namco®



TM

EHRGEIZ
OPERATION MANUAL

⚠CAUTION	●Be sure to read this manual and the instruction manual for cabinet to be used before installing and operating this game machine to ensure the safety and to operate correctly. ●Keep this manual with care so as to read in case of need in daily operation.

Introduction

Thank you for purchasing our EHRGEIZ (hereinafter mentioned as the game machine).

This manual shows you how to operate, install, transport, remove, maintain and discard this game machine in safety.

Be sure to read this manual and the instruction manual for cabinet to be used before installing and operating this game machine to ensure the safety and to operate correctly.

This manual applies to a staff of a game center. However, an article indicated as "It must be handled by an engineer." applies to engineers, so the operation must be done by engineers only. Never someone else besides the engineer should operate it.

Engineer means the following personnel:

> Personnel who had taken credits of mechanical or electrical engineering in university, college or high-school, or who have knowledge as same as one who had taken the above credits and also who maintains, takes care and repairs amusement machines as a daily work.

When an owner of this game machine leaves operation, installation, transportation, removal, maintenance and discard to the other person, instruct him/her to read the articles in point and to follow the regulations.

Keep this manual with care so as to read in case of need in daily operation.

In case of resell of the game machine, be sure to attach this manual to the PC board.

For inquiries about the game machine and servicing:

> As for inquiries about the game machine and servicing for the machine, contact your distributor.

CAUTION! PLEASE READ FIRST

We thank you very much for purchasing the "EHRGEIZ". In order for you to fully operate our product we would like to ask you to kindly read and confirm the following before installation of this product.

GAME PCB & MONITOR OUTPUT

This product contains both Interlaced and Non Interlaced modes to apply to a wide range of monitors, and can be changed by simple configuration. Please confirm what type of monitor your cabinet is using and follow the instruction written below.

1. If your cabinet is a NAMCO CYBERLEAD cabinet or an interlace output cabinet.

We strongly recommend you to use the basic setup. (How you originally received it) The interlace mode shows the game with higher quality graphics compared to the Non Interlaced versions.

2. If your cabinet is using a Non Interlaced monitor.

Please set the PCB to Non Interlaced mode. If setting is not correct screen may blink or deteriorate.

For further information on how to set the PCB to Interlace or Non Interlace mode. Please see Manual [5-2-1(1) Color edit] or [5-2-1(2) Diagonal].

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⚠ WARNING	**Do NOT remodel this game machine without our agreement;otherwise, an unexpected danger may happen.**

[Notice]

- The contents on this operation manual are subject to change without notice for improvement.

1. Precautions on safety (for Safety Operation)

1-1 Explanation for a symbol ⚠ for calling attention:

The meaning of the symbol ⚠ for calling attention on this manual is as follows:
The symbol ⚠ for calling attention shows a potential danger and means not only an unspecified but general notice for dangers, warnings and cautions. All of notices indicated by this mark are concerned with safety.

1-2 Explanation for signal words (⚠ WARNING, ⚠ CAUTION)

On this manual, these signal words (⚠ WARNING, ⚠ CAUTION) show a danger level for person and a damage level for property which have a possibility to occur.

⚠ WARNING	**In the case that an operator would be killed or seriously wounded if he/she makes a mistake in the operation.**
⚠ CAUTION	**In the case that an operator would be slightly wounded or that only the property will be damaged if he/she makes a mistake in the operation.**

These levels mentioned above are as follows:

*** Classification for the damage**

A serious wound: Loss of eyesight, an injury, a burn (by high or low temperature), an electrical shock, a fracture of a bone or poisoning which leaves an aftereffect and needs admission to a hospital or going to hospital for a long term for treatment.

Slight wound: A wound which does not need admission to a hospital or going to hospital for a long term for treatment. (A wound except for mentioned above.)

Property damage: Large scale damage relating to the building, property, livestock or pets.

1-3 Precaution on Safety for operators in charge of Installation

(It should be handled by an engineer.)

[Notice]

- This game machine corresponds to both of JAMMA standard and JAMMA VIDEO standard (JVS). The notice on safety differs with regard to installation because that the connecting procedures and others differ depending on a standard. Be sure to read the article corresponding to the standard after confirming the standard for the cabinet by reading the manual for cabinet to be used.

<For a cabinet corresponding to JAMMA standard>

⚠ WARNING	● Be sure to turn OFF the power of cabinet to be used before installation and removal of PC board; otherwise an operator may be struck by electricity. ● Be sure to connect +5V (2.5A or more) and +12V (2.0A or more) correctly for power of PC board; otherwise, a wrong connection may cause an accident, such as a fire, and trouble. ● The voltage should be used within the range of ±5%; otherwise, an accident, such as a fire, and trouble may happen.

<For a cabinet corresponding to JAMMA VIDEO standard (JVS)>

⚠ WARNING	● Be sure to turn OFF the power of cabinet to be used before installation and removal of PC board; otherwise an operator may be struck by electricity. ● Be sure to connect +5V (2.5A or more) correctly for power of PC board; otherwise, a wrong connection may cause an accident, such as a fire, and trouble. ● The voltage should be used within the range of ±5%; otherwise, an accident, such as a fire, and trouble may happen.

1-4 Precaution on Safety for Operator in charge of Maintenance

(It should be handled by an engineer.)

⚠ WARNING	● Do NOT remodel this game machine without our agreement; otherwise, an unexpected danger may happen. ● Be sure to turn OFF the power switch of the cabinet before maintenance work; otherwise, an operator or another one may be injured or struck by electricity.

1-5 Precautions on Safety with regard to Discard

⚠ CAUTION	● If this game machine is discarded, perform gathering, transportation and disposal works in the procedure based on a law. ● If an owner of this game machine leaves gathering, transportation and disposal works for discard to the other person, entrust a professional with each operation.

2. Packing Substance Check

This game machine consists of the followings.

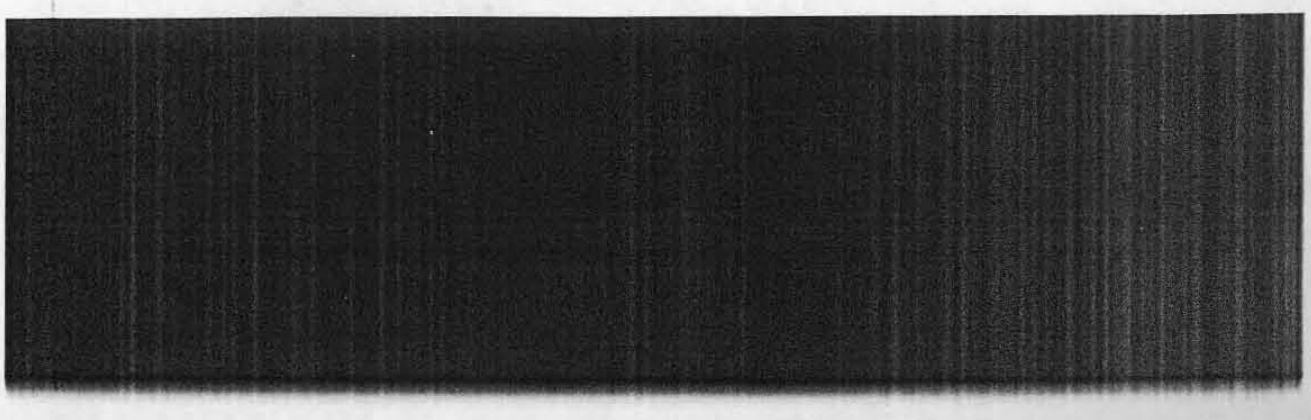
[Notice]

● Make sure that the following substances are complete.

