



INSTRUCTION MANUAL



HORIZONTAL MONITOR CONVERSION KIT

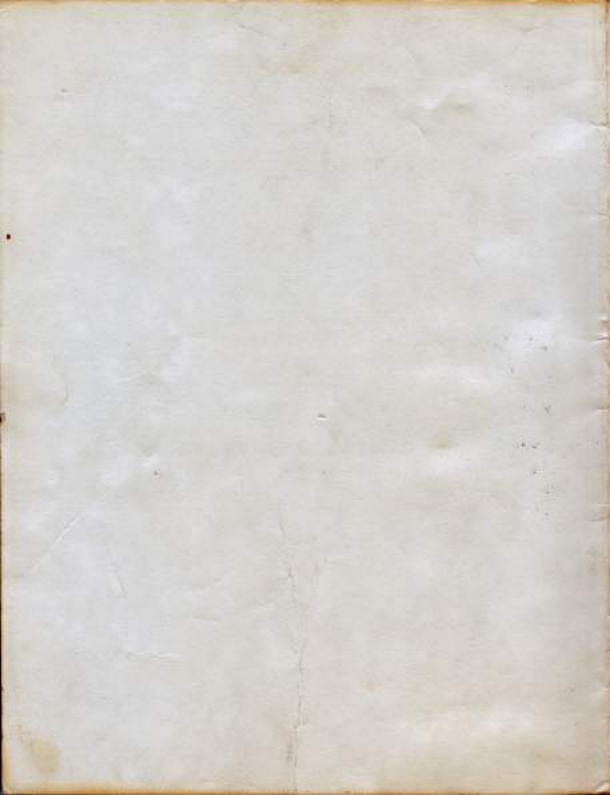


TABLE OF CONTENTS

I. Game Package Contents	2
II. Warnings and Notices	3
III. Requirements	4-5
A. Monitor Compatibility	4
B. Power Supply	4
C. PCB Specifications and Lay	5
IV. Installation Procedures	6-7
A. Placement of PCB	6
B. Wire Harness Layout	6
C. Power-up Checklist	6
D. Control Panel Configuration	7
V. Display Test Mode	8-9
A. Self ROM Check	8
B. Color Test	8
C. Control Test	8
D. MODE Check	9
E. FONT Test	9
F. Sound Check	9
VI. Game Operation	10
VII. Optional Settings (Dip Switches)	11
VIII. Control Wiring Diagram	12
IX. Main Harness Connections	13



I. GAME PACKAGE CONTENTS

- 1 - Main Printed Circuit Board (PCB) Assembly
- 1 - PCB Shield (F.C.C. Compliance)
- 1 - SNK Wire Harness
- 2 - Joystick Assembly Packages
- 1 - Marquee (Mylar/Plexi)
- 1 - Control Panel Overlay
- 2 - Side Graphic Decals
- 1 - Monitor Card
- 6 - Control Buttons
- 1 - Instruction Manual

Inspect the entire contents of your game package to assure it is complete and in satisfactory condition. If any damages have occurred during shipment, please notify your SNK distributor immediately.

II. WARNINGS AND NOTICES

F.C.C. WARNINGS:

The PCB shield supplied with this game package must be utilized and terminated to ground at the time of installation of the PCB. This is required in order to comply with the limits for a class A computing device pursuant to subpart J of part 15 of F.C.C. rules. These rules are designed to provide reasonable protection against harmful interference to radio communications when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause RF interference in which case the user at his or her own expense will be required to take whatever measures necessary to correct the interference.

SNK recommends that the control panel be grounded and a grounded 3 wire outlet to be used for supplying power. These steps will assure a clear picture.

NOTICE:

Specifications and modifications may be changed without advance notice or warning.

DANGER:

DO NOT SOLDER control buttons or they will malfunction and the warranty will be voided. Use crimp lugs on all Control Buttons.

Whenever you change parts or insert/disconnect connector, always check to make sure power is off!

If your PCB is clearly found defective, please do not attempt to troubleshoot or check it with a tester, etc. The IC's may be destroyed by the voltage of a tester and your warranty will be voided.

