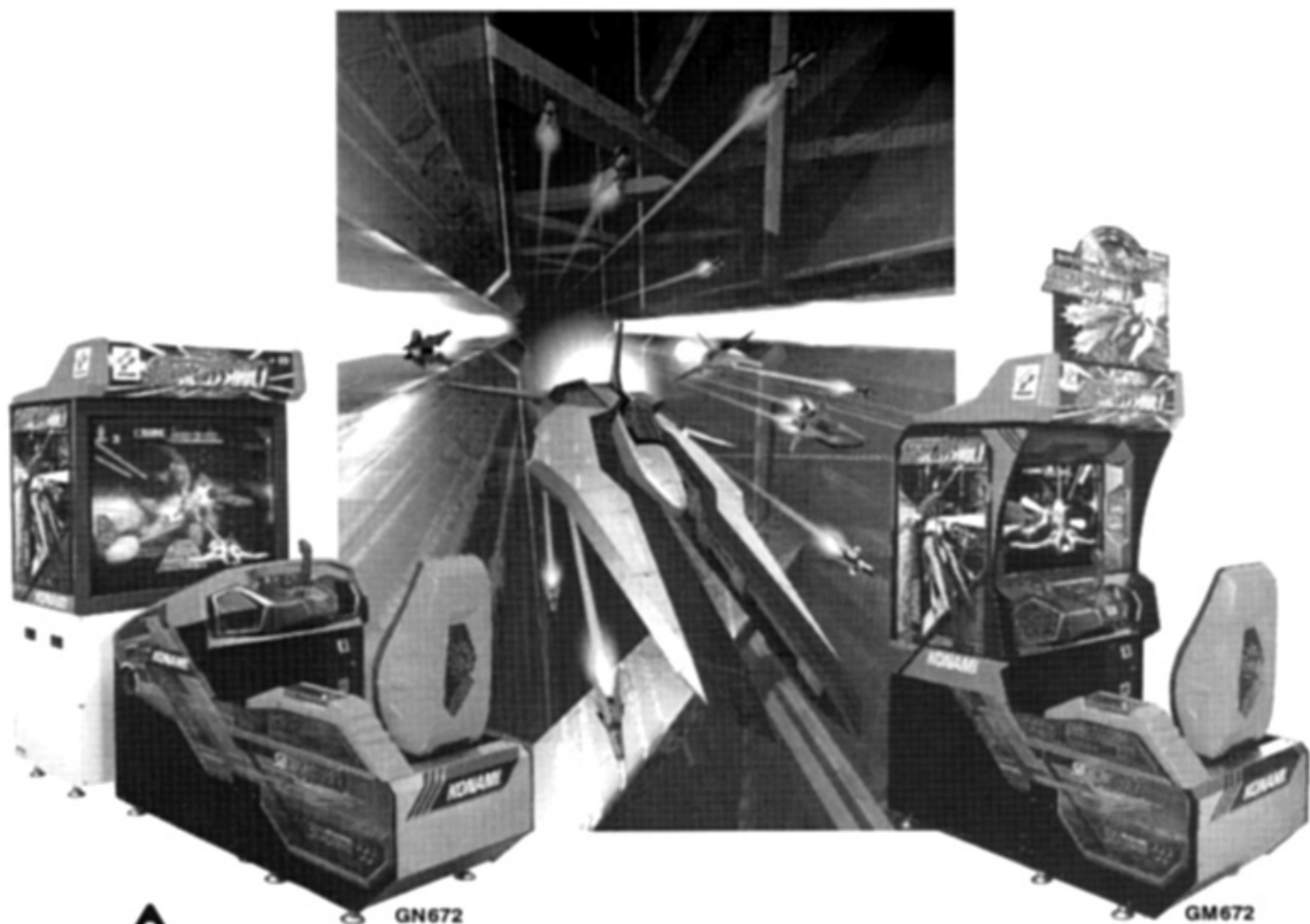# KONAMI.

ORIGINAL VIDEO GAME
OPERATOR'S MANUAL
■ SOLAR ASSAULT ■

SOLAR ASSAULT ™

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GN672

GM672

⚠️
- Failure to operate the machine correctly could result in malfunction or accidents, so please read this manual carefully before commencing operation.   Be sure to operate the machine as described in this manual.
- Keep this manual carefully so as to be ready for use when necessary.

KONAMI.

About this product

Thank you for purchasing this Konami product.   This manual explains how to operate your game machine correctly and safely.

⚠️

•**Failure to operate the machine correctly could result in malfunction or accidents, so please read this manual carefully before commencing operation.   Be sure to operate the machine as described in this manual.**
•**Keep this manual carefully so as to be ready for use when necessary.**
•**If the machine still fails to display or to get started, immediately turn OFF the power switch and contact your nearest dealer.**

This manual covers the following models:

•GN672-UC   •GM672-UC

The specifications of GN672-UC may be somewhat different from GM672-UC.   In such a case, read the descriptions of the model which applies to the game machine you are operating.

Contents

■ Precautions for use

In this manual, the precautions to be followed without fail in order to prevent damage to persons to install, use or maintain "SOLAR ASSAULT™" or other persons or to properties are shown as follows.

Be sure to read the following

•The following suggestions show the degree of danger and damage caused when the product is used improperly with the suggestions disregarded.

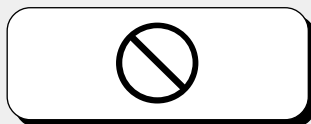| ⚠ WARNING | Indicates a situation where disregarding the suggestions could result in death or serious injury. |
| ⚠ CAUTION | Indicates a situation where disregarding the suggestions could result in injury or product damage. |

•The following graphic suggestions describe the types of precautions to be followed.

⚠	Indicates a matter of which care should be taken.
🚫	Indicates a matter which is forbidden.
⊟	Indicates a matter which should be performed without fail.

Setting Up

⚠️ **WARNING**

• **Be sure to consult your nearest dealer when setting up, moving or transporting this product.**
  ·This product should not be set up, moved or transported by anyone other than industry specialists. Doing so could result in injury or product damage.
  ·When installing the machine, be sure to place 10 level adjusters (6 adjusters for GM672-UC) securely on the floor and make sure that the machine is stable at a level.   If the machine is unstable, it could result in injury or accidents.
  ·When setting up this product, take care that no undue force is applied to the opening / closing sections or moving sections of the game machine.   Failure to do so could cause injury, accidents or product damage.

• **This product is an indoor game machine.   Never set up the game machine outside.**
  ·Setting up this product outside could result in accidents or equipment failure.

• **Do not set up the game machine near emergency exits.**
  ·Doing so could block exits in time of emergency and could result in death or serious injury.

• **Do not set up the game machine.**
  ·In a place exposed to rain or moisture.
  ·In a place exposed to direct sunlight.
  ·In a place exposed to direct heat from air-conditioning and heating equipment, etc..
  ·near hazardous flammable substance such as thinner and kerosene.
  ·on an inclined or uneven floor.
  ·near fire extinguishing equipment.
  ·in a place exposed to strong vibration.
  ·in a place exposed to excessive dust.
  ·near equipment generating strong magnetism or electric waves.

• **Do not place containers holding chemicals or water on or near the game machine.**
  ·Electrical shock or damage could be caused by water or foreign matter entering the inside of the machine.

• **Do not place objects near the ventilating holes.**
  ·Doing so could cause the internal temperature to rise excessively, resulting in fire or equipment failure.

• **Do not bend the power cord by force or place heavy objects on it.**
  ·Doing so could result in electric leakage or fire.

• **Never plug or unplug the power cord with wet hands.**
  ·Doing so could result in electrical shock.

• **Never unplug by pulling the power cord.**
  ·Doing so could damage the cord, resulting in electric leakage or fire.

Setting Up

⚠ CAUTION

- **Be sure to use indoor wiring for within the specified voltage range.   For extension cord, use indoor wiring of the specified rating or more.**
  ·Failure to do so could result in fire or equipment failure.

- **Never plug more than one cord at a time in the electrical receptacle.**
  ·Doing so could result in fire or electrical shock.

- **Do not lay the power cord where people walk through.   You may tread on or stumble over them.**
  ·You may fall down and get injured or the cord may get damaged.

- **Do not put anything heavy on the pipe connecting the projector unit and the cockpit unit, nor pull the pipe forcibly.   Never install the machine with the pipe being disconnected and the bundled wires being exposed. (GN672-UC only)**
  ·Doing so could redult in eguipment failure, electrical shock or fire.

- **Be sure to connect the attached grounding wire. (See page 28.)**
  ·Failure to do so may result in electric shock or trouble.

- **Clearances of 100 mm (3.94in) or more should be created between the game machine and walls.**

Operation

⚠ WARNING

- **If there is any abnormality such as smoke, bad smell or abnormal noise being emitted from the machine, immediately turn OFF the power switch and unplug the power cord from the receptacle to stop operating it.**
  ·Using the machine in abnormal conditions could result in fire or accidents.

  ┌─── **In case of abnormality** ───┐
  1 Turn OFF the power switch.
  2 Unplug the power cord from the receptacle.
  3 Contact your nearest dealer.

- **Do not leave the power cord plugged improperly or covered with dust.**
  ·Doing so could result in electrical shock or fire, so inspect the power cord periodically.

- **Never disassemble, repair or modify any section other than those specified in this manual.**
  ·Doing so could result in fire, malfunction or equipment failure.
  ·Ask your nearest dealer to perform repairing, etc..
  ·We do not assume any responsibility for any damages that would be caused by tampering with the machine.

Operation

 CAUTION

- **Do not use this product anywhere other than industrial areas.**
  ·Using in a residential area or an area next to a residential area could affect signal reception of radios, television sets, telephones, etc..

- **The following users should not play the game.**
  ·Doing so could cause accidents or illness.

·Those under the influence of alcohol.	·Those suffering from or being treated for arm or wrist ailments.

- **Do not plug or unplug the power cord with wet hands.**
  ·Doing so could result in electrical shock.

- **When handling the power cord, take care of the following:**
  ·Improper handling could result in fire or electrical shock.

·Do not damage the power cord.	·Do not modify the power cord.
·Do not bend the power cord excessively.	·Do not twist the power cord.
·Do not heat the power cord.	·Do not pull the power cord.
·Do not bind the power cord.	·Do not tread on the power cord.
·Do not sandwich the power cord.	·Do not drive a nail into the power cord.

- **If the power cord or power plug becomes damaged, stop using the machine immediately and ask your nearest dealer to replace the parts.**
  ·Using a damaged power cord or power plug could result in fire or electrical shock.

- **Do not place anything on the machine.   Do not give shock and impact to the machine either.**
  ·The thing may drop or the machine get damaged, which may get you injured.

Inspection and cleaning

 WARNING

- **Be sure to turn OFF the power switch and unplug the power cord from the receptacle before inspecting or cleaning the machine.**
  ·Failure to do so could result in electrical shock.

- **When replacing parts, be sure to use parts of the correct specifications.   Never use parts other than the specified ones.**
  ·Using improper parts could result in fire or equipment failure.

- **Do not allow other persons than qualified engineer to open the back door of the projector unit and the front door of the cockpit unit. (GN672-UC)**
  ·Otherwise, an accident or electric shock may result.

- **Allow only a qualified engineer to open the back door. (GM672-UC)**
  ·Otherwise, an accident or electric shock may result.

- **Never disassemble, repair or modify any section other than those specified in this manual.**
  ·Doing so could result in fire, malfunction or equipment failure.
  ·Ask your nearest dealer to perform repairing, etc..
  ·We do not assume any responsibility for any damages that would be caused by tampering with the machine.

- **To clean the game machine, wipe it with a soft cloth dampened in a neutral detergent and wrung out.**
  ·Using organic solvents such as thinner may decompose the material.
  ·Electrical shock or equipment failure could be caused by water entering the inside of the machine.

Moving and transportation

⚠ **CAUTION**

- **The game machine contains parts such as the projector (GN672-UC), monitor (GM672-UC), electronic components and precision components which are sensitive to vibrations and impacts.   Great care therefore should be taken when moving and transporting the game machine.   Be sure not to let the machine tip over.**

- **Before moving the GN672-UC machine, be sure to separate the cockpit unit and the projector unit and fully raise the 10 level adjusters.   Move the units on the casters. In the case of GM672-UZ machine, fully raise the 6 level adjusters and move the unit on the casters.   Be sure to turn OFF the power switch and unplug the power cord.**
  ·Otherwise accidents, machine damage or trouble may result.

- **When moving the units, use care not to apply undue force to them. (GN672-UC)**
  ·Particularly in the case of the projector unit, application of undue force may bring down the unit, resulting in an accident or damage.

- **When moving the units, use care not to apply undue force to the connections of the cockpit. (GN672-UC)**
  ·Application of undue force may cause injury, accident or damage of the machine.

- **When moving the machine, use care not to apply undue force to the connections of the machine. (GM672-UC)**
  ·Application of undue force may cause injury, accident or damage of the machine.

Disposal (GN672-UZ only)

⚠ **WARNING**

- **When disposing of the projector of this product, do not leave it with the screen exposed.**
  ·Doing so could result in fire due to direct sunlight, etc..

- **When disposing of the projector with the screen section removed, do not hold the screen section to direct sunlight, etc..**
  ·Doing so could cause burns or fire.

PRECAUTION IN HANDLING

- When setting up, inspecting, maintaining, moving or transporting this product, follow the procedures and instructions set forth in this manual and perform such work safely.

- Do not remove labels of "WARNING", "CAUTION", etc. attached to the product.

- Do not set up, handle, inspect, maintain, move or transport this product under conditions equivalent to the condition of "WARNING" or "CAUTION" specified in this manual.

- If a new owner is to have this product as a result of transfer, etc., be sure to give this manual to the new owner.

