SNK

MV-1C
NEO GEO 1-SLOT HARDWARE KIT
USER'S MANUAL
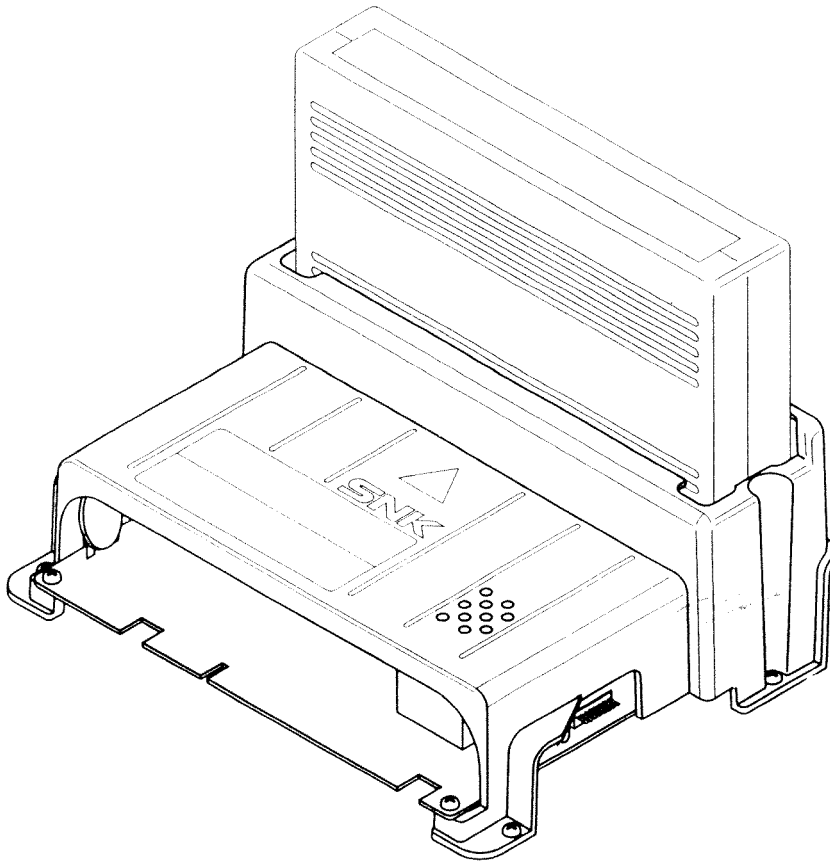
INTRODUCTION

The MV-1C 1-slot PCB can be used with cabinets meeting JAMMA specifications. This user's manual contains information on operating the MV-1C. Before use, please carefully read through the manual for proper usage methods.
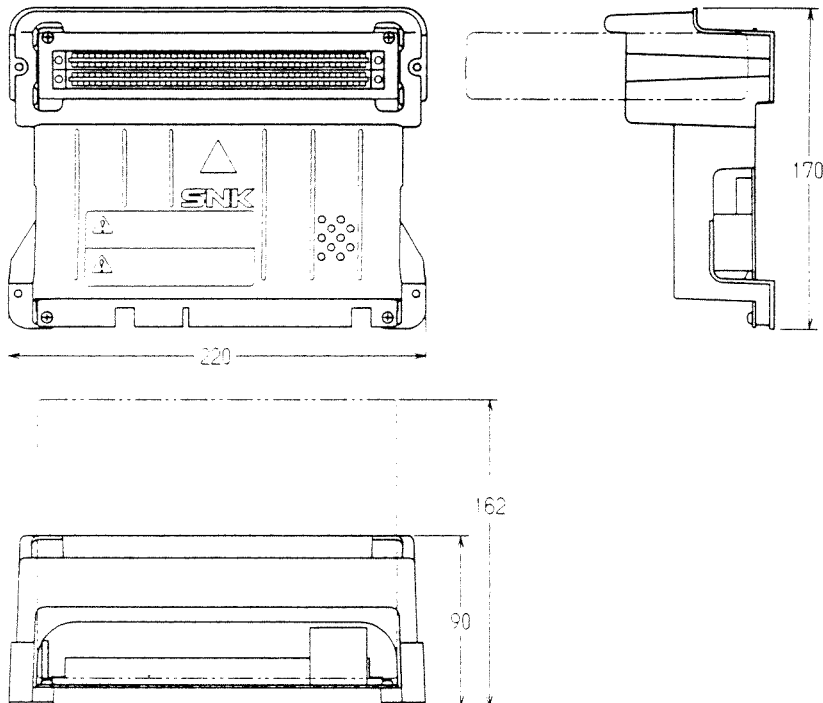
■ Specifications

MV-1C

Power source:	DC +5V 3A or more/DC +12V 1A or more
Dimensions:	220mm (W) × 170mm (D) × 90mm (H)
Weight:	Approx. 400g (without software cartridge)
Accessories:	User's manual × 1

* Design and specifications are subject to change for product improvement without notice.