Name	Description	Qt'y
Game PC board, "EHRGEIZ"	System 12 PC board	1
Operation manual	This manual	1
Title board	Logo "EHRGEIZ" is described.	2
A sticker (*1)	Oblong sticker for move list	2
B sticker (*1)	Oblong sticker for explanation of controls	2
Button seal (*1)	1 sheet printed for two players	1
Extension harness (*2)	Wired 48P extension edge connector	1

*1) On the adhesive side of A sticker, B sticker and button seal, a "release type" bonding agent, which is hard to leave a mark after peeling it off, is used.

*2) This game machine corresponds to both of JAMMA standard and JAMMA VIDEO standard (JVS). The extension harness is not necessary if the PC board is connected to a cabinet corresponding to JAMMA VIDEO standard (JVS). (Refer to "3-3 PC Board" for connection terminal of each standard.)

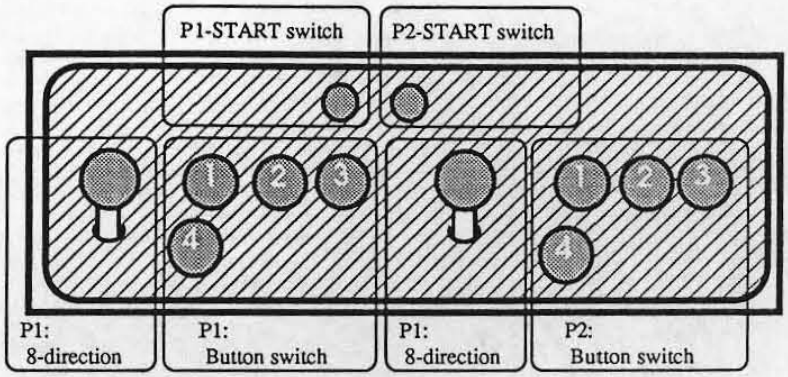


3. Specifications

3-1 Control Panel

2-P specifications

- 8-direction lever : 1 × 2
- Button switch : 4 × 2
- Start switch : 1 × 2



3-2 Monitor

Direction of monitor:	Horizontal
Scanning retrace line format:	Interlace
Synchronizing signal:	Composite/separate: selectable (*1)
Horizontal synchronizing frequency:	15.75 kHz
Vertical synchronizing frequency:	60.0 Hz

*1) Only for connection of cabinet corresponding to JAMMA VIDEO standard (JVS)

[redacted]

3-3 PC Board

The PC board corresponds to both of JAMMA standard and JAMMA VIDEO standard (JVS).

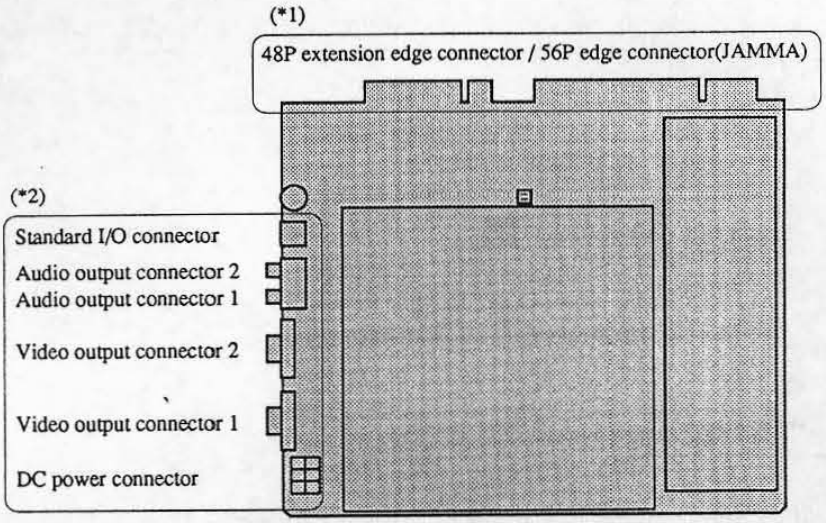
Size : 260 × 230 (mm) (excluding part projected)

Power supply (when connecting JAMMA standard terminal) :

+5V ± 5% (2.5A or more), +12V ± 5% (2.0A or more)

Power supply (when connecting JAMMA VIDEO standard (JVS) terminal) :

+5V ± 5% (2.5A or more)



*1) Used to connect to a cabinet corresponding to JAMMA standard.

*2) Used to connect to a cabinet corresponding to JAMMA VIDEO standard (JVS).

4. Installation

[Notice]

- This game machine corresponds to both of JAMMA standard and JAMMA VIDEO standard (JVS). Be sure to read the article corresponding to the standard after confirming the standard for the cabinet by reading the manual for cabinet to be used.
- The JS mark is indicated on the article for cabinet corresponding to JAMMA standard, and the JVS mark is indicated on the article for cabinet corresponding to JAMMA VIDEO standard (JVS).

4-1 Connection to a Cabinet corresponding to JAMMA standard JS

[Notice]

- Use +12V or less for line voltage of coin counter.

4-1-1 Connection of Control Panel JS

Connect the JAMMA edge connector and extension harness (wired 48P extension edge connector) packed together to each appropriate switch of control panel with reference to "8. PC Board Edge Connector List".

[Notice]

- Be sure to use a JAMMA standard conformable one and a specified one for the JAMMA edge connector.
- Be sure to use a NAMCO specified one (DDK-made: 225D-10024C2-2312) for the 48P extension edge connector.
- Do not connect anything to the blank column on "8. PC Board Edge Connector List"
- Connect each switch and lever input of edge connector to N. O. terminal, such as micro switch and etc.
- Be sure to connect the COM terminal to GND of edge connector for the micro switch wired.

4-1-2 Connection of PC Board JS

⚠ WARNING	● Be sure to turn OFF the power of cabinet to be used before installation and removal of PC board; otherwise an operator may be struck by electricity. ● Be sure to connect +5V (2.5A or more) and +12V (2.0A or more) correctly for power of PC board; otherwise, a wrong connection may cause an accident, such as a fire, and trouble. ● The voltage should be used within the range of ±5%; otherwise, an accident, such as a fire, and trouble may happen.

After setting the PC board in the cabinet, connect the JAMMA edge connector and 48P extension edge connector correctly.

4-1-3 Connection of Speaker JS

Connect the speaker terminal of the JAMMA edge connector to the (L) side speaker, and connect the speaker (R) terminal of the extension harness (wired 48P extension edge connector) to the (R) side speaker with reference to "8. PC Board Edge Connector List"

[Notice]

- If the monaural cabinet is used in stereo mode, the sound of only left side is output. The sound of the game machine is the stereo specification on delivery. Select "MONAURAL" in TEST mode (Refer to "5-2 TEST mode".) if the cabinet to be used is monaural one.
- Be sure to use a NAMCO specified one (DDK-made: 225D-10024C2-2312) for the 48P extension edge connector.

4-2 Connection to a Cabinet corresponding to JAMMA VIDEO standard (JVS) JVS

4-2-1 Connection of Control Panel JVS

After being sure to read the manual for cabinet to be used, connect the suitable control panel for this game machine (Refer to "3-1 Control Panel".) to the cabinet.

