KONAMI

ORIGINAL RACING VIDEO GAME

TWIN TYPE

Winding HEAT ™

KONAMI®

OPERATOR'S
MANUAL

WARNING

Contents

■ 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 the manual carefully before commencing operation. Be sure to operate the machine as described in this manual.

This manual covers the following models:

- ● GM677-AA   ● GM677-AB
- ● GM677-AC   ● GM677-AD

The specifications of the GM677-AA may be somewhat different from the GM677-AB, GM677-AC and GM677-AD. In such a case, read the descriptions of the model which applies to the game machine you are operating.

■ 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 "Winding HEAT™" 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 bfollowed.

⚠	indicates a matter of which care should be taken.
🚫	indicates a matter which is forbidden.
(plug icon)	indicates a matter which should be performed without fail.

2

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 setting up this product, fasten the game machine securely with all the level adjusters. If the game machine is not fastened securely, injury or accidents could be caused by the machine rocking.
▶ When setting up this product, take care that no undue force is applied to the connecting 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 substances 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 items near the ventilating holes.
▶ Doing so could cause the internal temperature to rise excessively, resulting in 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 on the power cord.
▶ Doing so could damage the cord, resulting in electric eakage or fire.

●Use an earthing band or similar means of discharging static electricity when adjusting the PCB DIP switches.
▶ Static electricity may cause a damage of the electronic parts on the PCB.

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 run the power cord across passages where pedestrians' feet could get caught on the cord.
  ▶ This could cause pedestrians to fall and injure themselves, or could damage the power cord.

● Be sure to connect a earth cable to the ground terminal of the game machine.

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

Operation

⚠ WARNING

● 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.

● If there is any abnormality such as smoke, bad smell or abnormal noise being emitted from the machine, immediately unplug the power cord 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.   │
│ 2. Unplug the power cord.   │
│ 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.

Operation

⚠ CAUTION

● The following users should not play the game.
  ▶ Doing so could cause accidents or illness.

| · Those under the influence of alcohol. | · Those suffering fromor 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,immediately stop using the machine.
  ▶ Using a damaged power cord or power plug could result in fire or electrical shock.

● Do not place items or heavy loads on or provide a strong impact to the molding.
  ▶ Doing so could cause the object on the machine to fall off or could damage themachine, resulting in injury.

Inspection and cleaning

⚠ WARNING

● Be sure to turn off the power 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.

● Never disassemble, repair or modify any section othe than those specified in this manual.
  ▶ Doing so could result in fire, malfunction or equipment failure.

● 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 a monitor, electronic components and precision components which are sensitive to vibration and impact. Great care therefore should be taken when moving and transporting the game machine. Be sure not to let the machine tip over.

●Fully raise all the adjusters before moving the game machine and move it utilizing the casters. Be sure to turn off the power and unplug the power cord from the receptacle before moving the game machine.
▶Failure to do so could result in accidents, damage or equipment failure.

●Take care that no undue force is applied to the connecting sections of the game machine when moving it.
▶Failure to do so could cause injury, accidents or product damage.

PRECAUTION IN
HANDLING

●When setting up, handling, inspecting, maintaining, moving or transporting this product, follow the procedures and instructions set forth in this manful 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 manful.

●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.

1 Specifications


```
730 (28.74)
1870 (73.62)
1075 (42.32)
1435 (56.50)
700 (27.56)
1460 (57.48)
```

Specifications	
Dimensions	Refer to the figure above: mm （in）
Weight	Main unit: Approx. 230 kg （507lb） Seats unit : Approx. 30kg （66lb）
Rated power consumption	275 W
Monitor	29-inch color monitors 2 units
Attachments	• Instruction manual ··this manual • Keys for coin door ··2 • Keys for maintenance ··2 • Joint fittings A ···2 • Joint fittings B ···2 • Bolts for fastening joint fittings （M8 x 35L） ······························16 • Networking cord ···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

■Main machine

No.	Part name	Part #		Quantity	Remarks
❶	29inch color monitor	503008		2	
❷	Monitor adjustment PCB	—		2	
❸	Fluorescent light unit	—		1	
❹	Main unit	—		1	
❺	Seat unit	—		2	
❻	Joint fitting A	402988A		2	Attachment
❼	Joint fitting B	402989A		2	Attachment
❽	Control panel	—		2	
❾	Steering wheel unit	—		2	
❿	Center cap	057146		2	
⓫	Gear shift unit	—		2	
⓬	Pedal unit	—		2	
⓭	Seat	100507		2	
⓮	Coin door unit	000664	002566	1	Include ⓰～⓳002566(For AD)
⓯	Coin box	100491		1	
⓰	Coin input port	—		2	
⓱	Coin return port	—		2	
⓲	Coin door	—		1	
⓳	Maintenance door	—		1	
⓴	Coin selector	054598	002495	2	002495(For AD)
㉑	Coin counter	054339		1	
㉒	Service panel switch	054337		5	
㉓	AC bracket	302322		1	
㉔	AC power cord	053090		1	
㉕	Main power switch	055233		1	
㉖	Circuit protector	002483		1	
㉗	Earth terminal	055905		1	
㉘	Network pin jack	—		1	
㉙	Caster	001640		12	
㉚	Adjuster	002102		12	
㉛	Switching power	057523		1	Main PCB(5v)
㉜	Switching power	054795		1	Main PCB(12v)
㉝	Transformer	002494		1	
㉞	Speaker	503036		2	
㉟	View shift switch	001862		2	
㊱	AT/MT shift switch	001859		2	
㊲	PCB (Game board)	—		1	

■Steering wheel unit ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

■Gear shift unit ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

■Pedal unit ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

■Steering wheel unit

No.	Part name	Part #	Quantity	Remarks
❶	Steering wheel unit	001866	1	
❷	Potentiometer	002002	1	
❸	Steering wheel	057145	1	
❹	Steering wheel bracket	302303	1	

The figures in the quantity column show the quantity required for one unit.

■Gear shift unit

No.	Part name	Part #	Quantity	Remarks
❶	Seft lever	001854	1	
❷	Shift bracket	302314	1	

The figures in the quantity column show the quantity required for one unit.

■Pedal unit

No.	Part name	Part #	Quantity	Remarks
❶	Pedal unit	001870	1	
❷	Potentiometer	001123	2	

The figures in the quantity column show the quantity required for one unit.

3 How to play

This is a driving game which takes place on a winding road (mountain pass) where there are drivers wanting to compete in races. The player can select a car among 14 types of machines and 4 types of tune-ups and race against other cursor compete in time trials.This maniac driving game allows the player to perform drift driving and counter steering.

■How to play ━

1.Input a coin to start the game. (In free play mode, press the [VIEW SHIFT] switch to start the game.)

2. The Network Entry screen appears. If a coin(s) is dropped into another machine which connected to this machine through the network with this screen displayed, a network race begins automatically.
   ※If the machine is not connected to the network or if another player is playing the network game, the game begins at the item 3 after a coin(s) is dropped.

3.Select one of three different courses on the "Course Select" screen. Select a course with the steering wheel and press the accelerator to set. To select the "Time Attack" mode, press the brake when selecting a course.
   ● Time Attack mode ·······················The player competes against a rival lap time with no other cars appearing on the course.

There are three different courses of "Beginner's", "Intermediate" and "Advanced". Their features are as follows:
   ● Beginner's course ·······················A course of good visibility for beginners.
   ● Intermediate course·······················A course with blind corners which requires good driving skill.
   ● Advanced course ·······················A course with a series of extremely difficult corners which requires excellent driving skill.

4.The "Car Select" screen appears. Select one of 14 different machine designs. Select a car with the steering wheel and press the accelerator to set.

5.The "Tuned Car Select" screen appears. Select one of five different tune-ups.Their features are as follows:
   ● NORMAL ·······················No tune-up
   ● ACCELERATION ·······················Acceleration enhanced
   ● MAX SPEED·······················Maximum speed enhanced
   ● GRIP ·······················Tire gripping enhanced
   ● HANDLING ·······················Handling enhanced

6.The game begins when all the selections above have been made. The game starts from the count down.

7.The basic operation is as follows:
   ● Steering wheel ·······················Turning it clockwise or counterclockwise will turn the car to the right or the left.
   ● Accelerator ·······················Pressing it will accelerate the car; releasing it will decelerate the car.
   ● Brake ·······················Pressing it will decelerate the car.
   ● Shift operation ·······················The player can choose between the manual (MT) or the automatic(AT) operation before playing the game. The chosen operation can also change over by pressing the AT/MT shift switch during playing.
   Up : Shift down
   Down : Shift up
   ● View shift ·······················Pressing the [VIEW SHIFT]switch can change the viewpoint from the rear view to the driver view of real driving.

8.Every time you pass one of the checkpoints located along the course, extra time is added to your total remaining time.

9.The game ends when you have completed the required number of laps, or when the timer reaches zero.

The game results, course record and each lap time are displayed on the screen. (The game results are not displayed if you have not completed the required numbers of the laps with in the apecified time.)

■Buy-in during the game ━

In Winding HEATTM,no buy-in is allowed while the game is in Progress.

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.
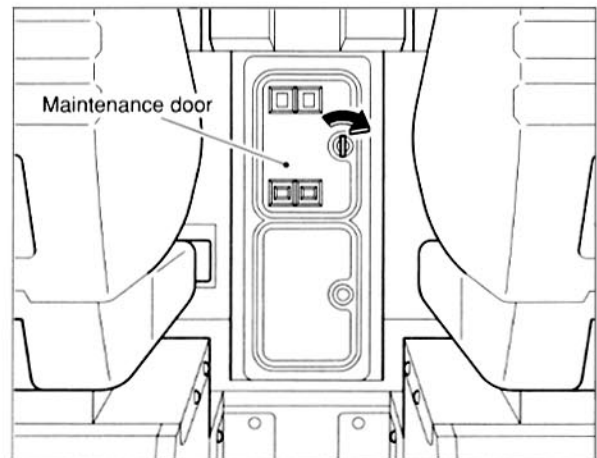
Maintenance door

2 ▮ Open the maintenance door.
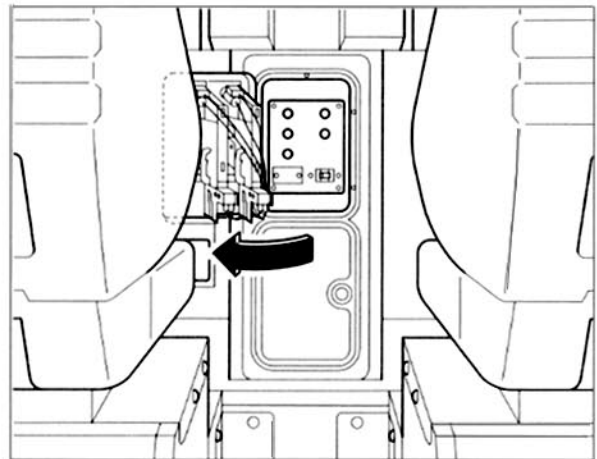
■How to close the maintenance door ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

1 ▮ Close the maintenance door.