Precautions for safe operation

Before use, please carefully read through these precautions for proper usage methods. After reading it, be sure to keep the manual in a safe place for later reference.

■ Display Explanations

The procedures listed herein must be carefully followed to ensure both safe operation and to prevent personal injury and property damage.

⚠ Danger	⚠ Warning
Ignoring these warnings may result in death or serious injury.	Ignoring these warnings may result in injury or property damage.

⚠ Danger

- **Should any of the following occur, immediately turn the power switch off and unplug the cabinet. Continued use may cause fire or electric shock.**
    - Emissions of smoke, unusual odors, or strange noises
    - Operation irregularities
    - Water or foreign materials in the cabinet
    - Damage to the cabinet

- **Do not place the cabinet in areas prone to leaking or flooding; do not allow the place objects containing liquid (like drinks) or metal objects on the cabinet.**
    Should liquids or metallic objects fall into the cabinet, it may cause fire or electric shock.

- **Be sure to tightly join all connectors.**
    Loose connections may cause fire or shock.

- **Before changing game PCBs and conducting cabinet checks, turn the power switch off and unplug the cabinet.**
    Changing PCBs with the switch on and the cabinet plugged in may cause fire or electric shock.

- **Do not conduct repairs or modifications.**
    These may cause fire or electric shock.

- **This PCB is designed for use with an AC 100 V ± 10 V current; be sure to connect its power plug to a specialized outlet.**
    Connecting a number of appliances that consume a lot of power to the same electric outlet (like air conditioners and other cabinets) may cause fire or electric shock.

MV-1C PCB

- **Guard against dust and conductive materials entering into the slot.**
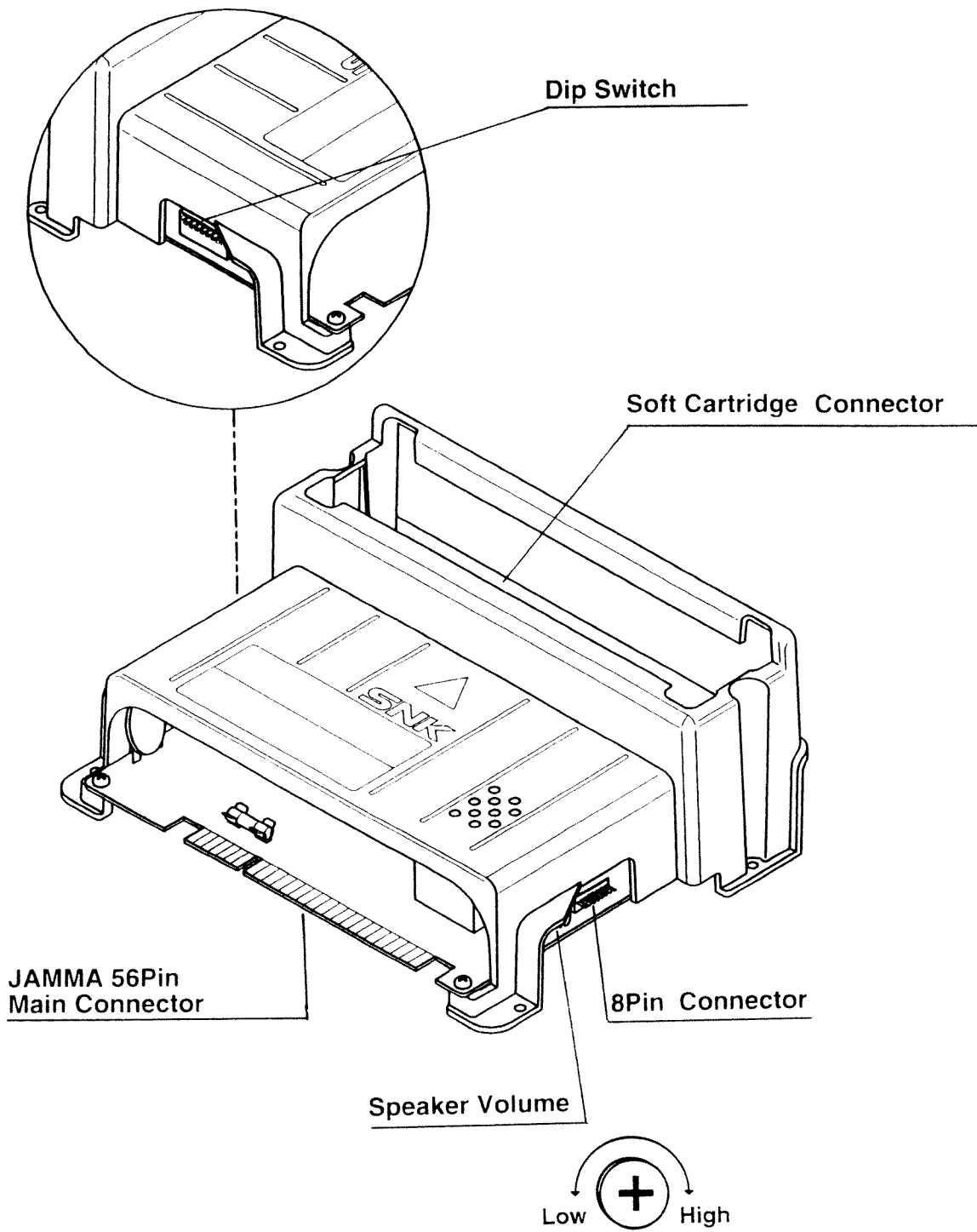   This may cause fire or electric shock.