MEMO

1 Specifications

Specifications	
Dimensions	Refer to the figure above: mm(in.)
Weight	Total weight: Approx. 276 kg(609lb) Cock pit unit: Approx. 135 kg (298lb), Projector unit: Approx. 141 kg (311lb)
Rated power consumption	250W
Monitor	50-inch color projector
Service condition	Temperature 10 to 35°C (50 to 95°F), Humidity 20 to 80%(No dewing is allowed.)
Attachments	· Instruction manual ....This manual · Keys for coin door .... 2 · Keys for maintenance .... 2 · Spare fuse (10A) .... 1 · Unit connecting pipe .... 1 · Unit connecting pipe fixing screw (M4 x 10L) .... 4 (M4 x 20L) .... 4 · Grounding wire .... 1 · Projector adjusting remote controller .... 1 · UM-4 (AAA batteries) .... 2 · Label for remote control for adjusting projector 1

•If any part is defective or not found, contact your nearest dealer.

•The specifications of this product are subject to change without notice for reasons such as improving the performance.

•**GM672-UC**

858 (33.8)

1822 (71.7)

806 (31.7)

1535 (60.4)

Specifications

Dimensions	Refer to the figure above: mm(in)
Weight	Total weight: Approx. 203 kg(448 lb)
	Main unit: Approx. 159 kg (351lb), Seat unit: Approx. 44 kg (97 lb)
Rated power consumption	160W
Monitor	29-inch color monitor
Service condition	Temperature 10 to 35°C (50 to 95°F), Humidity 20 to 80%(No dewing is allowed.)
Attachments	· Instruction manual ....This manual · Keys for coin door... 2 · Keys for maintenance .... 2 · Spare fuse (10A) .... 1 · Grounding wire 1

•If any part is defective or not found, contact your nearest dealer.

•The specifications of this product are subject to change without notice for reasons such as improving the performance.

2 Names of parts and list of main parts

•GN672-UC

•**GN672-UC**

No.	Part name	Part #	Quantity	Remarks
1	Projector unit	0000030701	1	
2	Projector	0000002526	1	
3	Projector maintenance door	0000008689	1	
4	Projector adjustment PCB	-	1	
5	Projector input panel	-	1	
6	Fluorescent light unit	0000002522	1	
7	Cock pit unit	0000030697	1	
8	Control lever	0000030691	1	
9	Joint fitting A	0000030508	1	
10	Joint fitting B	0000030509	1	
11	Joint fitting C	0000030510	1	
12	Seat	0000030546	1	
13	Coin door unit	0000003820	1	Include 14 to 19
14	Coin input port	-	1	
15	Coin return lever	-	1	
16	Coin return port	-	1	
17	Maintenance door	-	1	
18	Coin selector	-	1	
19	Coin door	-	1	
20	Coin box	0000006850	1	
21	Coin counter	0000030431	1	
22	Service panel switch	0000005098	2	
23	AC bracket	0000030489	1	
24	AC power cord	-	1	
25	Power switch	0000003197	1	
26	Fuse holder	0000005985	1	Fuse (10A)
27	Ground terminal	0000005622	1	
28	Caster	0000002051	12	
29	Adjuster	0000002405	10	
30	Switching power	0000030690	1	Main PCB (5V)
31	Switching power	0000030688	1	Main PCB (12V)
32	Game PC board	-	1	
33	Speaker	0000002616	2	1set
34	Super woofer	0000003182	1	
35	POWER UP button	0000030686	1	
36	VIEW SHIFT button	0000030685	1	
37	Unit connecting pipe	0000030698	1	
38	Transformer	0000002728	1	

•GM672-UC

•**GM672-UC**

No.	Part name	Part #	Quantity	Remarks
1	Main unit	-	1	
2	Seat unit	-	1	
3	Fluorescent light unit	0000003575	1	
4	29-inch color monitor	0000036033	1	
5	Seat	0000030546	1	
6	Joint fitting A	0000031242	1	
7	Joint fitting B	0000030509	1	
8	Joint fitting C	0000030510	1	
9	Control lever	0000030691	1	
10	Speaker	0000002616	2	1set
11	Coin door unit	0000003820	1	Include 12 to 17
12	Coin input port	-	1	
13	Coin return lever	-	1	
14	Coin return port	-	1	
15	Maintenance door	-	1	
16	Coin selector	-	1	
17	Coin door	-	1	
18	Coin box	0000006850	1	
19	Coin counter	0000030431	1	
20	Service panel switch	0000005098	3	
21	Monitor adjustment PCB	-	1	
22	AC bracket	0000030489	1	
23	AC power cord	-	1	
24	Power switch	0000003197	1	
25	Fuse holder	0000005985	1	Fuse (10A)
26	Ground terminal	0000005622	1	
27	Caster	0000002051	8	
28	Adjuster	0000002405	6	
29	Switching power	0000030690	1	Main PCB (5V)
30	Switching power	0000003800	1	Main PCB (12V)
31	Game PC board	-	1	
32	POWER UP button	0000030686	1	
33	VIEW SHIFT button	0000030685	1	
34	Transformer	0000002728	1	

3 How to play

"SOLAR ASSAULT™" is a machine to play 3D polygon shooting game, the latest version of the "GRADIUS" Series.   Enjoy shooting enemies by commanding the power-up weapons, aiming at higher score.

■How to play ━━━━━━━━━━━━━━━━━━━━━━━━━

•Shoot enemies appearing one after another and get higher score.

•**How to attack enemies**
Use each of the missile, shotgun, laser gun and sharpshooting laser gun properly for shooting down enemies.
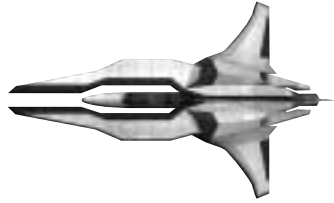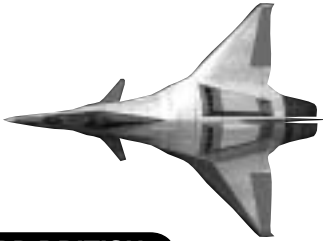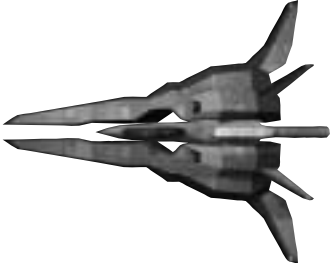
Missile button
·Number of missiles is infinite.
·In the power-up mode, you can fire the missile.
 (It is not possible to fire at the initial stage.)

Trigger button
·Number of shots (ordinary bullets) is infinite.
·In the power-up mode, you can fire the laser gun.
·When the auto power-up mode has been selected,
  this button is effective commonly for operating the
  trigger and firing the missiles.

Missile button
Press this butting when firing the missiles.

Trigger button
Press this button when firing the shotgun.   This button can also be used simultaneously with the missile button.   If both the buttons are pressed at once, you can fire the sharpshooting laser gun.
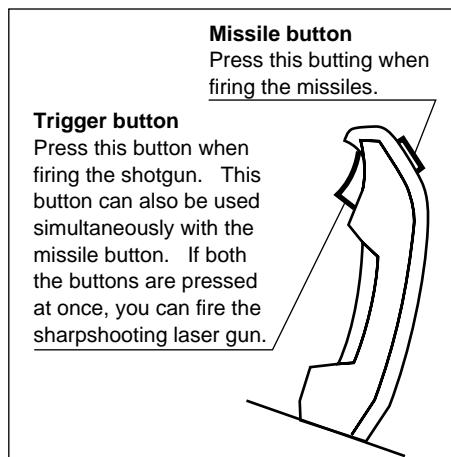
1 Put a coin into the slot and press the VIEW SHIFT button to start the game.
(It is possible to start the game also by pulling the trigger.)

2 You can choose your favorite main fighter among the following three models.

VIC VIPER
•Fighter for advanced-level players
Missile : Fired in front downward direction from the mainfighter.
Double : Bullets are fired in front and front upward directions.
Laser   : Laser beam, which has penetrating destructive power, can destroy or give damage to plural enemies in a row.   In the sharpshooting mode, enemy attacking range enlarges.
Option : Sub-fighter having the same equipment as that of the main fighter.   It traces the movement of the main fighter.
Shield : Protects shooting attack from enemy.

LORD BRITISH
•Fighter moving at high speed
Missile : Fired in front right and left directions from the main fighter.
Double : Bullets are fired in front direction.   They are also fired in the direction inputted by the lever.
Laser   : Circular laser beam covering a large enemy attacking range.   In the sharpshooting mode, the circle of laser beam expanding in a wide range captures enemies and attacks them.
Option : Same as that of VIC VIPER.
Shield : Same as that of VIC VIPER.

ALPINIA
•Fighter for beginners
Missile : Guided missile is launched.
Double : Bullets are fired in three directions: front, upward and downward, and right and left.
Laser   : Short laser beams are emitted simultaneously in parallel.   In the sharpshooting mode, the fighter searches and attacks enemies.
Option : Same as that of VIC VIPER.
Shield : Same as that of VIC VIPER.

3 The power-up operation is selectable from the following two modes:
    ·Manual power-up .... After acquisition of power-up items, the player can decide the power-up equipment by himself.
    ·Auto power-up .... After acquisition of power-up items, the power-up equipment is decided automatically.

4 Then, get the game started. Attack enemies appearing one after another, aiming at getting high score.

5 When the fighters are attacked by enemy, they are destroyed by explosion. If there survives any fighter at that time, reserved fighter appears. When all the fighters are destroyed, the game is over.
The number of surviving fighters increases according to the score.
(Set the number of fighters kept in reserve at the start of game, according to "GAME OPTIONS" on page 23.)

■Shifting of view point ━━━━━━━━━━━━━━━━━━━━━━━

The view point of the player can be changed any time during play by pressing the VIEW SHIFT button.

■Continuing the game ━━━━━━━━━━━━━━━━━━━━━━━━

The continuation of game is accepted for about 20 seconds before the game is over. When the game is continued in the "Continue" mode, the power of equipment is dropped about a half. (When selecting the "Continue" mode, set the position for resuming the game according to "GAME OPTIONS" on page 23.)

■Types of power-up ━━━━━━━━━━━━━━━━━━━━━━━━━

The types of basic power-up are as shown below. They vary depending on the type of fighter. (See page 14.)
    ·Missile …… Enables you to use a missile which can be reinforced in two stages for each fighter.
    ·Double …… Enables you to shoot bullets to other directions than the front.
    ·Laser ……… Enables you to emit laser beam of high attacking power.
    ·Option …… Sub-fighter having the same equipment as that of the main fighter.
    ·Shield …… Barrier to protect the fighters from attack of enemy.

■How to power up ━━━━━━━━━━━━━━━━━━━━━━━━━━

When enemies in formation, a red-marked enemy or specific enemy is destroyed, the enemy emits a power-up capsule when destroyed. The number of capsules currently acquired is displayed on the power-up gauge. When the gauge reaches the level enough for power-up, you can use weapons you want.

    ·In the manual power-up mode, press the power-up button while the gauge of desired item is lit.
    ·In the auto power-up mode, power-up becomes effective automatically when you acquire a capsule.

■How to use the sharpshooting laser gun ━━━━━━━━━━━━━

When the fighter is equipped with the laser gun, it is possible to emit sharpshooting laser beam. To emit sharpshooting laser beam, press both the trigger button and the missile button at the same time and release them after the elapse of certain time. The attacking power is increased by prolonging the button hold-down time.

4 Opening and closing the doors

4-1 Opening and closing the maintenance door

■**How to open the maintenance door** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

•**Take care not to apply any load or impact to the maintenance door when it is open.**

1 Insert the attached maintenance key into the keyhole of the door in the upper portion of the coin door unit, and turn it clockwise.
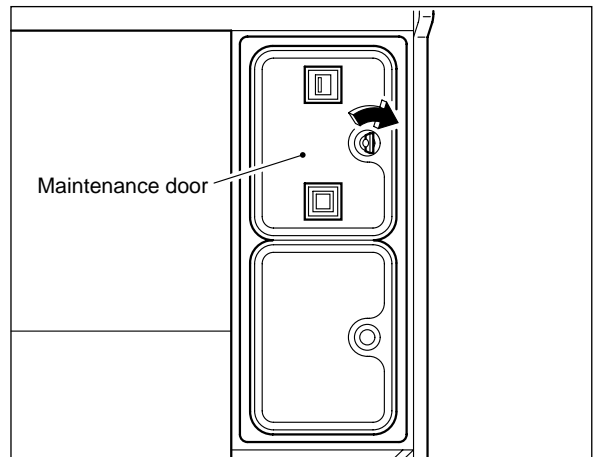
Maintenance door

2 Open the maintenance door.

GN672-UC

GM672-UC
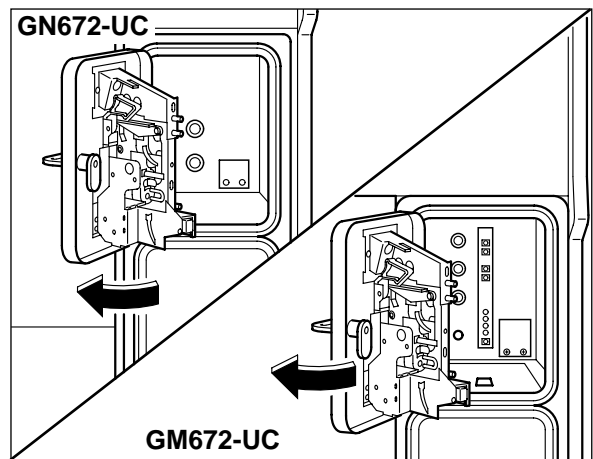
■**How to close the maintenance door** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

1 Close the maintenance door.

2 Turn the maintenance key counterclockwise.

4-2 Opening and closing the coin door

■**How to take out the coin box** ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

•**Securely lock the door for protection against burglaries.**
•**Note that the coin box is considerably heavy to take out if it is full of coins.**

1 | Insert the attached coin box key in the coin box door and turn it clockwise.

2 | Open the coin door and take out the coin box.
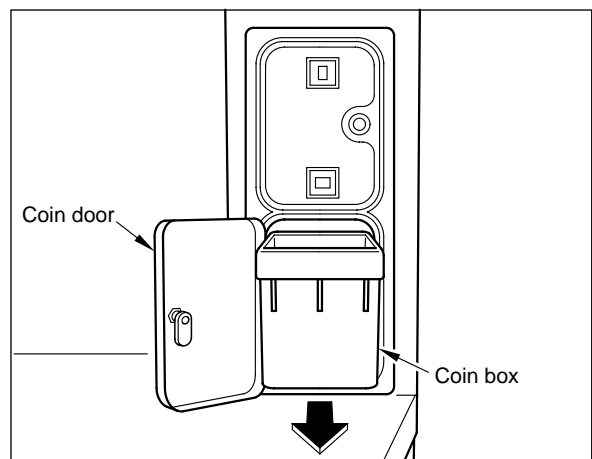
Coin door

Coin box

■**Coin counter** ━

You will find the coin box when the coin door is opened. The coin counter is located under the coin box.

