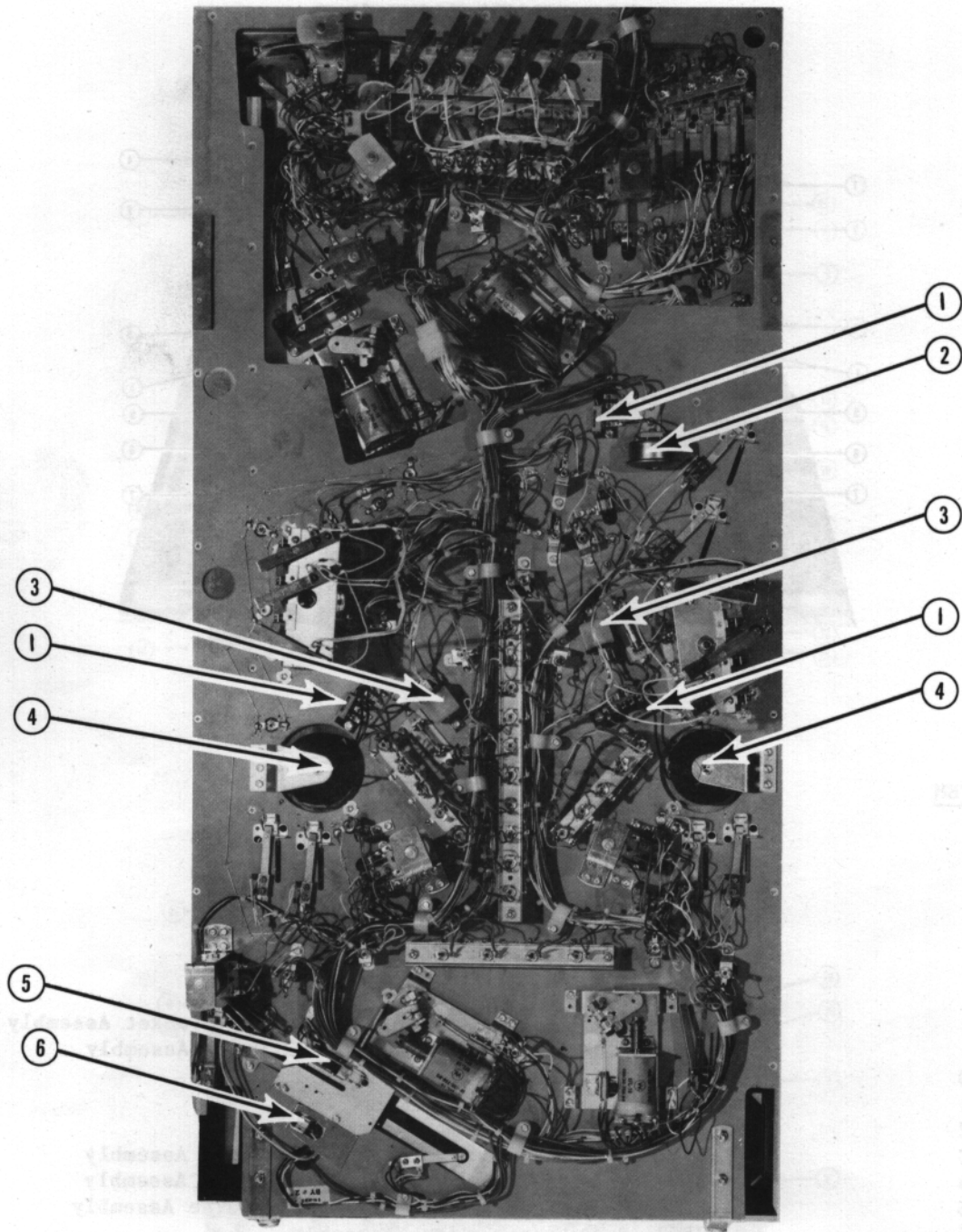


LOWER PLAYFIELD



PARTS LIST

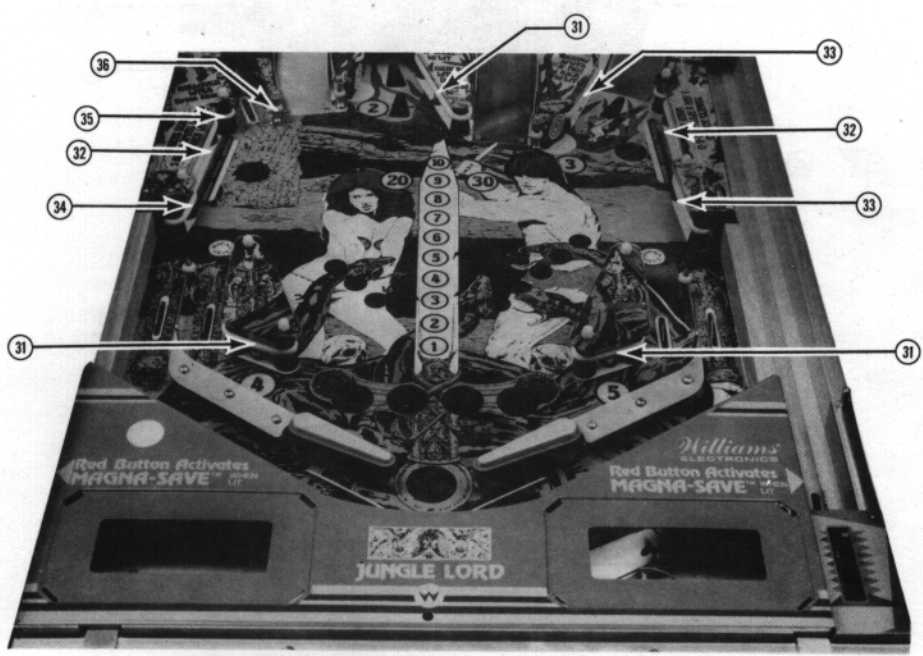
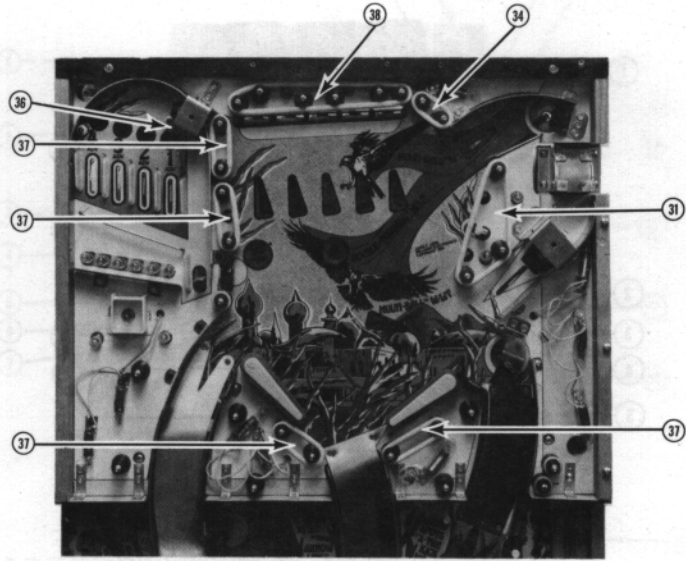
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	A-5844-35	Rollover Wire Assembly
2	D-8442	3-Bank Drop Target
3	12-6466-9	Ball Guide Wire Form
4	A-8286-1	Standup Target
5	A-8108-L-R	Flipper Return Frame
6	A-8230-L-R	Flipper Assembly
7	12-6466-12	Wire Form
8	B-8448	Ball Turnaround and Bracket Assembly
9	C-8543	Upper Left Ball Guide Assembly
10	01-7069	Left Ramp Ball Guide
11	01-7075	Left Ramp
12	01-7070	Left Ramp Ball Guide
13	C-8542	Lower Left Ball Guide Assembly
14	C-8544	Lower Left Ball Guide Assembly
15	B-8546	Upper Right Ball Guide Assembly
16	B-7572-5R	Eject Assembly
17	01-7025	Ball Guide
18	01-6903	Eject Deflector
19	01-7072	Upper Right Ball Guide
20	01-7079	Right Ramp
21	01-7071	Right Ramp Ball Guide
22	B-8417	Center Ramp Ball Guide Assembly, Left
23	01-7015	Ramp Center
24	B-8418	Center Ramp Ball Guide Assembly, Right
25	B-8593-R	Ball Gate Assembly
26	D-8574	5-Bank Drop Target
27	A-8578	Rollover Wire Assembly
28	B-7573	Kicker Assembly
29	B-8085	Kicker Assembly
30	B-8594	Ball Gate Switch Bracket Assembly



PARTS LIST

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	5012-09084-00	Resistor, FC 100 Ohm 5%, 3W
2	5101-09126-00	Buzzer
3	5580-09613-00	Relay, 12 VDC
4	20-9297	Magnet Coil
5	5647-09632-00	Microswitch
6	5647-09633-00	Microswitch

