

NEO·GEO®

ROMSTAR™ INC.

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HORIZONTAL 2 PLAYER, 2 JOYSTICK, 4 BUTTON, JAMMA COMPATIBLE CONVERSION KIT *

* (ADDITIONAL WIRING REQUIRED FOR STEREO SPEAKERS AND INDIVIDUAL COIN INPUTS)

POWER REQUIREMENTS		MONITOR REQUIREMENTS
+5 VDC	11 amp minimum	Horizontal Mount Raster Scan
+12 VDC	1 amp minimum	Negative Composite Sync
-5 VDC	1 amp minimum	Required for Jamma Compatibility

ROMSTAR®, INC.

INSTRUCTION MANUAL

THANK YOU FOR PURCHASING THE NEO GEO VIDEO GAME SYSTEM.

IT CONTAINS THE LATEST IN STATE-OF-THE-ART ELECTRONICS AS WELL AS THE CONVENIENCE OF A CARTRIDGE BASED GAME SYSTEM.

WE WANT TO REMIND YOU THAT THIS SYSTEM WILL LAST FOR FIVE TO TEN YEARS, SO SELECTING A GOOD QUALITY CABINET WITH A GOOD MONITOR IS ESSENTIAL AND WOULD PREVENT COSTLY DOWNTIME BECAUSE OF POOR QUALITY COMPONENTS.

PLEASE READ MANUAL COMPLETELY BEFORE ATTEMPTING INSTALLATION.

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Installing Your

NEO-GEO[®]

New Game Package

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NEW GAME PACKAGE CONTENTS

- | | |
|------------------------------------|---------------------------------|
| 1 Main Printed Circuit Board (PCB) | 1 Marquee |
| 1 Monitor Bezel | 1 Control Panel Overlay |
| 1 Set Legs, Bolts, & Spacers | 1 Set of Connectors |
| 1 Connecting Wire Harness | 1 Electronic Components Package |
| 1 Control Panel | 1 Installation Manual |
| 1 Set of Coin Labels | |

NOTE: Replacement accessories available through your exclusive **ROMSTAR** distributor.



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Invites You To Use

OUR PHONE OR FAX NUMBER FOR
SERVICE INFORMATION CONCERNING THIS GAME, OR ANY
OTHER ROMSTAR GAME YOU NOW HAVE ON LOCATION.

CALL US FOR PROMPT, COURTEOUS
ANSWERS TO YOUR PROBLEMS.

ROMSTAR, INC.

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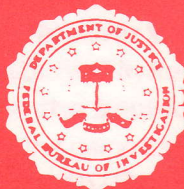
TECHNICAL QUESTIONS — SENIOR TECHNICIAN DARRYL WILLIAMS EXT. 119

RMA'S / PARTS QUESTIONS — PARTS MANAGER AUDREY SMITH EXT. 112

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FBI



WARNING

Federal law provides severe civil and criminal penalties for the unauthorized reproduction, distribution, or exhibition of copyrighted audiovisual works and video games.

The Federal Bureau of Investigation investigates allegations of criminal copyright infringement.

BEFORE YOU GET STARTED . . . S T O P !

1. Does your **new game** package include all listed parts? (Is it complete?)
2. Is the game you have chosen to transform able to supply all the required voltages for the **new game**?

Note: Some games, (i.e., Ms. Pac Man, Galaxian, etc.) regulate their voltages on the main P.C.B. This makes the existing power supply inefficient. These games will require a change in power supply for your **new game**. Many game supply houses can offer you a switching regulated power supply for a relatively low cost.

3. Is the monitor configuration compatible? In most games it is rather difficult to change the monitor from a vertical mount to a horizontal mount. We recommend you choose a game cabinet with the same mount as your **new game** requires.
4. Do you have the necessary tools? (See the recommended tool list)

CAUTION

F.C.C. Regulation Compliance

Operation of this equipment in a residential area is likely to cause interference in which case, the user at his own expense, will be required to take whatever measures may be required to correct the interference.

RECOMMENDED TOOLS AND SUPPLIES

ROMSTAR **new game** package.

Phillips and Slot Screwdrivers.

Socket Set.

Enthusiastic Attitude.

Wire Cutters and Strippers.

Pliers or Channel Locks.

Planning and Careful Thought.

Electric Drill.

3/32" • 7/16" Drill Bits.

1/4" Plex Bit.

1-3/16" Chassis or Sheet Metal Punch.

1-1/4" Plex Hole Saw.

Glass of Water and a Snack.

Small File.

Razor Knife and Sharp Blades.

Straight Edge.

Patience.

Common Sense.

Jigsaw for Metal Cutting.

Painting Supplies (if you do your own painting).

Paint Brush and Paint (don't forget the primer).

Paint Roller and Pan.

Sand Paper.

Putty Knife and Wood Putty.

A Good Night's Sleep.

Staple Gun and Staples.

Soldering Iron and 60/40 **Resin Core**.

Solder.

Vacuum Cleaner.

Assorted Fastening Hardware.

Shrink Tubing: 3/32" • 1/8" • 3/16".

Masking Tape.

3-1/2" or 4" Wire Ties.

Spray Window Cleaner and Rags.
(baby diapers work GREAT!)

DIP SWITCH TABLES

Optimize Your Profits

Thorough research shows that two and a half minute games both satisfy players and also keep the quarters flowing.

If games aren't running about two and a half minutes long, then collections probably aren't at their peak. You'll want to tailor your game to your location. The trick is to adjust a few DIP switches. (See the chart in this book.) It's easy!

INSTALLATION PROCEDURES

Something To Think About

Your final product will be a **new game**.

You have made a wise decision to transform a game that has seen better days in the all important cash box into a **new game**. This is by far the most cost effective alternative to maximize the return of your initial investment. All you provide is the cabinet with a power supply and a monitor. Oh yes, you will need a touch of elbow grease. And that's it! We provide the rest. The end result is . . . a **new game** at a very low cost.

FACT: Spend a little time on the cabinet's appearance (i.e., marquee, control panel and cabinet graphics). With a little paint, some wood putty and new lights, you will raise the profits of any game . . . especially with the introduction of a **new game** package.

The **new game** look should always apply to the inside of your game as well as the outside. A few wire ties and shrink tubing on your harness; some fastening hardware on your subassemblies and a sweep with the ol' vacuum cleaner will ensure that unnecessary *glitches* do not occur.

REMEMBER: You are creating a **new game**.

If you have any questions or just need some advice on any of your **new game** transformations, don't hesitate in giving a member of our technical staff a call.

LET'S GET OUR HANDS DIRTY

Preparing The Original Game For The New Game.

1. Main logic board(s)
2. Control panel
3. Monitor plexiglass
4. Monitor Bezel
5. Marquee
6. Graphics

I would recommend painting your cabinet to give it a fresh new look. You may consider having an auto body shop take care of your painting needs.

If your cabinet has wood grain sides; remove old graphics and adhesive (adhesive may be removed with **lacquer** thinner.

If you intend to use your original plexiglass, be sure it is in mint condition or it should be replaced.

Thoroughly clean out your cabinet.

TIME TO INSTALL YOUR NEW GOODIES

Before You Start . . . Remember DO NOT DO THIS WORK WITH THE POWER ON!

Logic P.C.B.

Mount the logic board securely (away from power supply).

- A. Mark and drill pilot holes (3.32").
- B. Install the P.C.B. into cabinet. Use feet and spacers supplied and adjust them so that the screws will go through the holes in the cabinet.

Wire Harness

Attach the wire harness connector to the main logic board. **CAUTION:** Sometimes the connector is not keyed and it is very easy to install it reversed on the logic board. Even if it is keyed, always **triple check** to be sure the wire inputs were connected correctly to the connector and the connector to the logic board.

Connecting The Wire Harness To The Existing Wires

When you hook up the control panel, power supply, monitor or other subassemblies that remain in the game cabinet to your new wire harness, try and use their existing secondary connectors.

1. Cut the original wire approximately three inches from the original connector.
Strip off about one half inch of insulation.
2. Solder the new wire designated for that position to the original wire you just stripped.