Coin counter
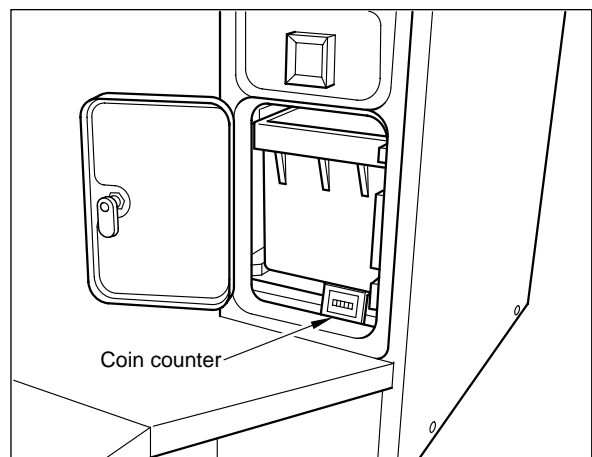
5 PCB settings

5-1 PCB start-up check (self test)

When the power switch is turned ON after installation of machine, the performance of game Printed Circuit Boards (PCB) is checked automatically and the result is displayed on the screen.

⚠️

• **Be sure to perform the self test before using the machine.**
• **If an abnormality persists or the machine does not operate properly, immediately turn OFF the power switch, unplug the power cord from the receptacle and contact your nearest dealer.**

■**Result of test** ▬

If test is OK

·The machine goes to the game mode and the demonstration game gets started.

If any abnormality is detected

· " BAD " appears on the screen, and the checking is repeated.
If "24G BAD" is displayed, once turn OFF the power switch and then turn it ON again while depressing the test switch button on the service panel. (The content of setting in manual test return to those having been set at the time of shipment.)

After the installation of the machine, or after the repair or replacement of PCB, turn ON the power switch while pressing the test switch on the service panel and once return the settings to the factory settings.
If an abnormal display continues or the machine does not operate normally, immediately turn OFF the power switch and contact your nearest dealer.

5-2 Adjusting the game environment (manual test)

Manually check and change the settings for the screen display and game contents.

■**Starting the manual test mode** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

1 Turn ON the power switch.
2 While the demonstration game is playing, press the test switch on the service panel. (Do not turn ON the power switch with the test switch held down. The current settings will be erased and the machine will have the factory settings.)

■**Quit the manual test mode** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

1. Press the VIEW SHIFT button or POWER UP button to select "GAME MODE" on the main menu.
2. Pull the trigger.
 · The screen goes back to the game mode.

■**Main menu screen (basic items)** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

```
        MAIN MENU


    I/O CHECK ─────────────
    ANALOG STICK CHECK ────────
    SCREEN CHECK ──────────
    COLOR CHECK ─────────
    C.G. BOARD CHECK ───────
    MASK ROM CHECK ─────────
    SOUND OPTIONS ─────────
    GAME OPTIONS ──────────
    COIN OPTIONS ─────────
    GAME MODE ───────────




    VIEW SHIFT / POWER UP  = SELECT ITEM
    MAIN TRIGGER / MISSILE = DO CHECK
```

•Checking the controls.
-->Page 20
•Checking the control lever movable range.
-->Page 21
•Adjusting the screen distortion.
-->Page 21
•Adjusting the display color.
-->Page 21
•Checking the C.G. board function.
-->Page 22
•Checking the mask ROMs.
-->Page 21
•Adjusting the sound volume.
-->Page 22
•Setting the game options.
-->Page 23
•Setting the coin options.
-->Page 23
•Return to game mode.

■**Selecting each mode** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

How to select each mode from the main menu

·SELECT --> Press the VIEW SHIFT button or POWER UP button.

·SET   --> Pull the trigger.

After selecting a mode, refer to the page on which that mode is described in details.

5-3 Mode descriptions

■ The original factory settings are displayed in green; the changed settings are displayed in red.

·After the settings have been changed, select the "SAVE AND EXIT" and pull the trigger.   The new settings are saved automatically and the screen returns to the main menu.

·If "EXIT" is selected after the settings have been changed, the message "YOU DID NOT SAVE, DO YOU WANT TO SAVE? YES / NO" will appear. Using the control lever, select "YES" or "NO" and pull the trigger.
If "YES" is selected, the message "NOW SAVING" will appear, the modified settings will be saved, and the screen will return to the main menu.
If "NO" is selected, the message "NO MODIFICATION" will appear and the modified settings will not be saved.

•When "FACTORY SETTINGS" is selected and the trigger is pulled, all the settings return to the factory settings.

MEMO

I/O CHECK

Checking the controls

■Mode for checking the performace each control.
To return to the main menu, press both the trigger button and the missile button at the same time.

```
                    I/O CHECK
CONTROL LEVER
    VERTICAL    +0000    +--+-------------+-------------+--+
               (8020)    UP           NEUTRAL          DOWN

    HORIZONTAL  +0000    +--+-------------+-------------+--+
               (8020)    LEFT         NEUTRAL          RIGHT


        TRIGGER    :OFF        TEST SWITCH  :OFF
        MISSILE    :OFF        SERVICE      :OFF
        POWER UP   :OFF        COIN MECH    :OFF
        VIEW       :OFF        LAMP STATUS  :



           MAIN TRIGGER AND MISSILE = EXIT
```

·Position changes corresponding to entered value.

·Indicates decimal (hexadecimal) figure of the value set by control lever.   It is normal when the mark "▌" comes to DOWN position with the lever being pulled fully toward you and when the mark "▌" comes to UP position with the lever being pulled fully far from you.

·Indicates decimal (hexadecimal) figure of the value set by control lever.   It is normal when the mark "▌" comes to RIGHT position with the lever being pulled fully to the right and when the mark "▌" comes to LEFT position with the lever being pulled fully to the left.

ANALOG STICK CHECK

Checking the control lever movable range

■ Mode for checking the control lever movable range.

Move the control lever while watching the screen and make sure that the cross point is within the preset range.   If the cross point is out of the preset range, contact your nearest dealer.   To return to the main menu, pull the trigger.

ANALOG STICK CHECK

+
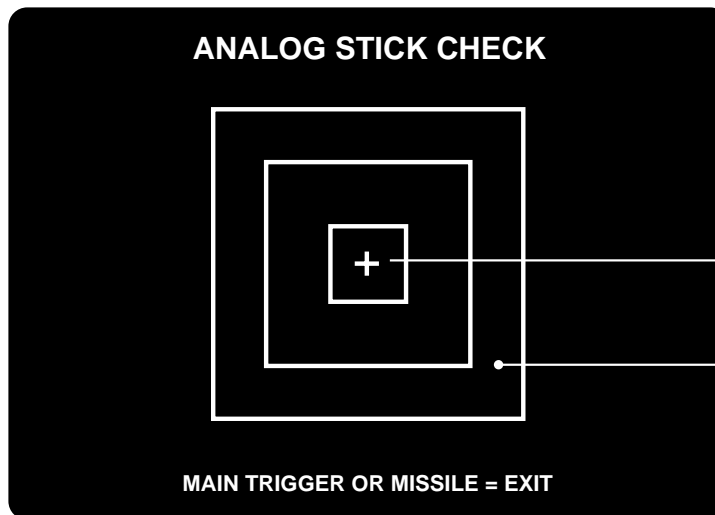
·The position of cross point changes corresponding to entered value.   It is normal when the cross point is in the blue frame in the still mode.

·It is normal when the cross point remains between the white and red frames with the control lever being pulled fully up, down, to the right or the left.

MAIN TRIGGER OR MISSILE = EXIT

SCREEN CHECK

Adjusting the screen distortion

■ Mode for checking the screen display.

Adjust the focus, distortion and size of the image on the screen while watching the crosshatch pattern according to "Adjusting the projector (See page 42.) and monitor". (See page 44.)   To return to the main menu, pull the trigger.

COLOR CHECK

Adjusting the display color

■ Mode for checking the display color.

Adjust the color of the image on the screen according to "Adjusting the projector (see page 42.) and monitor" (see page 44.) so that the colors of the color bars appear in distinct gradation and the background becomes sufficiently dark.   To return to the main menu, pull the trigger.

MASK ROM CHECK

Checking the mask ROMs

■ The mask ROMs are checked one by one.

If the ROM is not in trouble, " OK " is displayed.

If anything unusual is found, "BAD " appears.   Once in this mode, this checking gets started automatically.   To return to the main menu, pull the trigger.

• If "BAD" appears, immediately turn OFF the power switch, unplug the power cord from the receptacle and contact your nearest dealer.

CG BOARD CHECK

Checking the CG board function

■ Mode for checking the function of the CG board.
Observe the screen in this mode to make sure that the CG board is functioning well.
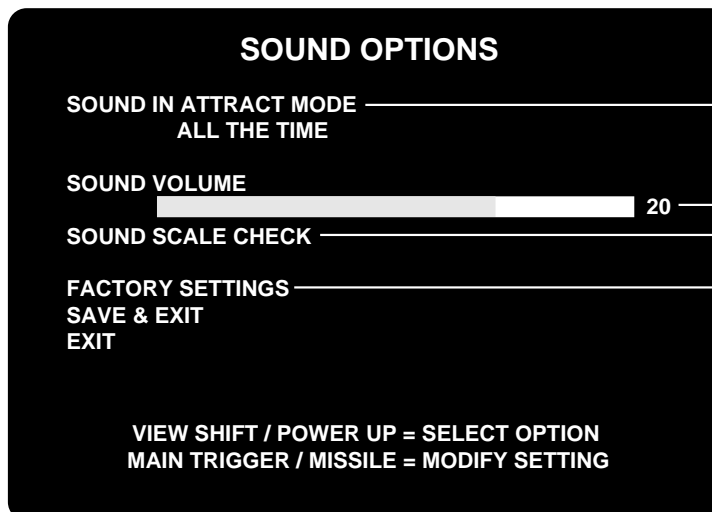To return to the main menu, pull the trigger.

C.G.BOARD CHECK

SOLAR ASSAULT

MAIN TRIGGER OR MISSILE = EXIT

•The "SOLAR ASSAULT" logo is shown before the cubes.

•Two cubes are rotating and entangled with each other.

•The background shown behind the cubes is turning.

SOUND OPTIONS

Adjusting the sound volume

■ In this mode, the following appears on the screen.
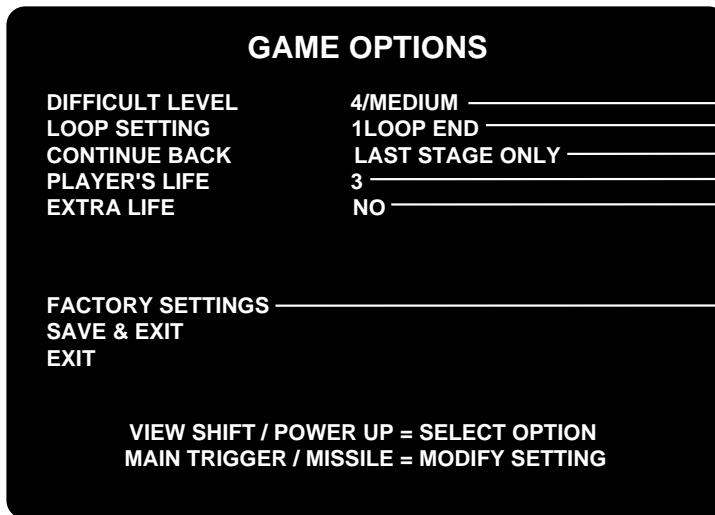To return to the main menu,select " SAVE & EXIT " or " EXIT " and pull the trigger.

SOUND OPTIONS

SOUND IN ATTRACT MODE
    ALL THE TIME

SOUND VOLUME
    20

SOUND SCALE CHECK

FACTORY SETTINGS
SAVE & EXIT
EXIT

VIEW SHIFT / POWER UP = SELECT OPTION
MAIN TRIGGER / MISSILE = MODIFY SETTING

•Turns on and off the demo play sound.
  ·ALL THE TIME……………Sound always on.
  ·ONCE EVERY 4 CYCLES ……Sound on every 4 cycles.
  ·COMPLETE OFF…………Sound always off.

•Adjust the volume from the level 0 (no sound) to 30 (max.).
 *To increase the sound volume, pull the trigger.
 To decrease it, press the missile button.

•You will hear a do-re-mi…do musical scale from the left speaker first and then from the right speaker, which is repeated twice.
The second round is given acoustic echo.

•Returns all the settings to the factory settings.

22

GAME OPTIONS

Setting the game options

■ In this mode, the following appears on the screen.
To return to the main menu, select "SAVE AND EXIT" or "EXIT" and pull the trigger.

```
              GAME OPTIONS

DIFFICULT LEVEL        4/MEDIUM
LOOP SETTING           1LOOP END
CONTINUE BACK          LAST STAGE ONLY
PLAYER'S LIFE          3
EXTRA LIFE             NO


FACTORY SETTINGS
SAVE & EXIT
EXIT

      VIEW SHIFT / POWER UP = SELECT OPTION
      MAIN TRIGGER / MISSILE = MODIFY SETTING
```

•Sets a difficulty level (from the 8 levels).

1/EASIEST	Easier
2/VERY EASY	
3/EASY	
4/MEDIUM	**Medium**
5/MEDIUM HARD	
6/HARD	
7/VERY HARD	
8/HARDEST	Harder

•Sets the game-end loop.
·1LOOP END …Game ends in one loop.
·2LOOP END …Game ends in two loops.

•When continuing the game, the position from where the game gets restarted is set.
·NO BACK ……Game is resumed from the position where "Continue" is set.
·ALL STAGE …Game is resumed from the first part of the last stage where "Continue" is set.
·LAST STAGE ONLY…Game is resumed from the first part of the last stage only when "Continue" is set in the last stage. In other stages, game is resumed from the position where "Continue" is set.