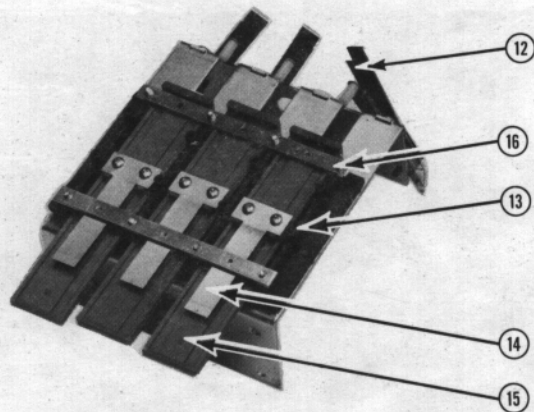
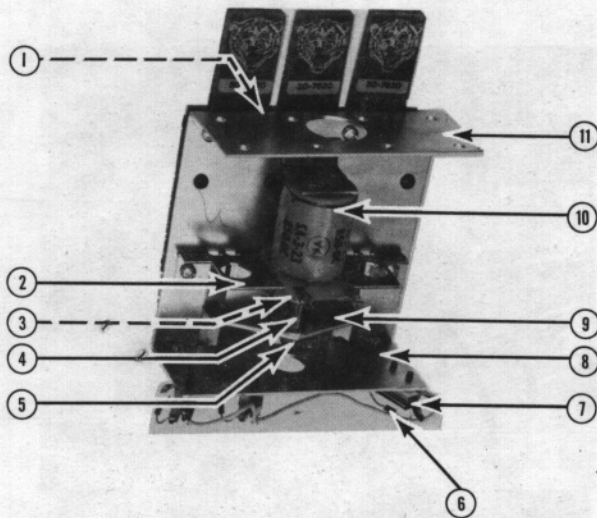
PLAYFIELD RUBBERS



PARTS LIST

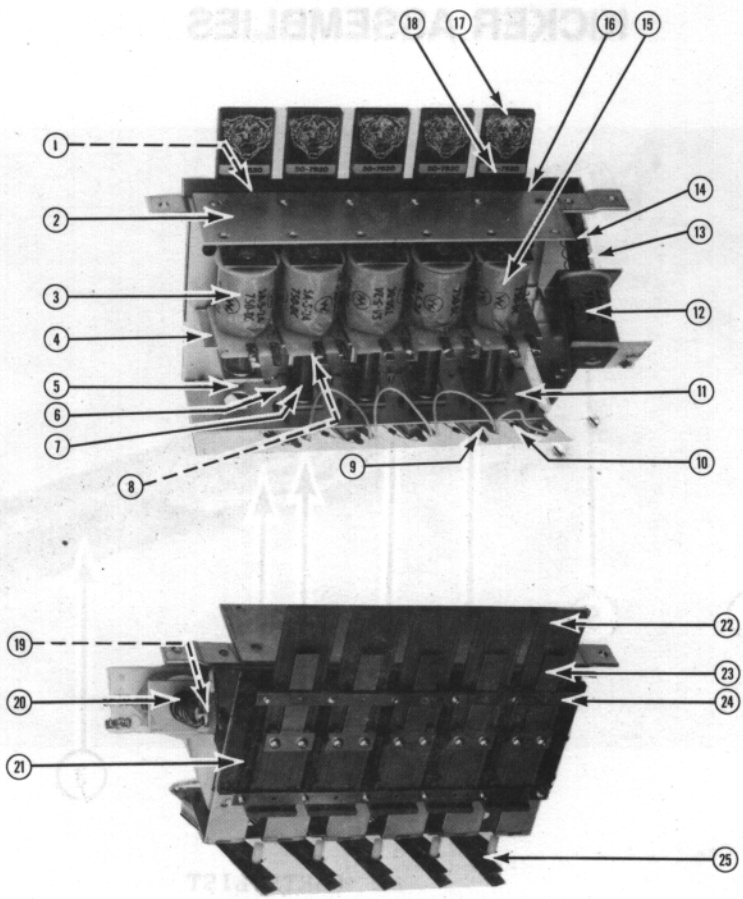
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
31	23-6306	2-3/8"
32	23-6305	2"
33	23-6304	1-1/2"
34	23-6301	3/4"
35	23-6300	5/16"
36	23-6535	Mini-Post Rubber
37	23-6302	1"
38	23-6307	2-7/8"