WARNING: DO NOT JUST TIE THE WIRES TOGETHER. THIS CAN CAUSE NAGGING INTERMITTENT PROBLEMS THROUGH LOOSE CONNECTIONS OR OXIDATION OR BOTH. **Always take the time to do it right.**

3. Melt shrink tubing around all your in-line wire connections. Do not use electrical tape. Tape could unravel over a period of time due to the cabinet heat and cause you a great deal of trouble.

4. Use wire tie wraps, and secure the cable to the cabinet whenever it seems necessary. Remember this is a new game, not a sloppy conversion.

Power Wires

1. Connect the wires that are designated for your power supply. You will need a supply of +5V, +12V & ground. Your **new game** package may not require all of the voltages that were used in the original game. Tie off any unused wires.
2. You will notice that you probably have more than one wire for each voltage. It is a good idea to use all wires supplied (double up if it is necessary). This will help to ensure that you don't overload the edge connector pins and cause them to "burn".

Monitor Wires.

You will be connecting the wires designated for the RED, GREEN & BLUE video guns along with the SYNC & GROUND wires.

NOTE: CONCERNING SYNC:

Your **new game** only calls for one sync wire connection, this is called **composite sync** (horizontal and vertical tied together). This composite sync is also **negative**. Most monitors have supply positions for both negative and positive sync. You can check your monitor manual or call our technical department for assistance.

Speaker Wires

STEREO SOUND: Located the main speaker connector CN2 and connect with butt connector harness to the existing SPK [pin 1 to +, pin 2 to -] (REFER TO FIG. 1). Mount second SPK and attach PDO connector to SPK terminals. Next attach to CN2 [pin 3 to - , pin 4 to +] (REFER TO FIG. 1). Check the size (watts & OHMS) of your SPK. It should match the one in this kit.

Coin Door Wires

INDIVIDUAL COIN INPUTS:

Coin 1 has to be wired to the left side for Player 1.

Coin 2 has to be wired to the right side for Player 2.

Use PDO to butt connectors to rewire your cabinet if it does not use separate inputs. (REFER TO FIG. 1).

1. Connect the designated wires to the coin switches and meter. (See tech tips).
2. You can connect your door lamps to the unused -5V power supply. Some games have separate power outputs for the coin door lamps.
3. Be sure to clean and lubricate your old coin mechanisms. Keep the money coming in.

GUESS WHAT?

You are almost done with the electrical connections of your **new game**. All you have left is the control panel wiring. But we are going to hold off on that for right now. We have a few other things we need to do first. So why don't you go ahead and get yourself a drink of water and stretch your legs. When you return, we can take a fresh look at your progress and then move forward.

SMOKE TEST

What Test!

Don't worry. All this means is that you are ready to apply power to the system for the first time and you pray that there will be no smoke from a simple oversight.

You are just about ready to power up the logic board. But first we need to recheck your work.

1. Carefully inspect the game for loose power wires, exposed connections and extra fastening hardware.
2. Make sure the logic board, monitor and power supply are securely fastened in place.
3. **Double Check** the connectors to be sure they are wired and connected properly.
4. Set the dip switches on the logic board to the factory recommendations. (REFER TO PAGE 5). Also, be sure you set the dip switches for "DEMO WITH SOUND". This will enable you to hear as well as see that your new P.C.B. is functional.

Time To Apply Power

1. Look and smell for smoke. (TURN OFF IMMEDIATELY IF ANY IS NOTICED).
2. Listen for game sounds.

If after one minute you have not heard any sounds:

- A) Check for proper dip switch settings.
- B) Adjust volume control and check speaker connections.
- C) Check the +12V power supply to the logic board.

NOTE: If you do get sounds, but they are a little fuzzy, switch the wires around on the speaker.

3. How is the monitor image?

- A) **Is the picture in sync?**

If your picture has the top and bottom halves of the screen reversed and it will not stop rolling, change your sync polarity on the monitor - positive to negative (SEE TECH TIPS SECTION).

NOTES:



B) Now how's your picture?

- Is it centered?
- Is it too bright or dim?
- Is it in focus?

Check your monitor manual for these adjustments. If your screen looks "off", then your **new game** transformation may have been in vain. So let's take the time to make the monitor look great.

C) Is the picture upside-down?

Refer to your monitor manual - switch two horizontal yoke wires and then switch two vertical wires. (Pull the pins in the connector on the monitor P.C.B. to switch them.) or check Dip Switch Tables.

CONTROL PANEL ASSEMBLY

The control panel installation will require some metal cutting and hole drilling. So selecting a cabinet that will accommodate the required panel size will save time and effort.

1. Remove all old components and take off old overlay.
2. Scotch tape cutting template to panel where you'll have enough clearance to close the panel after the new insert is installed.
3. Using 1/4" drill bit, drill the mounting holes [1-8] (REFER TO FIG. 2).
4. Now drill the jigsaw hole [a,b,c,d] (REFER TO FIG. 2).
5. Cut along jigsaw line from A to D - remember to follow the line carefully to properly mount the panel.
6. Using a file smooth out rough edges so the new panel will mount flat on old panel.
7. Attach new overlay and cut out center.
8. Install new panel and secure it with carriage bolts in mounting holes.

Service and Test Switch Installation

Locate L bracket with the service and test switches and mount it inside coin door for easy access.

Wire it to the service and test input line on the main harness. (REFER TO FIG. 1 & 4).

MARQUEE INSTALLATION

Using the original marquee as a template. Center your **new game** marquee graphics and score the new marquee deeply to fit the cabinet. Break off the excess with pliers.

NOTE: When cutting marquee to size, check to make sure that you are cutting as little of the necessary art as possible (name, manufacturer, etc.) (REFER TO FIG. 4).

Be Sure the light behind the marquee works. Everything should **always work** on the new game. Take your time . . . Don't forget this going to be a **new game**.

LED Display Installation

MV1 and MV2 LED Display Mounting:

After marquee is cut and mounted remove it to line up the LED display P.C.B. for LT and RT credit display. Mount them so the segment display is clearly visible through the 1 inch window and secure them with the wood screws provided in this kit. Reattach wires to main P.C.B. (REFER TO FIG. 4).

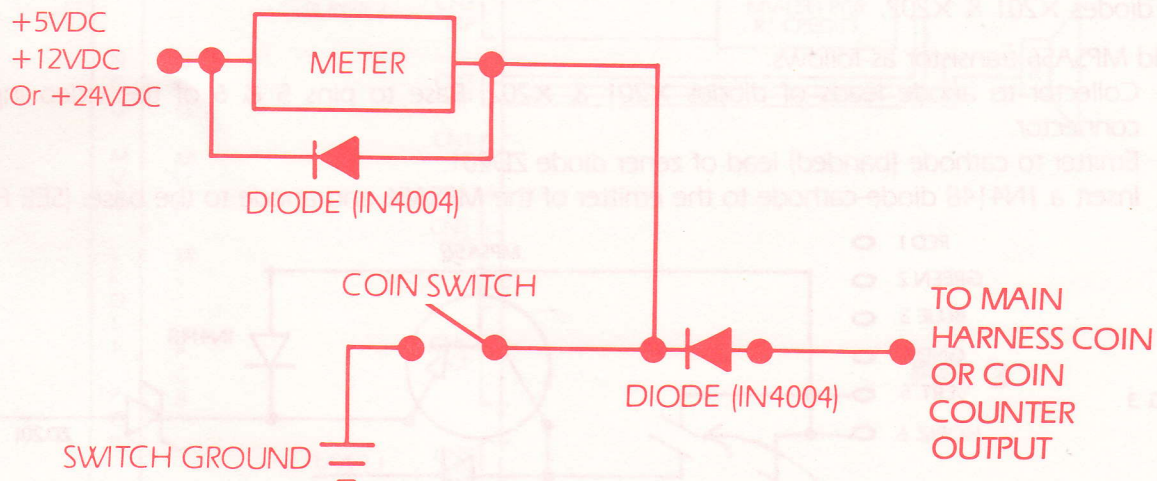
FINISHING TOUCHES

1. Check the game inside and out for any imperfections. Secure any loose wiring or fastening hardware.
2. Make sure the coin door is tight and the coin mechs are well adjusted. A game is no good to anybody if you can't get a coin into it.
3. Once again go over every step of this **new game** transformation in your mind. Be sure everything is correct and to your liking.
4. Power up the game.
 - A. Check all the coin switches. (Does the coin meter work?)
 - B. Play your **new game**.
 - Are all the player control working?
 - Are the game sounds present?
 - Is the volume level proper?
 - Are the dip switches set properly?