•Sets the number (1 to 7) of player's fighters to be kept in reserve.

•When the player's score reaches the preset score, the number of player's fighters to be kept in reserve is set.
·NO……………No setting
·200000PTS …One fighter is added for 200000 points
·500000PTS …One fighter is added for 500000 points

•Returns all the settings to the factory settings.

COIN OPTIONS

Setting the coin options

■ In this mode, the following appears on the screen.
To return to the main menu, select "SAVE AND EXIT" or "EXIT" and pull the trigger.

⚠

•**Note that the coin setting options are not displayed when "FREE PLAY" is set to "YES".**

```
              COIN OPTIONS

FREE PLAY             NO
COIN MECHANISM        INDEPENDENT
COIN SLOT(S)          1 COIN 1 CREDIT(S)
START SETTINGS        1 CREDIT(S) TO START
                      1 CREDIT(S) TO CONTINUE


FACTORY SETTINGS
SAVE AND EXIT
EXIT

      VIEW SHIFT / POWER UP = SELECT OPTION
      MAIN TRIGGER / MISSILE = MODIFY SETTING
```

•Always keep this at "INDEPENDENT".

•Sets the relation between the number of coins and the number of credits (1 to 16).

•Sets the number of credits (1 to 16) required to start the game.

•Sets the number of credits (1 to 16) required to continue the game.

•Returns all the settings to the factory settings.
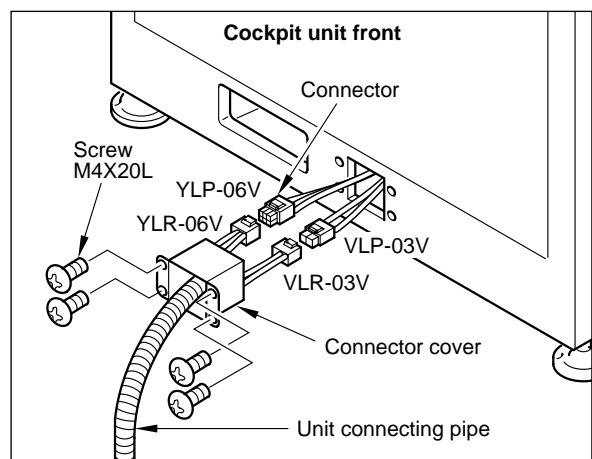
6 Setting up the game machine

6-1 Connecting the units (GN672-UC only)

■How to connect the units ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

- •Do not move the units by pulling bundled wires, connectors or unit connecting pipes, which come out of the cockpit unit and the projector.
- •When connecting the cockpit unit or attaching the connector cover, pay due attention not to pinch the bundles of wires.

1 ┃ Connect the connectors coming out of the cockpit unit to those of the unit connecting pipe.

2 ┃ Attach the connector cover with the accompanying screws.

Cockpit unit front

Connector
Screw M4X20L
YLP-06V
YLR-06V
VLP-03V
VLR-03V
Connector cover
Unit connecting pipe

3 ┃ Connect the connectors coming out of the projector unit to those of the unit connecting pipe.

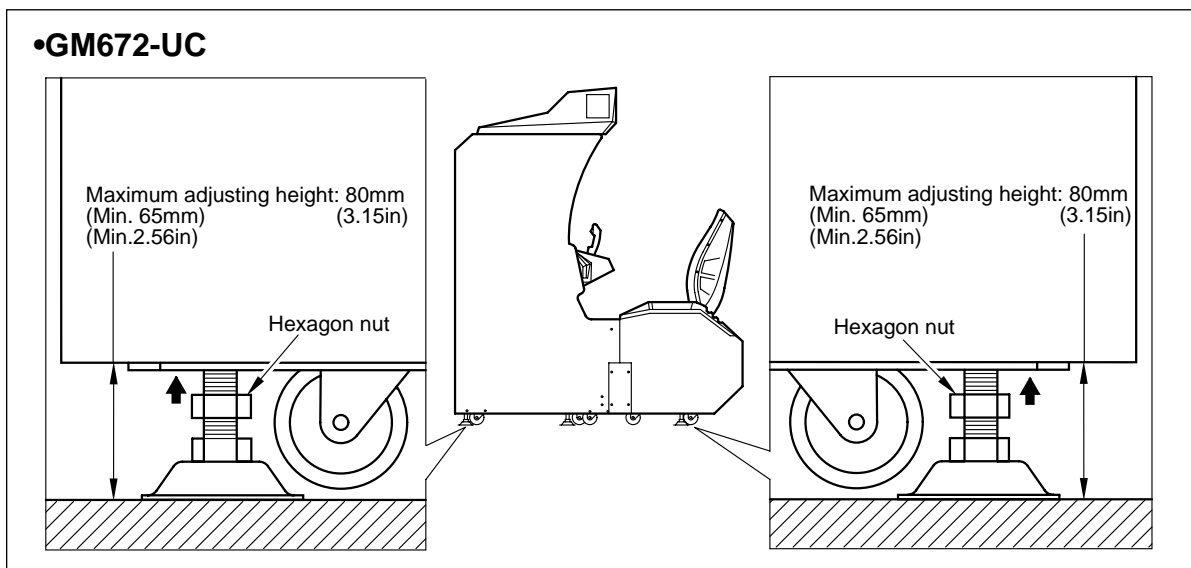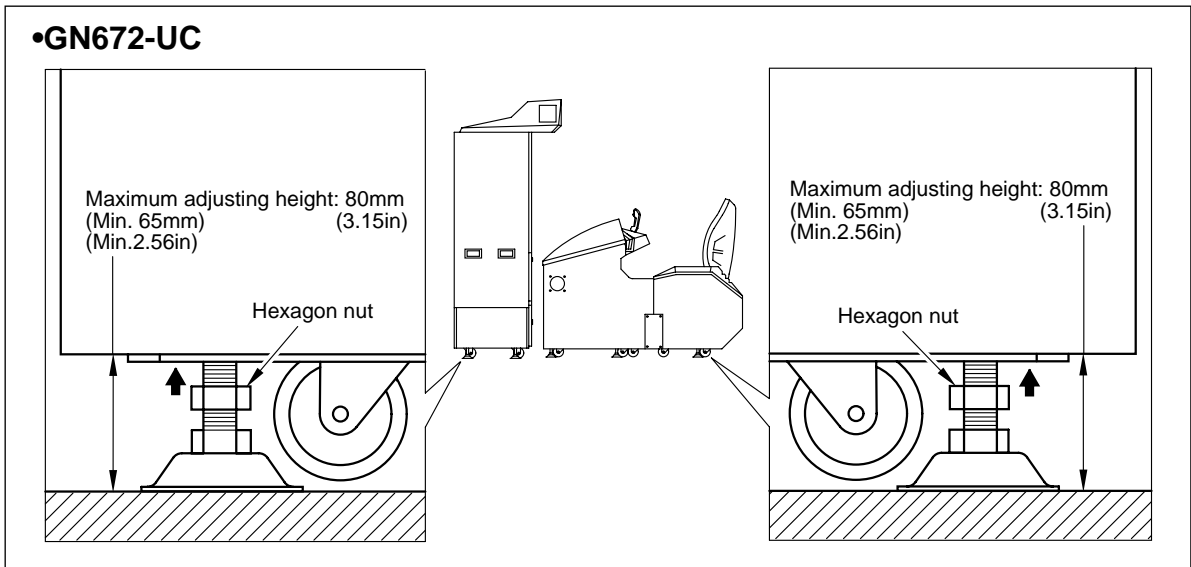**4** ┃ Attach the connector cover with the accompanying screws.

Cockpit unit front

YLR-06V
Screw M4X10L
YLP-06V
VLR-03V
VLP-03V
Connector
Connector cover

24
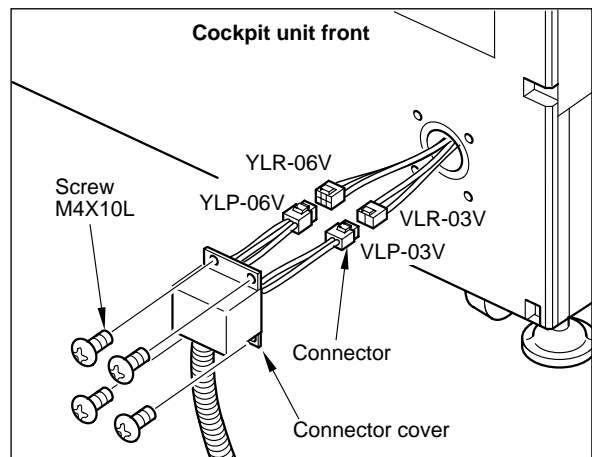
6-2 Fastening the adjusters

■How to fasten the adjusters ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

•**Adjust the adjusters so that the casters do not touch the floor.   Take care not to exceed the maximum adjusting height of the adjuster.**
•**Place the 10 level adjusters (6 adjusters for GM672-UC) on the floor, make sure that the machine is installed stable at level and then tighten the hexagonal nuts upward.**
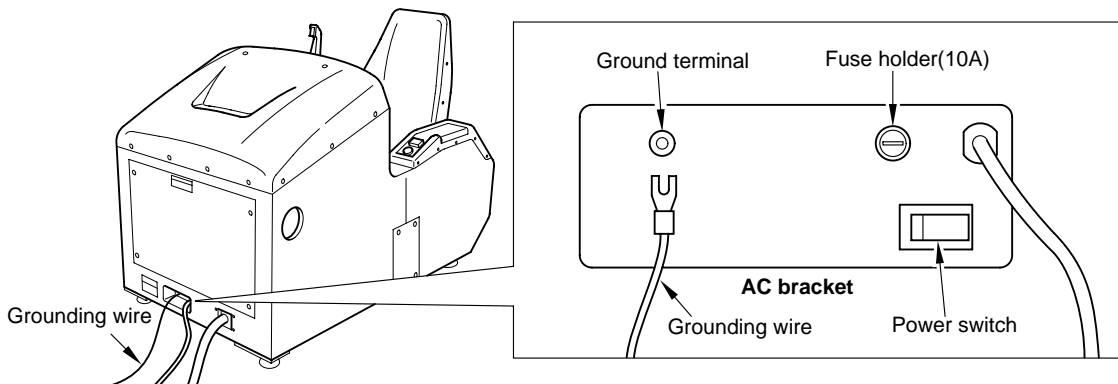
•**GN672-UC**

Maximum adjusting height: 80mm
(Min. 65mm)   (3.15in)
(Min.2.56in)

Hexagon nut

Maximum adjusting height: 80mm
(Min. 65mm)   (3.15in)
(Min.2.56in)

Hexagon nut

•**GM672-UC**

Maximum adjusting height: 80mm
(Min. 65mm)   (3.15in)
(Min.2.56in)

Hexagon nut

Maximum adjusting height: 80mm
(Min. 65mm)   (3.15in)
(Min.2.56in)

Hexagon nut

25

6-3 AC bracket

■**AC bracket** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

•**Be sure to connect the accompanying grounding wire to the machine. Never connect the grounding wire to gas pipe, water pipe or telephone ground terminal.**
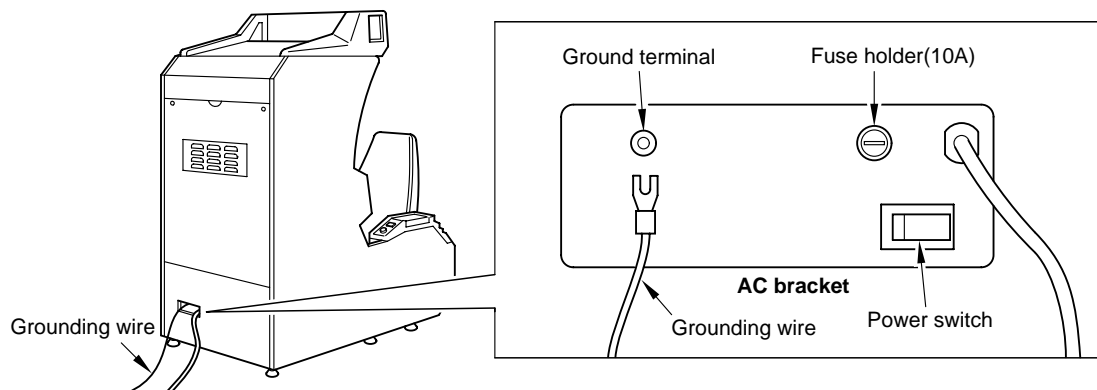
•**GN672-UC**
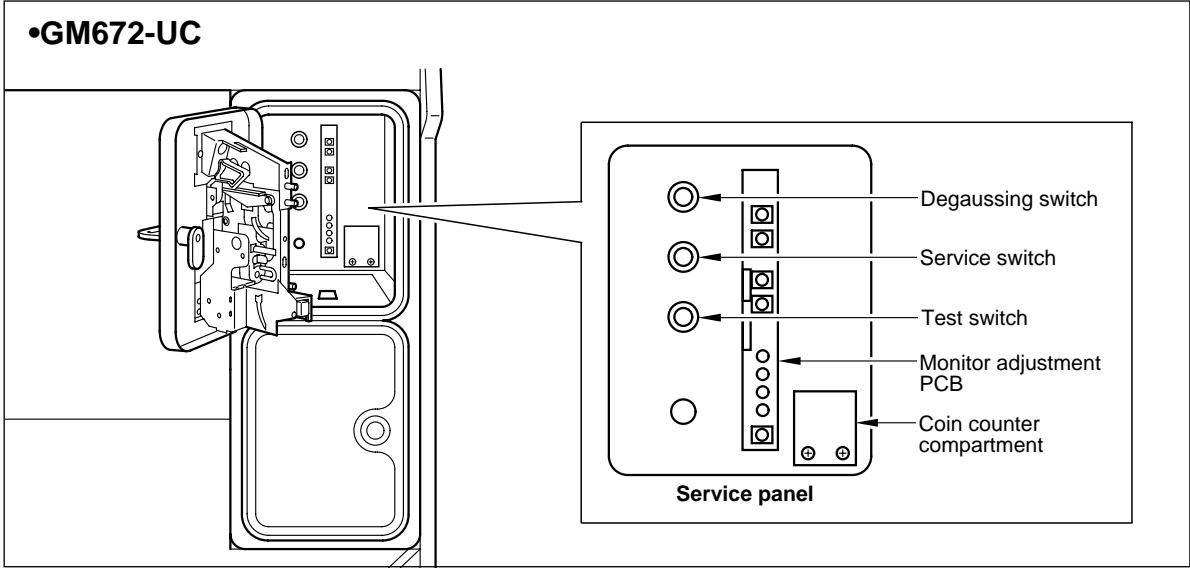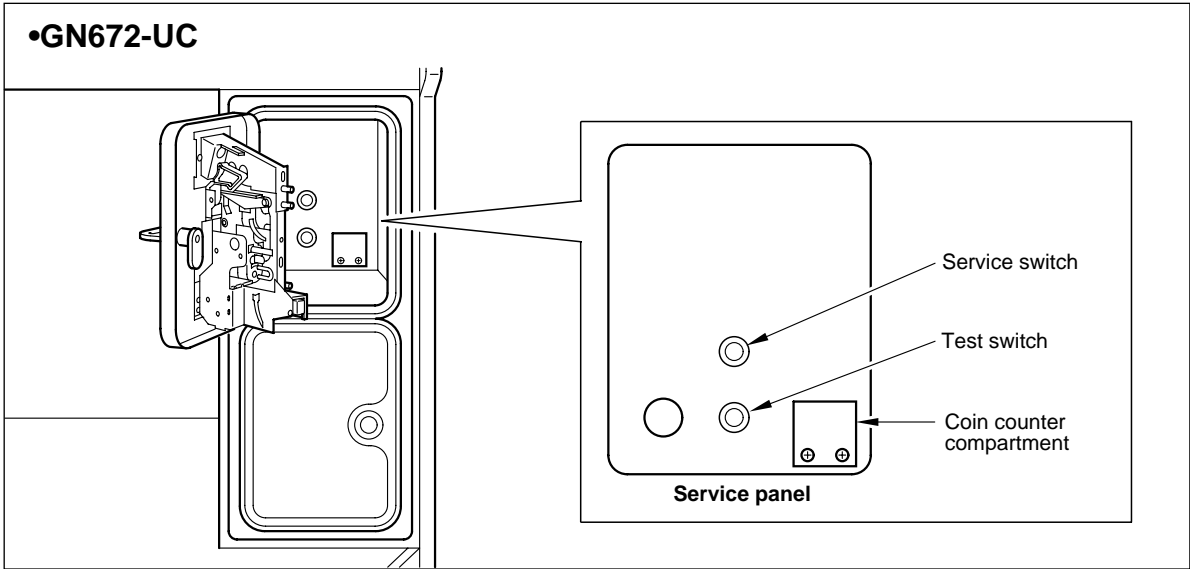There is an AC bracket at the front of the cockpit unit.