4-2-2 Connection of PC Board JVS

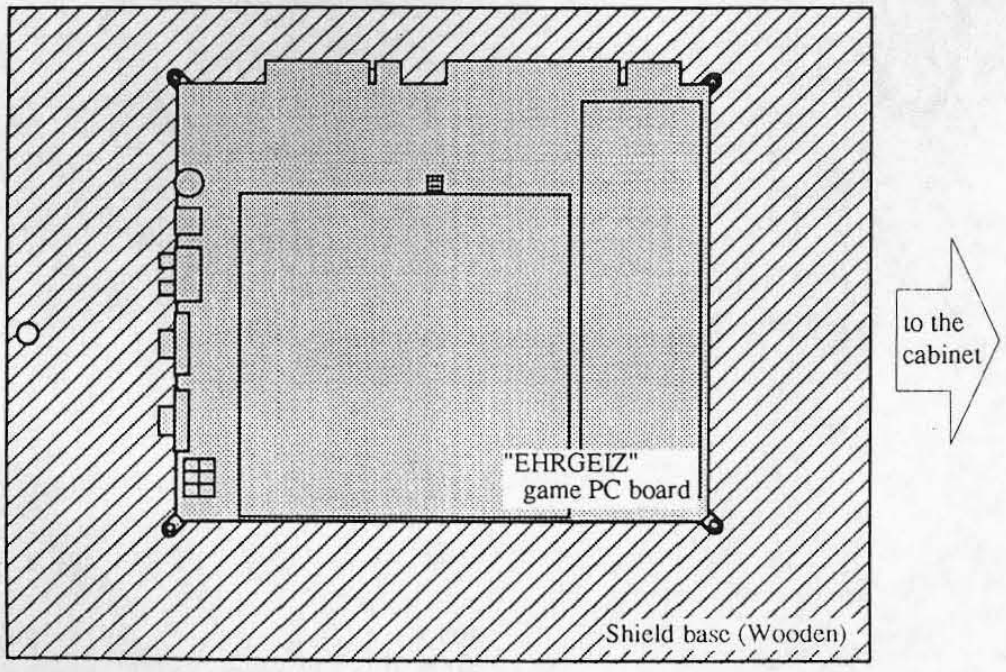
WARNING

- **Be sure to turn OFF the power of cabinet to be used before installation and removal of PC board; otherwise an operator may be struck by electricity.**
- **Be sure to connect +5V (2.5A or more) correctly for power of PC board; otherwise, a wrong connection may cause an accident, such as a fire, and trouble.**
- **The voltage should be used within the range of ±5%; otherwise, an accident, such as a fire, and trouble may happen.**

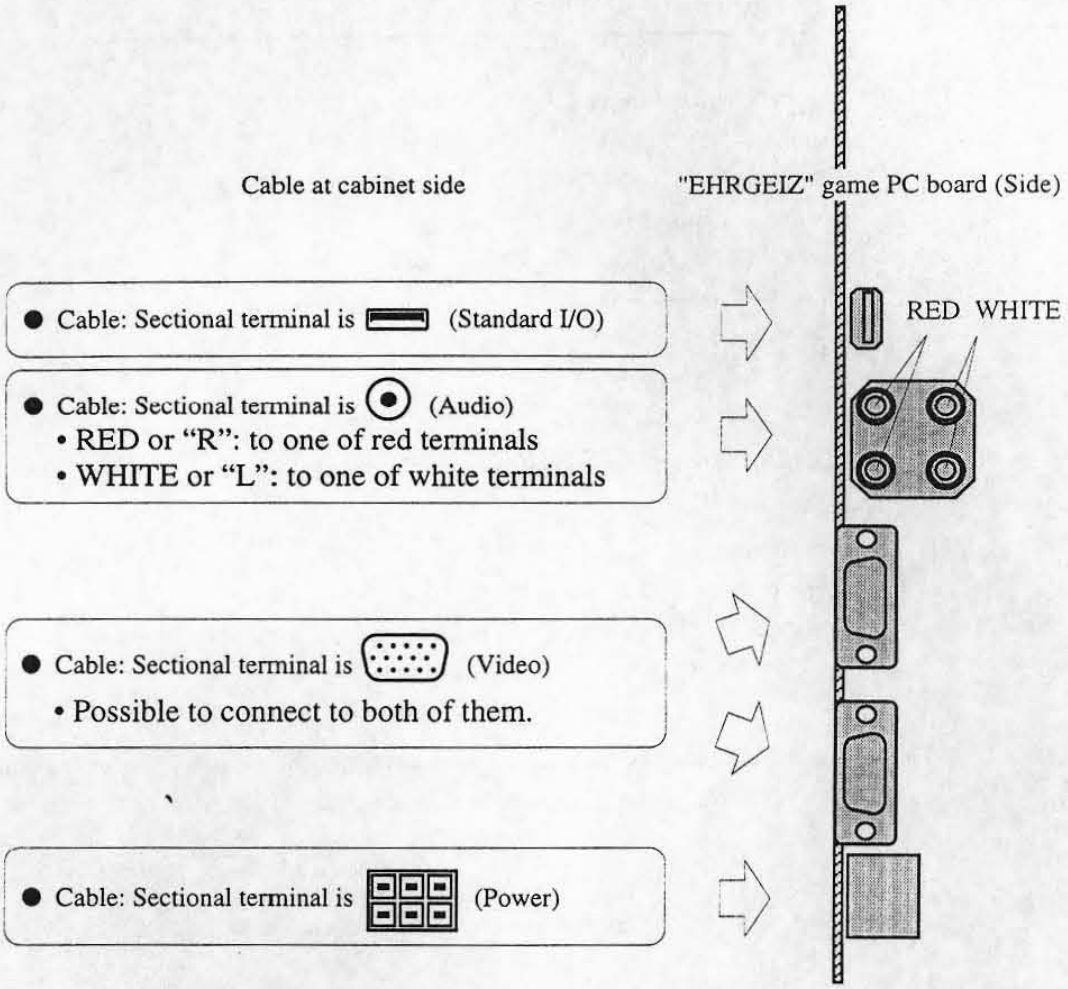
After being sure to read the manual for cabinet to be used, connect the PC board according to the following procedures. Refer to "8-1-3 Replacement of game PC board" on the instruction manual for "CYBERLEAD" if the "CYBERLEAD" made by NAMCO is used as a cabinet.

(1) Open the PC board loading section of cabinet. If another PC board has been already connected, remove it.

(2) Install the PC board for this game machine in the PC board loading section correctly so that the cable becomes easy to be connected. (The following figure shows the case that the cabinet "CYBERLEAD" made by NAMCO is used.)



(3) Connect the cable at cabinet side to the concerned connector on the PC board correctly. (Refer to figure below.)



(4) Close the PC board loading section of cabinet.

5. Adjustment

5-1 Adjusting Switch

The adjusting switch on the PC board is as follows:

(1) Optional switch
This switch is a pair of two units.
If the #1 is "ON", the mode is in TEST mode.

All of switches is usually "OFF".