Well, that's about it. Good Luck.

Coin Meter Diagram

To attach a coin meter, use following diagram:



Star Tech Tips

We are grateful to Star Tech Journal for allowing us to publish the following excerpts from their journal.

1. MONITOR SYNC

If your monitor does not have dual polarity positions for sync, you may use one of the following methods to get your game going.

CURE 1: Install a simple one I.C. Circuit on your logic board. This I.C. may be "piggybacked" on to another 7404 series chip for power by bending up all but the two power pins so that they are parallel to the top surface of the new I.C. and then connecting the power pins only to the existing chip (SEE FIG. 1). Next connect the sync wires as shown in FIG. 2. (NOTE: Figure 2 shows a hookup for either **composite** or separate syncs.)

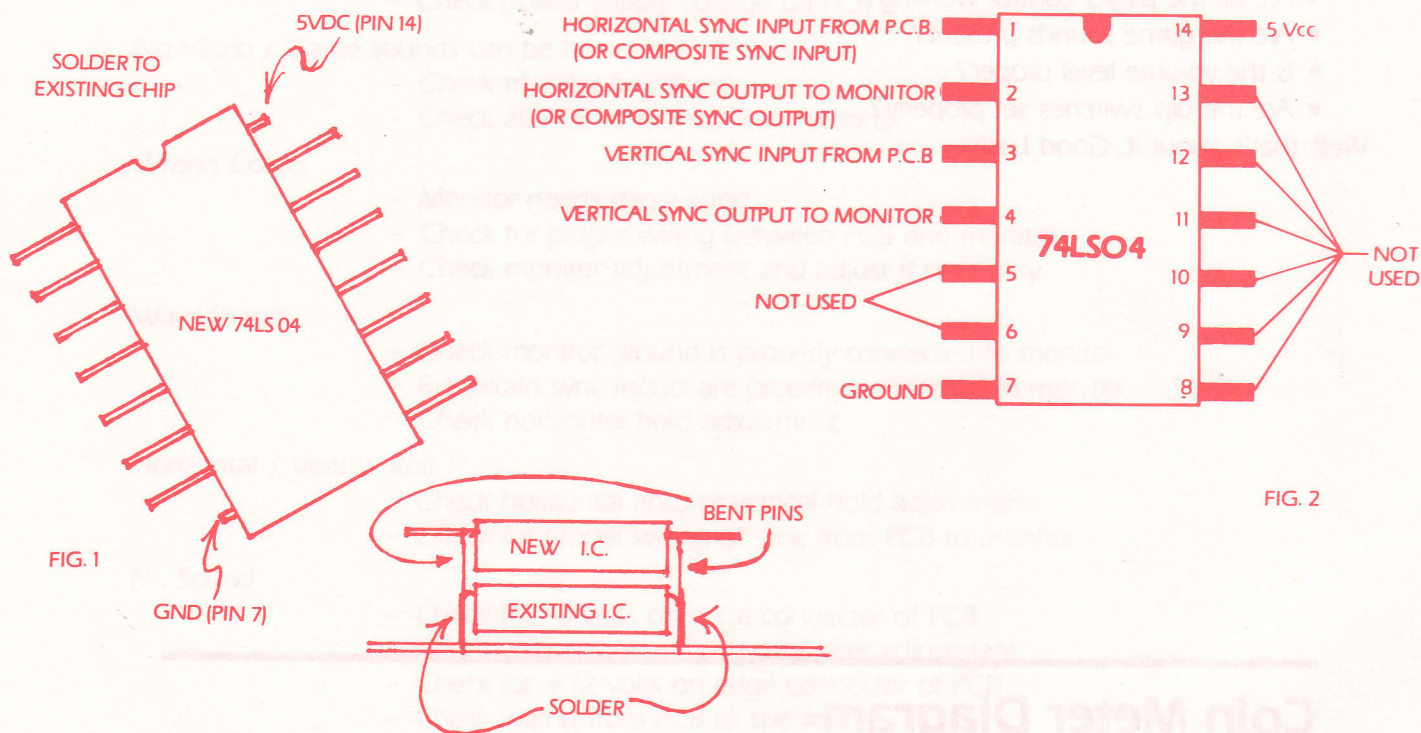


FIG. 2

CURE 2: Used for Wells-Gardner Video-Sync boards with positive sync connections only. (Vertical mount board 85X140B.

Cut the traces on the solder side of the board between input pins 5 & 6 to the unbanded (anode) ends of diodes X201 & X202.

Add MPSA56 transistor as follows:

Collector to anode leads of diodes X201 & X202. Base to pins 5 & 6 of the video input connector.

Emitter to cathode (banded) lead of zener diode ZD201.

Insert a 1N4148 diode-cathode to the emitter of the MPSA56 and anode to the base. (SEE FIG. 3).

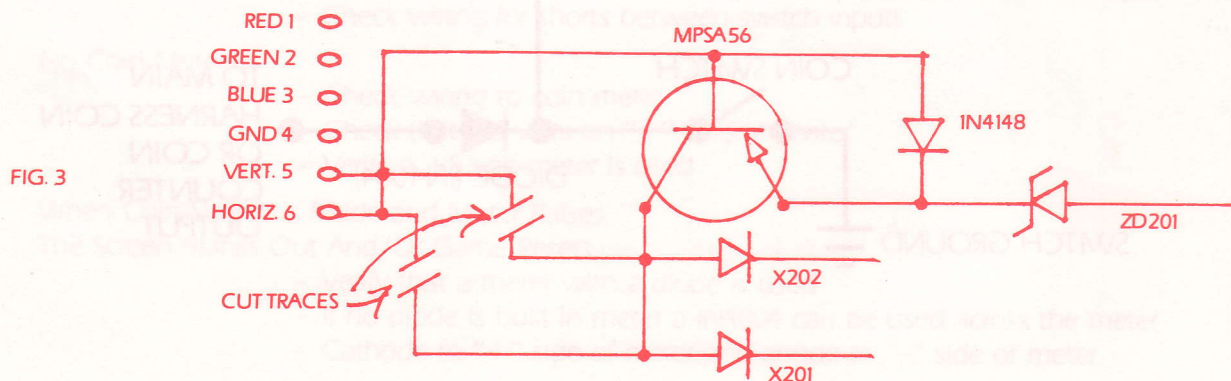


FIG. 3

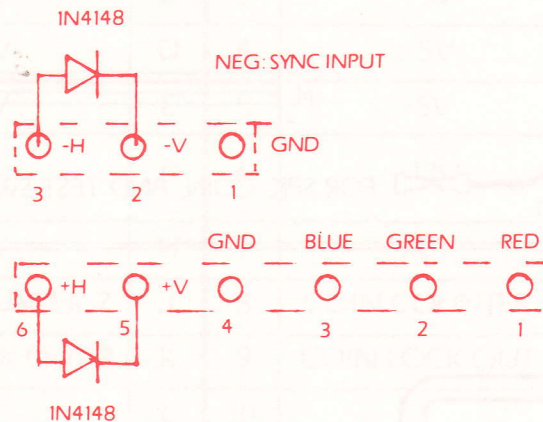
2. Horizontal Tearing

CAUSE: The negative sync signal of most logic sets are slightly different than the GO7-CBO monitor negative sync inputs. The result of this mismatch is a horizontal "wave" or "curl".

CURE 1: On the monitor deflection board, replace C303 with a 10uf 25V radial lead capacitor with the positive lead towards the collector of X305. (CAUTION: be sure to check this step as the original cap is not polarized). Then replace C501 with the cap removed from the C303 location.

CURE 2: Connect IN4148 fast-switching diodes across both the positive and negative sync inputs to the monitor. (SEE FIG. 4) NOTE: Both diodes must be installed or you will not have vertical stability.