DROP TARGET ASSEMBLIES



PARTS LIST

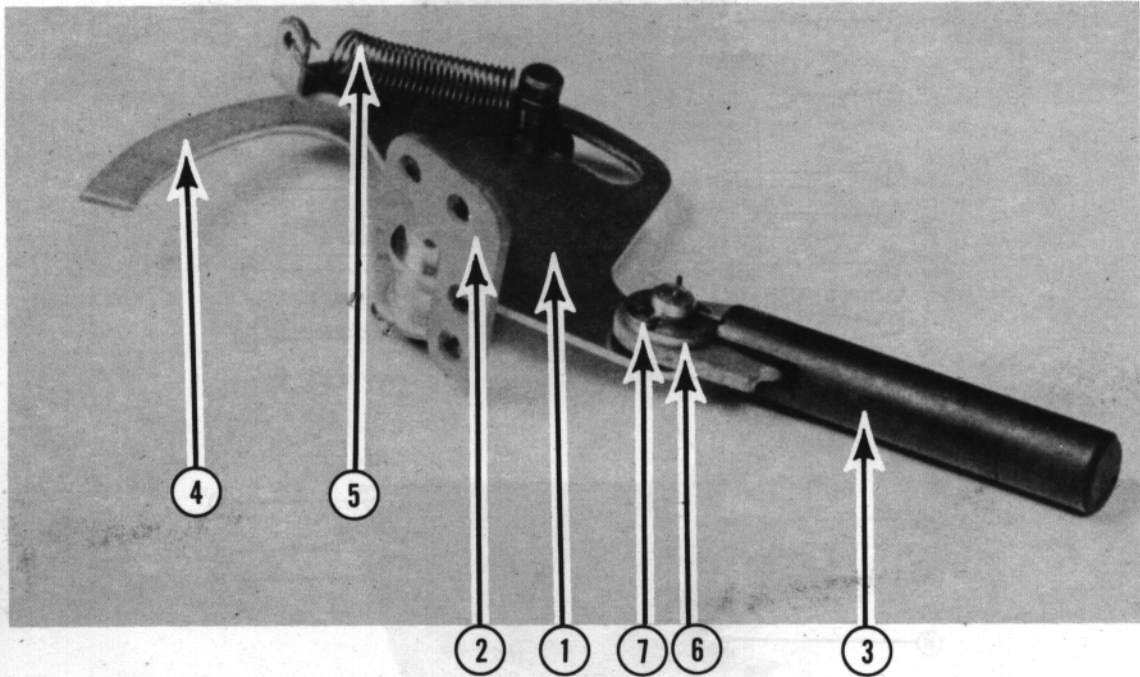
<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	10-364	Target Retractor Spring
2	01-6451-3A	Coil Support Bracket
3	03-7066-4	Coil Tubing
4	02-3972	Coil Plunger
5	4410-01119-00	Nut, 10-32
6	5070-06258-00	Diode 1N4001
7	SW-1A-141	Cam Switch
8	01-7035	Switch Mountng Bracket
9	01-7036	Reset Plate
10	SA3-23-850-DC	Coil Assembly
11	01-7038	Drop Target Frame
12	01-3670	Switch Plate Curved
13	01-7479	Guide, Drop Target
14	01-7037	Target Back-Up Blade
15	03-7478	Drop Target
16	01-6450-3	Target Retaining Bar



PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	10-364	Target Retractor Spring
2	C-8541	Drop Target Frame Assembly
3	SA5-24-750-DC	Coil Assembly
4	01-6451-5	Coil Support Angle
5	4410-01119-00	Nut, 10-32
6	01-708	Reset Finger
7	02-3972	Coil Plunger
8	03-7066-4	Coil Tubing
9	SW-1A-141	Cam Switch
10	5070-06258-00	Diode 1N4001
11	01-7050	Common Switch Mounting Bracket
12	SA6-24-750-DC	Coil Assembly
13	10-135	Spring
14	02-2364	Coil Plunger
15	A-8037	Coil Stop Assembly
16	B-8361	Drop Lever Assembly
17	B-8451	Drop Target Assembly
18	30-7620	Label
19	20-8712-21	E-Retaining Ring
20	03-7066	Coil Tubing
21	03-7479	Guide, Drop Target
22	03-7478	Drop Target
23	01-7037	Target Back-up Blade
24	01-6450-5	Retaining Bar
25	01-3670	Switch Plate - Curved

KICKER ASSEMBLIES



PARTS LIST

ITEM	PART NO.	DESCRIPTION
	C8492	Ball Release Assembly
1	A-6949-L	Spring Plate Assembly
2	A-8268	Mounting Bracket Assembly
3	A-5103	Coil Plunger Assembly
4	C-8492	Eject Cam Assembly
5	10-362	Spring
6	4700-00030-00	Washer, 17/64 X 1/2, 15G
7	12-6227	Hairpin Clip
	B 7472- R	P/O Ball Eject Assembly
	Same as C-8492 except for items:	
1	A-6949-R	Spring Plat Assembly
2	A-6950-R	Mounting Bracket Assembly
3	A-8050	Coil Plunger Assembly
4	A-7471-R	Eject Cam Assembly
5	10-320	Spring
	B-7573	Mini-Ball Kicker Includes:
	A-5103	Coil Plunger Assembly
	A-5652	Kicker Crank Assembly
	A-5653	Kicker Mounting Bracket
	10-128	Spring
	12-6227	Hairpin Clip