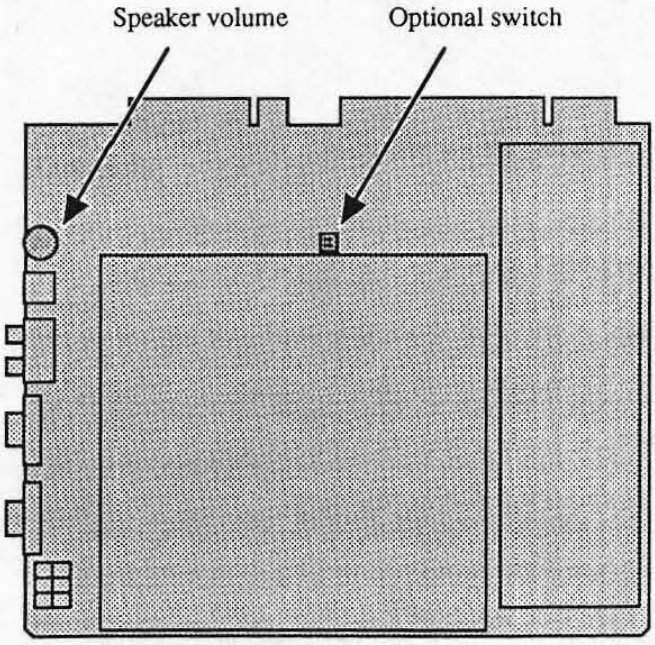
[Notice]

- The normal game is not allowed to be performed if the optional switch #2 is in "ON" state.

(2) Speaker volume
Turning it clockwise, the volume of speaker becomes large.
Turning it counterclockwise, the volume of speaker becomes small.

[Notice]

- The speaker volume can not work for volume adjustment, if the cabinet corresponding to JAMMA VIDEO standard (JVS) is used. After being sure to read the manual for cabinet to be used, perform volume setting at cabinet side.



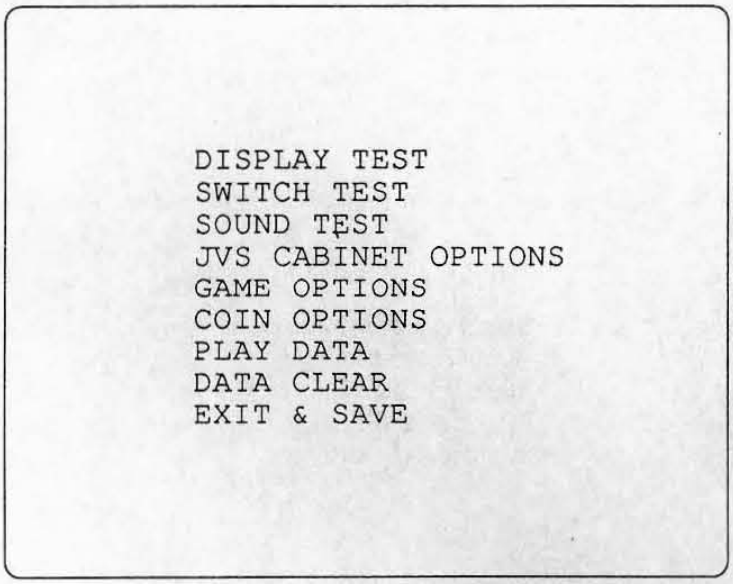
5-2 TEST Mode

If the TEST switch is turned "ON" while displaying the game screen, the mode is in TEST mode, and then the test menu screen is displayed.
Use the test switch on the cabinet (Refer to "8. PC Board Edge Connector List" to perform connection.) or the optional switch on the PC board. (Refer to "5-1 Adjusting switch".)
After selecting an item (displayed in red) on the test screen by moving the P1:8-direction lever up and down, press the P1-BUTTON 1 to display the selected test screen.

[Notice]

- The "JVS CABINET OPTIONS" is not allowed to be selected if the PC board is connected from the JAMMA edge connector. It is allowed to be selected only if the PC board is connected from the connector corresponding to JAMMA VIDEO standard (JVS).

When exiting the TEST mode , be sure to select "EXIT & SAVE" from the test menu screen as below before pressing P1-BUTTON 1 to end it.



DISPLAY TEST ..... (5-2-1)
SWITCH TEST ..... (5-2-2)
SOUND TEST ..... (5-2-3)
JVS CABINET OPTIONS ..... (5-2-4)
GAME OPTIONS ..... (5-2-5)
COIN OPTIONS ..... (5-2-6)
PLAY DATA ..... (5-2-7)
DATA CLEAR ..... (5-2-8)
EXIT & SAVE (Exit of TEST mode)
..... (5-2-9)

[Notice]

l If the procedure above is not used for exiting of TEST mode, a changed setting may not be reflected correctly. Be sure to select "EXIT & SAVE" from the test menu screen before pressing P1-BUTTON 1 to end it.

l In both cases that the test switch on the cabinet is the slide type and that the optional switch #1 on the PC board is used, take note of the followings.

- The mode enters the TEST mode when switching the test switch on the cabinet or the optional switch #1 on the PC board to ON from OFF. If the switch has been turned ON before the mode enters TEST mode, turn it ON again after turning it OFF once.
- The test mode is not exited even if the test switch is turned OFF. Be sure to select "EXIT & SAVE" from the test menu screen before pressing P1-BUTTON 1 to end it.

5-2-1 DISPLAY TEST

This mode performs test and setting on the screen display.

The DISPLAY TEST provides 1 kind of common display and 3 kinds of test pattern.

(1) COLOR EDIT
This screen performs balance adjustment for brightness and color tone of display signal output from the PC board.

(2) DIAGONAL
This screen is used for display check in interlace mode.

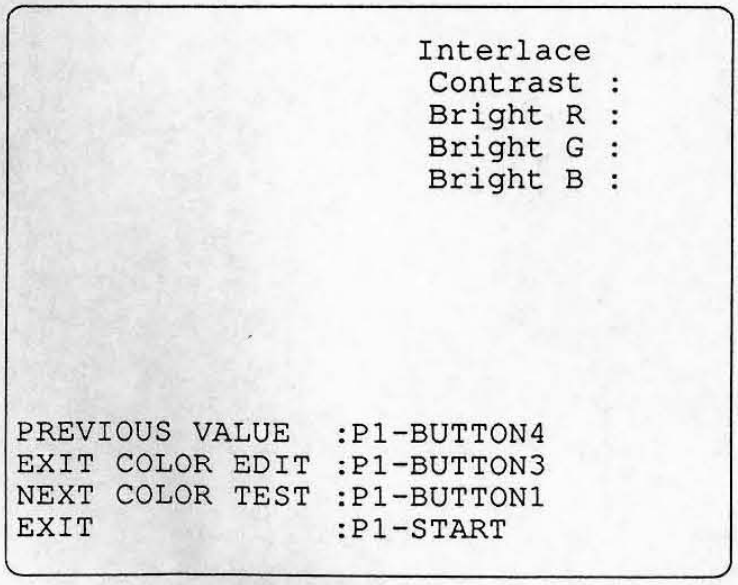
(3) COLOR BAR
This screen is used for balance check and adjustment for brightness and color tone.

(4) CONVERGENCE
This screen is used for check and adjustment for display size, display position, ratio length to breadth and distortion.

The screen (1), which is the common display, is displayed so as to overlap on the screens (2) to (4). Press P1-BUTTON 3 to select if screen (1) is displayed or not.
The screens (2) to (4) are the test display. The screen (2) is displayed immediately after entering DISPLAY TEST mode. Press P1-BUTTON 1 to select the screen in order of (2), (3), (4) and (2) repeatedly.
Pressing P1-START switch, the DISPLAY TEST mode exits and then the test menu screen appears.