FIG. 4

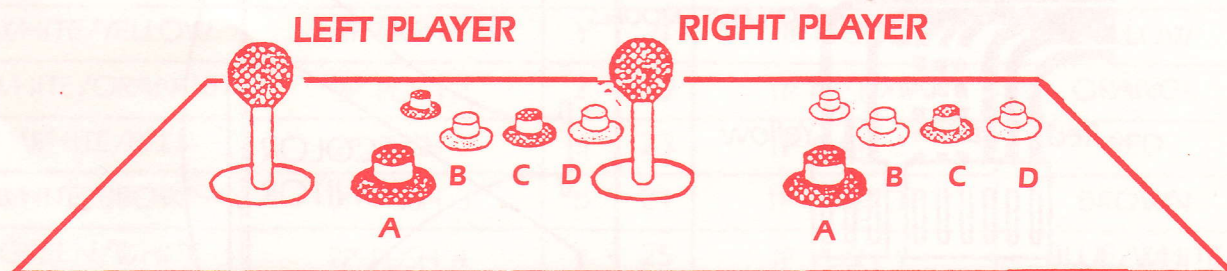


CURE 3: Join negative sync inputs J2 and J3 together with a jumper. Locate W102 and install a jumper from W102 to either J2 or J3.

CURE 3: For Wells-Gardner K4600 series monitors.

Replace C356 (47uf 25V) on the Horizontal/Vertical board (vertically mounted board nearest the flyback transformer) and center the horizontal hold pot. Turn L351 for the best horizontal stability and fine-tune with the horizontal width pot.

CONTROL PANEL POSITIONING



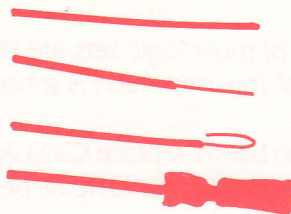
POSSIBLE 1 & 2 PLAYER LOCATIONS Control Panel Positions



PDQ



BUTT
CONNECTOR



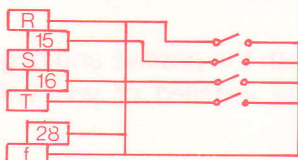
INSTALLING A BUTT CONNECTOR

STRIP WIRE 1/2 INCH

FOLD WIRE BACK 1/4 INCH

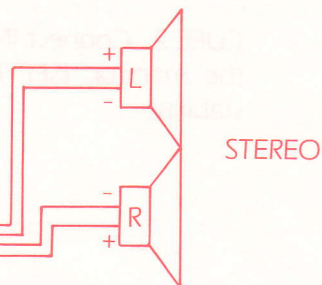
INSERT INTO BUTT AND CRIMP

SERVICE SW
TEST SW
(NC)
COIN SW 1
COIN SW 2
GND
GND



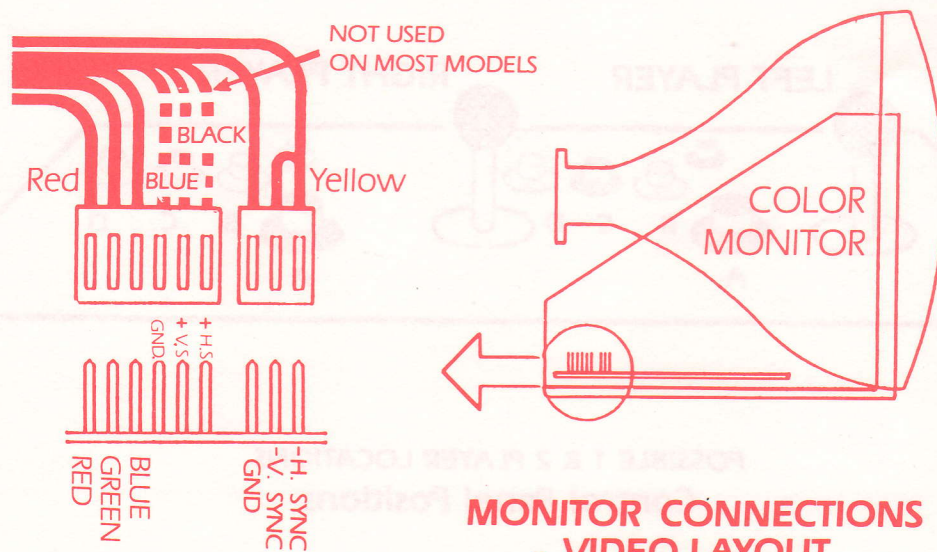
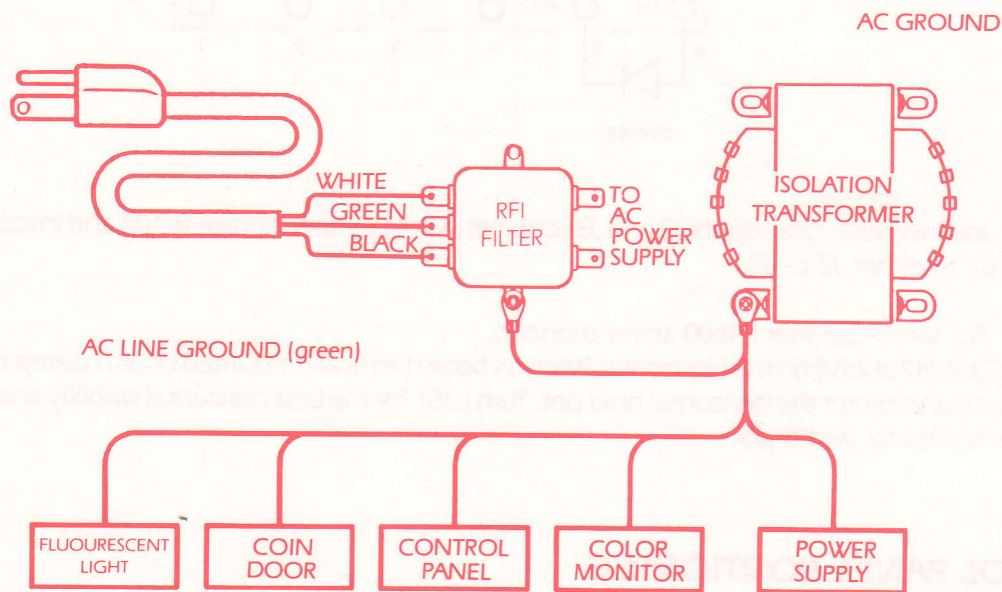
PDQ TO BUTT CONNECTOR
WIRE HARNESS (Connect to Signal Line)