Ground terminal   Fuse holder(10A)

AC bracket

Grounding wire   Grounding wire   Power switch

•**GM672-UC**
There is an AC bracket at the back of the main unit.

Ground terminal   Fuse holder(10A)

AC bracket

Grounding wire   Grounding wire   Power switch

6-4 Service panel

■Service panel ▬

You will find the service panel when the maintenance door is opened with the attached maintenance key.

•GN672-UC

Service switch
Test switch
Coin counter compartment

Service panel

•GM672-UC

Degaussing switch
Service switch
Test switch
Monitor adjustment PCB
Coin counter compartment

Service panel

6-5 Separating and moving the units

■**How to separate the GN672-UC machine units** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬
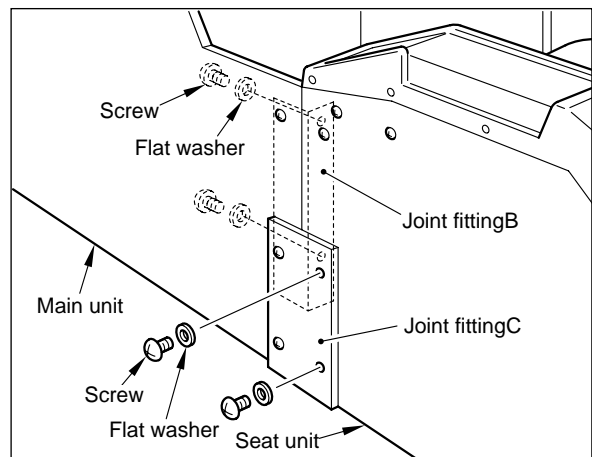
The machine can be divided into the units.

⚠

•**Before separating the units from the machine, be sure to turn OFF the power switch and remove the power cord plug from the receptacle.**
•**When moving the machine, be sure to separate the cockpit unit and the projector unit beforehand.**
•**Do not apply undue force while moving the units.**
•**When connecting the separated units, take care not to catch the wiring and your hand between the units.**

1 ┃ Remove the connector cover and disconnect all the connectors.

Projector unit front

YLR-06V
Screw M4X10L
YLP-06V
VLR-03V
VLP-03V
Connector
Connector cover
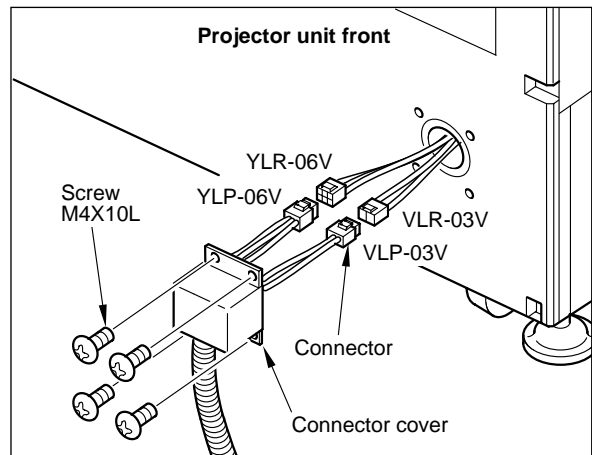
2 ┃ Raise all the adjusters and move the units on the casters.
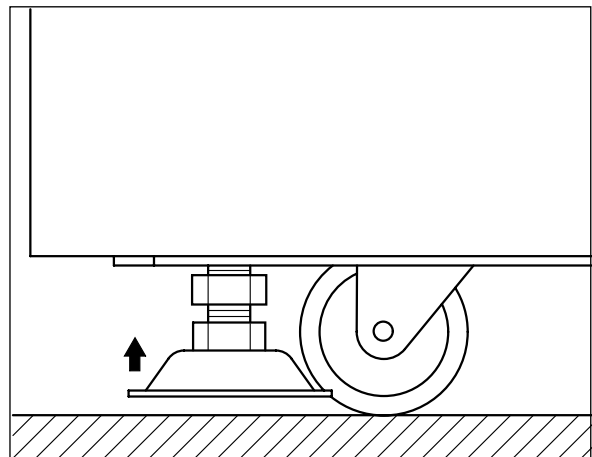
■How to separate the GM672-UC machine units ━━━━━━━━━━━━━━━

The machine can be divided into the units.

⚠

- **Before separating the units from the machine, be sure to turn OFF the power switch and remove the power cord plug from the receptacle.**
- **When moving the machine, be sure to separate the main unit and the seat unit beforehand.**
- **Do not apply undue force while moving the units.**
- **When connecting the separated units, take care not to catch the wiring and your hand between the units.**

1 ▌ Remove the screws off the joint fitting A at the side of the seat unit.

Joint fitting A
Main unit
Screw
Seat unit Flat washer
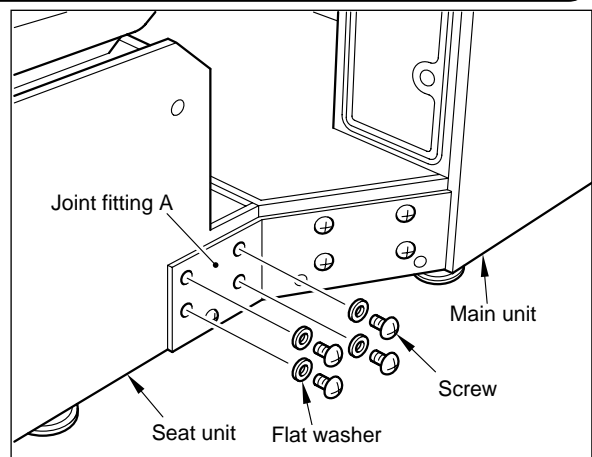
2 ▌ Remove the screws off the joint fitting B and C at the side of the seat unit.

Screw
Flat washer
Joint fittingB
Main unit
Joint fittingC
Screw
Flat washer Seat unit

3 ▌ Disconnect the connectors of the main unit and the seat unit.
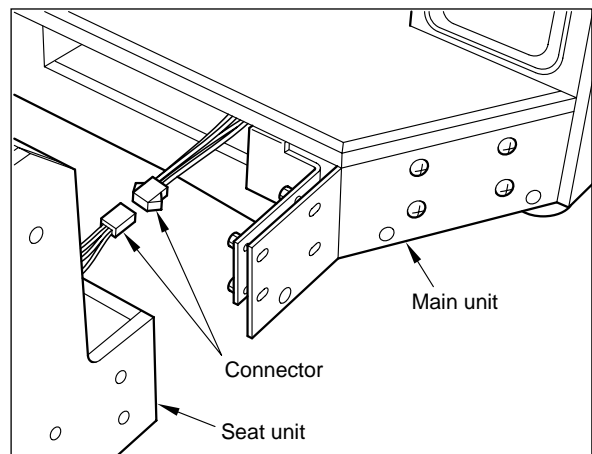
4 ▌ Reconnect the units in the reverse order of the above-mentioned steps.

Main unit
Connector
Seat unit

29

6-6 Moving the coin counter

The coin counter was installed in the coin box when the machine left the factory, but it can be moved onto the service panel.
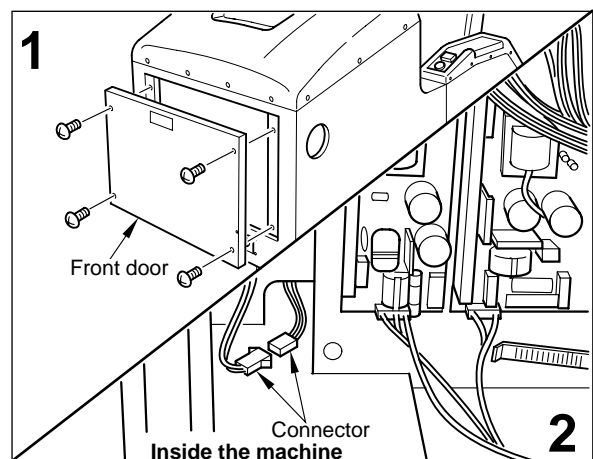
■**How to move the coin counter of the GN672-UC machine** ▬▬▬▬▬▬▬▬

⚠

•**Turn OFF the power switch and unplug the power cord from the receptacle before moving the coin counter.**
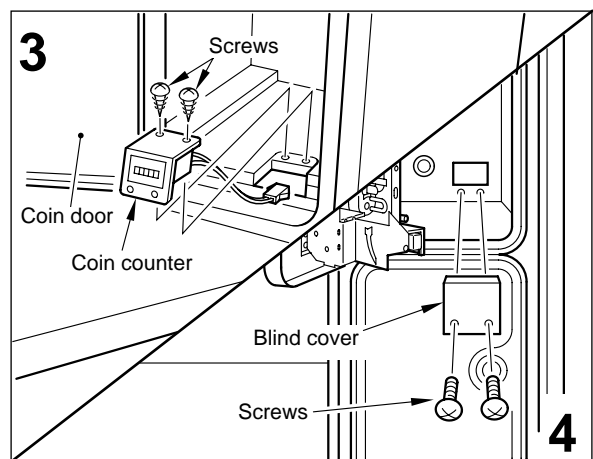
1 Remove the front door of the cockpit unit.
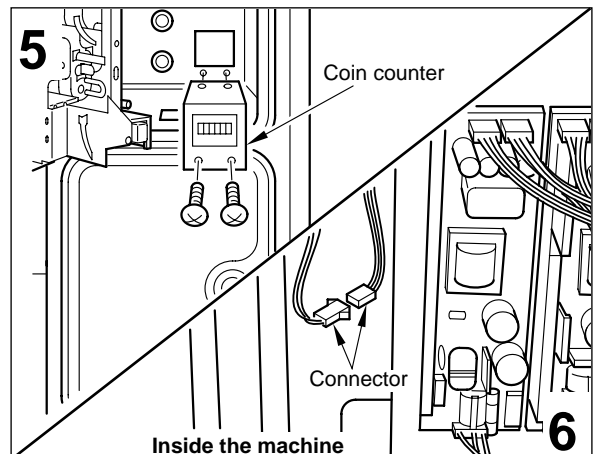
2 Disconnect the coin counter connector.