(1) COLOR EDIT

This screen performs balance adjustment for brightness and color tone of display signal output from the PC board.



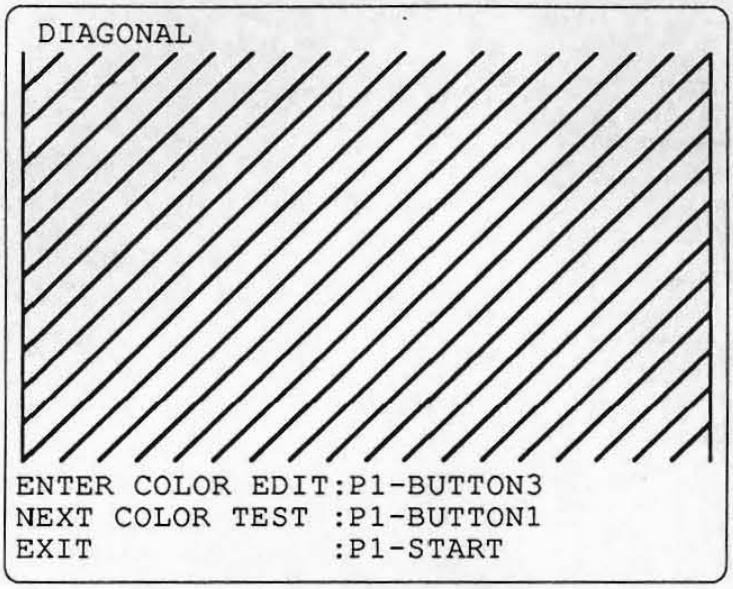
Scanning retrace line format on monitor
Whole contrast
Brightness (RED)
Brightness (GREEN)
Brightness (BLUE)

Display how to return a value to the initial value.
Display how to exit the COLOR EDIT mode.
Display how to advance to the next test pattern.
Display how to return to the test menu screen.

The above screen appears while overlapping on the test pattern.
After selecting an item to be changed by moving the P1:8-direction lever up and down, move it right and left to change the setting.
Pressing P1-BUTTON 4, all of contents changed on the COLOR EDIT screen are canceled.
Pressing P1-BUTTON 3, the COLOR EDIT screen is suspended, and then the display of setting items disappear.
Pressing P1-BUTTON 3 once again, the setting items are displayed again, and then the COLOR edit screen becomes available.
Pressing P1-START switch, whole DISPLAY TEST exits, and then the test menu screen appears.

(2) DIAGONAL

This screen is used for display check in interlace mode. *1



Display how to enter the COLOR EDIT mode.
Display how to advance to the next test pattern.
Display how to return to the test menu screen.

The diagonal pattern is displayed on the screen.

Press P1-BUTTON 2 to select the color of diagonal pattern in order of WHITE, BLUE, RED, VIOLET, GREEN, LIGHT BLUE, YELLOW, BLACK and WHITE repeatedly.

Press P1-BUTTON 1 to switch the mode to the next test pattern (COLOR BAR).

Press P1-BUTTON 3 to select if the COLOR EDIT screen is displayed or not. (Refer to "(1) COLOR EDIT" on this article.)

Pressing P1-START switch, the DISPLAY TEST exits, and then test menu screen appears.

[Notice]

- This test pattern is mainly used to check the screen display in interlace mode (*1). The interlace mode allows to display more precise than the non-interlace mode (*2). However, the screen may not be displayed correctly depending on the monitor to be used due to its property. If the errors, such as dispersion of diagonal, severe flickering on the whole screen and etc., appear on the screen above in interlace mode, use it after switch the mode to "Non-interlace" from "Interlace" in the COLOR EDIT screen. (Refer to "(1) COLOR EDIT" on this article.)

*1) Interlace mode

This display mode allows to do double vertical resolution without change of horizontal/vertical frequencies if the display position of only half line is shifted in vertical direction intentionally once of twice screen displays.

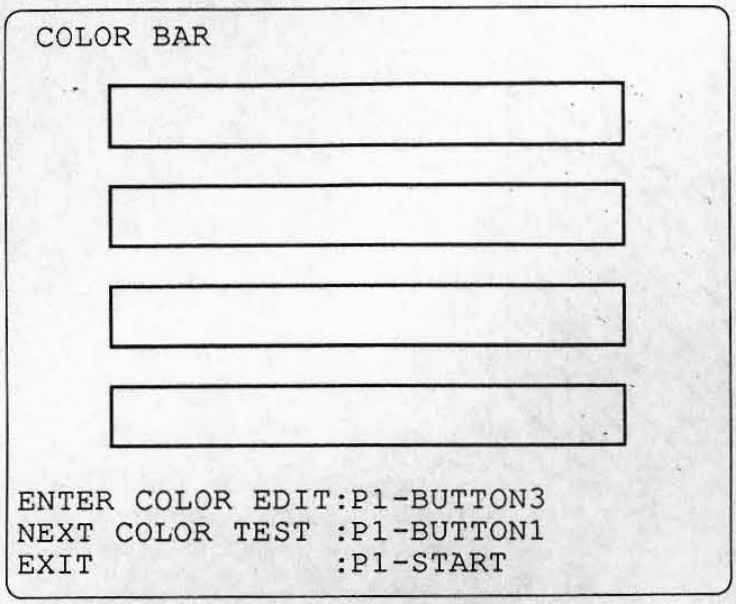
This mode allows to display more precise and more smooth curved and straight lines than the non-interlace mode. (The "CYBERLEAD" made by NAMCO provides the interlace mode as standard setting.)

*2) Non-interlace mode

This display mode shows the routine screen display at the fixed position against "Interlace mode".

(3) COLOR BAR

This screen is used for balance check and adjustment for brightness and color tone.



The color bar with brightness gradation is displayed.

Press P1-BUTTON 2 to select the phase of gradation in order of 32, 16, 8, 4, 2 and 32 repeatedly.

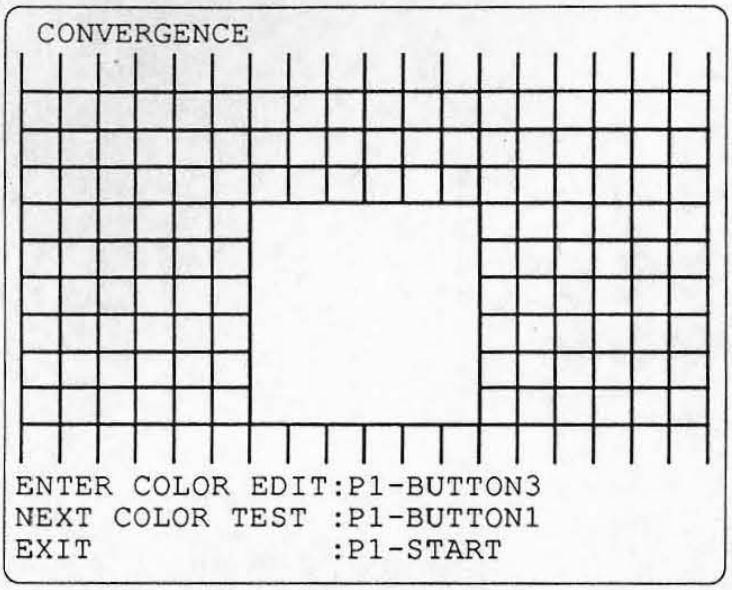
Press P1-BUTTON 1 to switch the mode to the next test pattern (CONVERGENCE).

