SEGA

MICHAEL JACKSON'S
MOONWALKER™

Owner's Manual

3 PLAYER UPRIGHT

SEGA ENTERPRISES, INC.

999-0038

MICHAEL JACKSON'S

MOONWALKER ™

BY:
SEGA Enterprises, Inc. (U.S.A.)
2149 Paragon Drive
San Jose, California 95131
Phone Number (408) 435-0201
FAX Number (408) 435-0294

SPECIFICATIONS

INSTALLATION SPACE	:	28.5 INCHES X 33 INCHES
HEIGHT	:	97 INCHES
POWER	:	250 WATTS
DISPLAY TYPE	:	25 INCH COLOR MONITOR
WEIGHT	:	215 POUNDS

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Table of Contents

NOTE: DESCRIPTIONS HEREIN CONTAINED MAY BE SUBJECT TO IMPROVEMENT OR
CHANGES WITHOUT NOTICE.

INTRODUCTION OF THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSIs, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular game machines to the world market. This OWNER'S manual is intended to provide detailed comments together with all the necessary information covering the operation in general of electronic assemblies, electromechanical servicing control, spare parts, etc. The manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read so as to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstances touch the interior system.

HANDLING PRECAUTIONS

When installing or inspecting, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.

- o Be sure to turn the power off before working on the machine.
- o To insert or pull out the plug quickly is dangerous.
- o It is necessary to make sure that the power cord or the grounding wire is not exposed on the road, etc. in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where specified.
- o Do not use any fuse that does not meet the specified rating.
- o Make complete connections for the IC board and other connectors. Insufficient insertion is very dangerous.

Also, for the IC board circuit inspections, only the logic probe is allowed. The use of a tester is not permitted, so be careful in this regard. After confirming that there are no irregularities, turn the power ON.

PREVENTION OF COUNTERFEITING AND CONVERSION

LABELLING
To prevent counterfeits and conversions, the following labels are put on all the SEGA products. When handling such goods, be sure to confirm the labels. They are used to prevent illegal acts such as the unauthorized copying of the products and the printed circuit boards thereof or carrying on business by manufacturing similar merchandise or by converting, selling or using such products or printed circuit boards.

The following seal is put on the machines manufactured by SEGA

ORIGINAL SEAL

COPYRIGHT NOTICE
This SEGA product has the copyright notice as follows:

© SEGA 1990

This signifies that this work was disclosed in 1990 and is the property of
SEGA ENTERPRISES, LTD.

PRECAUTIONS CONCERNING THE PLACE OF INSTALLATION

This is an indoor game machine. Absolutely do not install it outside. Even indoors, avoid installing in places mentioned below so as to ensure proper usage:

o   Places subject to rain or water leakage, or condensation due to humidity.
o   In the proximity of an indoor swimming pool and/or shower.
o   Places subject to direct sunlight.
o   Places subject to heat sources from heating units, etc., or hot air.
o   Vicinity of highly flammable/volatile chemicals or hazardous matter.
o   Sloped surfaces.
o   Vicinity of anti-disaster facilities such us fire exits and fire extinguishers.
o   Places subject to any type of violent impact.
o   Dusty places.
o   Residential Environment - (See F.C.C. statement below)

F.C.C. REQUIREMENTS

The Federal Communications Commission requires that all Class A equipment be verified and labeled as follows:

This equipment complies with the requirements in part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take what ever steps are necessary to correct the interference.

This label must be permanently attached in a conspicuous location and the text must be legible. If this label is removed or tampered with, such action is punishable under Section 503 of the Communications Act of 1934 (ACT), as amended.

OPENING THE CONTROL PANEL FOR SERVICE OR TO GAIN ACCESS TO THE PC BOARD AREA.