FOR SPK, COIN, AND TEST SWITCHES



STEREO

FIG. 1

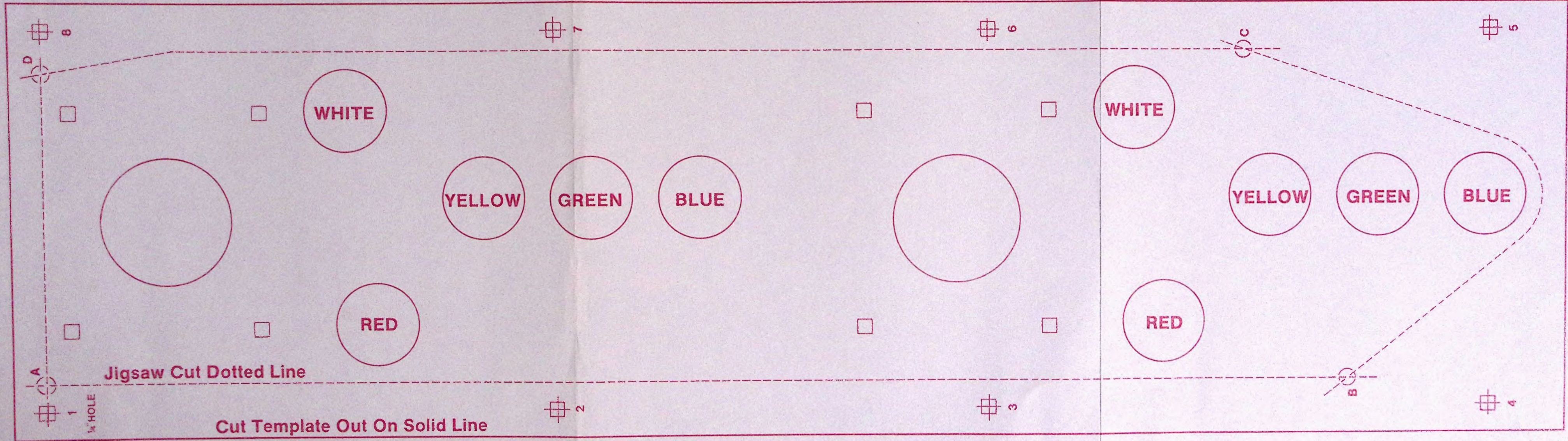


MONITOR CONNECTIONS
- VIDEO LAYOUT

56 PIN EDGE CONN. PIN-OUT CHART (JAMMA COMPATIBLE)

WIRE COLOR	SOLDER SIDE		PARTS SIDE		WIRE COLOR
BLACK	GND	A	1	GND	BLACK
BLACK	GND	B	2	GND	BLACK
RED	+5V	C	3	+5V	RED
RED	+5V	D	4	+5V	RED
WHITE	-5V	E	5	-5V	WHITE
YELLOW	+12V	F	6	+12V	YELLOW
	KEY	H	7	KEY	
BROWN/WHITE	COIN COUNTER 2	J	8	COIN COUNTER 1	BROWN
RED/BLACK	COIN LOCK OUT 2	K	9	COIN LOCK OUT 1	RED
WHITE/BLACK		L	10		WHITE
OP.-BLU/BLACK	N.C.	M	11	N.C.	BLUE-OPTION
GREEN	VIDEO GREEN	N	12	VIDEO RED	RED
GRAY	VIDEO SYNC	P	13	VIDEO BLUE	BLUE
RED/BLACK	SERVICE SWITCH	R	14	VIDEO GND	BLACK
OP.-BRN/BLACK		S	15	TEST SW.	BROWN
	COIN SW. 2	T	16	COIN SW. 1	WHITE
WHITE/GRAY	START SW. 2	U	17	START SW. 1	GRAY
WHITE/VIOLET	2P UP	V	18	1P UP	VIOLET
WHITE/BLUE	2P DOWN	W	19	1P DOWN	BLUE
WHITE/GREEN	2P LEFT	X	20	1P LEFT	GREEN
WHITE/YELLOW	2P RIGHT	Y	21	1P RIGHT	YELLOW
WHITE/ORANGE	2P PUSH 1	Z	22	1P PUSH 1	ORANGE
WHITE/RED	2P PUSH 2	a	23	1P PUSH 2	RED
WHITE/BROWN	2P PUSH 3	b	24	1P PUSH 3	BROWN
GREEN/WHITE	2P PUSH 4	c	25	1P PUSH 4	BLUE/WHITE
YELLOW/WHITE	N.C.	d	26	N.C.	RED/WHITE
BLACK	GND	e	27	GND	BLACK
OPTION-BLACK	GND	f	28	GND	BLACK-OPTION

FORWARD TOP



Always Use Safety Glasses AND Oil When Drilling Or Cutting Metal.

Fig. 2

WIRING DIAGRAM



Check Points In Case Of Difficulty

Problem / Cause-Cure

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 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

Wrong 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

Horizontal / Vertical Roll

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

No Sound

- Check for -5 volts on edge connector of PCB
- 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 switch/es
- Check wiring between PCB and switch/es for proper connection
- Check switch/es with an ohmmeter to verify 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 on "+" side of center
- Verify a +5 volt meter is used

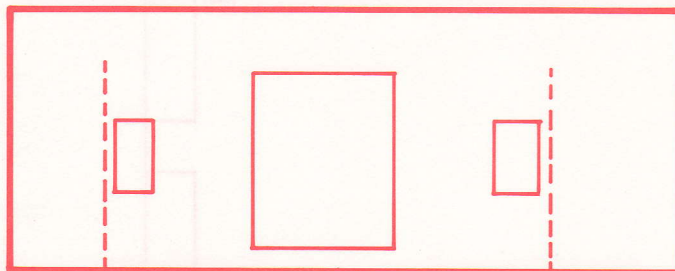
When Coin Switch is Made and Meter Pulses, The Screen Blanks Out And/Or Game Resets

- 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

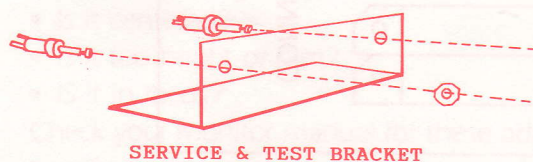
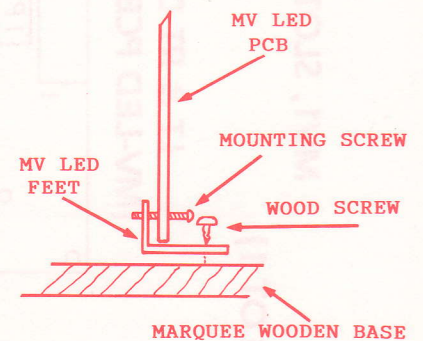
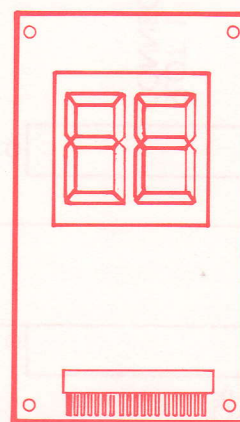
DIP SW 1

FUNCTION		1	2	3	4	5	6	7	8
NORMAL PLAY MODE:		OFF							
TEST MODE:		ON							
NUMBER OF COIN CHUTES	2:		OFF						
	4:		ON						
LINK MODE	1:				OFF	OFF			
CABINET	2:				OFF	ON			
NUMBER	3:				ON	OFF			
	4:				ON	ON			
LINK MODE	NO:						OFF		
ENABLE	YES:						ON		
NORMAL PLAY MODE:								OFF	
FREE PLAY MODE:								ON	
NORMAL PLAY MODE:									OFF
FREEZE SCREEN:									ON

NEO GEO MARQUEE (CUT FROM TOP AND SIDES ONLY)