2 ▮ Turn the maintenance key counter clockwise.

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 key into the keyhole of the coin door in the lower portion of the coin door unit, and turn it clockwise.

2 Open the coin door and take out the coin box while holding its handle.
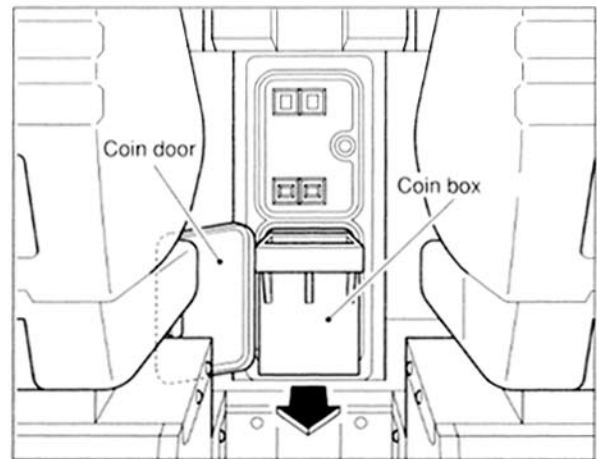
Coin door

Coin box

■Coin counter ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

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

Coin counter
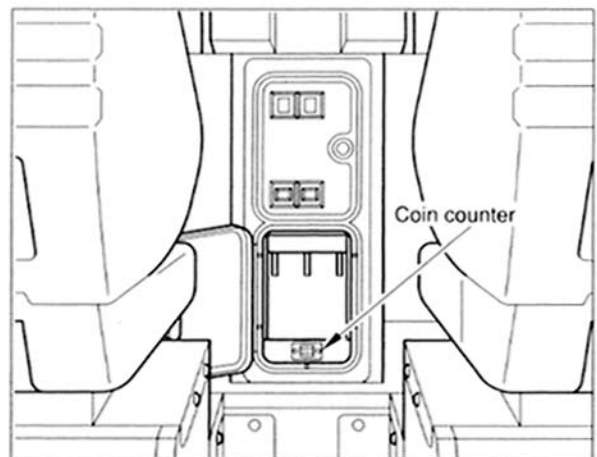
5 Networking game machines and PCB settings

5-1 How to network game machines

The specification of the game machine allows two game machines to be connected so that players can enjoy versus games (4-player network games). To form a network, set up two game machines and connect them with the attached communications cord by attaching each end to the network pin jack of the main unit.

⚠

● **When using the game machine independently, do not connect anything to the pin jack.**

● **When networking game machines, set the PCB main board dip switch "Network ID" while referring to "DIP SWITCH SETTINGS" on page 22.**

Pin jack for network
connection

Networking coad

■Networking game ━

The first game macine
pin jack for 1P and 2P

The second game macine
pin jack for 3P and 4P

Networking cord

15
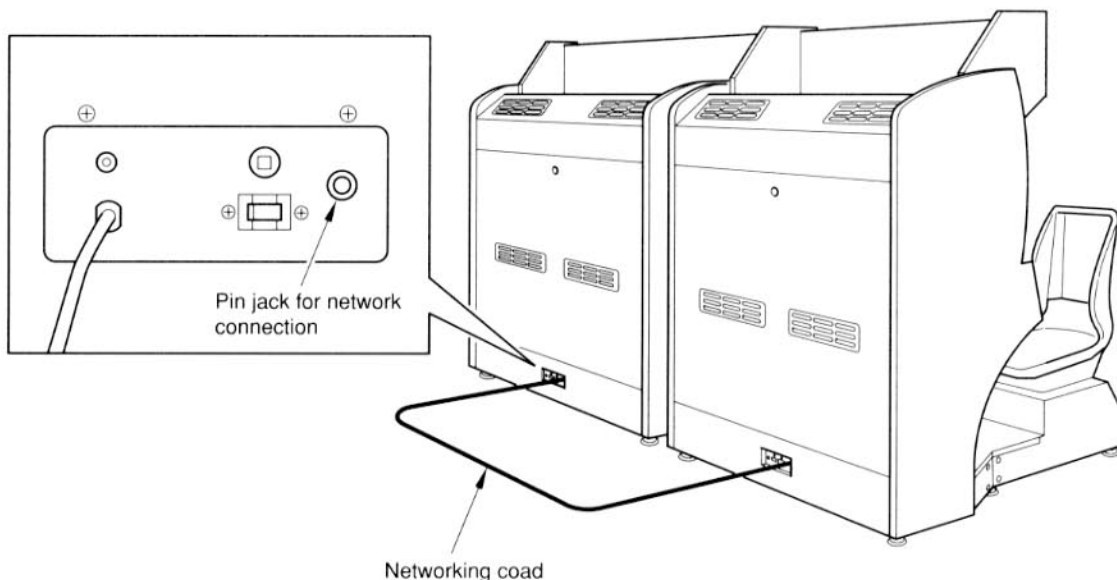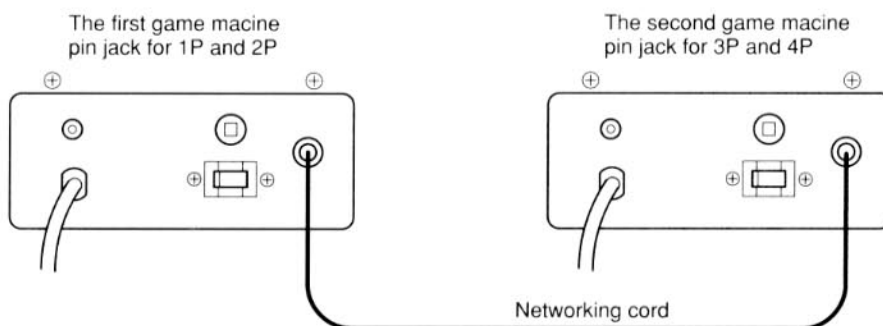
5-2 Initializing the PCB

■Be sure to initializing the PCB according to the following procedures after installing the game machine,repairing or replacing the PCB to ensure proper functioning of the game.

   1 While pressing the test switch on the service panel,turn on the main power. (This will return all the manual test settings to the original factory settings at the time of shipment.)

   2 Initialization is completed when the "EEP-ROM INITIALIZE COMPLETE" message is displayed after the "EEP-ROM BIT CHECK OK" message being displayed. If the test switch is not released, the "TEST SWITCH IS STILL ON. PLEASE RELEASE IT OR REPAIR" message will appear.

   When the test switch is released, this message will disappear. If this message appears in spite of the test switch not being pressed, contact your nearest dealer.

5-3 PCB start-up check （self test）

When the power switch is turned ON after the installation of the game machine, the self test is conducted automatically.

⚠

●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 to stop operating the machine.

■Result of test ━

┌─If test is OK──────────────────────────────

· After the EEP-ROM check is completed, the start-up check of the machine and the correction of the steering wheel, accelerator and brake positions are performed automatically. At this time, the message "DO NOT TOUCH THE STEERING WHEEL AND THE ACCELERATOR AND BRAKE PEDAL WHEN THE MACHINE IS BEING INITIALIZED" is displayed on the screen. Do not touch the steering wheel, accelerator or brake while this message is displayed. If everything is normal, the game mode screen will appear.

┌─If an abnormality is detected ──────────────────────

The test results are displayed on the screen.

· **EEP-ROM abnormality**

The message "EEP-ROM BAD" is displayed on the screen.

What to do···Turn OFF the power switch, and then turn ON the power switch while pressing the test switch. （This will return all the manual test settings to the original factory settings at the time of shipment.）

· **Steering wheel abnormality**

The message "PLEASE ADJUST THE STEERING WHEEL MECHANICALLY" is displayed on the screen.

What to do···Because the steering wheel position cannot be corrected automatically, make the necessary adjustments mechanically while referring to "7−3 Replacing and adjusting the potentiometer knobs" on pages 34 and 35.

· **Accelerator abnormality**

The message "PLEASE ADJUST THE ACCELERATOR PEDAL MECHANICALLY" is displayed on the screen.

What to do···Because the accelerator position cannot be corrected automatically, make the necessary adjustments mechanically while referring to "7−3 Replacing and adjusting the potentiometer knobs" on pages 36 and 37.

· **Brake abnormality**

The message "PLEASE ADJUST THE BRAKE PEDAL MECHANICALLY" is displayed on the screen.

What to do···Because the brake position cannot be corrected automatically,make the necessary adjustments mechanically while referring to "7−3 Replacing and adjustingthe potentiometer knobs" on pages 36 and 37.

5-4 Adjusting the game position （manual test）

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

■Starting the manual test mode ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

1 Turn on the power switch.
2 Press the test switch on the service panel during the game mode demo （during the game mode demo of all the game machines in the case of networking）. （Turning ON the power while holding down the test switch will return all the present manual test settings to the original factory settings at the time of shipment.） The unit is set in the manual test mode and the main menu is displayed on the screen.

■Ending the manual test mode ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

1 Select ［GAME MODE］ on the main menu screen.
2 Press the ［VIEW SHIFT］ switch.
 • The unit is set in the game mode.

■Main mode screen （basic items）■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

```
        MAIN  MENU                        · Check each controller
                                          ➡Page 18
                                          · Adjust screen distortion
                                          ➡Page 19
   I/O  CHECK                             · Adjust color
   SCREEN  CHECK                          ➡Page19
   COLOR  CHECK                           · Check mask ROM
   MASK  ROM  CHECK                       ➡Page 19
   NETWORK  CHECK                         · Check network
   DIP  SWITCH  SETTINGS                  ➡Page 20
   C. G. BOARD  CHECK                     · Set dip switch
   SOUND  OPTIONS                         ➡Page 22
   GAME  OPTIONS                          · Check C.G. board functions
   COIN  OPTIONS                          ➡Page 22
   GAME  MODE                             · Adjust sound volume, etc.
                                          ➡Page 23
                                          · Set difficulty level, etc.
                                          ➡Page 23
                                          · Coin settings
                                          ➡Page 24
                                          · Return to game mode

   GEAR  SHIFT  UP/DOWN=SELECT  ITEM
   PUSH  VIEW  SHIFT  SWITCH=DO  CHECK
```

■Selecting each mode ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

How to select each mode from the menu

 • Select   ➡   Move the shift lever （GEAR SHIFT） up or down.

 • Set   ➡   Press the ［VIEW SHIFT］ switch.

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

5-5 Mode descriptions

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

· After the completion of setting change, select "SAVE AND EXIT" and press the [VIEW SHIFT] switch. This will save the changed settings automatically and return you to the main menu.

· If "EXIT" is selected after the completion of setting change, the message "YOU DID NOT SAVE. DO YOU WANT TO SAVE? YES/NO" will appear. Move the shift lever when selecting "YES" or "NO". Set "YES" or "NO" you want to select with the [VIEW SHIFT] switch.