- **Do not mount the cabinet containing the MV-1C or place heavy objects on it.**
  This will not only cause injury should it become unbalanced and tip over or fall, but it may cause damage to the cabinet.

- **Under no circumstances place the cabinet with the MV-1C outside.**
  This will cause damage or breakdowns.

- **Never place the cabinet with the MV-1C in the following locations as it may cause breakdowns.**
  - Indoor pools or areas near a shower where humidity is high and there is a danger of internal condensation.
  - In areas exposed to direct sunlight.
  - Near areas of excessive heat, like next to a heater, and around dangerous materials.
  - In places that are excessively dusty.

- **When unused for long periods, turn the cabinet with the MV-1C off and unplug it for safe storage.**

- **Place the cabinet where room temperature is between 5°C and 40°C.**
  Breakdowns may result with operation outside the given temperature range.

- **During shipping or moving, avoid serious jolts to the MV-1C.**
  This may cause damage or breakdown.

- **Always use a Logic tester when checking IC port circuitry.**
  Using a normal tester may cause damage or breakdown.

- **When installing the PCB, be sure to calibrate the 4 lower adjusters to bring the cabinet with the MV-1C level.**
  Should the cabinet tip over or fall, it may cause injury.

- **Be sure to connect a ground cable to the ground terminal.**

MV-1C PCB tips

- **When inserting game cartridges, always turn the power OFF.**
  Inserting cartridges with the power on may cause breakdowns.

- **Do not insert non-MVS game cartridges or NEO GEO home use cartridges into the slot.**
  This may cause breakdowns.

- **Insert game cartridges securely into the slot.**
  This may cause breakdowns if not properly inserted.

- **After inserting game cartridges, be sure to check operations.**

- **Using the unit near televisions, radios, or portable communications devices may interfere with their signals. If so, place these devices away from the unit.**
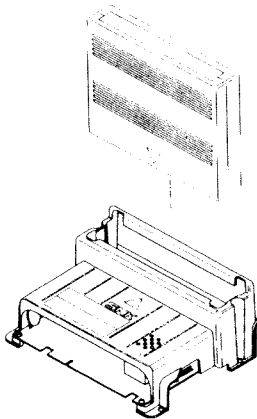
■ Parts names

Dip Switch

Soft Cartridge Connector

JAMMA 56Pin
Main Connector

8Pin Connector

Speaker Volume

Low (+) High

■ Game cartridge settings

① Turning on the power

Before inserting a game cartridge into the main board (MV-1C), be sure to see the power is turned off.

② Inserting the game cartridge

Turn the indication of the game name upside, and insert the cartridge so that the △ indicator of the cartridge faces the △ marking on the substrate.

③ Turning on the power

Check that the game cartridge is securely inserted and turn the power on. At this time, if unusual images or noises are produced, or there is no picture on the screen, turn off the power and reinsert the game cartridge.

This PCB is designed for the sole use of NEO GEO Multi Video System cartridges; NEO GEO Home System is incompatible with these slots. Use only NEO GEO MVS cartridges!

Failing to follow the steps above may cause faulty operation or damage to both cartridge and PCB parts.

* The MV-1C stores 7 types of game income totals even when the power is turned off or when the cartridge is removed from the PCB.

For example, suppose you have been using cartridges A~F with the MV-1C and then replace game F with game G...

Memory directory A

A
B
C
D
E
F

→ MVS →

B

A
B
C
D
E
F
G
H

⇒ The data for cartridges A~F is not erased.

In diagram B, if cartridge H is used in place of G, because only 7 types of data can be saved, G game data remains in memory, but A data is erased.

☞ Even after removing cartridges A~F, their data remains in memory. If cartridge G replaces A, B, C, D, E or F, operating the cabinet will still permit cumulative data calculation for A~G in subsequent use.

5

■ Using the setting modes

Unlike previous PCBs, for which settings were made using DIP switches on the PCB, with the Multi Video System (MVS) these settings are made using the control panel and the monitor screen. Income statistics for the various games can also be kept. The following is an explanation of modes and how settings are made.

1. Entering the setting modes
- After turning the cabinet on, press the test switch to call up the main menu.
- Switch DIP switch 1 on top of the PCB is turned ON, the main menu will also appear the next time the power is turned on.

2. Main menu
Use the control panel (Player 1 side) to set the various modes.
- Move the joystick up and down to move the cursor. Match the cursor to the item you wish to set and press the A button to set it.