To open the control panel and gain access to the PC Board for maintenance or replacement follow these procedures:

NOTE: **Use caution in lowering the control panel, so it does not fall. When ready to lower the control panel close the service door and remove the key so this does not damage the control panel overlay or the key.**

o   Open the Coin Door, and disengage the 2 Super Clamps holding the control panel. This can be done by putting your arm through the coin door opening and reach up to the upper right hand corner of the control panel and un-latch the super clamp. Repeat this process for the clamp in the upper left hand corner.

o   To remove the control panel, remove the four bolts on the hinge that hold the panel in place, and disconnect the control panel harness.

o   To gain access to the PC Board remove the cover of the RFI cage by pulling upward on the Ny-latch fasteners.

TOP BILLBOARD

TOP BILLBOARD BKT

MARQUEE LAMP

MARQUEE PLEX

MOONWALKER

SPEAKERS

MONITOR BEZEL

COLOR MONITOR

SIDE DECAL RIGHT

SIDE DECAL LEFT

MONITOR GLASS

LICENSE SEAL

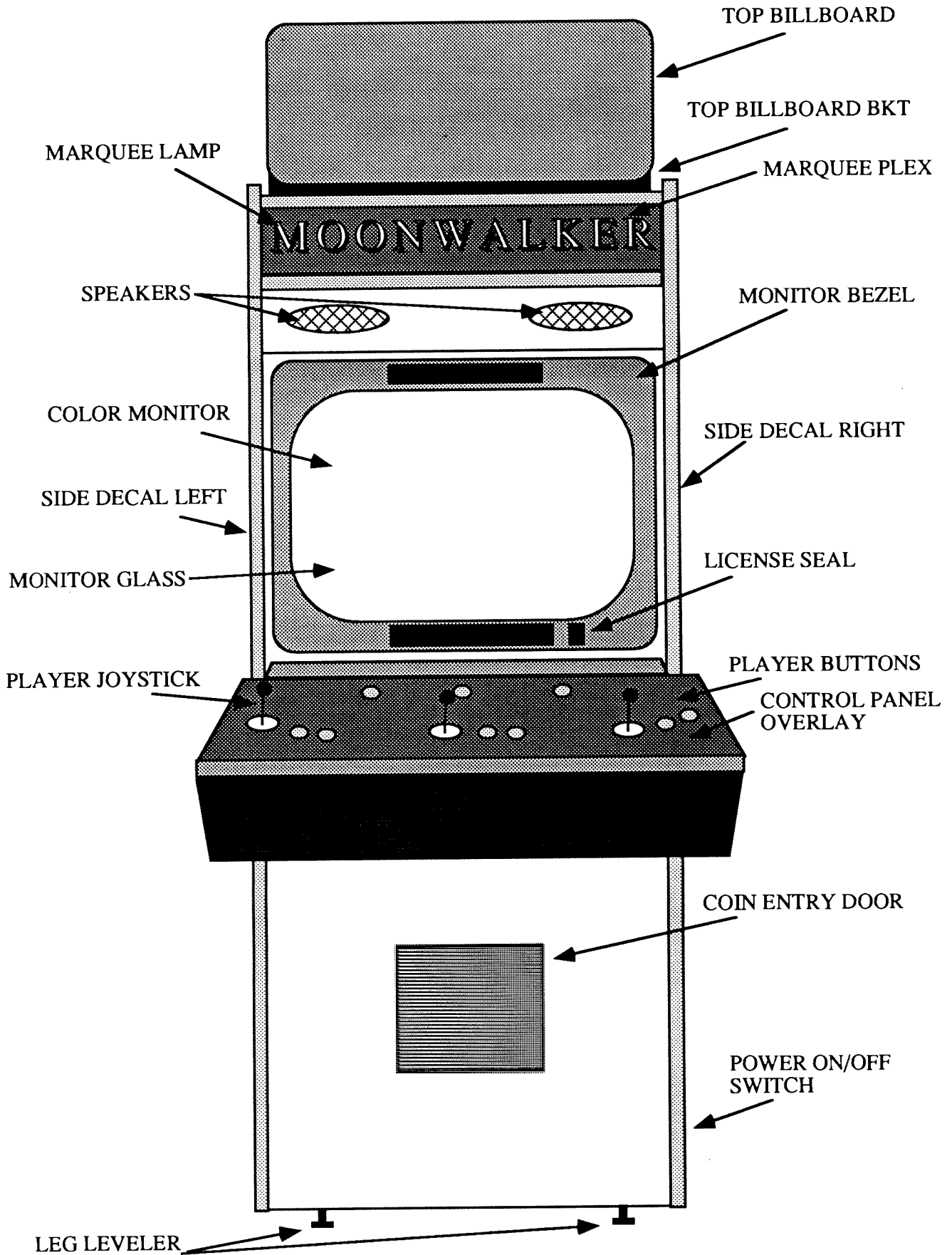PLAYER JOYSTICK

PLAYER BUTTONS

CONTROL PANEL
OVERLAY

COIN ENTRY DOOR

POWER ON/OFF
SWITCH

LEG LEVELER

MOONWALKER PARTS LIST