· If "YES" is selected, the message "NOW SAVING" will appear, the changed settings will be saved and you will be returned to the main menu.

· If "NO" is selected, the message "NO MODIFICATION" will appear and the changed settings will not be saved.

Selecting "FACTORY SETTINGS" and pressing the [VIEW SHIFT] switch will return all the settings to the original factory settings at the time of shipment.

MEMO

I/O CHECK

■The check mode for the controls.

To return to the main menu, move up the gear shift while pressing the [VIEW SHIFT] switch.

```
                    I/O CHECK                    · The marker position changes to show the input
                                                   value.
    VIEW SHIFT SWITCH      OFF
    SHIFT UP/DOWN                              · Shows the value for the steering wheel [decimal
    SHIFT AT/MT           MANUAL                 (hexadecimal)]. If the "I" mark moves to "CENTER"
                                                 when the wheel isreleased, to "RIGHT" when the
    STEERING WHEEL   +---+-----------I------+---+   wheel is fully turned tothe right, and to "LEFT"
         0  (0000)    LEFT       CENTER    RIGHT   when the wheel is fully turned to the left, the
    ACCEL            I--+---------------+---+      wheel is properly adjusted.
         0  (0000)    MIN             MAX
    BRAKE            I--+---------------+---+    · Shows the value for the accelerator [decimal
         0  (0000)    MIN             MAX         (hexadecimal)]. if the "I" mark moves to "MIN"
    COIN MECH SWITCH      OFF                     when the accelerator is released and to "MAX"
    SERVICE SWITCH        OFF                     when the accelerator is fully pressed, the
    TEST SWITCH           OFF                     accelerator is properly adjusted.

                                               · Shows the value for the brake unit[decimal
                                                 (hexadecimal)].
                                                 Make sure the "I" make moves to "MIN" when
                                                 the brake is released and to "MAX" when the brake
                                                 is fully pressed.

    HOLD VIEW SHIFT SWITCH AND GEAR SHIFT UP=EXIT
```

If the steering wheel or the accelerator is not properly adjusted, make the necessary adjustments while referring to "7—3 Replacing and adjusting the potentiometer knobs" on pages 34 to 37.

MEMO

SCREEN CHECK

■The check mode for the screen display.
Adjust the focus, distortion and size of the screen while looking at the grille screen.Use the monitor adjustment PCB (see page 39) to make adjustments. To return to the main menu screen, press the [VIEW SHIFT] switch.

COLOR CHECK

■The check mode for the color display.
Make adjustments using the monitor adjustment PCB (see page 39) so that the color of the color bar is displayed at the optimum level. To return to the main menu screen, press the [VIEW SHIFT] switch.

MASK ROM CHECK

■This checks each ROM in order, and displays "OK" or "BAD" at the end of the check. To return to the main menu screen, press the [VIEW SHIFT] switch.

NETWORK CHECK

■The network communication check mode.
Observe the screen in this mode for at least one minute to make sure that the following three items are responding as described below. To return to the main menu screen, press the [VIEW SHIFT] switch.

⚠️

●If any of the three items responds incorrectly, it indicates possible communication malfunction. Take measures while referring to "5—6 Measures to be taken when there is a network abnormality" on page 25. If the same symptom persists in spite of taking measures or a problem not covered in this manual occurs, immediately turn off the power switch to stop operating the machine.

```
            NETWORK  CHECK



          THIS  BOARD-ID  ISOO
                ERR    DOWN  STATUS
     ID  No.1    O       O     I
     ID  No.2    O       O     I
     ID  No.3  0000    0000   DNC
     ID  No.4  0000    0000   DNC


     PUSH VIEW SHIFT SWITCH=EXIT
```
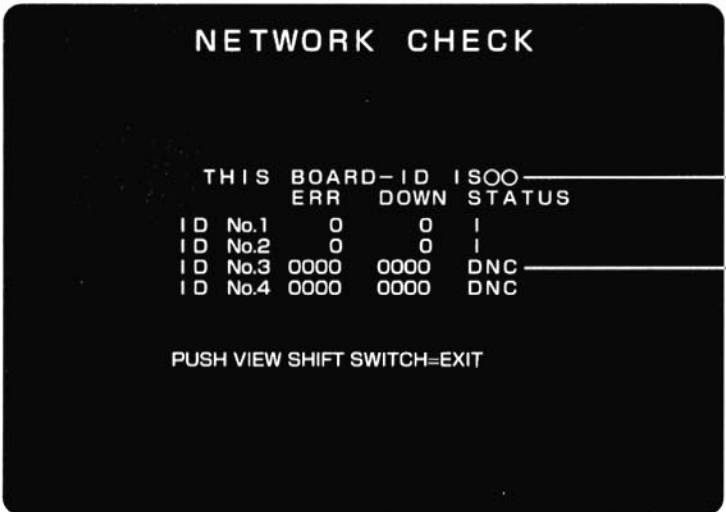
· Shows the "Network ID" of the connected ga machine.
(A number form 1 to 4)

· "DNC" (did not connect) appears if connecti made.

┌─Check items ─────────────────────────────

· Check that the "I" mark in the STATUS column is moving from the left to the right at a fixed speed.
· Check that the value in the ERR column is below "10" after one minute.
· Check that the value in the DOWN column does not change from "0" .

■Screen display when game machines are networked ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

●One game machine

Screen for player 1

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS1
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3  0000   0000    DNC
   ID  No.4  0000   0000    DNC


     PUSH VIEW SHIFT SWITCH=EXIT
```

Screen for player 2

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS2
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3  0000   0000    DNC
   ID  No.4  0000   0000    DNC


     PUSH VIEW SHIFT SWITCH=EXIT
```

●Two game machines are networked

Screen for player 1

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS1
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3     O      O     I
   ID  No.4     O      O     I


     PUSH VIEW SHIFT SWITCH=EXIT
```

Screen for player 2

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS2
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3     O      O     I
   ID  No.4     O      O     I


     PUSH VIEW SHIFT SWITCH=EXIT
```

Screen for player 3

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS3
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3     O      O     I
   ID  No.4     O      O     I


     PUSH VIEW SHIFT SWITCH=EXIT
```

Screen for player 4

```
        NETWORK   CHECK



     THIS  BOARD-ID  IS4
              ERR    DOWN  STATUS
   ID  No.1     O      O     I
   ID  No.2     O      O     I
   ID  No.3     O      O     I
   ID  No.4     O      O     I


     PUSH VIEW SHIFT SWITCH=EXIT
```

DIP SWITCH SETTINGS

■The DIP switch setting check mode.   (Set DIP switch)
   When changing the DIP switch settings, refer to the chart below. To return to the
   main menu screen, press the [VIEW SHIFT] switch.

⚠

● Be sure to turn OFF the power switch before setting the DIP switch.

■DIP switch setting chart ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

● Main board (upper PCB) DIP switch

Setting		1	2	3	4
C.G. board setting specifications		ON			
AT/MT change-over specification			ON		
Network ID	First machine			OFF	OFF
	Second machine			OFF	ON

●C.G. board (first and second PCB from the top) DIP switch.

Setting	1	2	3	4
The first C.G. board from the top	OFF	OFF	OFF	OFF
The second C.G. board from the top	ON	OFF	OFF	OFF

● When setting DIP switch of networking game machines, number each switch in the sequence
   of the small number. (Example: When networking game machines, set the network ID of
   one machine to 1 and the other to 3.)
● The DIP switch on the PCB can be shifted easily by utilizing a thin flatblade screwdriver or a
   ball-point pen.

MEMO

C.G.BOARD CHECK

                                                    (Check C.G. board functions)
■The C.G. board function check mode.
   Observe the screen in this mode to check whether the C.G. board is functioning
   properly. To return to the main menu screen, press the [VIEW SHIFT] switch.

C. G. BOARD CHECK

• "GOAL" is displayed behind the cubes,
  scrolling from the right to the left.

• The two cubes are rotating.
  (A picture is shown only in the right-hand side cube.)
• "START" is displayed in front of the cubes.

PUSH VIEW SHIFT SWITCH=EXIT

22

SOUND OPTIONS

(Adjust sound volume)

■The following screen appears when this mode is **selected.**

```
        SOUND  OPTIONS

SOUND  IN  ATTRACT  MODE
        ALL  THE  TIME
SOUND  VOLUME
□□□□□□□□□□□□□□□□□□□□□□□□■■■■■■■■■20
SOUND  SCALE  CHECK

BGM                              ON

FACTORY  SETTINGS

SAVE  AND  EXIT

EXIT


GEAR  SHIFT  UP/DOWN   =  SELECT  OPTION
VIEW  SHIFT  SWITCH    =  MODIFY  SETTING
```

· Turns the demo play sound ON or OFF.
· ALL THE TIME————Sound always ON
· ONCE EVERY 4 CYCLES ——Sound ON
                    every 4 cycles
· COMPLETELY OFF——Sound always OFF

· Adjusts the volume from the level 0 (no volume) to 30 (Max.)
  ※To turn the sound volume up, press the [VIEW SHIFT]switch.
  Press the [VIEW SHIFT]switch with the [AT/MT SHIFT] switch pressed when lowering the volume level.

· You will hear a do-re-mi musical scale from the left external speaker and then the right external speaker,which is repeated twice.

· Turns the BGM during the game ON or OFF.
  ※The setting is only for the BGM to be used while the car is running on the course, and not for the demo BGM, voice or special effect sound.

· Returns all the settings to the factory settings at the time of shipment.

GAME OPTIONS

(Game settings)
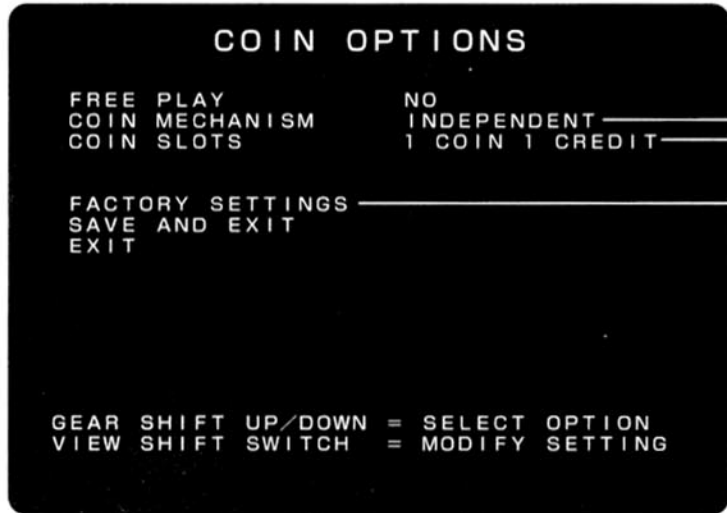
■The following screen appears when this mode is **selected.**

⚠ ●When game machines are networked, make sure that the PCB settings are the same on all the units.