Front door

Connector
Inside the machine

3 Open the coin door, remove the coin counter lock screws, and take out the coin counter.

4 Open the maintenance door and unscrew the blind cover to remove it from the service panel.

Screws

Coin door

Coin counter

Blind cover

Screws

5 Fit and fix the coin counter on the service panel with the screws.

6 Reconnect the coin counter connector to the original connector.

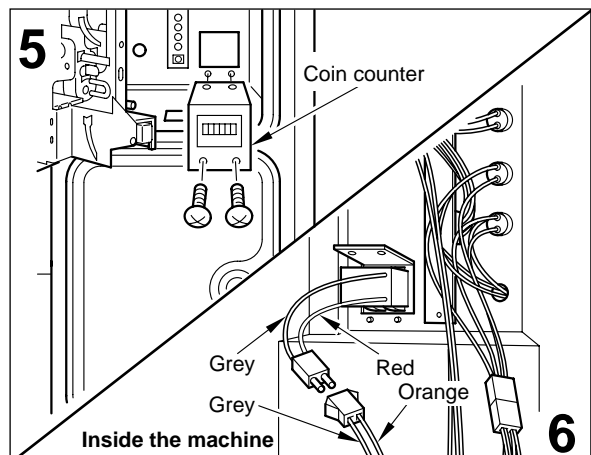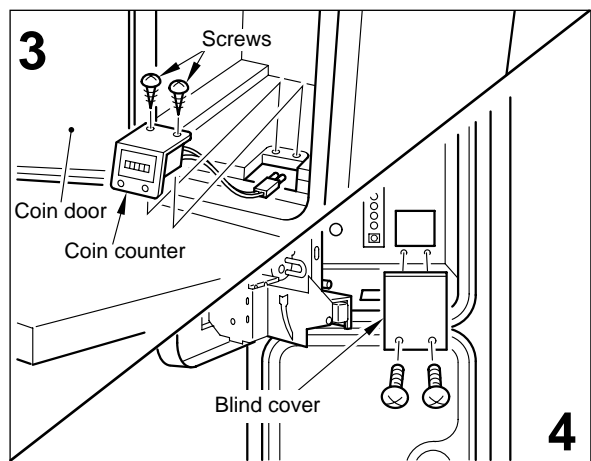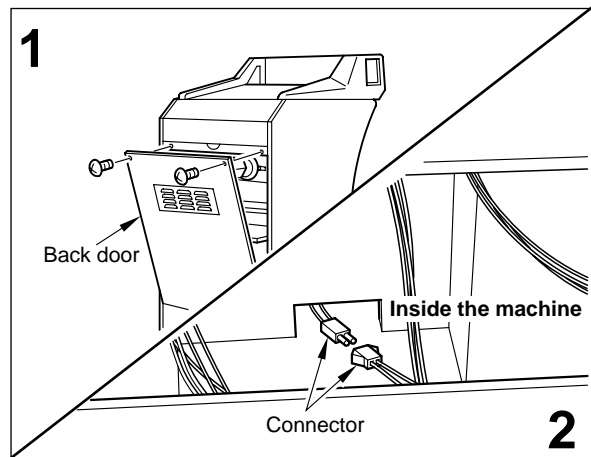•The removed blind cover is not used. Keep it in a safe place.

━ **MEMO** ━

Coin counter

Connector

Inside the machine

■**How to move the coin counter of the GM672-UC machine** ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

•**Be sure to turn OFF the power switch and unplug the power cord before moving the coin counter.   The monitor and its periphery are still charged with high voltage even when the power cord has been unplugged.   Never touch those parts.**
•**When closing the back door, be sure to secure it with the two screws.**

1 ▌ Remove the back door.

2 ▌ Disconnect the coin counter connector.

Back door

Inside the machine

Connector

1
2

3 ▌ Open the coin door, remove the coin counter lock screws, and take out the coin counter.

4 ▌ Open the maintenance door and unscrew the blind cover to remove it from the service panel.

Screws

Coin door

Coin counter

Blind cover

3
4

5 ▌ Fit and fix the coin counter on the service panel with the screws.

6 ▌ Reconnect the coin counter connector to the original connector.

•The removed blind cover is not used.   Keep it in a safe place.
━ MEMO ━

Coin counter

Grey
Grey

Red
Orange

Inside the machine

5
6

MEMO

7 Maintenance and annex

7-1 Replacing the coin selector

■How to replace the coin selector ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

•Be sure to turn OFF the power switch and remove the power cord plug from the receptacle before replacing the coin selector.

1 ▎ Open the maintenance door.

2 ▎ Remove the bolts (2 pieces) off the coin selectors.   Slide the coin selectors to the right to taken them out.   See the sketch at right.

3 ▎ When mounting the coin selector, push up the lever and follow the procedure in the reverse order.
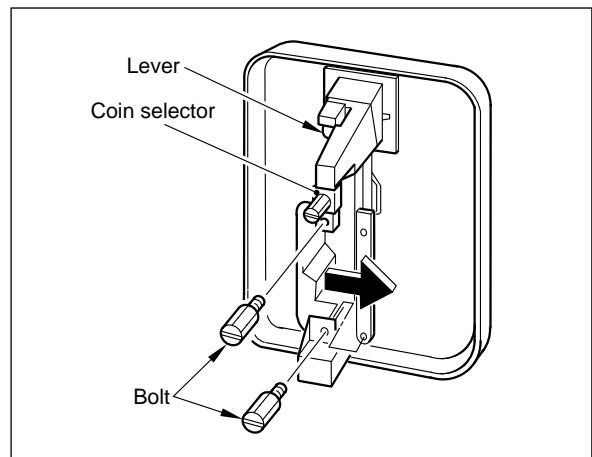
7-2 Replacing the fuse

■How to replace the fuse (10A, 1 pc.) ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

•Before replacing the fuse, be sure to turn OFF the power switch and unplug the power cord from the receptacle.
•Be sure to replace the fuse with a new one of the same type.
•If the machine is in abnormal conditions and does not operate normally, immediately turn OFF the power switch, unplug the power cord from the receptacle and contact your nearest dealer.

1 ▎ Using a bladed screwdriver, turn counterclockwise the cap of the fuse holder on the AC bracket, and draw out the cap.

2 ▎ Take out the fuse and set a new one in position.   Tighten up the cap.
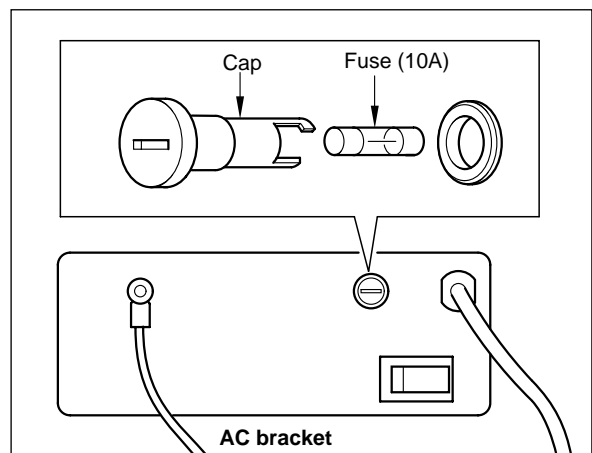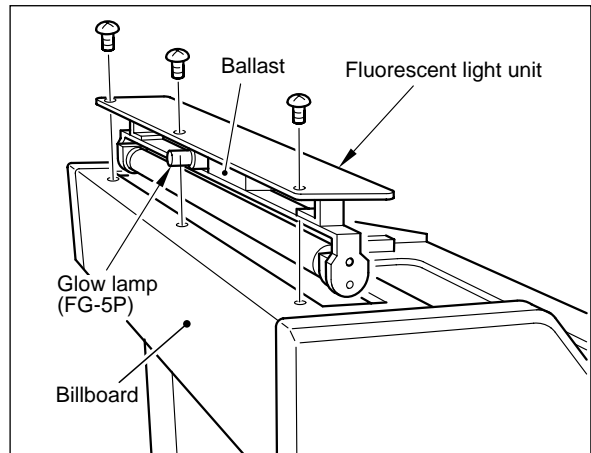
7-3 Replacing the fluorescent light

■ **How to replace the fluorescent light of the GN672-UC machine** ▬ ▬ ▬ ▬ ▬

⚠

- Before replacing the fluorescent light, be sure to turn OFF the power switch and unplug the power cord from the receptacle.
- The fluorescent light is hot just after it is put off. Wait until it cools down and then replace it with a new one of the same type (straight tube 32W / 100V).
- When installing and removing the fluorescent light unit, take care not to damage the wiring connecting the fluorescent light unit and the game machine.

1 Remove the fluorescent light unit lock screws off the top of the billboard.

2 Lift the fluorescent light unit off position. Be careful not to hit against the ballast.

Ballast   Fluorescent light unit

Glow lamp
(FG-5P)

Billboard

3 Push one end of the fluorescent light in the direction of the socket. The other end of the fluorescent light will be detached from the opposite socket.

4 Install a new fluorescent light in the reverse order.
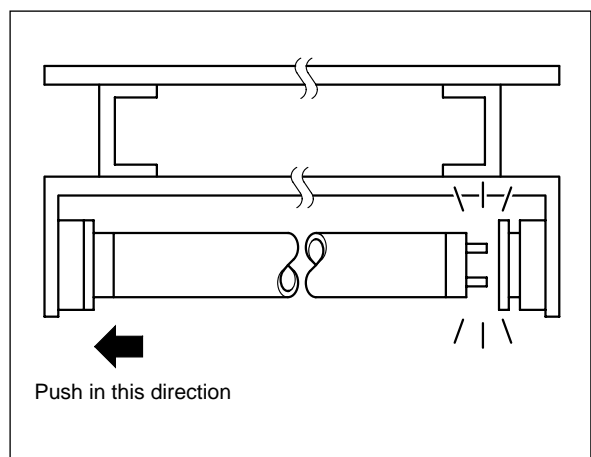
Push in this direction

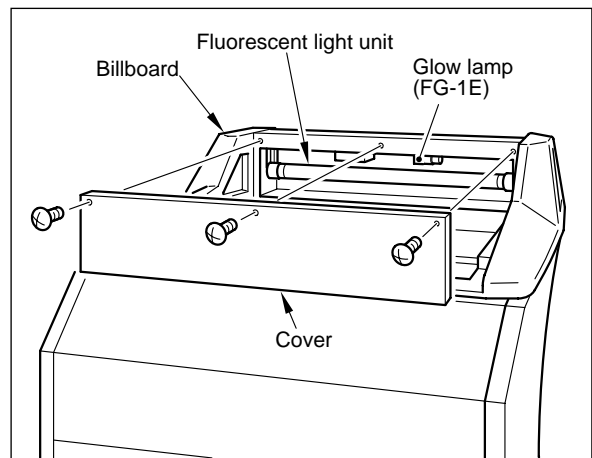• It is recommended that the glow lamp should be also replaced.

MEMO

34

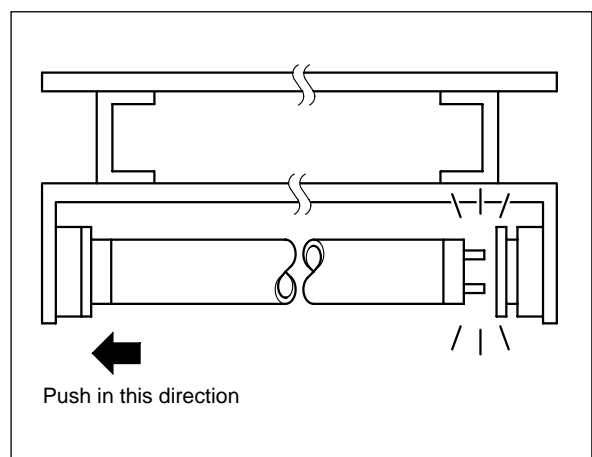■**How to replace the fluorescent light of the GM672-UC machine** ▬ ▬ ▬ ▬ ▬

⚠

•**Before replacing the fluorescent light, be sure to turn OFF the power switch and unplug the power cord from the receptacle.**
•**The fluorescent light is hot just after it is put off.   Wait until it cools down and then replace it with a new one of the same type (straight tube 20W / 100V).**

1 ▌ Remove the cover off the back of the billboard.

Fluorescent light unit
Billboard
Glow lamp (FG-1E)
Cover

2 ▌ Push one end of the fluorescent light in the direction of the socket. The other end of the fluorescent light will be detached from the opposite socket.

3 ▌ Install a new fluorescent light in the reverse order.

Push in this direction

• It is recommended that the glow lamp should be also replaced.

MEMO

7-4 Replacing the control lever unit

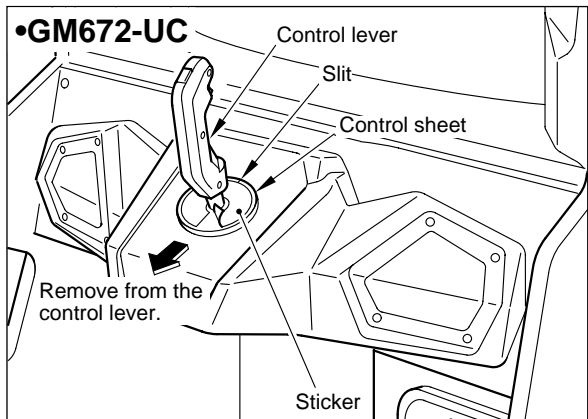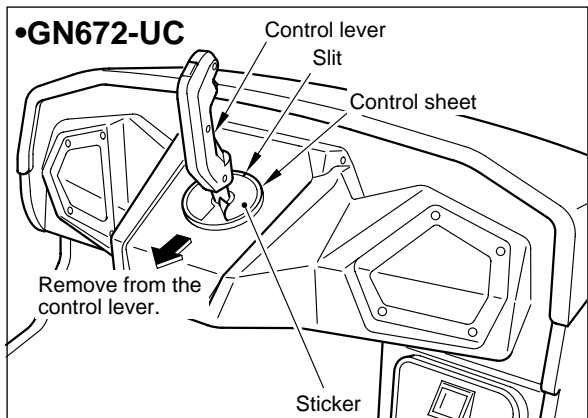■**How to replace the control lever unit** ▬▬▬▬▬▬▬▬▬▬▬▬▬▬

⚠

•**Be sure to turn OFF the power switch and unplug the power cord before replacing the control lever unit.**
•**Use care not to injure yourself by a sharp edge of metal plate during replacement of the control lever unit.**

1 Peel off the sticker of the control sheet up to the slit and remove the control sheet from the control lever.
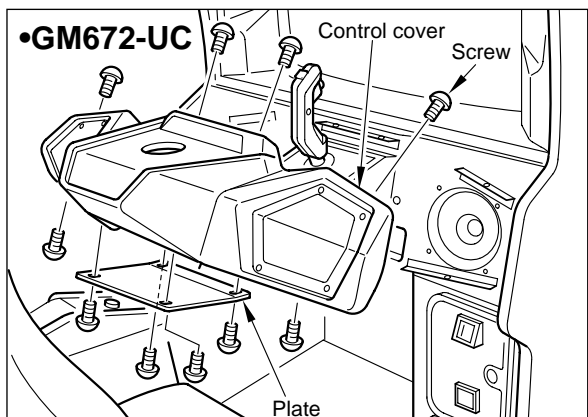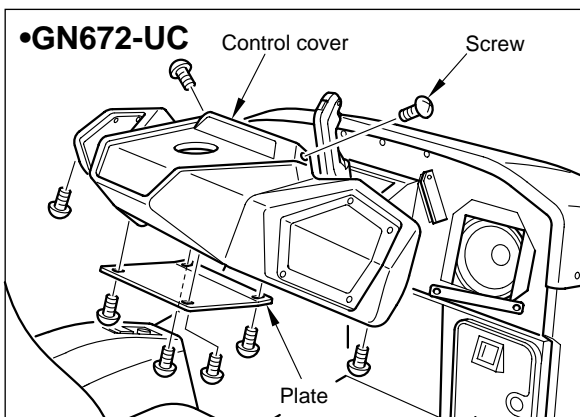
Slit

Control sheet   Sticker
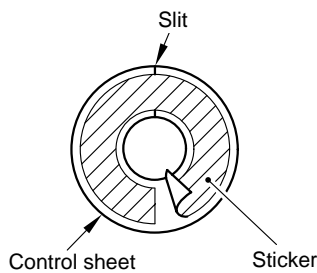
•The control sheet is used again after replacement of the control lever unit. Keep it in a safe place.
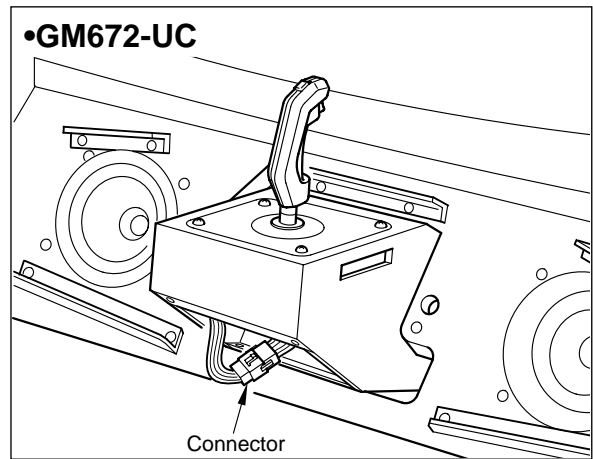
MEMO

•**GN672-UC**   Control lever
Slit
Control sheet

Remove from the control lever.