PART NUMBER	DESCRIPTION	QTY
880302500	MONITOR, 25" STD RES	1
880903100	LAMP, FLUORESCENT 15W	1
880801200	FIXTURE, FLUORESCENT 15W	1
999-0038	MANUAL	1
421-5801-127	LICENSE SEAL, MOONWALKER	1
421-6709	STICKER, SERVICE INSTRUCTIONS	1
999-0044	MARQUEE PLEX	1
999-0041	TOP BILLBOARD	1
999-0053	MONITOR CARD, 25"	1
999-0052	CONTROL PANEL OVERLAY	1
999-0045	DECAL, SIDE LEFT	1
999-0046	DECAL, SIDE RIGHT	1
999-0042	DECAL, MICHAEL JACKSON	2
889902300	RHEOSTAT, 100 OHM 10W	1
860800400	BUTTON, RED	2
860800500	BUTTON, BLUE	2
860800700	BUTTON, WHITE	5
889900400	SWITCH, PB MOMENTARY	2
880301000	TRANSFORMER	1
600-5891-09	WIRE HARN, 56P, 3P	1
889900100	KNOB, 1/8"	1
833-7528-01	GAME PCB, SYSTEM 18 MOONWALKER	1
839-0207	FILTER BOARD, GF	1
800804000	SHIELD LID, (HL-4102)	1
800802900	SHIELD CASE, (HL-4104)	1
860800600	JOYSTICK, 8 WAY	3
880800700	ENCLOSURE, COIN HOUSING TRIPLE ENTRY	1
860300700	BRACKET, MARQUEE, PLASTIC TOP	1
860300800	BRACKET, MARQUEE, PLASTIC BOTTOM	1
999-0048	BRACKET, TOP BILLBOARD	1
851500700	MONITOR BEZEL	1
911500200	MONITOR GLASS	1
880802000	SPEAKER	2
880300700	POWER SUPPLY	1
890300100	LEVELER, LEG	4
890300500	CONTROL PANEL LATCH	2

SERVICE SWITCHES

Open the COIN CHUTE DOOR, and the following SERVICE SWITCH layout will appear:

3 - VOLUME ADJUSTMENT

2 - TEST SWITCH
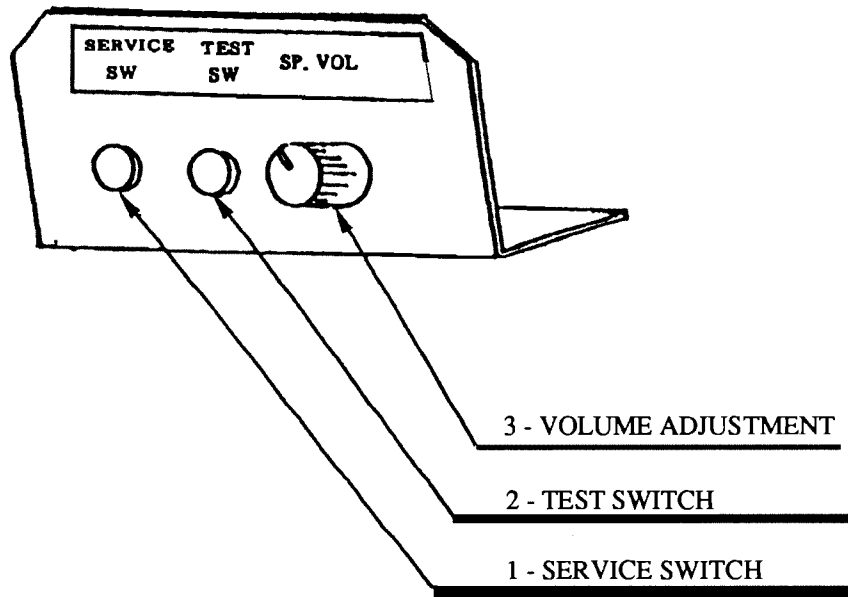
1 - SERVICE SWITCH

(1) SERVICE SWITCH   Used for the purpose of servicing and increasing the credits without registering on the meter (this allows you to check the game).

(2) TEST SWITCH   For the operation of this switch, see SELF-TEST.

(3) VOLUME ADJUSTMENT   Used for adjusting the volume of the speaker.

MOONWALKER

PIN ASSIGNMENTS

PIN ASSIGNMENTS
(JAMMA)

COMPONENT SIDE			SOLDER SIDE
GND	1	A	GND
GND	2	B	GND
+5V	3	C	+5V
+5V	4	D	+5V
(NOT USED)	5	E	(NOT USED)
+12V	6	F	+12V
(NOT USED)	7	H	(NOT USED)
COIN METER 1	8	J	COIN METER 2
(NOT USED)	9	K	(NOT USED)
SPEAKER (+)	10	L	SPEAKER (-)
(NOT USED)	11	M	(NOT USED)
RED	12	N	GREEN
BLUE	13	P	SYNC
GND(SYNC)	14	R	SERVICE
TEST	15	S	(NOT USED)
COIN 3 (RP)	16	T	COIN 2 (CP)
1P (LP) START	17	U	2P (CP) START
1P (LP) UP	18	V	2P (CP) UP
1P (LP) DOWN	19	W	2P (CP) DOWN
1P (LP) LEFT	20	X	2P (CP) LEFT
1P (LP) RIGHT	21	Y	2P (CP) RIGHT
1P (LP) SHOT	22	Z	2P (CP) SHOT
1P (LP) DANCE	23	a	2P (CP) DANCE
(NOT USED)	24	b	(NOT USED)
1P (LP) SERVICE	25	c	2P (CP) SERVICE
3P (RP) START	26	d	COIN 1 (LP)
GND	27	e	GND
GND	28	f	GND

JST CONNECTOR
12 PIN

1	(NOT USED)
2	3P (RP) SHOT
3	3P (RP) DANCE
4	(NOT USED)
5	3P (RP) SERVICE
6	(NOT USED)
7	3P (RP) DOWN
8	3P (RP) UP
9	3P (RP) RIGHT
10	3P (RP) LEFT
11	(NOT USED)
12	GND