```
        GAME  OPTIONS

EASY  COURSE
  DIFFICULTY  LEVEL          4/MEDIUM
  SETTING  FOR  NUMBER  OF  LAPS    2
MEDIUM  COURSE
  DIFFICULTY  LEVEL          4/MEDIUM
  SETTING  FOR  NUMBER  OF  LAPS    2
HARD  COURSE
  DIFFICULTY  LEVEL          4/MEDIUM
  SETTING  FOR  NUMBER  OF  LAPS    2
SPEEDMETER  DISPLAY              km/h
GAME  JOINING  PERIOD             15
O. C. T. SYSTEM                  LEFT
BONUS  CREDIT  FOR  WINNER    DISABLE
SAVE  FASTEST  LAP                NO
FACTORY  SETTINGS
SAVE  AND  EXIT
EXIT

GEAR  SHIFT  UP/DOWN  =  SELECT  OPTION
PUSH VIEW SHIFT SWITCH =  MODIFY  SETTING
```

· Difficulty level settings (8 levels)
  1/EASIEST   Very easy
  2/VERY EASY
  3/EASY
  4/MEDIUM ————— Medium
  5/MEDIUM HARD
  6/HARD
  7/VERY HARD
  8/HARDEST   Very difficult

· Lap number settings (2 to 5 laps)
· You can set the difficulty level and number of laps for each course.

· Changes the speedometer display. [km/h] or [MPH]

· Sets the game joining period length. (5, 10, 15 or 20))

· You can set the lane to the right or left side.

· If "ENABLE" is selected, a game is awarded to the winner who has reached the goal and come out first in a 4-participant network game.

· You can set the lap time records (for top 2 ranks). (The records are saved in memory even after the power source is turned off.)

COIN OPTIONS

(Coin settings)

■The following screen appears when this mode is selected.

⚠

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

```
            COIN  OPTIONS

FREE  PLAY              NO
COIN  MECHANISM         INDEPENDENT ————————— · Always keep it set to INDEPENDENT.
COIN  SLOTS             1 COIN 1 CREDIT

FACTORY  SETTINGS ———————————————————
SAVE  AND  EXIT
EXIT
```

· Sets the relation between the number of coins and the number of credits.
· When FREE PLAY is set to YES, COIN MECHANISM and COIN SLOTS options are not displayed.

· Returns all the settings to the factory settings at the time of shipment.

```
GEAR  SHIFT  UP/DOWN  =  SELECT  OPTION
VIEW  SHIFT  SWITCH   =  MODIFY  SETTING
```

■The relationship between the number of coins and the number of credits. ■

SETTING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COIN(S)	1	1	1	1	1	1	1	2	2	2	3	3	3	4	4	4	5	5	6	6
CREDIT(S)	1	2	3	4	5	6	7	1	3	5	1	2	4	1	3	5	1	2	1	5

SETTING	21	22	23	24	25	26	27	28	29	30	31	32
COIN(S)	7	7	8	8	9	10	11	12	13	14	15	16
CREDIT(S)	1	2	1	3	1	1	1	1	1	1	1	1

5-6 Measures to be taken when there is a network abnormality

If the "NETWORK ERROR" message appears, if any item responds incorrectly in the network communication check described on pages 20 and 21, or if the projector displays differ from the specified ones, take the following measures.
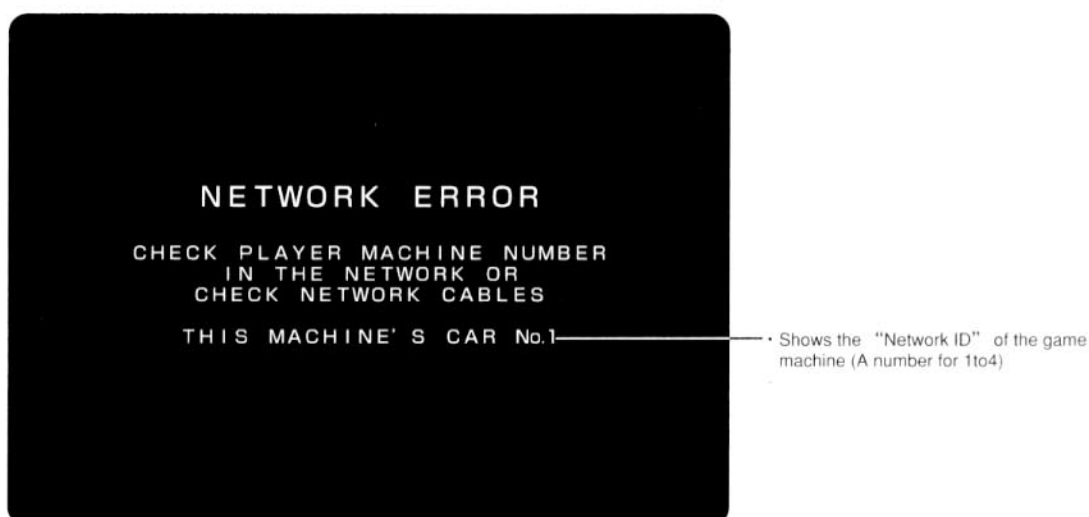
⚠

● **If the same symptom persists in spite of taking measures or a problem not covered in this manual occurs, immediately turn off the power switch to stop operating the machine.**

Symptom 1 The screen is blinking after the power is turned on.

■Possible causes and measures to be taken ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

Possible causes	Measures
● One of the networking cords used is disconnected from the game machine.	○ Connect the game machines properly with the networking cord.

Symptom 2 The "NETWORK ERROR" message appears on the screen after the power is turned on.

NETWORK   ERROR

CHECK PLAYER MACHINE NUMBER
IN THE NETWORK OR
CHECK NETWORK CABLES

THIS MACHINE'S CAR No.1 ─────── · Shows the "Network ID" of the game machine (A number for 1to4)

■Possible causes and measures to be taken ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

Possible causes	Measures
● The main board DIP switch "Network ID" settings are improper.	○ Set the DIP switch properly. (See page 22.)

Symptom 3 The "NETWORK ERROR" message appears on the screen during playing.