MV LED DISPLAY



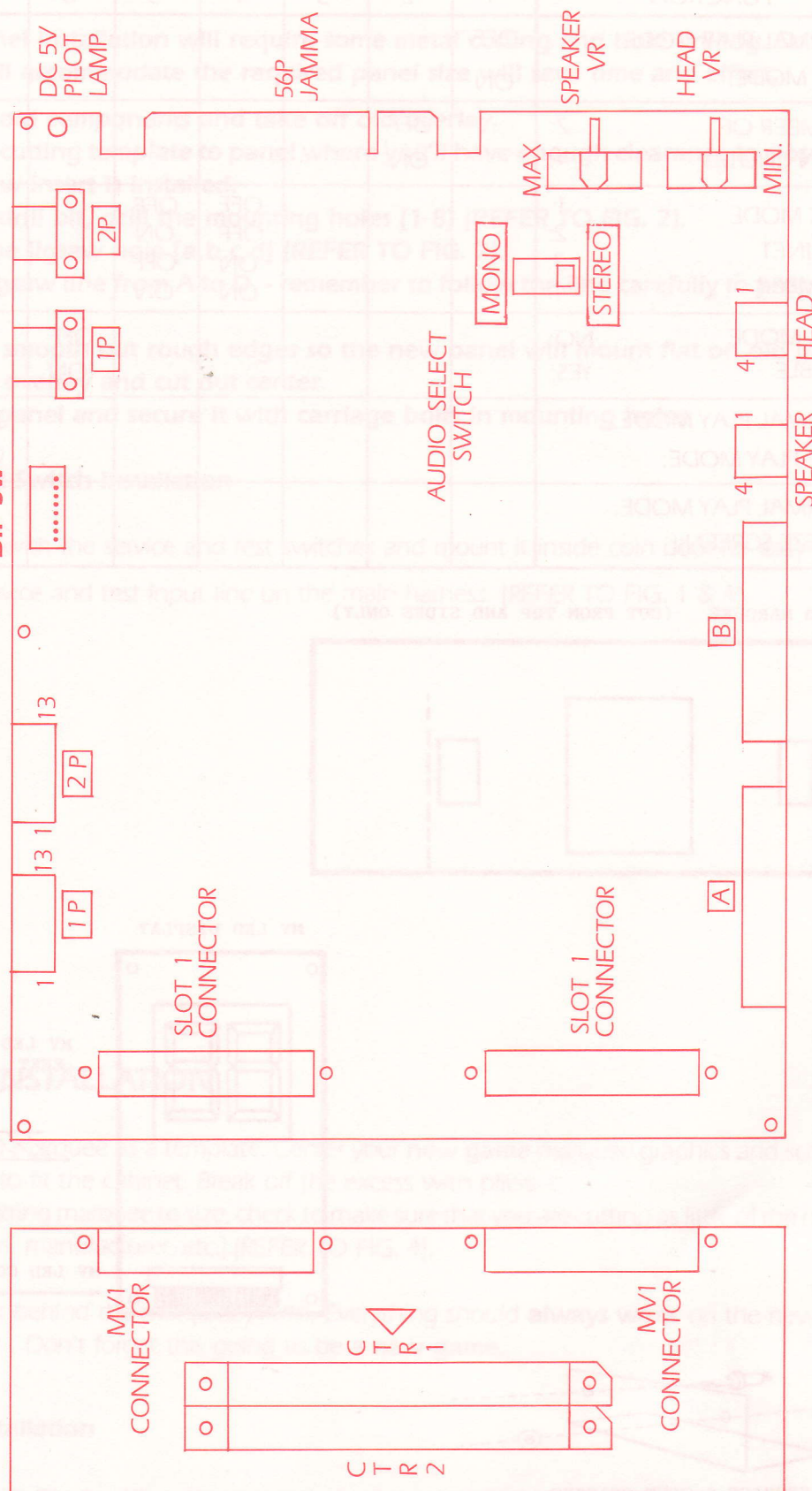
SERVICE & TEST BRACKET

FIG. 4

(NEO-MVH SLOT 1)

(NEO-MVH MV1)

**LT & RT CREDIT DISPLAY
(MV-LED PCB I/F CONNECTOR)**



PCB LAYOUT

TIME TO INSTALL YOUR NEW GOODIES

Before You Start...

Remember **DO NOT DO THE WORK WITH THE POWER ON!**



SERVICE



TEST

Neo-Geo retains helpful bookkeeping statistics in memory. The system remembers Coin Drops, Plays, Continues, and Average Game Times. To facilitate this feature, we have included a Clock/Calendar with battery back-up memory.

IMPORTANT: Page 25 discusses the bookkeeping mode in detail, however you should check the Clock/Calendar setting and CLEAR THE BACKUP MEMORY during the initial set-up before you begin operating the machine. If you don't, the machine may store incorrect bookkeeping statistics.

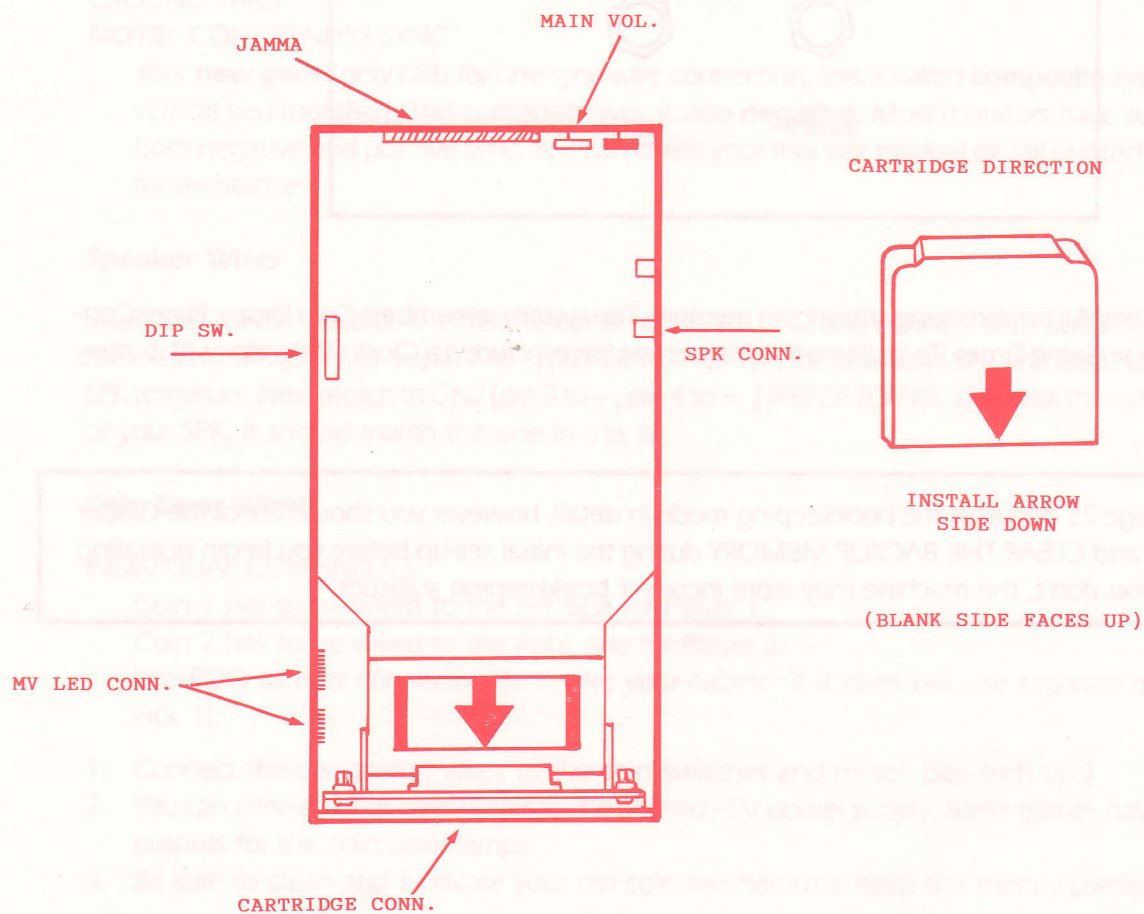
Installing A Game Cartridge

The Neo-Geo system utilizes cartridges to store the individual game program. These cartridges contain a pair of Rom PCBs that plug into the Main PCB. With no cartridge installed, the system will only come up in the Hardware Test Mode.

IMPORTANT: Do not ship or move the cabinet with game program cartridge installed. This can damage the system PCB and game program cartridge.

Installation Procedure:

1. REMOVE POWER TO THE GAME. Move main power switch to the OFF position.
2. Reach up through the Coin Mech door and unlatch the clamps retaining the Control Panel to access the Main PCB and the Game Cartridge slot.
3. Locate a slot in the Main PCB and carefully install the Game Cartridge into it, noting the position. DO NOT FORCE THE CARTRIDGE INTO THE SLOT. If positioned correctly, it will slide in and fit snugly in place.



Unscrew and remove the Marquee bracket to access the Card Holder.

Replace the existing game Title Card in the position that corresponds to the slot the new game cartridge was installed in.

Attach and screw the Marquee bracket in place.

Turn the game power ON and check the new game for proper operation. Be certain that the Title Card and the Cartridge positions match. If all is well, close and latch the Control Panel.

IMPORTANT: Check the Game Options At This Time, Adjust As Necessary To Suit The Location.

Accessing The Test Mode

The Test Mode allows the Operator to service the game, track it's performance through internal bookkeeping, and set up the various cabinet and game options. To access the Test Mode, push the TEST MODE button on the Service Panel. You will see the following Main Menu screen:

HARDWARE TEST MODE
SETTING UP THE HARD DIP
SETTING UP THE SOFT DIP
BOOKKEEPING
SETTING UP THE CODE NUMBER
SETTING UP THE CALENDAR
EXIT

Move Pointer = Left Joystick Up/Down

Select From Menu = Left Player [A] Button

Return To Previous Menu = Left Player [C] Button

Move the pointer to HARDWARE TEST MODE and press the [A] button. This will display the first test screen. To continue to the next test screen, press the Left Start button. To exit this mode, you must turn the game off. The test screens are listed below:

Monitor Cross Hatch - Displays a grid pattern useful for checking and adjusting the overall screen size and linearity.

Monitor Color Test - Displays a White, Red, Green, and Blue colored square on the screen for testing color function.