  * Use the control panel (Player 1 side) to make all mode settings.

```
► HARDWARE  TEST
  HARD  DIP  SETTINGS
  SOFT  DIP  SETTINGS
  INCOME  DATA
  CALENDAR  SETTINGS
  EXIT
   ?/?/96  ??:??:??
```

Adjusts switches and monitor color.

Main PCB DIP switch settings.

Sets credits and game difficulty.

Displays play counts and coins totals.

Adjusts date and time settings.

Returns to the main screen.

Machine time display
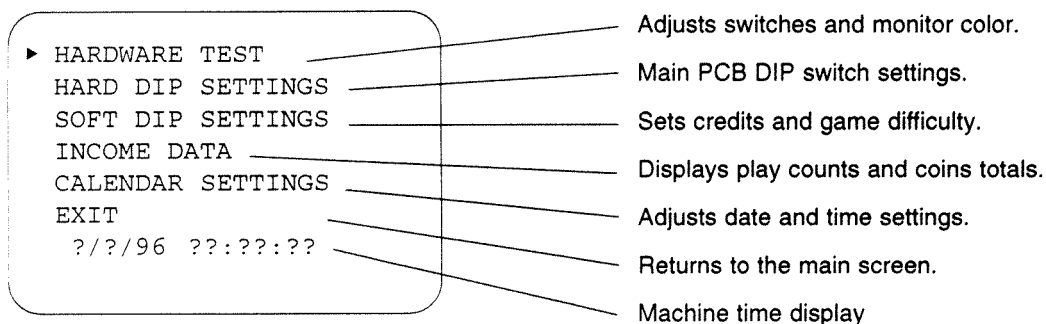
3. Hardware test (If software is not loaded, only the HARDWARE TEST mode can be used.)
Carries out the various cabinet checks.

Crosshatch
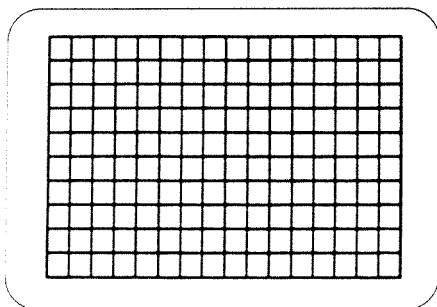
After choosing the HARDWARE TEST mode, press button A.

A crosshatch pattern will appear on the screen.

$\downarrow$

Screen color adjustment

```
┌──────────────────────────────┐
│                              │
│  RED  GREEN BLUE WHITE       │
│  ┌──┐ ┌──┐ ┌──┐ ┌──┐         │
│  │  │ │  │ │  │ │  │         │
│  └──┘ └──┘ └──┘ └──┘         │
│                              │
└──────────────────────────────┘
```
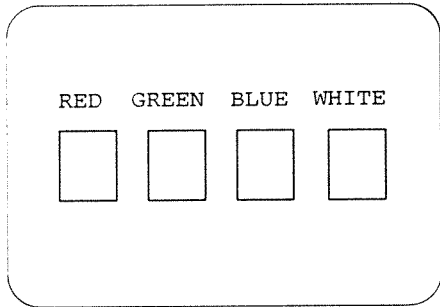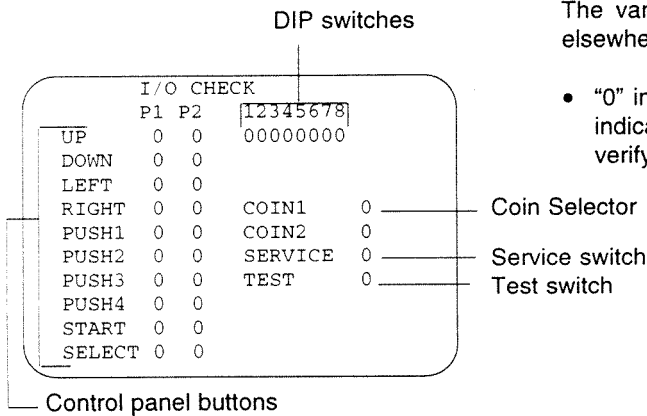
The RGB colors will be displayed.
- Use this display to adjust screen color.

- Press the start button on the Player 1 side of the control panel.

$\downarrow$

I/O CHECK

DIP switches

```
┌──────────────────────────────┐
│      I/O CHECK                │
│      P1 P2  |12345678|        │
│  UP    0  0  00000000         │
│  DOWN  0  0                   │
│  LEFT  0  0                   │
│  RIGHT 0  0  COIN1   0 ───────── Coin Selector
│  PUSH1 0  0  COIN2   0        │
│  PUSH2 0  0  SERVICE 0 ───────── Service switch
│  PUSH3 0  0  TEST    0 ───────── Test switch
│  PUSH4 0  0                   │
│  START 0  0                   │
│  SELECT 0 0                   │
└──────────────────────────────┘
```

— Control panel buttons

The various switches on the control panel and elsewhere can be checked.

- "0" indicates that the switch is OFF, while "1" indicates ON. Operate the various switches to verify that they are displaying correctly.