```
NETWORK  ERROR
CALL  THE  CLARK .
```

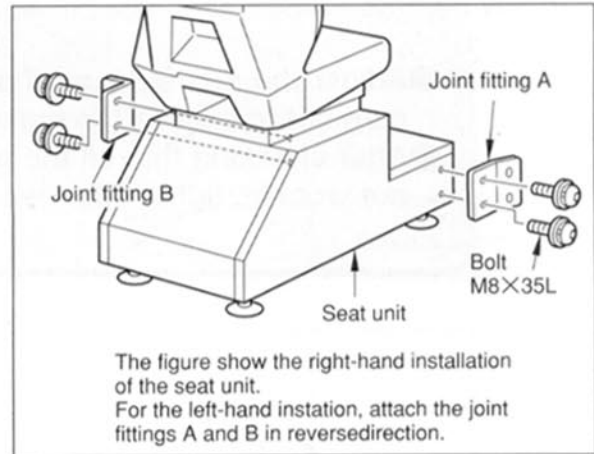■Possible causes and measures to be taken ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

| Possible causes	Measures
● One of the networking cords has been disconnected from the game machine during play.	○ 1. Turn OFF the power switch. 2. Connect the networking cord properly. 3. Turn ON the power switch.
● One of the networking cords has been internally broken or broken.	○ Replace the networking cord with the spare networking cord. ⟨ You can also use commercially-sold video cable (75Ω 3C-FV) having a length of 2m(78.74in) or less. ⟩
● The test switch (on the service panel) of one of the networked game machines has been pressed. ⚠️ ● The test switch should pressed during the game mode demo of all the networked game machines.	○ 1. Turn OFF the power switches of all the networked game machines. 2. Close the maintenance door. 3. Turn ON the power switches.
● Any of the machines which are connected through the network have different game option settings (in the manual test).	○ Enter the manual test mode and set for the same game options among all the machines.

6 Setting up the game machine

6-1 Connecting the units

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

1 Install the joint fittings A and B on the seat unit and tighten them temporarily.

Joint fitting A

Joint fitting B

Bolt
M8×35L

Seat unit

The figure show the right-hand installation
of the seat unit.
For the left-hand instation, attach the joint
fittings A and B in reversedirection.

2 Put the main unit and the seat unit together and tighten the main unit's joint fittings temporarily.

Main unit

Bolt
M8 x35L

Joint fitting A

Seat unit   Joint fitting B
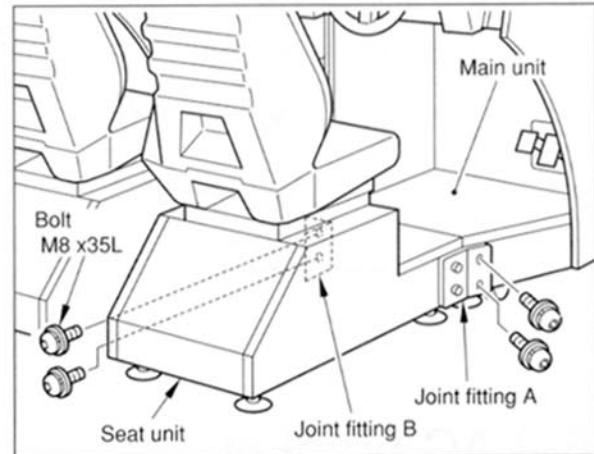
The temporarily-fastened unit joint fitting should be fastened securely after the completion of "6-2. Fastening the adjusters" on page 28.

MEMO

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.
● After checking that all the adjusters stand on the floor and the units do not wobble, tighten the hexagon nuts upward.
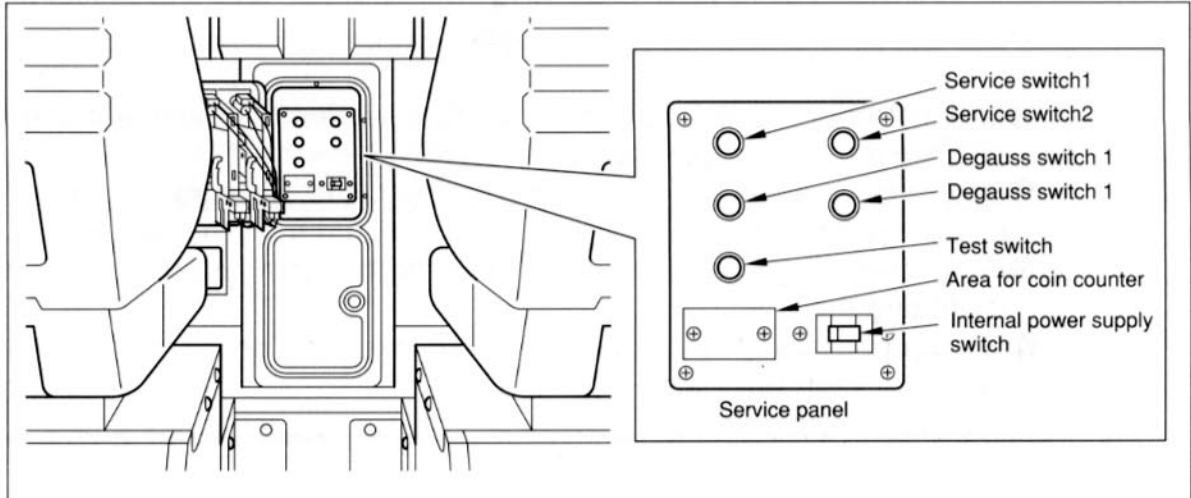

Maximum adjusting height:85mm
(Min. 55mm)   (3.35in)
(Min. 2.17in)

Hexagon nut
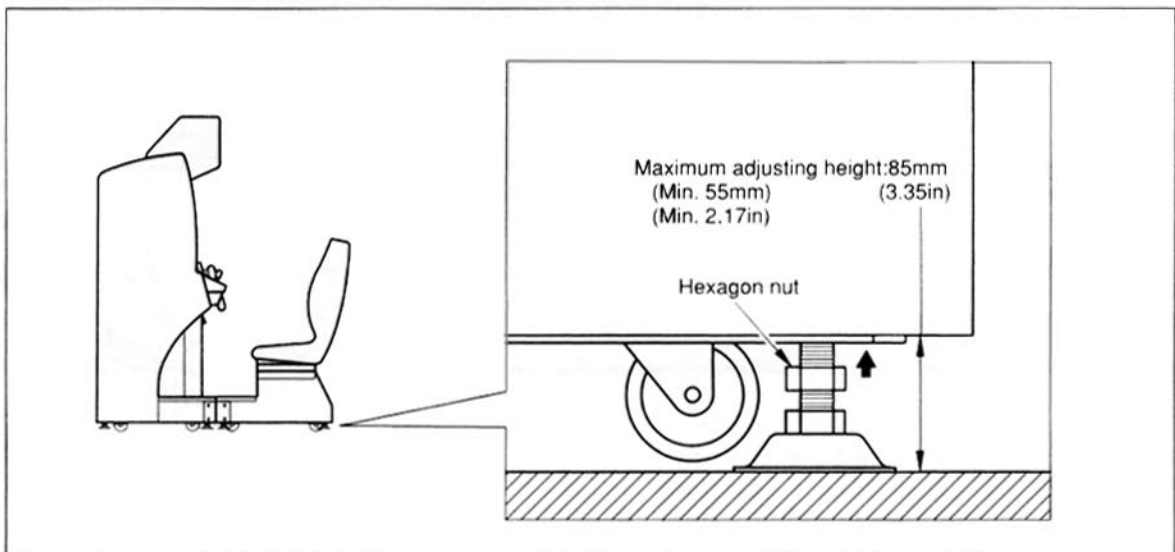
6-3 AC bracket

■AC bracket ━━━━━━━━━━━━━━━━━━━━━━

The AC bracket is located on the back of the main unit.

Earth terminal   Circuit protector   Network pin jack

Main power switch
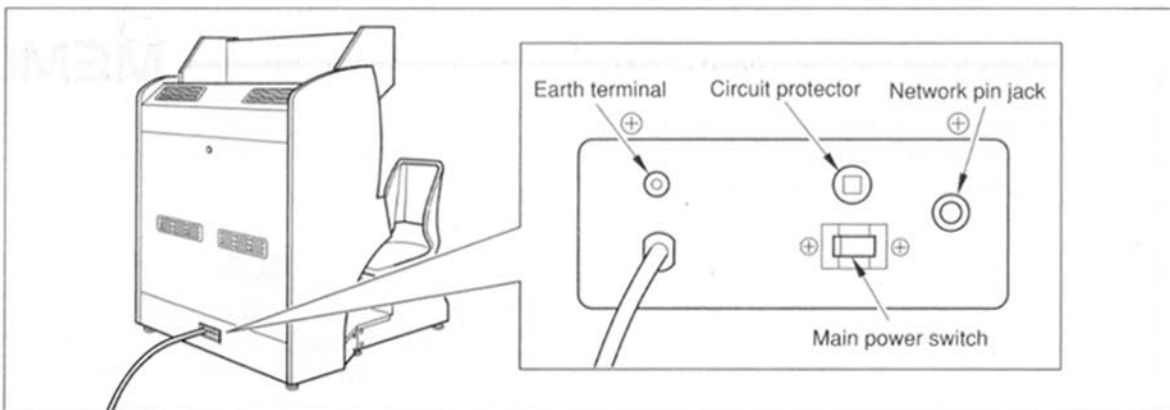
6-4 Service panel

■Service panel ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

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

Service switch1
Service switch2
Degauss switch 1
Degauss switch 1
Test switch
Area for coin counter
Internal power supply switch

Service panel

6-5 Separating and moving the units

The units of the machine can be separated.

■How to remove the units ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

● Move the game machine, after making sure that the main unit and seat unit are removed separately.
● Before separating each unit from the machine, be sure to turn off the power switch and remove the power cord plug from the receptacle.
● Fully raise all the adjusters before moving the game machine and move it utilizing the casters.
● When connecting the separated units, take care not to catch the your hand between the units.

1 Turn off the power switch and remove the power cord plug from the receptacle.

2 Remove the joint fittings A and B.

Main unit

Bolt
M8 x 35L

Joint fitting A