Press P1-BUTTON 3 to select if the COLOR EDIT screen is displayed or not. (Refer to "(1) COLOR EDIT" on this article.)

Pressing P1-START switch, the DISPLAY TEST exits, and then test menu screen appears.

(4) CONVERGENCE

This screen is used for check and adjustment for display size, display position, ratio length to breadth and distortion.



CROSS HATCH PATTERN

Display how to enter the COLOR EDIT mode.
Display how to advance to the next test pattern.
Display how to return to the test menu screen.

The cross pattern called as "Cross hatch pattern" is displayed on the screen.

Press P1-BUTTON 2 to select the color of cross hatch pattern in order of WHITE, BLUE, RED, VIOLET, GREEN, LIGHT BLUE, YELLOW, BLACK and WHITE repeatedly.

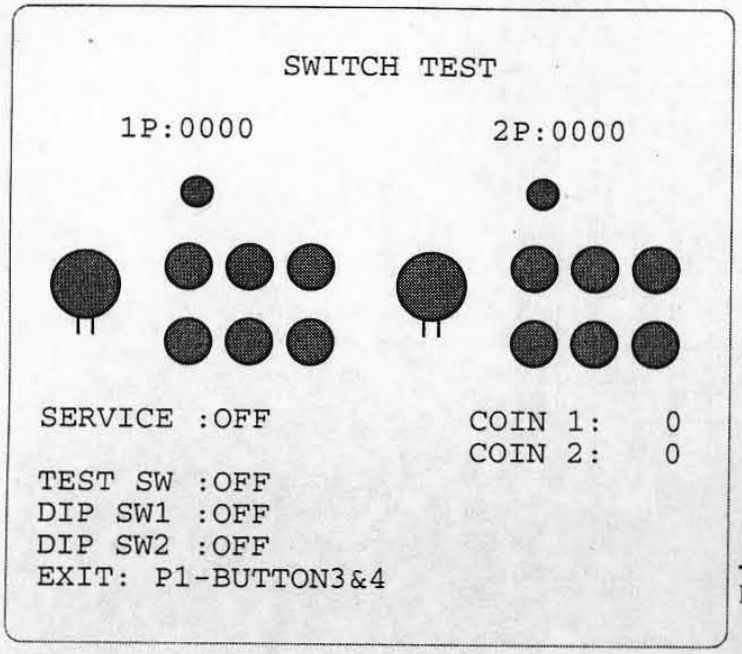
Press P1-BUTTON 1 to switch the mode to the next test pattern (DIAGONAL).

Press P1-BUTTON 3 to select if the COLOR EDIT screen is displayed or not. (Refer to "(1) COLOR EDIT" on this article.)

Pressing P1-START switch, the DISPLAY TEST exits, and then test menu screen appears.

5-2-2 SWITCH TEST

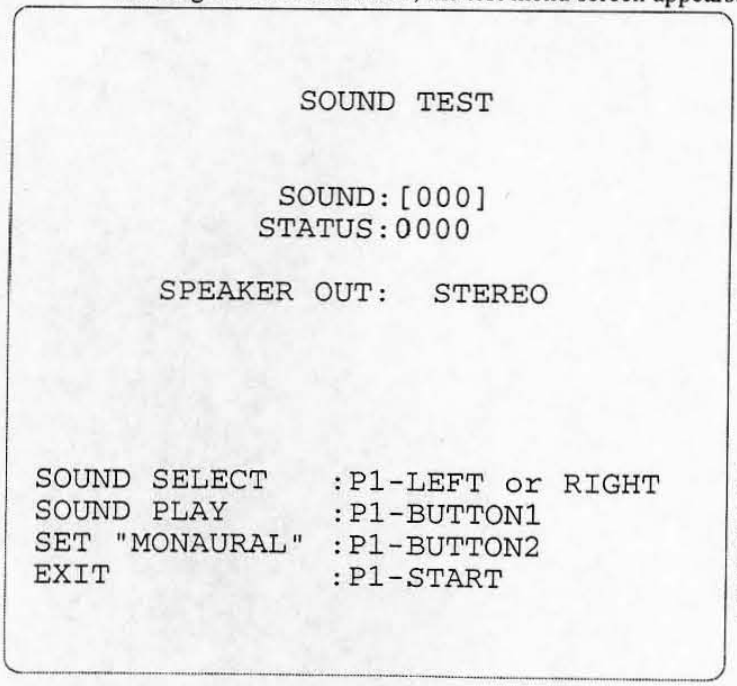
This mode performs test for switches connected to PC board, such as buttons on the control panel. Pressing P1-BUTTON 3 and 4 at the same time, the test menu screen appears.



(The display is changed according to input.)
Display how to return to the test menu screen.

5-2-3 SOUND TEST

This mode performs sound output test and speaker setting(MONAURAL/STEREO).
Move P1:8-direction lever right and left to change the number of sound.
Press P1-BUTTON 1 to play back the sound numbered on the display.
Press P1-BUTTON 2 to select the mode STEREO/MONAURAL.
Play back the sound number 001 for the stereo output test.
Pressing P1-START switch, the test menu screen appears.