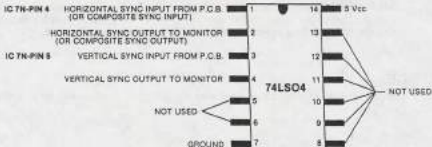
SNK recommends a **12 volt coin counter** be connected to the +12 volt line only. Do not use a +6 volt coin counter. A +6 volt coin counter will cause a voltage drop on the +5 volt line which could cause the game to function improperly or cause possible IC damage.

When handling monitor, stay clear of the High Voltage Sections.

III. REQUIREMENTS

A. MONITOR:

This game requires a **Horizontal Mounted Raster Scan** type monitor with composite sync. If your monitor is one which requires separate or inverted syncs you may use the following illustration to conform to your monitor specifications.



NOTE: Separate syncs may be found at the sync separator chip on the BOTTOM PCB IC # 7N 74LS86.

B. POWER SUPPLY:

SNK recommends the use of a switching type power supply with minimum current ratings as stated below:

<u>Voltage</u>	<u>Amperage</u>
+12 VDC	1A
+ 5 VDC	8A
- 5 VDC	1A
Ground	

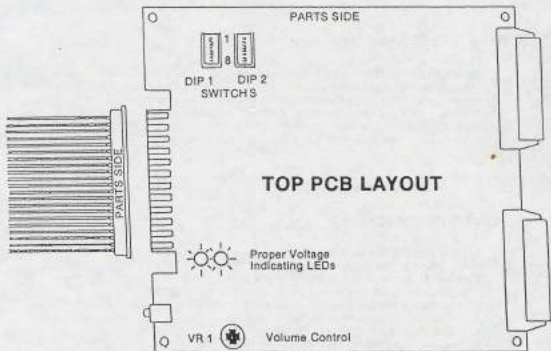
C. PCB SPECIFICATIONS:

Operating Requirements

Voltage - +5.00 volts to 5.10 volts D.C., -5VDC, +12VDC.

Amperage - 7.5 amps

The 5 volt supply draws about 7.5 amps on this PCB design and the power supply should be adjusted. When the voltage is correct, both LEDs will be lit. If only one LED is lit the 5 volt supply must be adjusted. Replace the power supply with one of a higher current rating if the voltage does not indicate 5 volts.



IV. INSTALLATION PROCEDURES

A. PLACEMENT OF PCB:

Mount all four corners of the PCB to assure stability. Allow room for the PCB shield away from the power supply section. Before mounting please check wire harness layout.

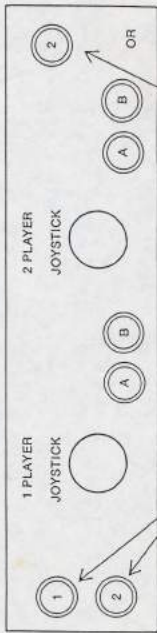
B. WIRE HARNESS LAYOUT:

Mark it, PARTS SIDE in order not to reverse connection which may cause damage to the PCB and/or power supply. Layout your wire harness from one and two player control panel to the PCB edge connector to assure that it is long enough. Remember that the voltage of an intermediate wire harness decreases by contact resistance, so please connect all of the wires provided for the supply voltages and grounds in order to assure sufficient voltage and to avoid contact burning on the PCB.

C. POWER UP CHECKLIST

1. Make sure that the Main Wire Harness is wired properly to the Power Supply by measuring it with a volt meter.
2. Allow the Power Supply to discharge the voltage for about 10 seconds before connecting or disconnecting the edge connector.
3. Use crimp lugs on all CONTROLS and only solder other connections.
4. Ground all ground wires and the control panel.
5. Adjust the Power Supply and the Monitor.
6. Check all Controls and set the Dip Switches.
7. Secure the Main Wire Harness with wire ties.

D. CONTROL PANEL CONFIGURATION



POSSIBLE 1 AND 2 PLAYER START CONTROL BUTTON LOCATIONS

Control Button A (Green) is for ELECTRICITY, ZAPPER.

Control Button B (Blue) is for FIRING PSYCHO BALLS.

NOTE: DO NOT SOLDER CONTROLS.