Seat unit   Joint fitting B
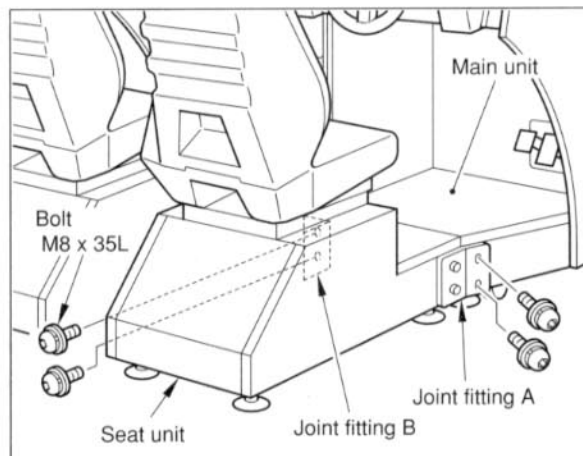
3 Loosen all the adjusters and move the units utilizing the casters.
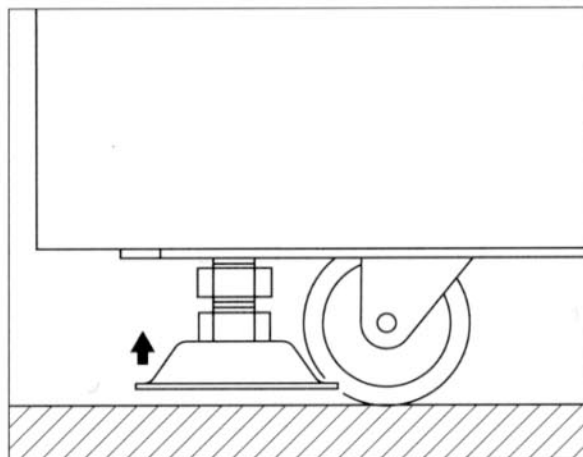
6-6 Moving the coin counter

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 ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

●Turn off the power switch and unplug the power cord from the receptacle before moving the coin counter.

**1** Open the coin box door and remove the screw securing the coin counter.

2 Pull the coin counter out from the coin box about half way, disconnect the connector (CN15) from the coin counter, and remove the coin counter from the machine.

Screw Coin counter

Connector (CN15)

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

4 Remove the maintenance door from the rear side of the main body (see 1 on page 36) and move the connector (CN15) into the service panel.

Blind cover

Screw

Rear side of service panel

Area (hole) for coin counter

Connector (CN15)

5 Connect the connector and secure the coin counter with the screw.

Connector

6 Install the blind cover in the coin counter hole inside the coin box.
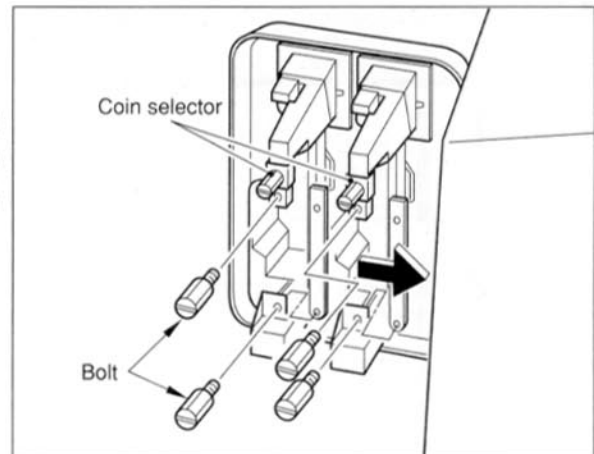
Blind cover
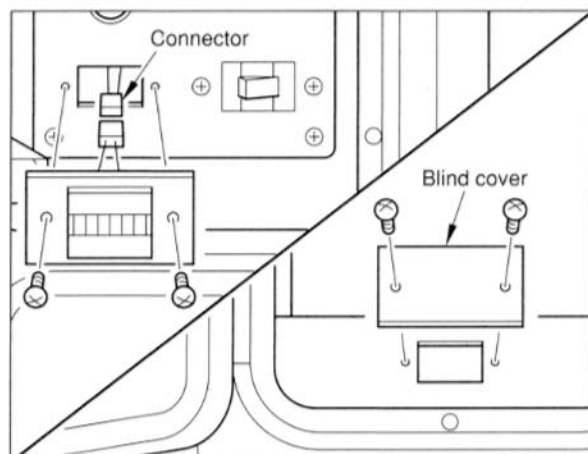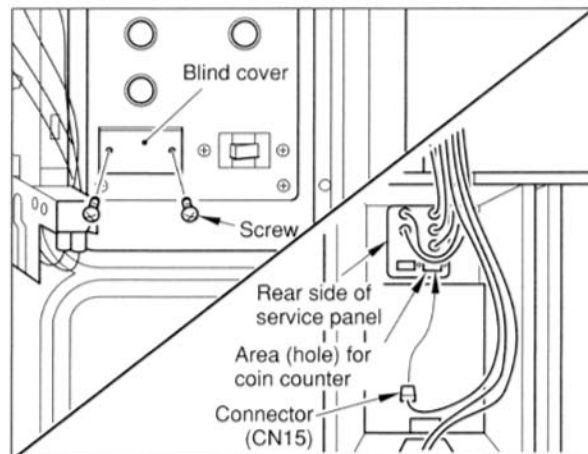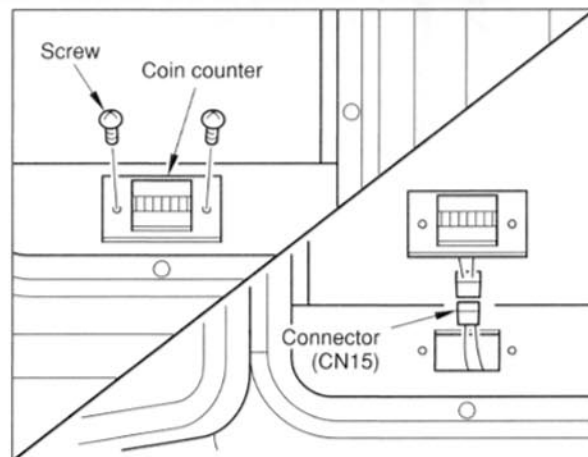
7　Maintenance and annex

7-1 Replacing 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 two bolts securing the coin selector (shown in the figure) and remove the coin counter by sliding it.

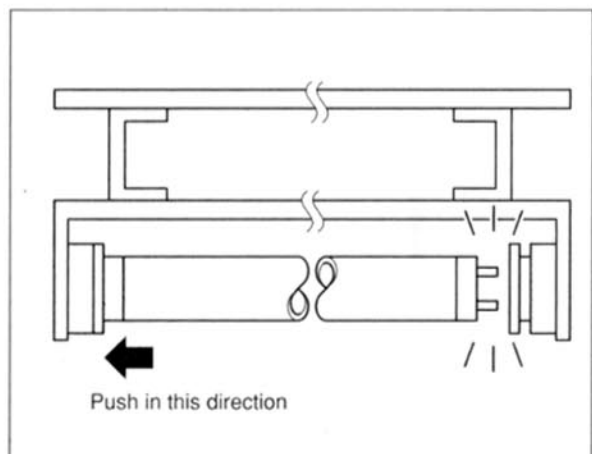Coin selector

Bolt

7-2 Replacing the fluorescent light

⚠️

● Be sure to turn off the power switch and remove the power cord plug from the receptacle before replacing the fluorescent light.
● 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 32 W/100V).
● When removing or installing the fluorescent light unit, take care not to catch the wiring between the fluorescent light unit and the main unit.

1 Remove the screws fixing the fluorescent light unit in the upper portion of the billboad, and remove the fluorescent light unit.

Fluorescent light unit

Glow lamp

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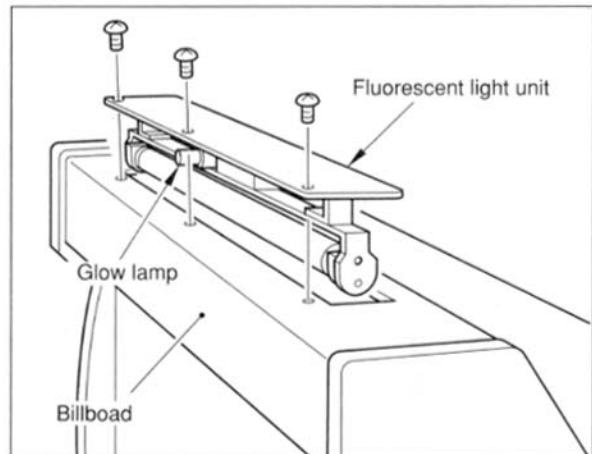
2 Push one end of the fluorescent light in the direction of the socket. The other end of the fluorescent light will be detached from the opposite socket.

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.
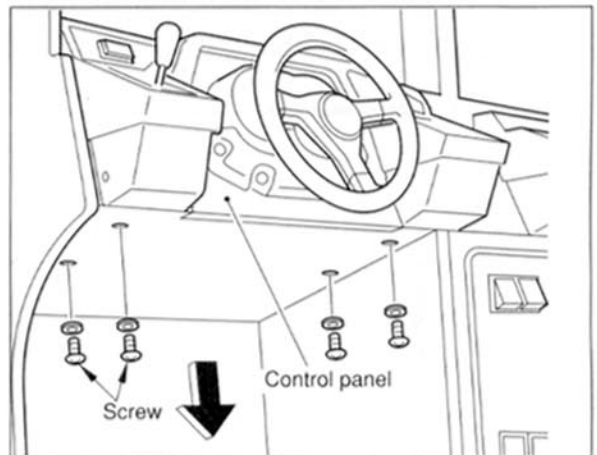
MEMO

7-3 Replacing and adjusting the Potentiometer knobs

■How to replace the steering wheel unit Potentiometer knob ━ ━ ━ ━ ━ ━
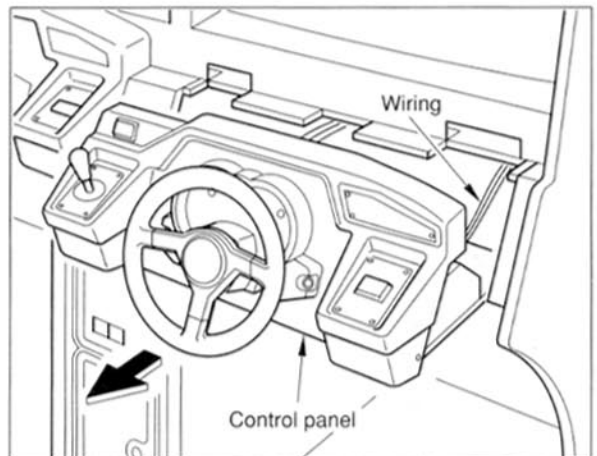
⚠

●Be sure to turn OFF the power switch and remove the power cord plug from the receptacle before replacing the Potentiometer knob.

1 Remove the screw securing the control panel.

2 Pull the control panel toward you, being careful not to pull the bound wires. Also exercise due caution not to drop the control panel during this procedure.
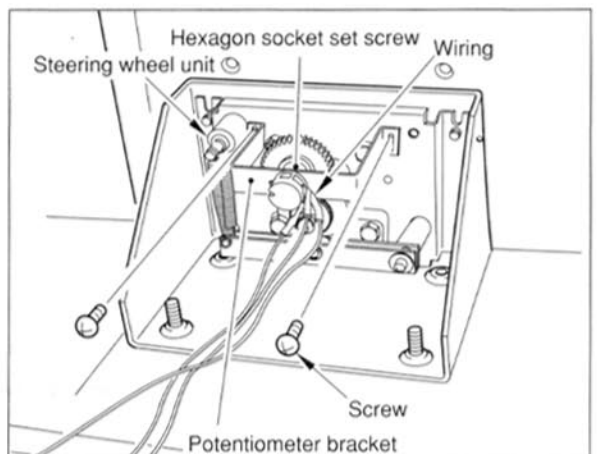

3 Disconnect the wiring and loosen the two hexagon socket set screws.

> If the hexagon socket set screws are in a position where it is difficult to loosen them, turn the steering wheel so that they are positioned favorably for loosening.
> ━MEMO┘

4 Remove the two screws fastening the potentiometer bracket and remove the potentiometer knob and bracket together.

5 Remove the hexagon nut fastening the potentiometer knob and the potentiometer knob.