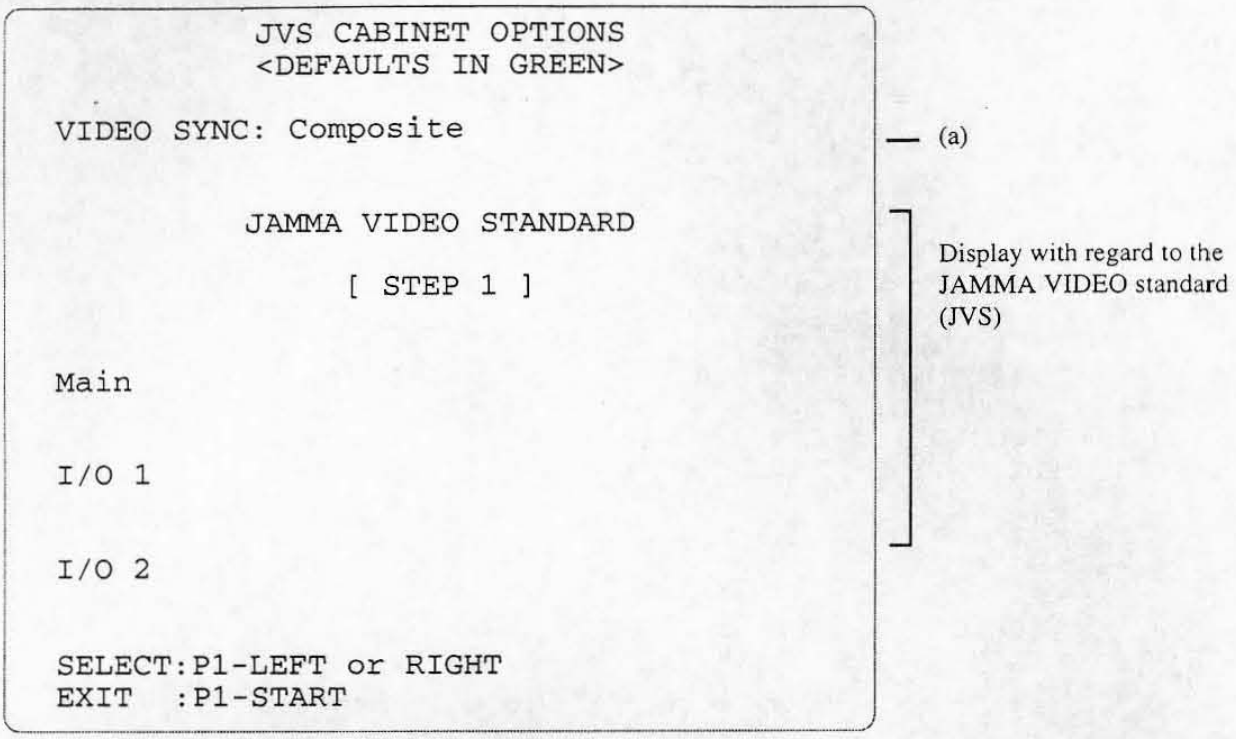
Sound number
The status of sound output

Present mode (STEREO/MONAURAL) setting status

Display how to change the number of sound.
Display how to play back the sound numbered on the display.
Display how to change the mode (STEREO/MONAURAL).
Display how to return to the test menu screen.

5-2-4 JVS CABINET OPTIONS

This mode performs setting for cabinet corresponding to JAMMA VIDEO standard (JVS).



[Notice]

- This article is not available if the cabinet is connected from the JAMMA edge connector on the PC board.

Press P1-BUTTON 1 to change the setting.

Pressing P1-START switch, the setting screen exits, and then test menu screen appears.

(a) VIDEO SYNC (Synchronizing signal output format of video output)

Composite(Composite synchronization)	Separate(Vertical/horizontal synchronization)

↑ Thick frame: initial value

[Notice]

- If the VIDEO SYNC is set at "Separate", the picture becomes more clear than "Composite".
- As for use of cabinet "CYBERLEAD" made by NAMCO, set the VIDEO SYNC at "Composite" if an apparatus is connected to the line output display terminal at rear side. (Refer to "4-4 Explanation of external I/O terminal" on the instruction manual "CYBERLEAD".)

5-2-5 GAME OPTIONS

This mode performs setting with regard to the contents of game, such as difficulty level of game and etc.

```
                GAME OPTIONS
            <DEFAULTS IN GREEN>

(a) DIFFICULTY LEVEL: MEDIUM
(b) FIGHT COUNT <1P GAME>: 2
(c) FIGHT COUNT <VS GAME>: 2
(d) LIFE BAR <1P GAME>: -1
(e) LIFE BAR <VS GAME>: -1
(f) SET TIME: 45 SEC.
(g) STAGE SELECT: YES
(h) MUSIC IN ATTRACT: YES
(i) EVENT MODE: NO
(j) HIT COLOR: GREEN
(k) SELECT TIME: 20 SEC.



  SELECT:P1-LEFT or RIGHT
  EXIT  :P1-START
```

After selecting an item to be changed by moving the P1:8-direction lever up and down, press the P1-BUTTON 1 to change the setting.

Pressing P1-START switch, the setting screen exits, and then test menu screen appears.

(a) DIFFICULTY LEVEL (Difficulty level of game)

EASY	**MEDIUM**	HARD	VERY HARD	ULTRA HARD

↑ Thick frame: initial value (The rest is the same)

(b) FIGHT COUNT <1P GAME> (Round number required for victory at 1-player game)

1	**2**	3	4	5

(c) FIGHT COUNT <VS GAME> (Round number required for victory at vs game)

1	**2**	3	4	5

(d) LIFE BAR <1P GAME> (Life gauge at 1-player game)

-2	**-1**	NORMAL	+1	+2

(e) LIFE BAR <VS GAME> (Life gauge at vs game)

-2	**-1**	NORMAL	+1	+2

(f) SET TIME (Time per 1 round [second])

20SEC.	30SEC.	**45SEC.**	60SEC.	99SEC.

(g) STAGE SELECT (Change of stage at vs game)

YES(possible)	NO(impossible)

(h) MUSIC IN ATTRACT (Sound in attract)

YES(possible)	NO(impossible)

(i) EVENT MODE (Process after vs game)

YES(Both of them: game over)	NO(Winner: contimue 1-player game)

(j) HIT COLOR (Red display effect at hit)

RED(exist)	GREEN(changed to another color)

(k) SELECT TIME (Time per character select and stage select [second])

10SEC	15SEC.	20SEC.	30SEC

5-2-6 COIN OPTIONS

This mode performs setting with regard to the game fees, such as the credit number required for 1 play.

```
                COIN OPTIONS
            <DEFAULTS IN GREEN>

(a)   START COST:
       1 COIN TO START
(b)   CONTINUE COST:
       1 COIN TO CONTINUE
(c)   COIN CHUTE1 MECHANICAL VALUE:
       1 COIN COUNT AS 1 COIN
(d)   COIN CHUTE2 MECHANICAL VALUE:
       1 COIN COUNT AS 1 COIN
(e)   CREDIT MODE:
       COMMON
(f)   COIN COUNTER:
       1 COUNTER
(g)   FREE PLAY:
       NO

        SELECT:P1-LEFT or RIGHT
        EXIT   :P1-START
```

After selecting an item to be changed by moving the P1: 8-direction lever up and down, press the P1-BUTTON 1 to change the setting.

Pressing P1-START switch, the setting screen exits, and then test menu screen appears.

[Notice]

- It is impossible to change items (a) to (f) if "YES" has been set in (g) FREE PLAY.
- If the cabinet corresponding to the JAMMA VIDEO standard (JVS) is used for the game machine, items (e) and (f) are set automatically as an initial value so as to be suitable for the connection format on the cabinet. In this case, items (e) and (f) are not allowed to be changed.

(a) START COST (Number of coins required for 1 new play)

1	2	3	4	5	6	7	8	9	COIN(S) TO START

↑ Thick frame: initial value (The rest is the same)

(b) CONTINUE COST (Number of coins required for 1 continue)

1	2	3	4	5	6	7	8	9	COIN (S) TO CONTINUE

[Notice]

- It is impossible to set (b) CONTINUE COST at the larger value than (a) START COST.

(c) COIN CHUTE 1 MECHANICAL VALUE (Number of coins added when the coin switch 1 works once)

1 COIN COUNT AS | **1** | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | COIN

(d) COIN CHUTE 2 MECHANICAL VALUE (Number of coins added when the coin switch 2 works once)

1 COIN COUNT AS | **1** | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | COIN

(e) CREDIT MODE (Memory of credit)

COMMON	EACH ONE
(The caluculation is performed from one common credit in the both cases even if every coin switch works, and if every start switch is pressed.)	(P1 and P2 have credits separately. The coin switch 1 corresponds to P1 side, and the coin switch 2 corresponds to P2 side respectively.)

[Notice]

- Check if the coin switch 2 is connected correctly when setting (e) CREDIT MODE to "EACH ONE"; otherwise, a coin may not be accepted at P2 side and the play may not be available.

(f) COIN COUNTER (Assignment of coin counter)

1 COUNTER	2 COUNTERS
(Used 1 coin counter common to two coin switches)	(Used eacs coin counter for two coin switches respectively)

[Special article]

- In the case that a cabinet, which provides each 1 pair of coin switch and coin counter for P1 side and P2 side respectively, is used:
  Setting (e) CREDIT MODE above to "EACH ONE", (f) COIN COUNTER to "2 COUNTERS" after checking each one is connected correctly, each coin counting at P1 side and P2 side is allowed to be logged separately.