LP -> LEFT PLAYER
CP -> CENTER PLAYER
RP -> RIGHT PLAYER
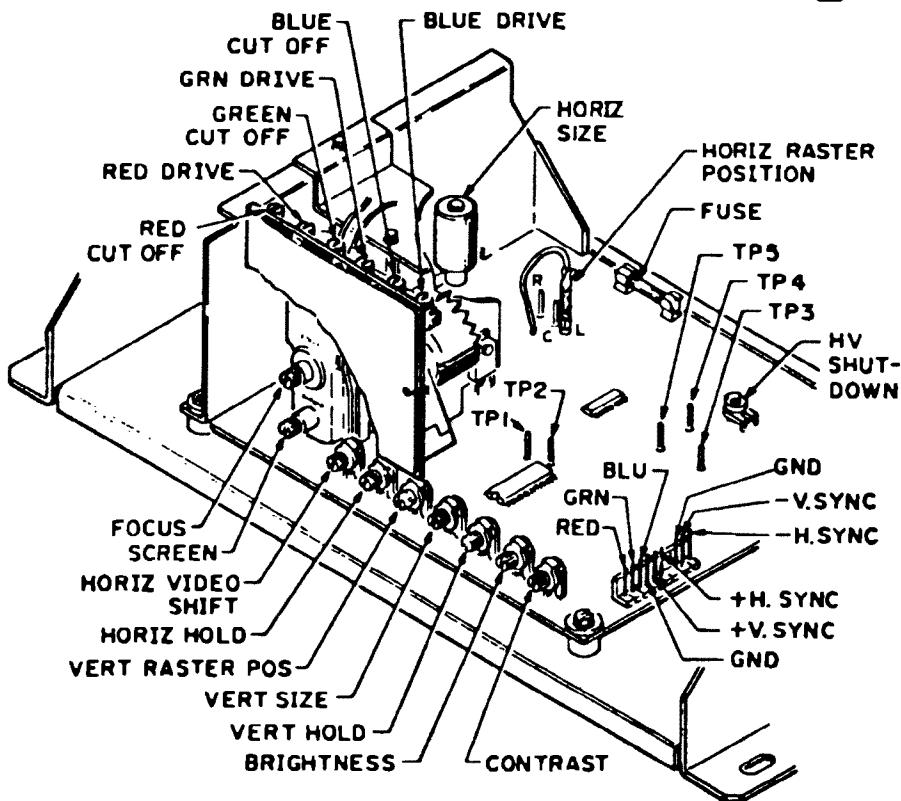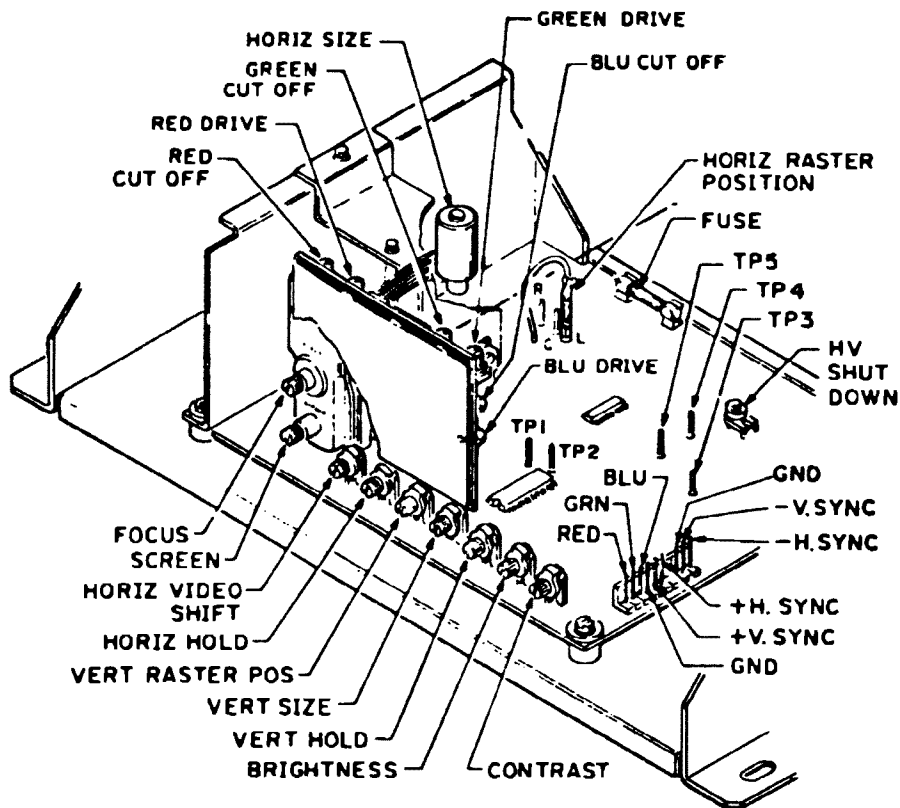
MONITOR ADJUSTMENTS