When replacing the potentiometer knob with a new one, be sure to adjust the new potentiometer knob as described on this page.

MEMO

Spring washer

Hexagon nut
Flat washer

Potentiometer bracket   Potentiometer
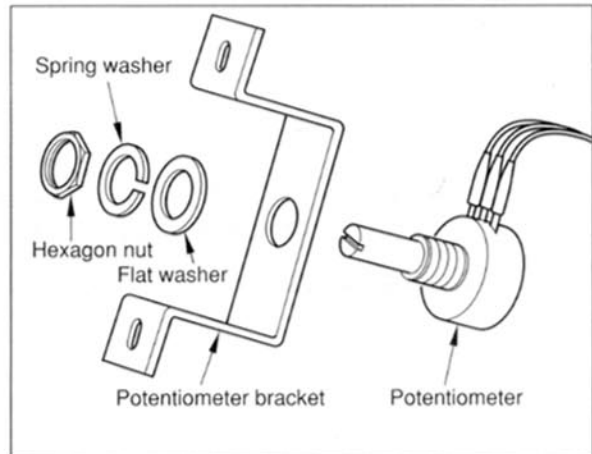
■How to adjust the steering wheel unit potentiometer knob ━ ━ ━ ━ ━ ━ ━

⚠

● Be sure to perform "5-3. PCB start-up check (self test)" on page 16 after replacing the potentiometer knob.

1 Attach a new potentiometer knob to the bracket.

2 Connect the wiring properly.

Spring washer   Black   Green

Red

Hexagon nut
Flat washer

Potentiometer bracket   Potentiometer
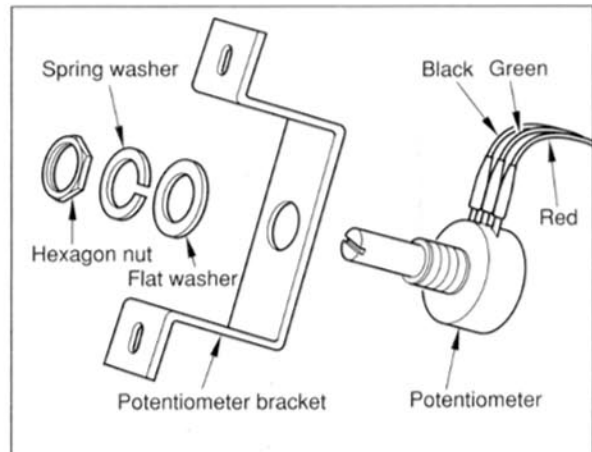
3 Grasp the potentiometer knob tip with your fingers and adjust it as shown in the figure.

4 Install the bracket and securely tighten the hexagon socket set screws.

Adjust so that the (-) mark on the potentiometer knob is aligned with the center terminal.
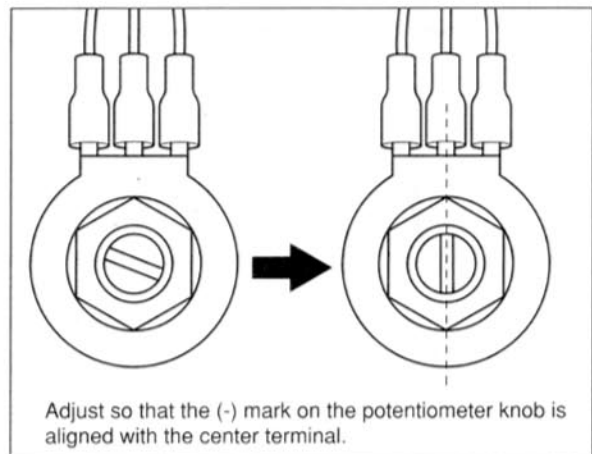
■How to replace the pedal unit potentiometer knob ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

●Be sure to turn off the power switch and remove the power cord plug from the receptacle before replacing the potentiometer knob.

1 Remove the screws from the maintenance door at the rear side of the main body.

2 Insert the attached maintenance key into the keyhole, turn it clockwise and remove the maintenance door.

Maintenance key
Screw
Maintenance door
Pedal unit
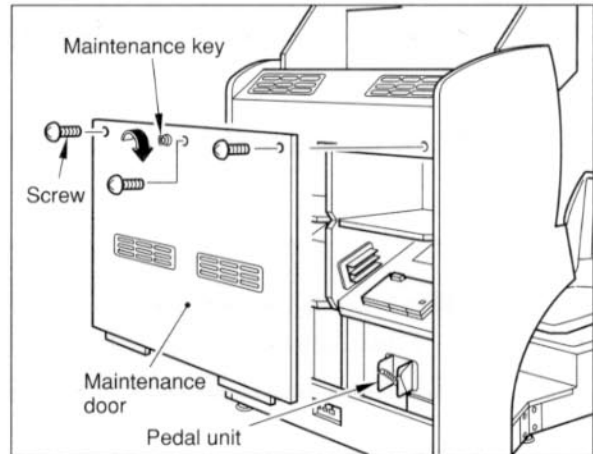
3 Disconnect the wiring. Loosen the hexagon socket set screws on the accelerator side and brake side of the pedal unit, and remove the gears.
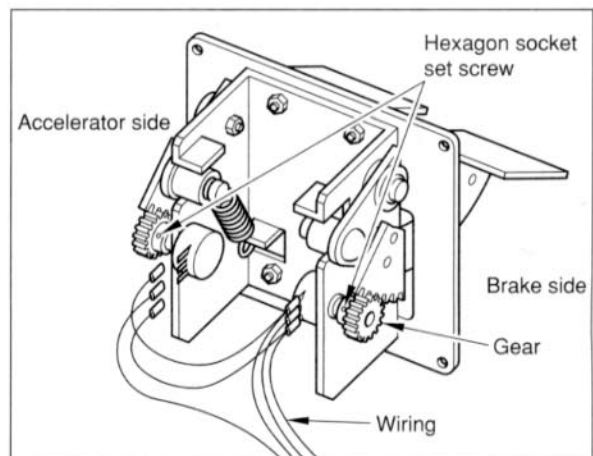
If the hexagon socket set screws are in a position where it is difficult to loosen them, press the pedal so that they are positioned favorably for loosening.
━━**MEMO**

Hexagon socket set screw
Accelerator side
Brake side
Gear
Wiring

4 Remove the hexagon nut fastening the potentiometer knob and remove the potentiometer knob.

When replacing the potentiometer knob with a new one, be sure to adjust the new potentiometer knob as described on page 37.
━━**MEMO**

Potentiometer
Flat washer
Spring washer
Hexagon nut
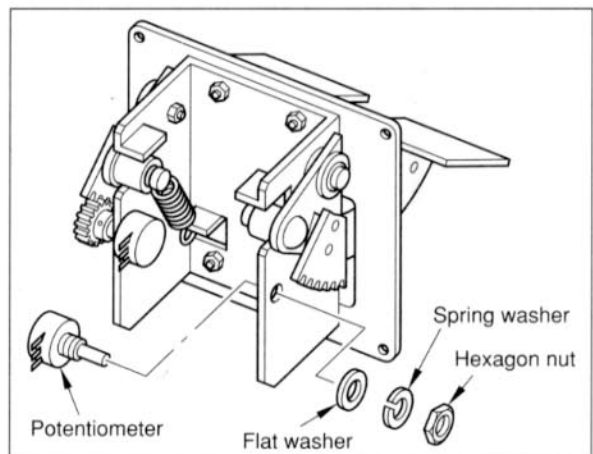
■ How to adjust the pedal unit potentiometer knob ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

⚠

●Be sure to perform "5-3. PCB start-up check (self test)" on page 16 after replacing the potentiometer knob.

1 Without touching the pedal, adjust the potentiometer knob with a flatblade screwdriver.

┌─[Adjusting method]────────
· **potentiometer knob for accelerator**
  Fully turn the potentiometer knob counter clockwise and then turn it back by about 10 degrees.
· **potentiometer knob for brake**
  Fully turn the potentiometer knob clockwise and the turn it back by about 10 degrees.

Flatblade screwdriver
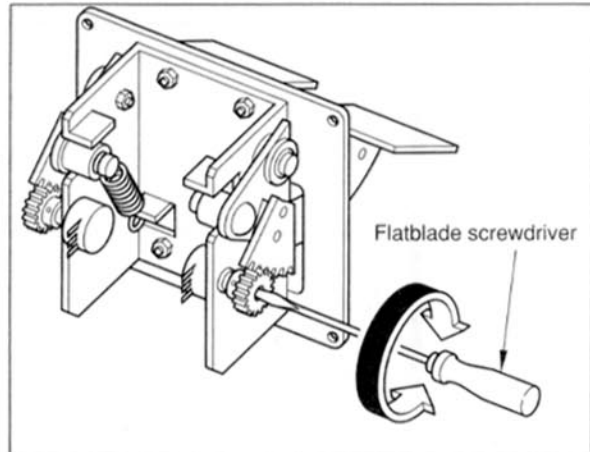
2 After adjusting the potentiometer knob, tighten the hexagon socket head screws securely and connect each wiring properly.

3 Close the maintenance door at the rear side of the main body and turn the maintenance key counter clockwise.

4 Lock the maintenance door with the screws securely.

Hexagon socket set screw

Red
Purple
Black

Red
Blue
Black
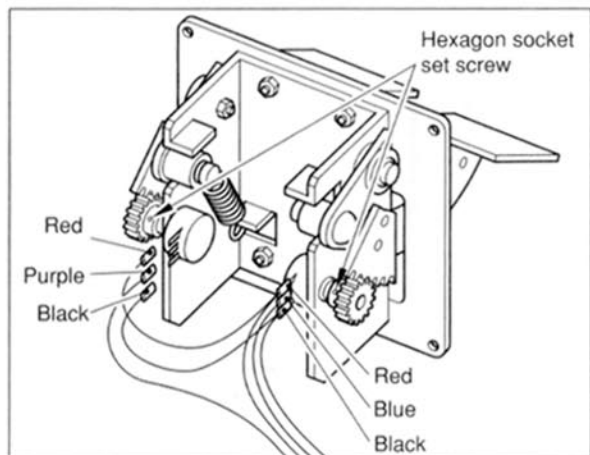
Unless the maintenance door on the back is securely screwed, the main unit is not energized.

MEMO

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7-4 Replacing the gear shift unit

■How to replace the gear shift unit ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━ ━