Sticker

•**GM672-UC**   Control lever
Slit
Control sheet

Remove from the control lever.

Sticker

2 Remove the screws and then the control cover and the plate.

•**GN672-UC** Control cover   Screw

Plate

•**GM672-UC** Control cover   Screw

Plate

36

3 ▌ Disconnect the connector from the control lever.

•GN672-UC

Connector

•GM672-UC

Connector
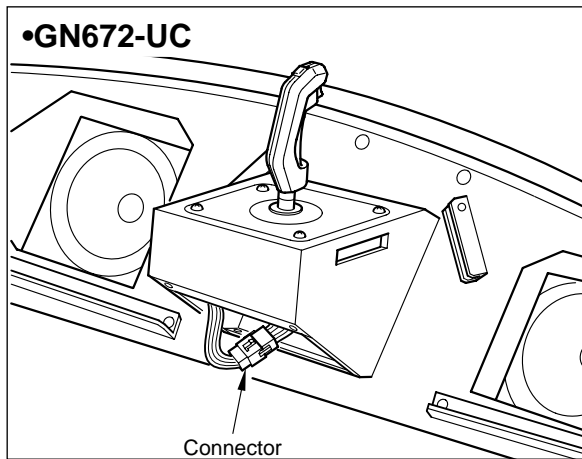
4 ▌ Remove the screws and then the control lever unit.

•GN672-UC

Control lever unit

Screw

•GM672-UC

Control lever unit

Screw
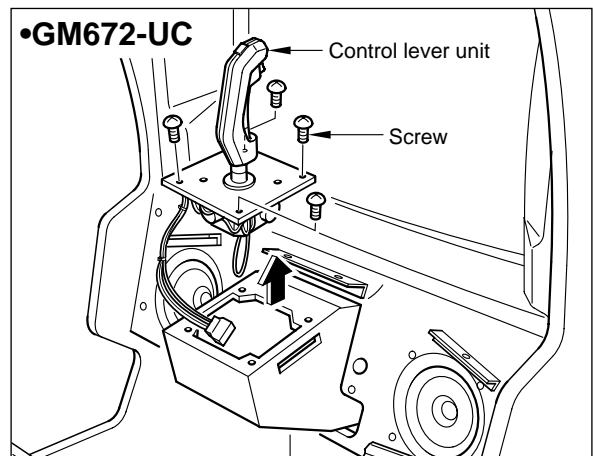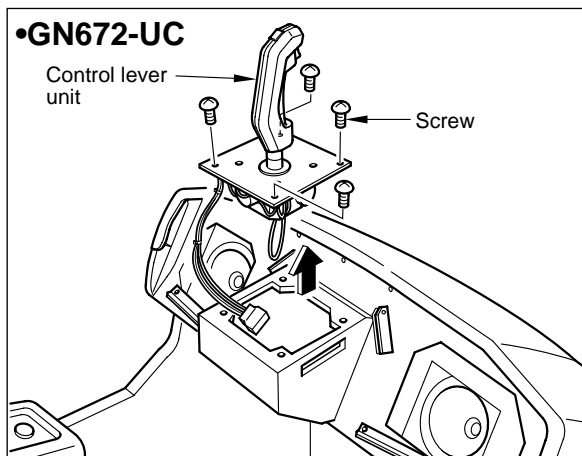
5 ▌ Reassemble the control lever unit in the reverse order of the above mentioned steps.

7-5 Replacing the press-button
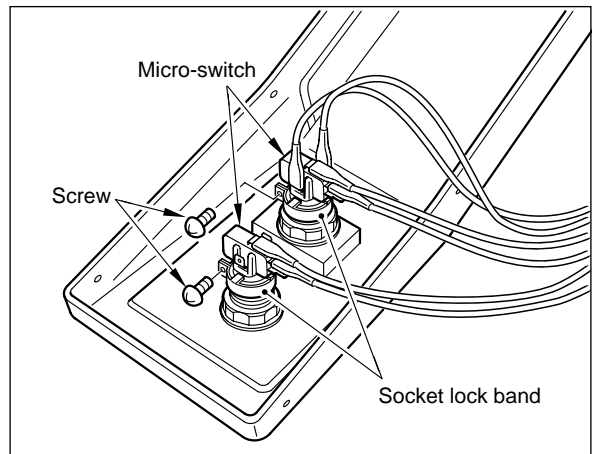
■**How to replace the press-button** ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

•**Before replacing the press-button, be sure to turn OFF the power switch
and unplug the power cord from the receptacle.**

1 ▌ Remove the screws and then the side cover.

Side cover
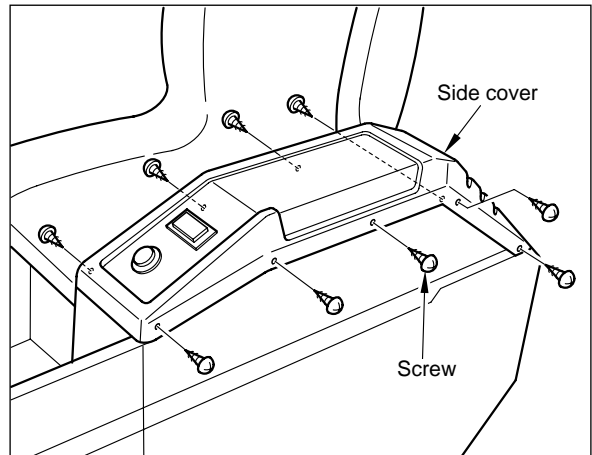
Screw

2 ▌ Remove the screws and then the socket lock bands.

Micro-switch
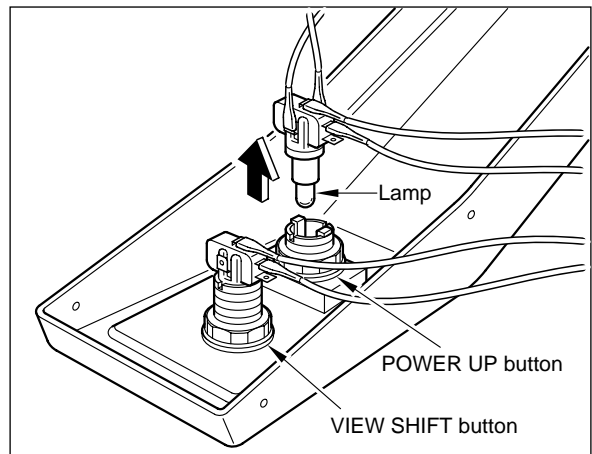
Screw

Socket lock band
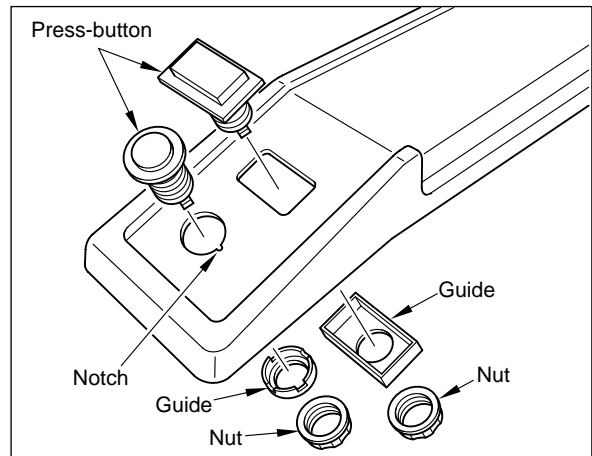
3 ▌ Pull out the socket.

•It is recommended to replace the lamp at the same time. (The VIEW SHIFT button has no lamp in itself.) When replacing the lamp, pulling it out of the socket.

MEMO

Lamp

POWER UP button

VIEW SHIFT button

4 | Loosen the nut and remove the press-button.

5 | Mount the press-button by matching it to the notch, paying attention to the direction of the micro-switch. (see page 38.)   Be careful not to confuse the wires.

Press-button

Guide

Nut

Notch

Guide

Nut

•Be sure to reconnect the wires to the "COM" and "NO" terminals of the new socket (micro-switch).

Wires for press-button lamp

Wires for press-button switch

Wires for press-button switch

VIEW SHIFT button

POWER UP button

MEMO

39
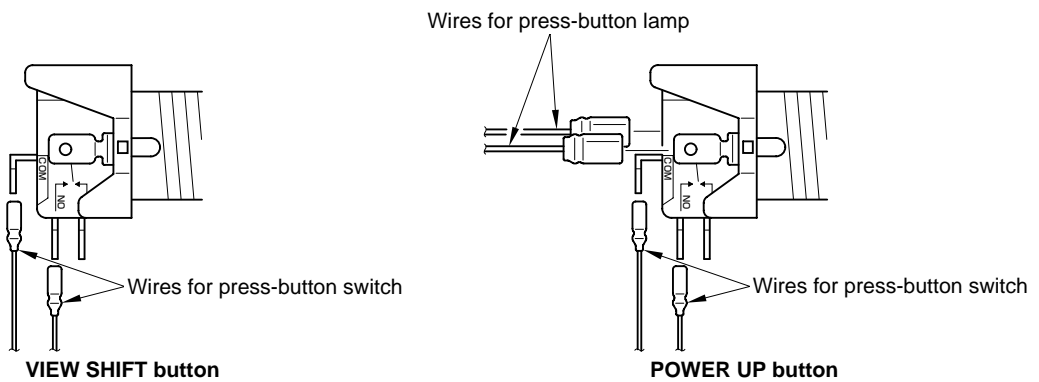
7-6 Adjusting the projector and monitor

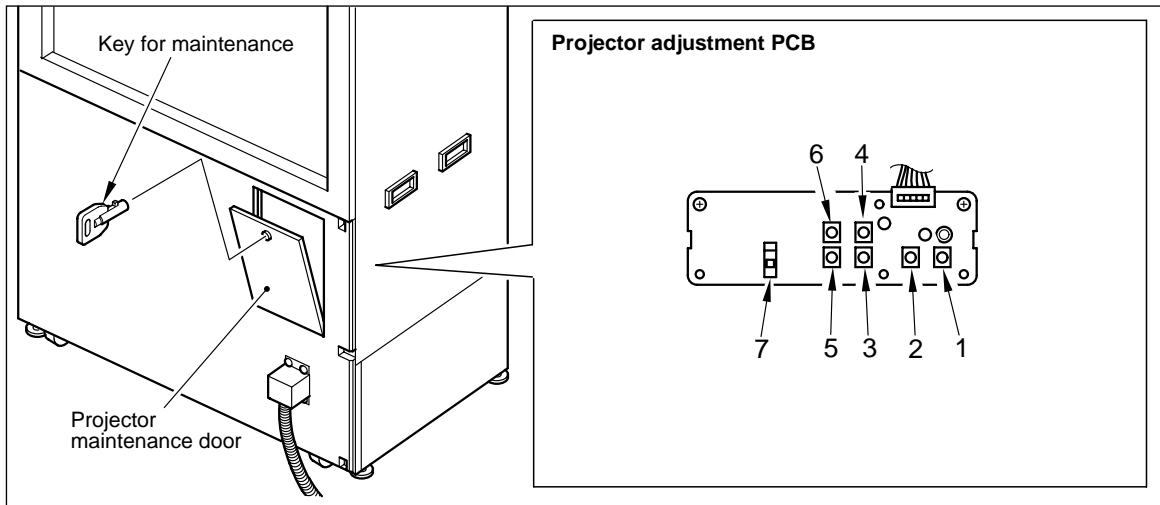## ■Adjusting the projector of the GN672-UC machine ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

The projector has already been adjusted at the time of shipment, but it may be readjusted with the attached remote controller as desired.

> ⚠
>
> •**The interior of the projector contains high voltage electricity, so take great care not to touch it.**

•Projector adjustment PCB

The projector adjustment Printed Circuit Board (PCB) is located inside the projector maintenance door of the projector unit. (Open the maintenance door with the maintenance key.)

1	CONTRAST	**Contrast adjustment** Used to change the contrast.
2	BRIGHT	**Brightness adjustment** Used to change the brightness. Turning it clockwise will make the image brighter.
3	H.POSI	**Horizontal screen position adjustment** Used to change the raster position in the horizontal direction.
4	V.POSI	**Vertical screen position adjustment** Used to change the raster position in the vertical direction.
5	H.SIZE	**Horizontal screen size adjustment** Used to change the width of the screen.
6	V.SIZE	**Vertical screen size adjustment** Used to change the height of the screen.
7	CONV.ADJ. (CONVERGENCE)	**Convergence adjustment** Used to adjust misconvergence caused by the earth's magnetic field, etc.. (Be sure to keep this off when not adjusting.) Refer to page 41 for the adjusting method.