I/O Function Test — Allows for testing of all control switches and the LED Displays.

Sound Test - Allows for testing each speaker individually and simultaneously.

Memory Card Test — Allows for testing a Neo-Geo Memory Card. NOTE: All data on the card will be erased!

Back-up Clear - Pressing the A, B, and C button simultaneously will clear the Battery Back-up memory.

WARNING: This will erase all bookkeeping data and reset options to original factory settings.

Setting Up The Calendar - Allows adjustments to the Time and Date setting, may also be accessed from the Main menu.

Setting Up The Hard Dip

On the Main Menu for the Test Mode, move the pointer to the SETTING UP THE HARD DIP selection on the menu using the Left joystick up/down and press the Left [A] button on the Control Panel. The following screen will be displayed:

	1	2	3	4	5	6	7	8	
SETTING MODE	O	.	.	.	.	.	.	.	OFF [game mode or test mode]
COIN SWITCH	.	O	.	.	.	.	.	.	OFF [number of coin chutes]
FREE PLAY	.	.	.	.	.	.	O	.	OFF [special free play mode]
STOP MODE	.	.	.	.	.	.	.	O	OFF [freeze display mode]

0 = OFF 1 = ON

This screen displays the current settings of the Hardware Dip Switch on the MV-Main PCB. These should all be OFF for normal game operation. **NOTE:** This is only provided to VIEW the hardware dipswitch settings. Any required adjustments must be made physically on the DIP SW

Setting Up The Soft Dip

On the Main Menu for the Test Mode, move the pointer to the SETTING UP THE SOFT DIP selection on the menu using the Left joystick up/down and press the Left [A] button on the Control Panel. The following screen will be displayed:

CABINET SET UP
SLOT 1 (GAME TITLE)

NOTE: The (GAME TITLE) will display the actual title of the game installed in that slot. If a cartridge is removed or replaced with another title, the selected options will remain in memory. They can only be viewed or changed if the original title is re-installed.

To view and/or change the overall cabinet options, move the pointer to CABINET SET UP and press the Left [A] button. The following screen will be displayed:

PRICING:	(1) COIN = (1) CREDIT
CONTINUE PRICE	(1) COIN = (1) CREDIT
GAME SELECT	(ANYTIME) or (ONLY WHEN CREDITED)
GAME START COMPULSION	(WITHOUT) or set a (TIME LIMIT) for selecting game.
DEMO SOUND	(SET UP IN EACH GAME) or (WITHOUT)

IMPORTANT NOTE:

Please understand that if the game is set up for 50¢ Start with 25¢ Continue, the continue price is only valid when the game is over and the Continue Countdown (9, 8, 7, 6 . . . etc) is displayed on the screen. If the player attempts to insert coin(s) before the game is over, it will require 50¢ to get a credit.

This situation applies for any Start/Continue pricing difference, be it 75¢/25¢ or 75¢/50¢, etc. It is caused by the way the Main hardware interacts with the game software.

The items in brackets [] are the adjustable options. The cursor position is displayed in Red.

Cycle through the available options by pressing the Left [A] or [B] buttons, use the Left joystick to move the cursor to the next selection. Press the Left [C] button to return to the SETTING UP menu. **NOTE:** If you have changed any options, you must return to the Demo Mode by selecting EXIT from the Main Menu. This action causes your changes to be loaded into back-up memory.

To view and/or change an individual game options, move the pointer to the desired game title and press the Left [A] button, the following screen will be displayed (Nam '75 used for example):

SLOT 1 NAM '75

DEMO SOUND	[WITH]
HOW TO PLAY	[WITH]
DIFFICULTY	[LEVEL 4]
HERO	[3]
BONUS RATE	[SECOND BONUS]
BONUS SETTING	[1000000/2000000]

The items in brackets [] are the adjustable options. The option currently selected by the cursor is displayed in Red. Cycle through the available options by pressing the Left [A] or [B] buttons, and use the Left joystick to move the cursor to the next desired selection. Press the Left [C] button to return to the SETTING UP menu.

Repeat the above procedure for any slot you wish to view and/or change. When finished, press the [C] button to return to the Main Menu.

Bookkeeping Mode

On the Main Menu for the Test Mode, move the pointer to the BOOKKEEPING selection on the menu using the Left joystick up/down and press the Left [A] button on the Control Panel. The following menu will be displayed:

CABINET / COIN
CABINET / PLAY
SLOT 1 (GAME NAME)

NOTE: The (GAME NAME) will display the actual title of the game installed in that slot. If a cartridge is removed or replaced with another title, the bookkeeping statistics will remain in memory. They can only be viewed if the original title is re-installed.

A total of eight (8) different game's data can be stored in the system. When the ninth (9th) different title is installed in the system, only the most current of the previous data tables will be preserved.

Cabinet / Coin Report

DATE	PLAY 1	PLAY 2	SERVICE
3/22	0	0	0
3/21	85	26	0
3/20	90	56	0
3/19	97	67	0
3/18	125	87	0
3/17	134	100	0
3/16	92	560	0

This report displays the total Coins detected by the Coin 1 switch, Coin 2 switch, and Service switch for the past seven (7) days. Note that Sunday's date is displayed with Red characters. Press the Left [A] button to view monthly totals. Press the Left [C] button to return to the bookkeeping menu. NOTE: Leaving the game for periods greater than 24 hours will cause the system to combine all data into the previous day.

Cabinet / Play Report

DATE	PLAY	CONT	AV TIME
3/22	0	0	0:00
3/21	111	55	2:15
3/20	146	46	2:23
3/19	164	69	3:02
3/18	218	97	2:45
3/17	234	100	2:32
3/16	148	56	2:20

This report displays the summed total of Plays, how many were continuation plays, and the Average Game Times for the entire cabinet for the past seven (7) days. Note that Sunday's date is displayed with Red characters. Press the Left [A] button to view monthly totals. Press the Left [C] button to return to the bookkeeping menu. NOTE: Leaving the game for periods greater than 24 hours will cause the system to combine all data into the previous day.

Slot 1 Play Report

NAM '75

DATE	PLAY	CONT	AV TIME
3/22	0	0	0:00
3/21	51	55	2:25
3/20	46	46	2:33
3/19	64	69	3:12
3/18	28	97	2:25
3/17	34	10	2:32
3/16	48	56	2:30

The Slot Play report displays the summed total of Plays, how many were Continuation Plays, and the Average Game Times for Slot 1 (Nam '75 used as example) for the past seven (7) days. Note that Sunday's date is displayed in Red. Press the Left [A] button to view monthly totals. Press the Left [C] button to return to the bookkeeping menu.

NOTE: Leaving the game for periods greater than 24 hours will cause the system to combine all data into the previous day.

Setting Up The Code Number

On the Main Menu for the Test Mode, move the pointer to the SETTING UP THE CODE NUMBER selection on the menu using the Left joystick up/down and press the Left [A] button on the Control Panel. The following screen will be displayed:

CODE NUMBER SETTING

0000

D BUTTON = SET

CODE NUMBER WILL BE SET INTO
MEMORY CARD WHEN INSERTED
DURING THIS MODE

This is intended to be used for a bookkeeping feature that allows you to load the statistical data from this cabinet onto a special Memory Card for access in your office. You will be able to view and print the bookkeeping data from all of your Neo-Geo Systems by using this feature. The required hardware for utilizing this feature is still being developed at this time. When the supporting hardware is completed, we will advertise it's availability.

Setting Up The Calendar

On the Main Menu for the Test Mode, move the pointer to the SETTING UP THE CALENDAR selection on the menu using the Left joystick up/down and press the Left [A] button on the Control Panel. The following screen will be displayed:

CURRENT TIME

06 MONTH / 21 DAY / 90 YEAR

14 HOUR / 10 MINUTE / 32 SECONDS

THE TIME TO BE SET UP

A BUTTON, JOYSTICK = SELECT

D BUTTON = SET

?? MONTH / ?? DAY / ?? YEAR

?? HOUR / ?? MINUTE / ?? SECONDS

The items in ?? are where the new settings are entered. The setting currently selected by the cursor is displayed in Red. Increase the value displayed by pressing the Left [A] button, decrease the value displayed by pressing the Left [B] button, and use the Left joystick to move the cursor to the next desired selection. Press the Left [D] button to lock in the new settings.