- Press the start button on the Player 1 side of the control panel.

$\downarrow$

Backup clear

```
┌──────────────────────────────┐
│                              │
│  BACKUP CLEAR                │
│                              │
│   OK=PRESS A, B, C BUTTONS   │
│     AT ONE TIME              │
│                              │
│                              │
│                              │
└──────────────────────────────┘
```
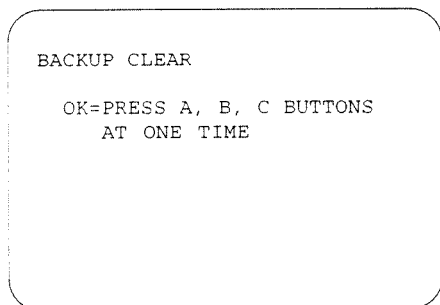
Press buttons A, B, and C simultaneously on the Player 1 side to clear data like income totals, etc. (memory is returned to its status upon shipment from the factory).

Erased data includes:
- Income totals (play and coin counts)
- Software DIP settings (play counts, coin counts, game difficulty)

■ Using the setting modes

↓

```
SETTING UP THE CALENDAR
     CURRENT TIME
     17/ 2/96   SAT
     19:30:41
     THE TIME TO BE SET UP
A BUTTON,JOYSTICK=SELECT
D BUTTON=SET
          17/ 2/96 19:30:41
```

- Press the start button on the Player 1 side of the control panel.

To set the calendar
- Use the joystick to highlight in red the number you wish to change. Press button A to go to a higher number and button B to go to a lower one. After you are finished making these settings, be sure to save them with button D.

  * The date and time are already set at the factory. There is usually no need to set them.

↓

```
RETURN TO CROSS HATCH
```

- Press the start button on the Player 1 side of the control panel.

* To return from the hardware test mode to the main menu or game screen, turn the power off and back on again. (You cannot return using the buttons.)

4. HARD DIP SETTINGS

The PCB DIP switch settings are displayed on screen.
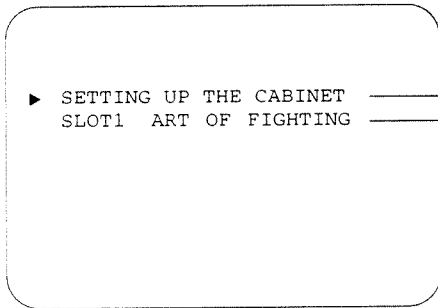
```
   SETTING UP THE HARD DIP
           12345678
SETTING MODE   1.......  ON
CONTROLLER     ..0.....  NORMAL
COMMUNICATION  ...000..  OFF
FREE PLAY      ......0.  OFF
STOP MODE      .......0  OFF
           0=ON 1=OFF
```

After making hard DIP switch settings with the joystick, save the settings by pressing button A.

Press button C to return to the main menu.

5. SOFT DIP SETTINGS

Adjusts various game settings.

```
┌─────────────────────────────────┐
│                                  │
│  ► SETTING UP THE CABINET ───────┼──┐
│    SLOT1  ART OF FIGHTING ───────┼──┼──┐
│                                  │  │  │
│                                  │  │  │
│                                  │  │  │
│                                  │  │  │
└─────────────────────────────────┘  │  │
```
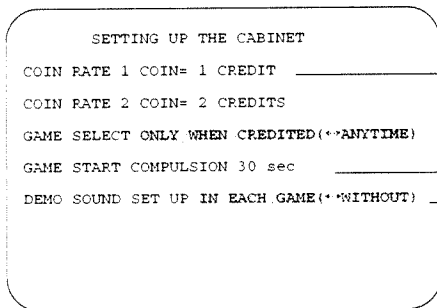
After making soft DIP switch settings with the joystick, save the settings by pressing button A.

For setting credits, etc.

For setting difficulty levels, etc.

⬇

• Move the cursor and press button A.

CABINET SETTINGS

```
┌─────────────────────────────────┐
│      SETTING UP THE CABINET      │
│                                  │
│  COIN RATE 1 COIN= 1 CREDIT ─────┼──┐
│  COIN RATE 2 COIN= 2 CREDITS     │  │
│  GAME SELECT ONLY WHEN CREDITED(··ANYTIME) ─┤
│  GAME START COMPULSION 30 sec ───┼──┤
│  DEMO SOUND SET UP IN EACH GAME(··WITHOUT) ─┤
│                                  │  │
└─────────────────────────────────┘  │
```

Sets number of coins required and number of plays. (Increase with button A, decrease with button B.)

For free play, even with credits at 0, you can use the select button. (Increase with button A, decrease with button B.)
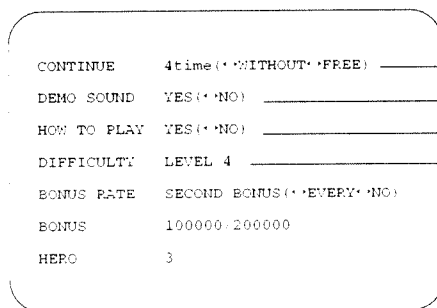
To determine the interval between insertion of coins and the beginning of the game. (Increase with button A, decrease with button B.)