Use crimp lugs on all CONTROL BUTTONS.

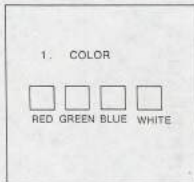
V. DISPLAY TEST MODE

A. SELF ROM CHECK

Memories are automatically checked when power is applied. To enter the test mode DIP 1 SWITCH 1 must be ON before power is applied. To exit the test mode DIP 1 SWITCH 1 must be in the OFF position and power must be reapplied.

B. PICTURE 1 - COLOR TEST

Assures that the correct colors are properly wired to the monitor.



C. PICTURE 2 - CONTROL TEST

As a lever or switch turns on, 0 on the monitor will change to 1. Insert coin and confirm that the COIN changes from a 0 to 1. The service switch can also be checked here.

2. LEVER - COIN

P1 UP	0	P2 UP	0
P1 DOWN	0	P2 DOWN	0
P1 LEFT	0	P2 LEFT	0
P1 RIGHT	0	P2 RIGHT	0
P1 PUSH1	0	P2 PUSH1	0
P1 PUSH2	0	P2 PUSH2	0
COIN	0	COIN2	0

D. PICTURE 3 - MODE CHECK

Set desired mode by setting the DIP SWITCHES on the PCB. (Refer to the OPTIONAL SETTINGS.) When the switch turns on, the number of that BIT will change from 0 to 1. The actual mode will also be displayed.

3 MODE

DIP1 12345678 DIP2 12345678
1 00000000 2 00000000
DISPLAY NORMAL LEVEL 2
HERO 3 DEMO SOUND ON
COIN1 11PLAY BONUS 5000
COIN2 16PLAY BONUS2 10000
CONTINUE WITHIN 5 SECOND

E. PICTURE 4 - FONT TEST

Confirm that the Characters are displayed on the monitor. There are different colors of characters that will be displayed automatically.

4 FONT COLOR 00-0F

FONT CHARACTER

F. PICTURE 5 - SOUND CHECK

Set up the sound Code ("7") to 41-7F, 81-BF or C0-FF by moving the joystick. The music, special effects or voice will activate when you press Control Button A. If you want to stop the sound, set the Code to 40 and press Control Button A.

5 SOUND

SOUND CODE = 7
SYSTEM
MUSIC STOP - 40
MUSIC 41-7F
EFFECT 81-BF
VOICE CO-FF

VI. GAME OPERATION

PSYCHO SOLDIER is a 1 or 2 player exciting and challenging action game. Either play may join in at any time and coin up to 30 maximum Heros. Each player controls the movement of the HERO by the 8 way joystick. Button A is the electric zapper. Button B fires psycy balls. You must destroy the moving enemies as you journey.

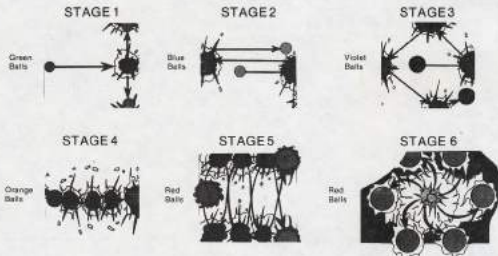
Obsticles must be zapped or blasted in order to pick up the hidden item. You may pick up electric energy for zapper, power energy for the psycy balls or extra psycy balls by passing through these domes.

There are three stages of electric energy for zapper:

- Button A - Green Zap -- 0 picked up
- Blue Zap -- 1 picked up
- Red Zap -- 2 picked up

There are six stages of power energy for firing psycy balls:

Button B -



When you have picked up a maximum of each item you will pass through the pick up domes with no effect. Pick up Saber to destroy enemies and obsticles with one blow and to protect yourself from enemies shots.

Zapping the red cones release extra point items. The longer you wait to pick up the more point value is received. For extra excitement you may change form into a dragon and your partner may team up with you by riding on the dragons shoulders.

To change form into a dragon you must find the egg with the secret item inside and pick it up. You must avoid the skull dome at all times or you will lose energy.