11

In Case of Difficulty

No Raster/No Video
- Check A.C. line cord
- Check line fuse
- Check monitor brightness
- Check power switch and/or interlock switch
- Check all solder connections on line filter and transformer
- Check for proper orientation of the 56 pin PCB connector

Raster/No Video
- Check all PCB to monitor connections
- Check power supply voltage on PCB

No Video/Game sounds can be heard
- Check monitor brightness
- Check all PCB to monitor connections

Incorrect Colors
- Monitor needs degaussing
- Check for proper wiring between PCB and monitor
- Check monitor adjustment and adjust if necessary

Wavy Picture
- Check monitor ground is properly connected to monitor
- Be certain sync inputs are properly connected to monitor
- Check horizontal hold adjustment

Vertical Roll/Horizontal Tear
- Check horizontal and/or vertical hold adjustments
- Check for proper wiring of sync from PCB to monitor

No Sound
- Check volume control potentiometer adjustment
- Check for + 12 volts on edge connector of PCB
- Check wiring from PCB to speaker
- Check speaker for low resistance between the " + " and " - " tabs

Bad Sound
- Check wiring to speaker for bad solder connections
- Check sound with another speaker

No Switch Input
- Check ground connection to switches
- Check wiring between PCB and switch/es for proper connection
- Check switch/es with an ohm meter to verify proper operation

Switch Operates Incorrect Function
- Check wiring between PCB and switches for proper orientation
- Check wiring for shorts between switch inputs

No Coin Meter
- Check wiring to coin meter
- Check that + 5 volts is on + side of meter
- Verify a + 5 volt meter is used

When coin switch is made and meter pulses, the screen blanks out and/or game resets
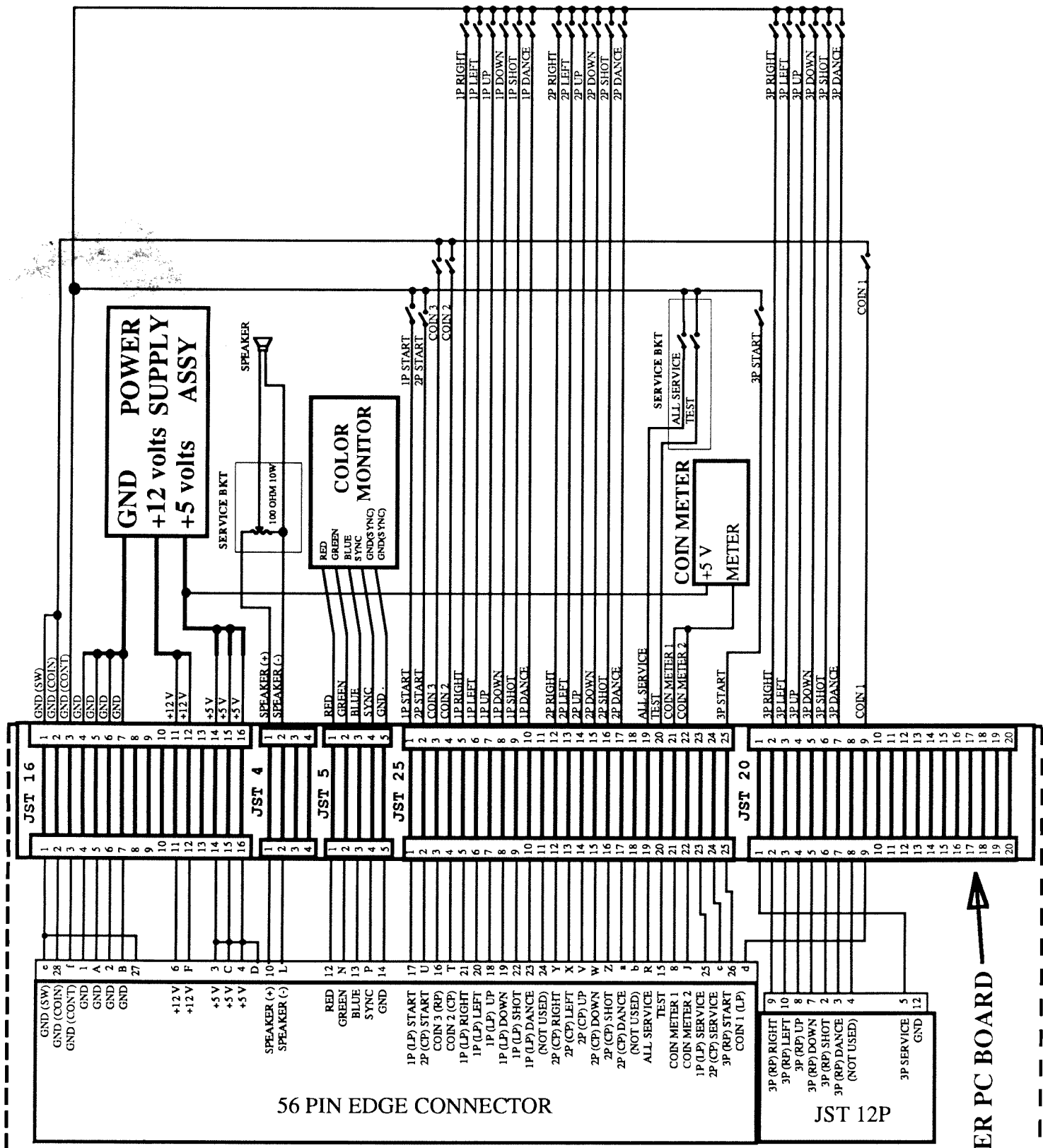- Verify that a meter with a diode is used
- If no diode is built in meter a 1N4004 can be used across the meter. Cathode to "+" side of meter and anode to "-"side of meter.