To turn demo sound on or off. (Use button A.)

⬇

• Press button C once to return to soft DIP setting menu. Move the cursor to the desired item and press button A.

SOFT DIP SETTINGS

```
┌─────────────────────────────────┐
│                                  │
│  CONTINUE    4time(··WITHOUT··FREE) ─┤
│  DEMO SOUND  YES(··NO) ──────────┤
│  HOW TO PLAY YES(··NO) ──────────┤
│  DIFFICULTY  LEVEL 4 ────────────┤
│  BONUS RATE  SECOND BONUS(··EVERY··NO) │
│  BONUS       100000·200000       │
│  HERO        3                   │
│                                  │
└─────────────────────────────────┘
```

To limit the number of plays in continuous play. (Use button A to change settings.)

To turn demo sound on or off. (Use button A.)
 * Settings made in cabinet setting mode have priority.

Select whether or not playing instructions appear at the beginning of a game. (Use button A.)

Level of difficulty (Increase with button A, decrease with button B.)
 * The higher the number, the more difficult the game and the shorter the playing time.
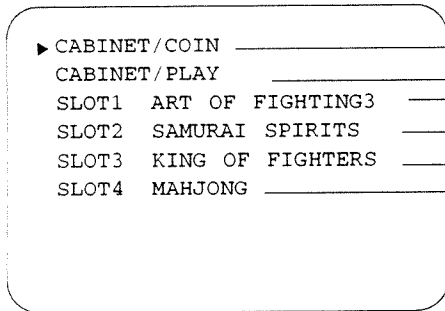
* Items will vary slightly based on game titles.

• Press button C once to return to soft DIP setting menu. Press button C again to return to the main menu.
 * Be sure to press button C after making game selection.

■ Using the setting modes

6. INCOME DATA

To display the number of plays, number of coins, etc.

```
► CABINET/COIN
  CABINET/PLAY
  SLOT1  ART OF FIGHTING3
  SLOT2  SAMURAI SPIRITS
  SLOT3  KING OF FIGHTERS
  SLOT4  MAHJONG
```

- Move the cursor to the desired item and press button A.

└─ Total number of coins inserted
(1 week/1st half of year/2nd half of year)

└─ Total number of plays, number of continue plays, average playing time (1 week/1st half of year/2nd half of year)

└─ Income data by game

CABINET/COIN

CABINET/COIN

	COIN1	COIN2	SERVICE
FEB/17	02244	0	25
FEB/16	04422	0	36
FEB/15	06633	0	47
FEB/14	08844	0	48
FEB/13	02399	0	29
FEB/12	05699	0	94

- Move the cursor to the desired item and press button A.

The weekly figure for the number of coins inserted into the machine is broken down by day in the COIN 1 column.
* Disregard the COIN 2 column. The SERVICE column indicates the number of credits when the service switch is set.

- Press button A.

CABINET/COIN

	COIN1	COIN2	SERVICE
JAN	42244	0	25
FEB	44422	0	36
MAR	56633	0	47
APR	68844	0	48
MAY	72399	0	129
JUN	55699	9	294

The figure for the number of coins inserted into the machine in the first half of the year is broken down by month (January to June) in the COIN 1 column.

- Press button A.

CABINET/COIN

	COIN1	COIN2	SERVICE
JUL	42244	0	25
AUG	44422	0	36
SEP	56633	0	47
OCT	68844	0	48
NOV	72399	0	129
DEC	55699	9	294

The figure for the number of coins inserted into the machine in the second half of the year is broken down by month (July to December) in the COIN 1 column.

- Press button A to display original weekly figures for number of coins. Press button C to return to the INCOME DATA menu. Press button C once more to return to the main menu.

CABINET/PLAY

CABINET/PLAY	PLAY	CONT.	AV.TIME
FEB/12 MON	42	33	
FEB/11 SUN	74	55	
FEB/10 SAT	96	77	
FEB/ 9 FRI	88	11	
FEB/ 8 THU	53	32	
FEB/ 7 WED	56	55	
FEB/ 6 TUE	88	11	

Displays the weekly figures (broken down on a daily basis) for number of plays, number of continued plays, and average playing time.

↓

• Press button A.

CABINET/PLAY	PLAY	CONT.	AV.TIME
JAN	42244	33363	
FEB	44422	35543	
MAR	56633	37773	
APR	68844	39983	
MAY	72399	33232	
JUN	55699	15519	

Displays the figures for number of plays, number of continued plays, and average playing time for the first half of the year (January to June) broken down by month.

↓

• Press button A.

CABINET/PLAY	PLAY	CONT.	AV.TIME
JUL	42244	33363	25
AUG	44422	35543	36
SEP	56633		47
OCT	68844	0	48
NOV	72399	0	129
DEC	55699	9	294

Displays the figures for number of plays, number of continued plays, and average playing time for the second half of the year (July to December) broken down by month.