VII. OPTIONAL SETTINGS

DIP SW NO.1

ITEM	SPECIFICATION	1	2	3	4	5	6	7	8
TEST MODE	GAME OPERATION	OFF							
	ENTER TEST MODE	ON							
DISPLAY	NORMAL PICTURE			OFF					
	INVERSE PICTURE			ON					
BONUS	** SECOND BONUS			OFF					
	* EVERY BONUS			ON					
NUMBER OF HERO	3			OFF					
	5			ON					
COIN 1	1 COIN 1 PLAY					OFF	OFF		
	2 COIN 1 PLAY					ON	OFF		
	3 COIN 1 PLAY					OFF	ON		
	4 COIN 1 PLAY					ON	ON		

*Every Bonus Credit one (HERO) every bonus

**Second Bonus Credit one (HERO) at 1st and 2nd bonus only.
No further heroes awarded.

DIP SW NO.2

ITEM	SPECIFICATION	1	2	3	4	5	6	7	8
LEVEL OF DIFFICULTY	NORMAL	OFF	OFF	LEVEL 2					
	EASY	ON	OFF	LEVEL 1					
	HARD	OFF	ON	LEVEL 3					
	DIFFICULT	ON	ON	LEVEL 4					
ATTRACTION SOUND	WITH DEMO SOUND ON			OFF					
	WITHOUT DEMO SOUND			ON					
MONITOR SETTING	NORMAL			OFF					
	STOP VIDEO DISPLAY			ON					
BONUS POINTS SETTING	50000/100000					OFF	OFF		
	60000/120000					ON	OFF		
	100000/200000					OFF	ON		
1ST/2ND	NO BONUS					ON	ON		
GAME STYLE	STANDARD PLAY	NORMAL						OFF	
	CONTINUE PLAY	COIN-UP CONTINUE						ON	

NOTE: Bold face suggests factory recommended settings.

IX. MAIN HARNESS CONNECTIONS

CONNECTOR CR7E - 56 DA - 3.96 E (HIROSE)

(1) -

(28)



(A)

(1)

Color Key: Strips / Background

WIRE COLOR	SOLDER SIDE	PIN NAME PIN #		PARTS SIDE	WIRE COLOR
BLACK	Ground	A	1	Ground	Black
BLACK	Ground	B	2	Ground	Black
RED	+5VDC	C	3	+5VDC	RED
RED	+5VDC	D	4	+5VDC	RED
GREEN	-5VDC	E	5	-5VDC	GREEN
YELLOW	+12VDC	F	6	+12VDC	YELLOW
		H	7		
		J	8	Coin Counter 1 (-)	BROWN
		K	9		
WHITE	Speaker (-)	L	10	Speaker (+)	WHITE
		M	11		
LIGHT GREEN	Video Green	N	12	Video Red	PINK
GRAY/WHITE	Video Sync	P	13	Video Blue	LIGHT BLUE
VIOLET	Service Switch	R	14	Video Ground	BLACK
GRAY	Tilt Switch	S	15		
		T	16	Coin Switch 1	VIOLET/WHITE
WHITE/BLACK	Start Switch 2	U	17	Start Switch 1	BLACK/WHITE
BROWN/BLACK	2P Control 1 UP	V	18	1P Control 1 UP	BROWN/WHITE
RED/BLACK	2P Control 2 DOWN	W	19	1P Control 2 DOWN	RED/WHITE
ORANGE/BLACK	2P Control 3 RIGHT	X	20	1P Control 3 RIGHT	ORANGE/WHITE
YELLOW/BLACK	2P Control 4 LEFT	Y	21	1P Control 4 LEFT	YELLOW/WHITE
GREEN/BLACK	2P Control 5 PUSH 1	Z	22	1P Control 5 PUSH 1	GREEN/WHITE
BLUE/BLACK	2P Control 6 PUSH 2	a	23	1P Control 6 PUSH 2	BLUE/WHITE
		b	24		
		c	25		
		d	26		
BLACK	Ground	e	27	Ground	BLACK
BLACK	Ground	f	28	Ground	BLACK



**SNK CORPORATION
OF AMERICA**

246 Sobrante Way
Sunnyvale, CA 94086
TEL: (408)736-8844
FAX: (408)736-0446