12

MOONWALKER

DIP SWITCH ASSIGNMENT

COIN / CREDIT OPTION SWITCH SETTING								DIP SW #1
OPTION	1	2	3	4	5	6	7	8
1 COIN 1 CREDIT	OFF	OFF	OFF	OFF				
1 COIN 2 CREDITS	ON	OFF	OFF	OFF				
1 COIN 3 CREDITS	OFF	ON	OFF	OFF				
1 COIN 4 CREDITS	ON	ON	OFF	OFF				
1 COIN 5 CREDITS	OFF	OFF	ON	OFF				
1 COIN 6 CREDITS	ON	OFF	ON	OFF				
2 COINS 1 CREDIT	OFF	ON	ON	OFF				
3 COINS 1 CREDIT	ON	ON	ON	OFF				
4 COINS 1 CREDIT	OFF	OFF	OFF	ON				
2 COINS 3 CREDITS	ON	OFF	OFF	ON				
2 COINS 1 CREDIT 4 COINS 2 CREDITS 5 COINS 3 CREDITS 6 COINS 4 CREDITS	OFF	ON	OFF	ON				
2 COINS 1 CREDIT 4 COINS 3 CREDITS	ON	ON	OFF	ON				
1 COIN 1 CREDIT 2 COINS 2 CREDITS 3 COINS 3 CREDITS 4 COINS 4 CREDITS 5 COINS 6 CREDITS	OFF	OFF	ON	ON				
1 COIN 1 CREDIT 2 COINS 2 CREDITS 3 COINS 3 CREDITS 4 COINS 5 CREDITS	ON	OFF	ON	ON				
1 COIN 1 CREDIT 2 COINS 3 CREDITS	OFF	ON	ON	ON				
FREE PLAY	ON	ON	ON	ON				
	COIN SW				NOT USED			