• Press button A to display the original weekly figures for number of plays. Press button C to return to the INCOME DATA menu. Press button C once more to return to the main menu.

7. CALENDAR SETTINGS

This function and manner of setting are the same as CALENDAR SETTINGS in the HARDWARE TEST. However, you can return to the main menu by pressing button C.

• Use the joystick to exit the main menu.
  Press button A to return to the game screen.

■ Main Harness

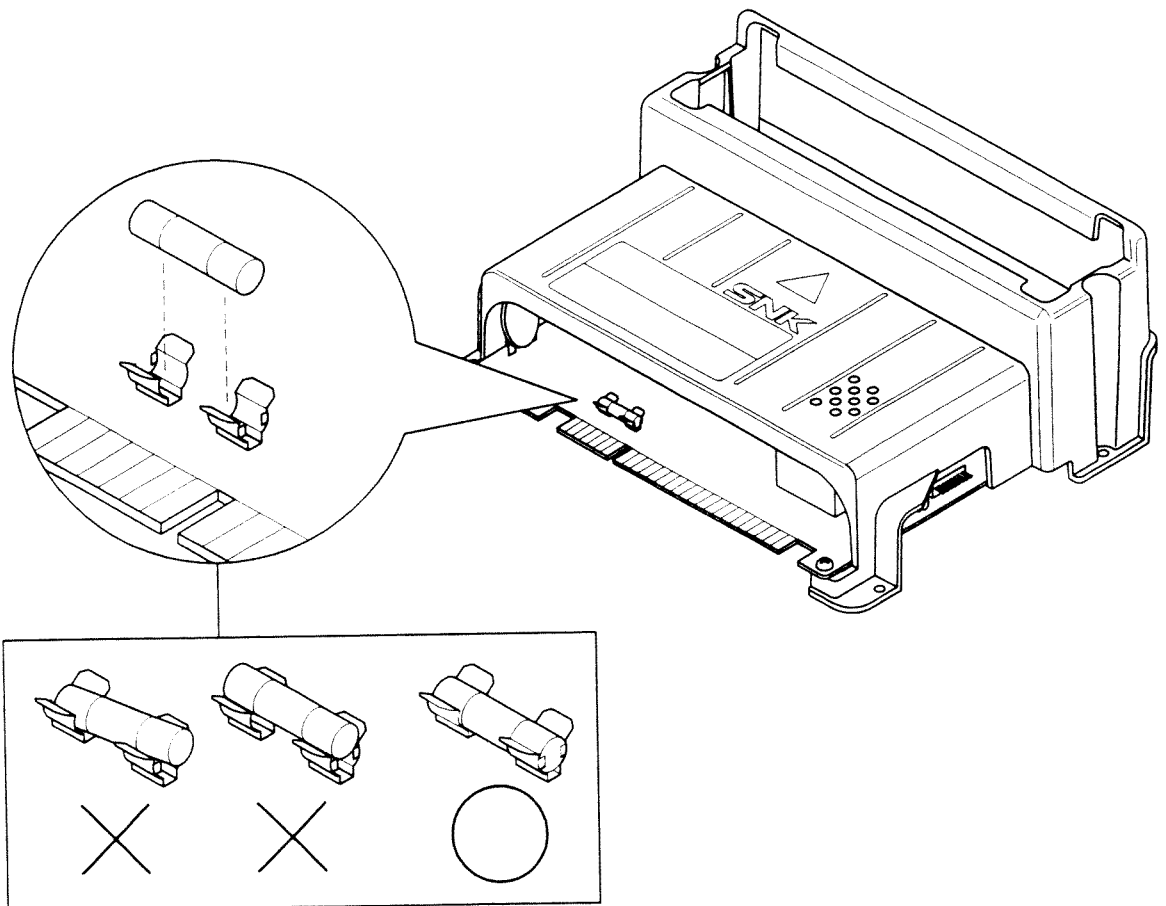| Solder points	Terminal number		Part name
GND	A	1	GND
GND	B	2	GND
+5 V	C	3	+5 V
+5 V	D	4	+5 V
	E	5	
+12 V	F	6	+12 V
(Key to prevent incorrect insertion)	H	7	(Key to prevent incorrect insertion)
(COIN COUNTER 2)	J	8	COIN COUNTER 1
	K	9	
SPEAKER (−)	L	10	SPEAKER (+)
	M	11	
VIDEO GREEN	N	12	VIDEO RED
VIDEO SYNC	P	13	VIDEO BLUE
SERVICE SW	R	14	VIDEO GND
	S	15	TEST SW
COIN SW 2	T	16	COIN SW 1
START SW 2	U	17	START SW 1
2P UP	V	18	1P UP
2P DOWN	W	19	1P DOWN
2P LEFT	X	20	1P LEFT
2P RIGHT	Y	21	1P RIGHT
2P PUSH 1	Z	22	1P PUSH 1
2P PUSH 2	a	23	1P PUSH 2
2P PUSH 3	b	24	1P PUSH 3
2P PUSH 4	c	25	1P PUSH 4
	d	26	
GND	e	27	GND
GND	f	28	GND