When the game machine is moved to another location or reoriented, screen color distortion can occur due to magnetism from objects near the game machine or from the earth's magnetic field. If screen color distortion occurs uniformly across the whole screen, adjust convergence in the following way.

■**How to adjust convergence** ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

•**Be sure to keep the "CONV.ADJ." switch OFF when not adjusting. After the completion of adjustment, check that the "CONV.ADJ." switch is turned OFF.**
•**When using the remote controller, keep it within a 30˚angle to the top, bottom, left and right of the center of the screen and stand no further than 3 meters(118inches) away from the screen.**
•**When the "RESET" key is pressed during adjustment, setting to the status before adjustment is performed.**
•**When the screen is disturbed by static electricity etc. during the adjustment of the unit, turn OFF the power switch and on again, and readjust the unit.**
•**If the remote controller does not work properly, replace the batteries with new ones. If the remote controller is not to be used for a long time, remove the batteries from the remote controller. Failure to do so could cause liquid leakage.**

1 ▎ Turn ON the "CONV.ADJ." switch on the projector adjustment PCB.

2 ▎ Point the remote controller at the screen and press the "TEST" key for about 3 seconds.
(A green cross pattern appears on the screen.)

2

TEST MODE WRITING
G B
POSITION

Green test pattern

3 ▎ **When adjusting the red color.**
Press the "R" key on the remote controller.
(A red cross pattern appears on the screen along with the green cross pattern and the frame turns red.)

TEST MODE WRITING
R G B
POSITION

Red frame

Green and red cross patterns.
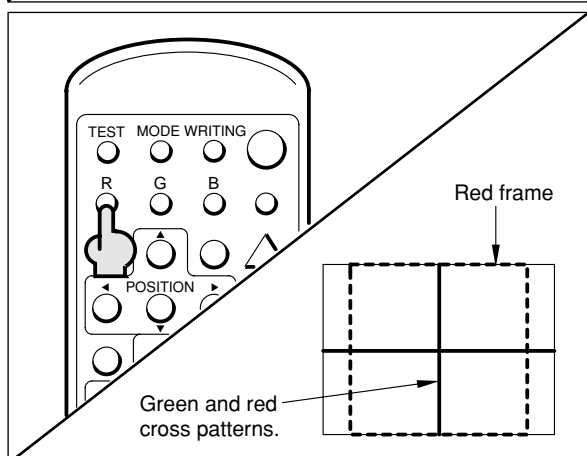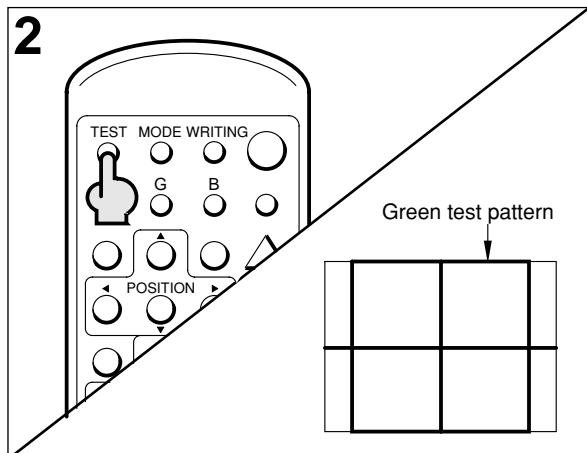
4 Using the "ADJUST" keys on the remote controller, align the center of the red cross with the center of the green cross. (When the red cross is superimposed on the green cross, the resultant cross looks yellow.)

Align the center of the red cross with the center of the green cross.

•Move the red cross (not the green cross) for adjustment.

MEMO
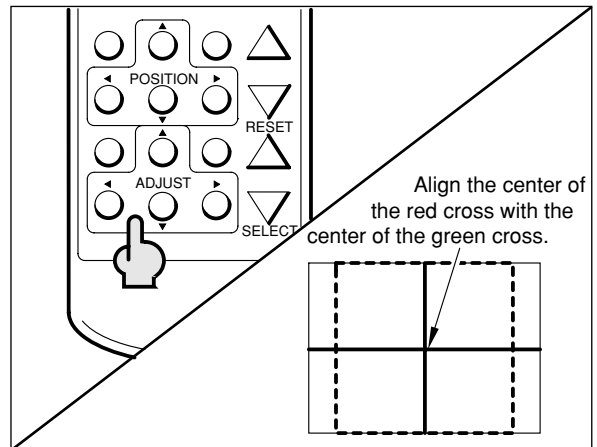
5 **When adjusting the blue color.** Press the "B" key on the remote control. (A blue cross pattern appears on the screen along with the yellow cross pattern and the frame turns blue.)

A blue cross pattern appears.

Blue frame
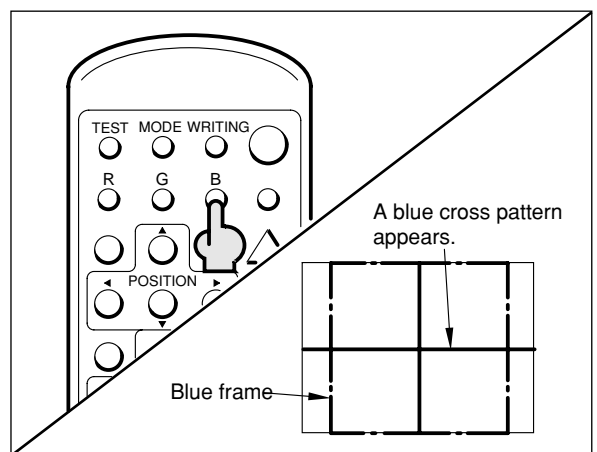
6 Using the "ADJUST" keys on the remote controller, align the center of the blue cross with the center of the yellow cross. (When the blue cross is superimposed on the yellow cross, the resultant cross looks white.)
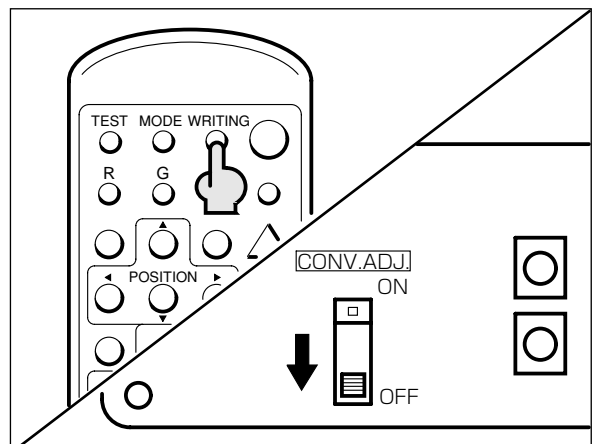
Align the center of the blue cross with the center of the yellow cross.

•Selecting red again after adjusting blue will make the red disappear, so select a second time. (Do the same when adjusting blue again after red.)

MEMO
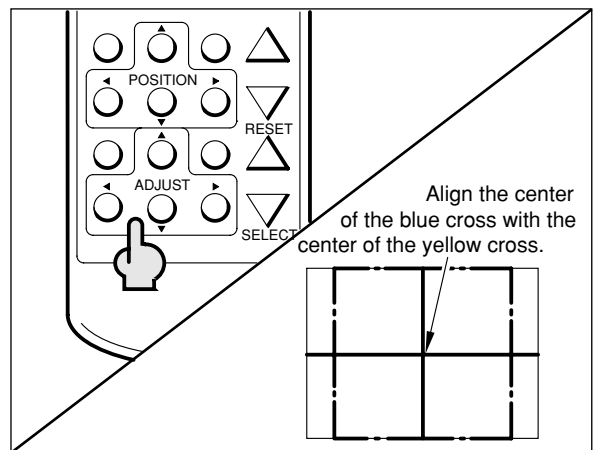
7 Press the "WRITING" key on the remote controller to save the adjustments.

**8** Turn OFF the "CONV.ADJ." switch on the projector adjustment PCB.

If a partial color drift is found, perform convergence adjustment in the following procedure:

■ **How to perform partial convergence adjustment** ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

• **Do not perform an extraordinary setting on purpose; otherwise, it will cause a damage.**
• **In case a problem happens during the adjustment , do not press the "WRITING" key but turn OFF the power switch and on again , and readjust the unit.**

1 Turn ON the "CONV.ADJ" switch on the projector adjustment PCB.

2 Point the remote controller toward the screen and press the "TEST" key for about 3 seconds. (A green checked pattern appears on the screen.)

3 Press the "MODE" key on the remote controller.
⎧ Each pressing of the "MODE" key changes the mode in the following order: adjustment
⎪ →one-row adjustment→one-point adjustment---.   Select one of the modes according to
⎪ the color drift condition.   Here, we will describe the procedure for carrying out partial
⎨ convergence adjustment, assuring that the one-point adjustment mode has been
⎪ selected: The screen shows a green checked test-pattern and the marker indicating the
⎩ place to be adjusted.

Marker
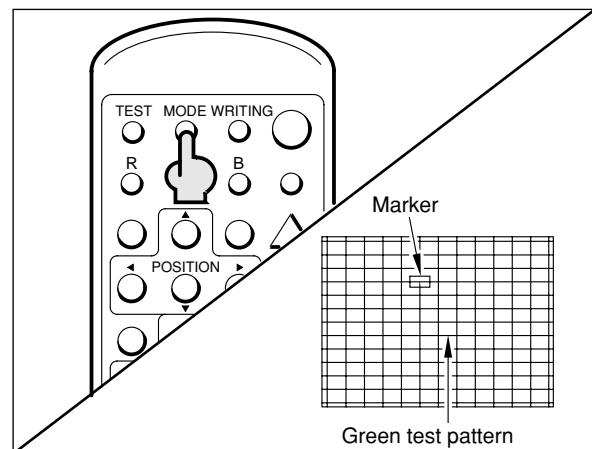
Green test pattern

4 **When adjusting the red color.**
Press the " R " key on the remote controller.
⎛ A red test pattern appears on the screen along with the green test ⎞
⎝ pattern, and the green marker turns red. ⎠

5 Press the " POSITION " keys on the remote controller to move the marker to the place you want to adjust. (The range where the marker can move is limited.)

6 Press the " ADJUST " keys on the remote controller to match the red test pattern with the green one. (When the red test pattern is laid over the green one, the resultant test pattern looks yellow.)

7 **When adjusting the blue color.**
Press the " B " key on the remote controller.
⎛ The blue test pattern is added to the screen and the red marker turns blue.   Adjust the ⎞
⎝ blue color according to the procedure described in steps 5 and 6. ⎠

8 Store the adjustment condition by pressing the " WRITING " key on the remote controller.

9 Turn OFF the " CONV.ADJ. " switch on the projector adjustment PCB.

## ■ Adjusting the monitor of the GM672-UC machine ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

The monitor has already been adjusted at the time of shipment, but it may be readjusted as desired.

⚠

•**The monitor contains high-voltage components inside it. Exercise due care not to touch them.**

•Monitor adjustment PCB

The monitor adjustment Printed Circuit Board (PCB) are located on the service panel. To access them, open the maintenance door. (See page 16.)
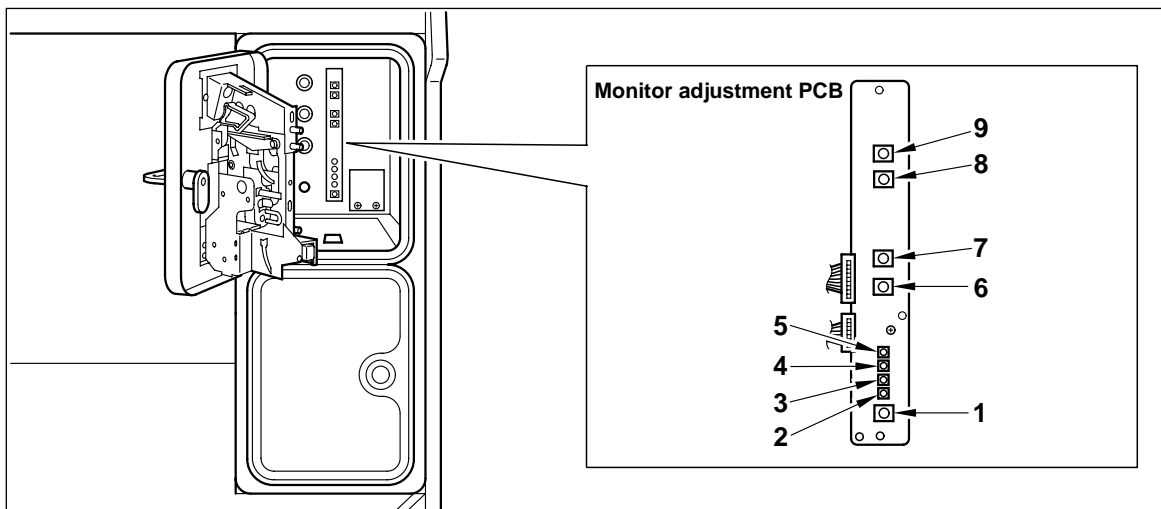
1	CONTRAST	**Contrast adjustment** Used to changes the contrast.
2	R.GAIN	**Red input gain adjustment** Changes red brightness. Turning it clockwise will make the red deeper.
3	G.GAIN	**Green input gain adjustment** Changes green brightness. Turning it clockwise will make the green deeper.
4	B.GAIN	**Blue input gain adjustment** Changes blue brightness. Turning it clockwise will make the blue deeper.
5	BRIGHT	**Brightness adjustment** Changes brightness. Turning it clockwise will make the image brighter.
6	H.SIZE	**Horizontal screen size adjustment** Changes the width of the screen.
7	H.POSI	**Horizontal image position adjustment** Changes the image position in the horizontal direction.
8	V.SIZE	**Vertical screen size adjustment** Changes the height of the screen.
9	V.POSI	**Vertical image position adjustment** Changes the image position in the vertical direction.