(g) FREE PLAY (Free play setting)

ON(free charge)	OFF(charge)

5-2-7 PLAY DATA

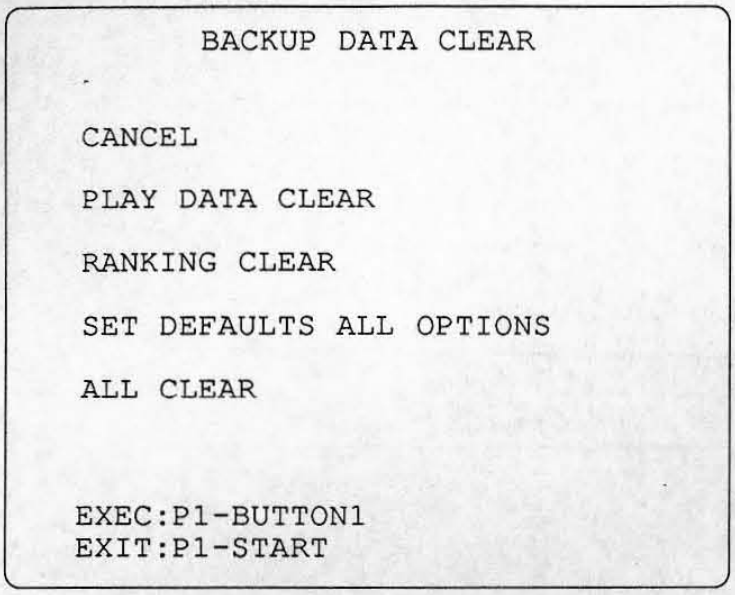
This mode allows to read the data with regard to the past play results, such as total play time by this time and etc.

Press P1-BUTTON 1 to select the display screen.

Pressing P1-START switch, the test menu screen appears.

5-2-8 DATA CLEAR

This mode performs clear for the data which is stored even if the power is turned OFF.



Return to the test menu screen.
Clear play data only.
Initialization of ranking data.
Initialization of all options.
Clear all of data logged.
Display how to perform the selected item.
Display how to return to the test menu screen.

After selecting an item by moving the P1:8-direction lever up and down, press the P1-BUTTON 1 to perform the selected item.
Pressing P1-START switch, the test menu screen appears.

(1) CANCEL
Return to the test menu screen.

(2) PLAY DATA CLEAR
Clear play data only. (Refer to "5-2-7 PLAY DATA".)

(3) RANKING CLEAR (Initialization of ranking data)
Initialize all of ranking data, such as straight victories records and etc., at the value on delivery at factory.

(4) SET DEFAULTS ALL OPTIONS (Initialization of all options)
Initialize all options set in TEST mode. (Refer to "5-2 TEST mode".)

(5) ALL CLEAR
Perform the items (2),(3) and (4) above at the same time.

5-2-9 EXIT & SAVE (Exit of TEST mode)

This mode returns to the game screen after exiting test mode.

[Notice]

- If the exit of TEST mode is not performed in the correct procedures, a changed setting may not be reflected correctly. Be sure to select "EXIT & SAVE" from the test menu screen before pressing P1-BUTTON 1 to end it.

6. Maintenance (It must be handled by an engineer)

⚠ WARNING	● **Do NOT remodel this game machine without our agreement; otherwise, an unexpected danger may happen.** ● **Be sure to turn OFF the power switch of the cabinet before maintenance work; otherwise, an operator or another one may be injured or struck by electricity.**

[Notice]

- Be sure to use a JAMMA standard conformable one and a specified one for the JAMMA edge connector. (*1)
- Be sure to use a NAMCO specified one (DDK-made: 225D-10024C2-2312) for 48P extension edge connector .(*1)

The tests for switch, sound and display should be performed periodically to use this game machine in the correct condition. (Refer to "5-2 TEST mode".)
The running in the condition that the PC board is in loose fixing and connecting may cause a trouble or malfunction. Check the PC board periodically because that it is loosened due to vibration during play.
An alien factor and dust on the PC board may cause a trouble or malfunction. Clean the PC board periodically to keep it neat.

[Notice]

- Be sure to turn OFF the power of cabinet before cleaning. Be sure to use an anti-static electricity cleaning tools, such as anti-static electricity brush for OA apparatus and etc.

If this game machine does not work correctly, check again that this game machine is installed and set correctly after reading the instruction manual for cabinet and this manual.
If the game machine does not work correctly after all efforts, contact your distributor after turning off the power of cabinet and removing the power plug from the outlet.

[Notice]

- Do NOT perform continuity test through tester; otherwise, the internal voltage of tester may destroy the IC.

*1) The JAMMA edge connector and 48P extension edge connector are used for only cabinet corresponding to the JAMMA standard.

7. Transportation

When sending PC boards due to transfer, resale and repair, wrap them with sponge or bubble wrap, and pack them in a card board boxes to protect against any shock from the outside.

8. PC Board Edge Connector List

[Notice]

- Refer to the following list when connecting this game machine to the cabinet corresponding to the JAMMA standard. It is not necessary for cabinet corresponding to the JAMMA VIDEO standard (JVS).
- Be sure to read the concerned item on "4. Installation" when connecting it.

JAMMA edge connector (56P 3.96mm pitch)

Soldering side	Terminal No.		Component side
GND	A	1	GND
GND	B	2	GND
+5V	C	3	+5V
+5V	D	4	+5V
	E	5	
+12V	F	6	+12V
Mis-insertion protection key	H	7	Mis-insertion protection key
Coin counter 2	J	8	Coin counter 1
	K	9	
Speaker (-)	L	10	Speaker (+)
Audio (GND)	M	11	Audio (+)
Video (GREEN)	N	12	Video (RED)
Video (SYNC)	P	13	Video (BLUE)
Service switch	R	14	Video (GND)
	S	15	Test switch
Coin switch 2	T	16	Coin switch 1
P2-START switch	U	17	P1-START switch
P2 lever (UP)	V	18	P1 lever (UP)
P2 lever (DOWN)	W	19	P1 lever (DOWN)
P2 lever (LEFT)	X	20	P1 lever (LEFT)
P2 lever (RIGHT)	Y	21	P1 lever (RIGHT)
P2-BUTTON 1	Z	22	P1-BUTTON 1
P2-BUTTON 2	a	23	P1-BUTTON 2
P2-BUTTON 3	b	24	P1-BUTTON 3
	c	25	
	d	26	
GND	e	27	GND
GND	f	28	GND

Extension edge connector(48P 2.54mm pitch)

Soldering side	Terminal No.		Component side
Speaker R(-) [Yellow]	A1	B1	Speaker R(+) [Orange]
	A2	B2	
	A3	B3	
	A4	B4	
Mis-insertion protection key	A5	B5	Mis-insertion protection key
	A6	B6	
	A7	B7	
P2-BUTTON 4 [White, blue]	A8	B8	
	A9	B9	GND[Black]
	A10	B10	GND[Black]
	A11	B11	
	A12	B12	
	A13	B13	
	A14	B14	
	A15	B15	
	A16	B16	
	A17	B17	
	A18	B18	
	A19	B19	
P1-BUTTON 4 [Blue]	A20	B20	
	A21	B21	
	A22	B22	
	A23	B23	
	A24	B24	

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