■ Replacement of fuse

MV1C is provided with a substrate protection fuse inserted at the position illustrated in the drawing.
This fuse does not blow out under normal use conditions.
If the fuse does blow out, it is considered that something abnormal (for example, a soft cartridge is not correctly inserted, etc.) has occurred
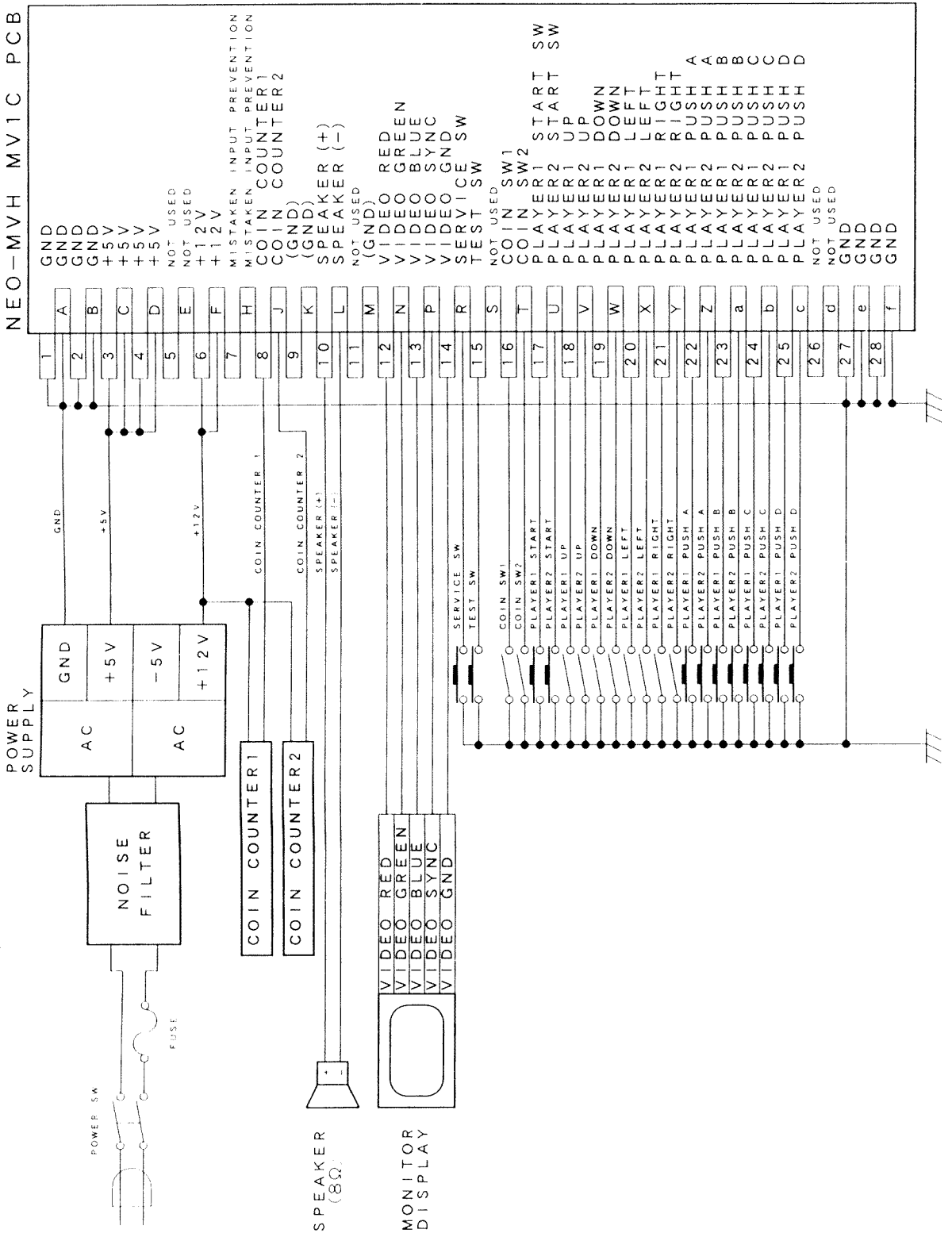in the MV1C body or soft cartridge.
If it is found that the fuse has blown out, immediately stop the power supply to the MV1C, and remove the cause of abnormality.
Then, replace the fuse with a tube type fuse having the following rating.

• Fuse rating: 125V, 5A, semi-time lag type
• Fuse outer dimension: 5.2mm dia. × 20mm tube type fuse
• Correctly insert a tube type fuse in compliance with the drawing.
If a fuse continuously blows out after the replacement, immediately
stop the power supply to the MV1C, and ask a servicing agent for repair.

■ Wiring diagram

S-9907

┌─ **Distributed by SNK** ──┐
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│   │
│   │
│   │
│   │
│   │
└──┘