GAME OPTION SWITCH SETTINGS								DIP SW #2
OPTION	1	2	3	4	5	6	7	8
1 CREDIT TO START	OFF							
2 CREDITS TO START	ON							
ADVERTISE OFF		OFF						
SOUND ON		ON						
NUMBER OF 2			OFF					
PLAYERS 3			ON					
PLAYER INITIAL LOW				OFF				
VITALITY HIGH				ON				
PLAY 3-P					OFF			
MODE 2-P					ON			
COIN CHUTE INDIVIDUAL						OFF		
MODE COMMON						ON		
GAME DIFFICULTY NORMAL							OFF	OFF
GAME DIFFICULTY EASY							ON	OFF
GAME DIFFICULTY HARD							OFF	ON
GAME DIFFICULTY HARDEST							ON	ON

13

MOONWALKER PCB - SYSTEM 18

POWER SUPPLY ASSY
GND
+12 volts
+5 volts

SPEAKER

SERVICE BKT
100 OHM 10W

COLOR MONITOR
RED
GREEN
BLUE
SYNC
GND(SYNC)
GND(SYNC)

1P START
2P START
COIN 3
COIN 2

SERVICE BKT
ALL SERVICE
TEST

COIN METER
+5 V
METER

COIN METER 1
COIN METER 2

3P START

COIN 1

1P RIGHT
1P LEFT
1P UP
1P DOWN
1P SHOT
1P DANCE

2P RIGHT
2P LEFT
2P UP
2P DOWN
2P SHOT
2P DANCE

3P RIGHT
3P LEFT
3P UP
3P DOWN
3P SHOT
3P DANCE

JST 16
GND (SW)
GND (COIN)
GND (CONT)
GND
GND
GND
GND
+12 V
+12 V
+5 V
+5 V
+5 V

JST 4
SPEAKER (+)
SPEAKER (-)

JST 5
RED
GREEN
BLUE
SYNC
GND.

JST 25
1P START
2P START
COIN 3
COIN 2
1P RIGHT
1P LEFT
1P UP
1P DOWN
1P SHOT
1P DANCE
2P RIGHT
2P LEFT
2P UP
2P DOWN
2P SHOT
2P DANCE
ALL SERVICE
TEST
COIN METER 1
COIN METER 2
3P START

JST 20
3P RIGHT
3P LEFT
3P UP
3P DOWN
3P SHOT
3P DANCE
COIN 1

56 PIN EDGE CONNECTOR

GND (SW) — c
GND (COIN) — 28
GND (CONT) — f
GND — 1
GND — A
GND — 2
GND — B
GND — 27
+12 V — 6
+12 V — F
+5 V — 3
+5 V — C
+5 V — 4
+5 V — D
SPEAKER (+) — 10
SPEAKER (-) — L
RED — 12
GREEN — N
BLUE — 13
SYNC — P
GND — 14
1P (LP) START — 17
2P (CP) START — U
COIN 3 (RP) — 16
COIN 2 (CP) — T
1P (LP) RIGHT — 21
1P (LP) LEFT — 20
1P (LP) UP — 18
1P (LP) DOWN — 19
1P (LP) SHOT — 22
1P (LP) DANCE — 23
(NOT USED) — 24
2P (CP) RIGHT — Y
2P (CP) LEFT — X
2P (CP) UP — V
2P (CP) DOWN — W
2P (CP) SHOT — Z
2P (CP) DANCE — =
(NOT USED) — b
ALL SERVICE — R
TEST — 15
COIN METER 1 — 8
COIN METER 2 — J
1P (LP) SERVICE — 25
2P (CP) SERVICE — c
3P (RP) START — 26
COIN 1 (LP) — d

JST 12P

3P (RP) RIGHT — 9
3P (RP) LEFT — 10
3P (RP) UP — 8
3P (RP) DOWN — 7
3P (RP) SHOT — 2
3P (RP) DANCE — 3
(NOT USED) — 4
3P SERVICE — 5
GND — 12

RFI FILTER PC BOARD

14