NOTE: The Neo-Geo system uses 24 hour Standard Time.

LIMITED WARRANTY

ROMSTAR INC. ("Seller"), warrants only to the initial purchaser of its products that the items listed below are free from defects in material and workmanship under normal use and service for the warranty periods specified:

- | | |
|---------------------------|-----------|
| A. Printed Circuit Boards | (60) days |
| B. Electronic Components | (30) days |
| C. Television Monitors | (30) days |

No other parts of Seller's products are warranted.

Warranty periods are effective from the initial date of shipment from Seller to its authorized distributors.

Seller's sole liability shall be, at its option, to repair or replace products which are returned to Seller during the warranty periods specified, provided:

- A. Seller is notified promptly upon discovery by buyer that stated products are defective.
- B. Such products are properly packaged and then returned, prepaid to Seller's plant.

This warranty does not apply to any parts damaged during shipping or handling, or due to improper installation or usage, or alteration. In no event shall Seller be liable for any anticipated profits, loss of profits, loss of use, incidental or consequential damages or any other losses incurred by the customer in connection with the purchase of Romstar Inc. product.

(WARRANTY DISCLAIMER)

EXCEPT AS SPECIFICALLY PROVIDED IN A WRITTEN CONTRACT BETWEEN SELLER AND PURCHASER, THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

JAMMA SK.GR**MAIN HARNESS**

Wire Color	Solder Side		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		E	5		Green
Yellow	+12VDC	F	6	+12VDC	Yellow
	Post	H	7	Post	
Bro/Wht	Coin Counter 2	J	8	Coin Counter 1	Brown
		K	9		
White	Spk	L	10	Spk	White
		M	11		
Light Green	Video Green	N	12	Video Red	Red
White	Video Sync (Comp/Neg)	P	13	Video Blue	Blue
Violet	Service Switch	R	14	Video Ground	Black
Gray	N/A	S	15	Test Switch	Orange
Vio/Wht	Coin 2	T	16	Coin 1	Violet
Pink	2P Start	U	17	1P Start	White
Bro/Wht	2P Up	V	18	1P Up	Brown
Red/Wht	2P Down	W	19	1P Down	Red
Orange/Wht	2P Left	X	20	1P Left	Orange
Yellow/Wht	2P Right	Y	21	1P Right	Yellow
Green/Wht	RT Push 1	Z	22	LT Push 1	Green
Blue/Wht	RT Push 2	a	23	LT Push 2	Blue
Vio/Wht	RT Push 3	b	24	LT Push 3	Violet
Gry/Wht	RT Push 4	c	25	LT Push 4	Gray
	N/A	d	26	N/A	
Black	Ground	e	27	Ground	Black
Black	Ground	f	28	Ground	Black

Wire color/Stripe color

WIRE COLOR/ SIGNAL**SPEAKER HARNESS CN2**

BLACK [old spk +] — BUTT CONN. PIN 1
 ORANGE [old spk -] — BUTT CONN. PIN 2
 YEL/WHT [new spk -] — PDQ CONN. PIN 3
 RED/WHT [new spk +] — PDQ CONN. PIN 4

COIN HARNESS

BLACK — GROUND — GND
 WHITE — COIN 1 — PIN 16
 WHT/BLK — COIN 2 — PIN T

CONTROL PANEL HARNESS

REFER TO PAGE 15 (pin out)

SERVICE HARNESS

BLACK — GROUND — GND
 VIOLET — SERVICE — PIN R
 GRAY — TEST — PIN 15

ROMSTAR[®], INC.

ROMSTAR, INC.

22857 LOCKNESS AVENUE • TORRANCE, CALIFORNIA 90501

OUTLINE FOR INSTALLING YOUR NEO GEO KIT

NEO GEO IS A STATE-OF-THE-ART CARTRIDGE BASED GAME SYSTEM WHICH FEATURES 16 BIT GRAPHICS & STEREO SOUND. TO CONVERT YOUR CABINET TO THE NEO GEO VIDEO SYSTEM YOU WILL NEED A GOOD QUALITY CABINET WITH A GOOD MONITOR AND POWER SUPPLY SYSTEM. THIS KIT IS MADE FOR HORIZONTAL MOUNT NEGATIVE COMPOSITE SYNC VIDEO CABINETS SET UP FOR THE JAMMA WIRING SYSTEM. BECAUSE THIS CABINET USES STEREO SOUND AND INDIVIDUAL COIN INPUTS THERE IS SOME ADDITIONAL WIRING REQUIRED. READ THE MANUAL COMPLETELY BEFORE ATTEMPTING INSTALLATION. BY FOLLOWING YOUR MANUAL CAREFULLY YOU CAN CONVERT YOUR CABINET IN JUST A COUPLE OF HOURS. IF YOU HAVE ANY QUESTIONS ROMSTAR, INC. INVITES YOU TO USE OUR PHONE OR FAX NUMBERS FOR PROMPT COURTEOUS ANSWERS.

UNDERSTANDING AND SETTING THE DIFFICULTY OF A VIDEO GAME

THE SETTING OF A VIDEO GAME REQUIRES MORE THAN JUST ADJUSTING THE LEVEL OF DIFFICULTY. THERE ARE OTHER FACTORS THAT WILL EFFECT THE INCOME OF A VIDEO GAME. SUCH AS THE # OF MEN, THE DIFFICULTY, THE AMOUNT OF POINTS FOR THE FIRST, SECOND AND EVERY BONUS THEREAFTER. RESEARCH HAS SHOWN THAT A GAME THAT LASTS 2 1/2 MINS. IS SATISFACTORY FOR THE OPERATOR AS WELL AS THE PLAYER. TO SET YOUR GAME PROPERLY YOU WILL NEED TO MONITOR YOUR LOCATION FOR THE TYPE OF PLAYERS AND THE SKILL OF THE PLAYERS. IT WILL ALSO REQUIRE UNDERSTANDING YOUR GAME'S ADJUSTABILITY. MOST GAMES HAVE A # OF MEN SETTING THAT SHOULD BE AT A GENERAL SETTING OF 3 FOR A NORMAL GAME, LESS THAN 3 FOR A DIFFICULT GAME AND MORE THAN 3 FOR AN EASY GAME. BEFORE YOU ADJUST THE # OF MEN YOU SHOULD ADJUST THE DIFFICULTY FOR YOUR LOCATION - EASY FOR LESS SKILLED PLAYERS, NORMAL FOR AVERAGE SKILLED PLAYERS AND DIFFICULT FOR ADVANCED GAME PLAYERS. THE BONUS SETTING WILL REWARD A PLAYER FOR OUTSTANDING ACHIEVEMENT. IT IS RECOMMENDED THAT SOME TYPE OF BONUS BE INCLUDED IN THE GAME PRICE IF THE APPROPRIATE SCORE IS ACHIEVED. THE FIRST BONUS SHOULD BE JUST ABOVE THE AVERAGE GAME PLAYERS SCORE, THE SECOND SHOULD BE 1 PLUS 1/2 OF THE FIRST AND EVERY BONUS THEREAFTER SHOULD BE ABOUT THE SAME AS THE SECOND. BY CAREFULLY ADJUSTING THESE SETTINGS YOUR GAME WILL EARN A SATISFACTORY AMOUNT UNDER MOST CONDITIONS. IF YOUR INCOME APPEARS TO BE FALLING OFF YOU SHOULD SEE WHICH FACTOR HAS CAUSED THE GAME TO DROP (I.E., TOO HARD, TOO EASY, BONUS GOAL TOO FAR AWAY TO ACHIEVE). WE HAVE RECOMMENDED SETTINGS FOR THIS GAME BUT YOU MAY STILL NEED TO ADJUST IT FOR YOUR LOCATION. IF YOU HAVE ANY QUESTIONS ON HOW TO SET YOUR GAME JUST GIVE US A CALL AT ROMSTAR, INC. (213) 539-2744.

Game Name _____ # of Men _____

Level _____ Bonus _____ / _____
1ST EVERY

OTHER _____

MICRO-SW & JOYSTICK DIAGRAMS