⚠

●Be sure to turn off the power switch and remove the power cord plug from the receptacle before replacing the gear shift unit.

1 Remove the screw securing the control panel . (See page 34.)

2 Pull the control panel toward you, being careful not to pull the bound wires. Also exercise due caution not to drop the control panel during this procedure.

3 Remove the shift knob and the plate.

Shift knob

Screw

Plate
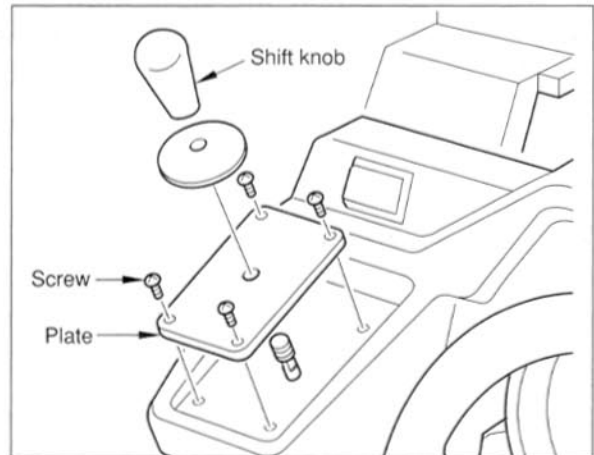
4 Remove the screw securing the shift unit from the rear side of the control panel and pull the shift unit out.

Screw

Wood panel

Screw
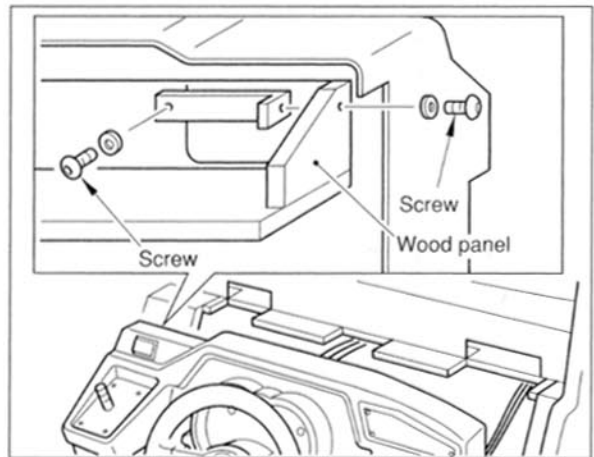
5 Remove the shift unit from the shift bracket.

Screw

Shift bracket

Shift unit

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7-5 Adjusting the monitor

The monitor is properly adjusted before shipment.
However, it is possible to adjust, if necessary.

> ⚠
>
> ●The monitor contains high-voltage components inside it.   Exercise due care not to touch them.
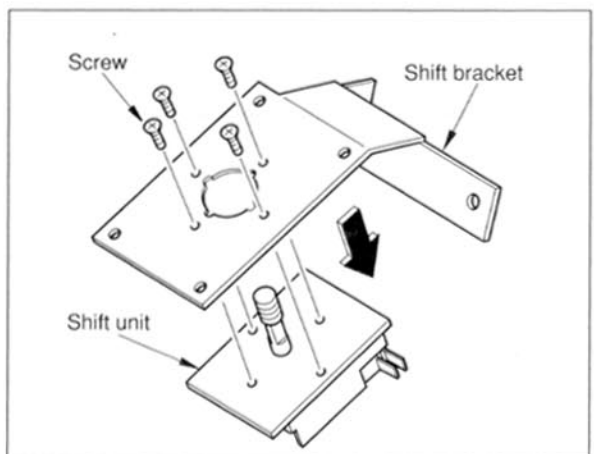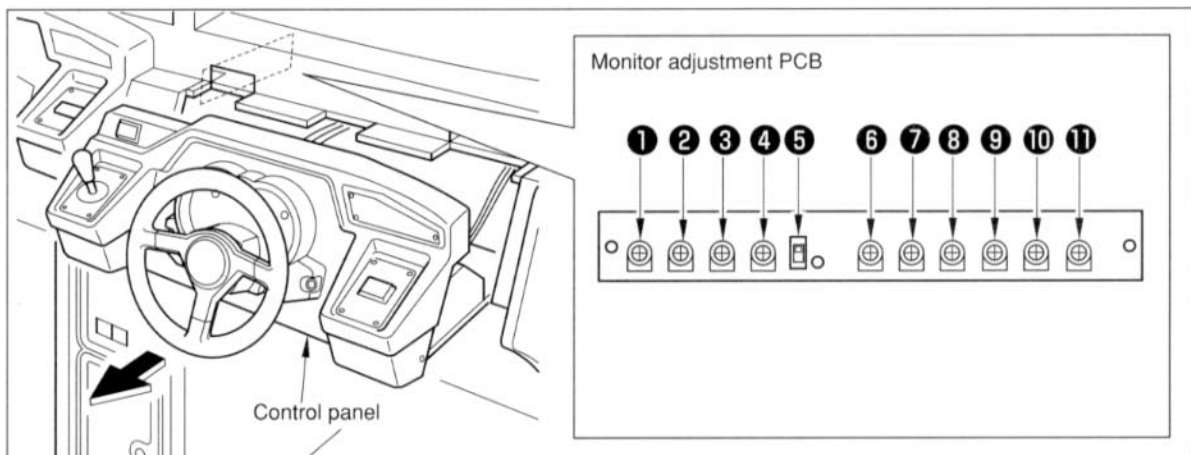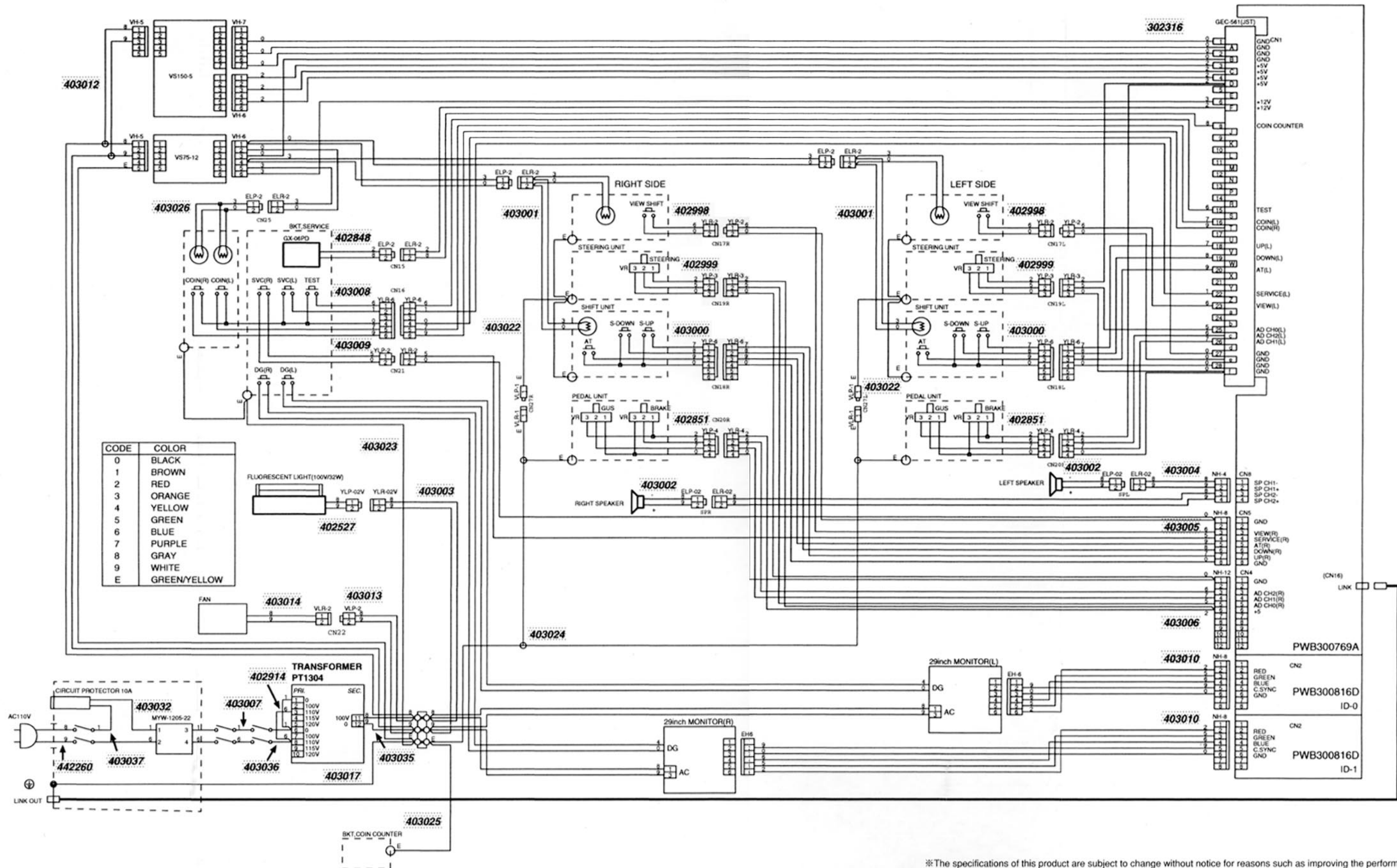
■Monitor control PCB ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬

The monitor control PCB is located inside the main unit.   When adjusting the monitor, pull the control panel.

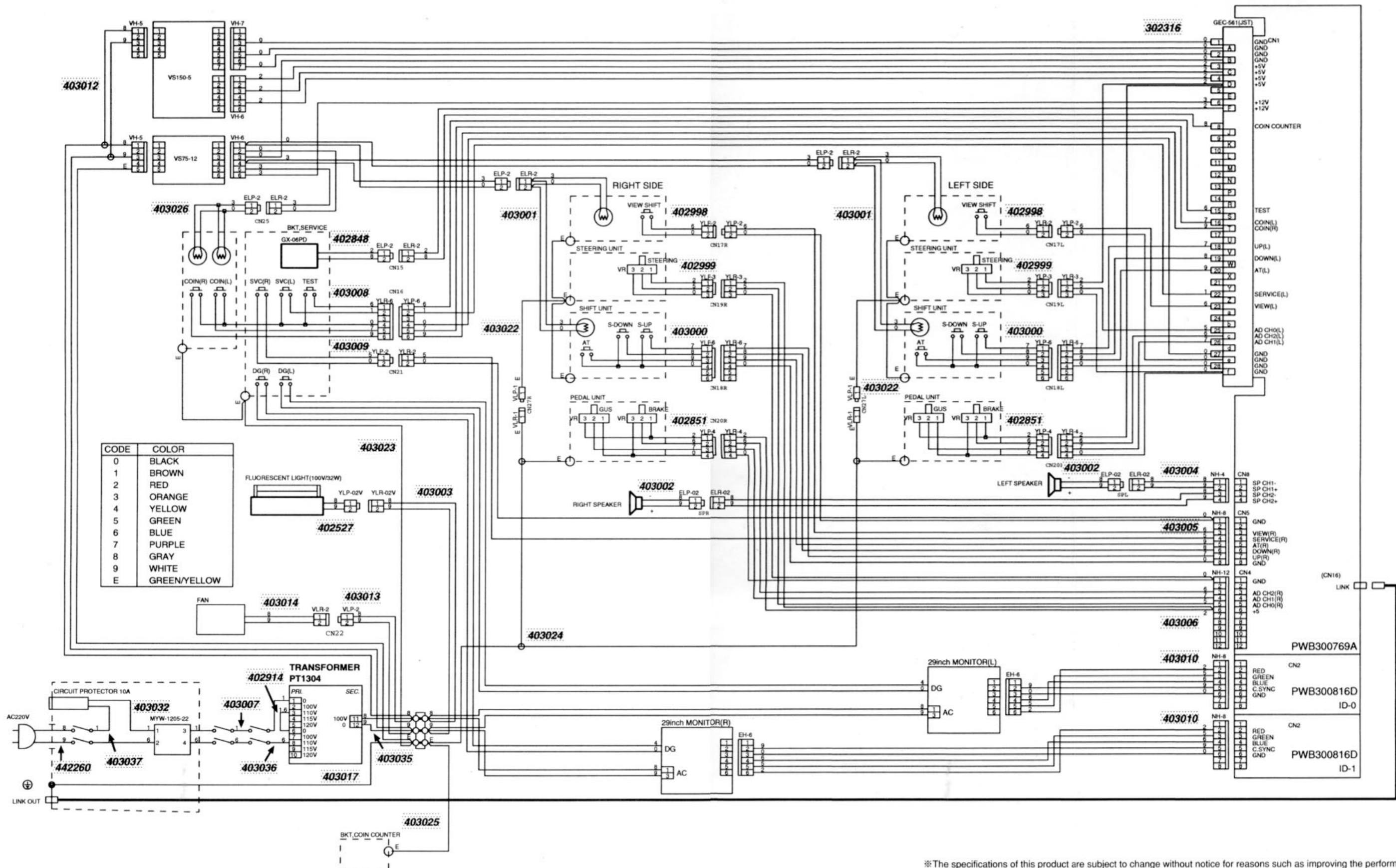|		Red input gain adjustment
❶	R.GAIN	Changes red brightness. Turning it clockwise will make the red deeper.
❷	G.GAIN	Green input gain adjustment
		Changes green brightness. Turning it clockwise will make the green deeper.
❸	B.GAIN	Blue input gain adjustment
		Changes blue brightness. Turning it clockwise will make the blue deeper.
❹	BRIGHT	Brightness adjustment
		Changes brightness. Turning it clockwise will make the image brighter.
❺	SS.SW	Picture quality adjustment (A: Normal, B: Emphasized)
❻	H.SIZE	Horizontal screen size adjustment
		Changes the width of the screen.
❼	H.HOLD	Horizontal synchronizing control
		Adjusts the picture when it rolls horizontally.
❽	H.POSI	Horizontal image position adjustment
		Changes the image position in the horizontal direction.
❾	V.SIZE	Vertical screen size adjustment
		Changes the height of the screen.
❿	V.HOLD	Vertical synchronizing control
		Adjusts the picture when it rolls vertically.
⓫	V.POSI	Vertical image position adjustment
		Changes the image position in the vertical direction.

7-6 Wiring diagram

GM677-AA spe0cifications for regions using 110 voltage area.

CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	PURPLE
8	GRAY
9	WHITE
E	GREEN/YELLOW

RIGHT SIDE

LEFT SIDE

VIEW SHIFT

STEERING UNIT

STEERING

SHIFT UNIT

S-DOWN   S-UP

AT

PEDAL UNIT

GUS   BRAKE

RIGHT SPEAKER

LEFT SPEAKER

FLUORESCENT LIGHT(100W/32W)

FAN

CIRCUIT PROTECTOR 10A

AC110V

TRANSFORMER
PT1304

LINK OUT

BKT.COIN COUNTER

29inch MONITOR(L)

29inch MONITOR(R)

PWB300769A

PWB300816D   ID-0

PWB300816D   ID-1

GEC-561(JST)

GND/CN1
GND
GND
GND
+5V
+5V
+5V
+5V
+12V
+12V
COIN COUNTER
TEST
COIN(L)
COIN(R)
UP(L)
DOWN(L)
AT(L)
SERVICE(L)
VIEW(L)
AD CH0(L)
AD CH2(L)
AD CH1(L)
GND
GND
GND
GND

SP CH1-
SP CH1+
SP CH2-
SP CH2+
GND
VIEW(R)
SERVICE(R)
AT(R)
DOWN(R)
UP(R)
GND
AD CH2(R)
AD CH1(R)
AD CH0(R)
+5
LINK

RED
GREEN
BLUE
C.SYNC
GND

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

Wiring diagram

GM677-AB/AD specifications for regions using 220 voltage area.

CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	PURPLE
8	GRAY
9	WHITE
E	GREEN/YELLOW

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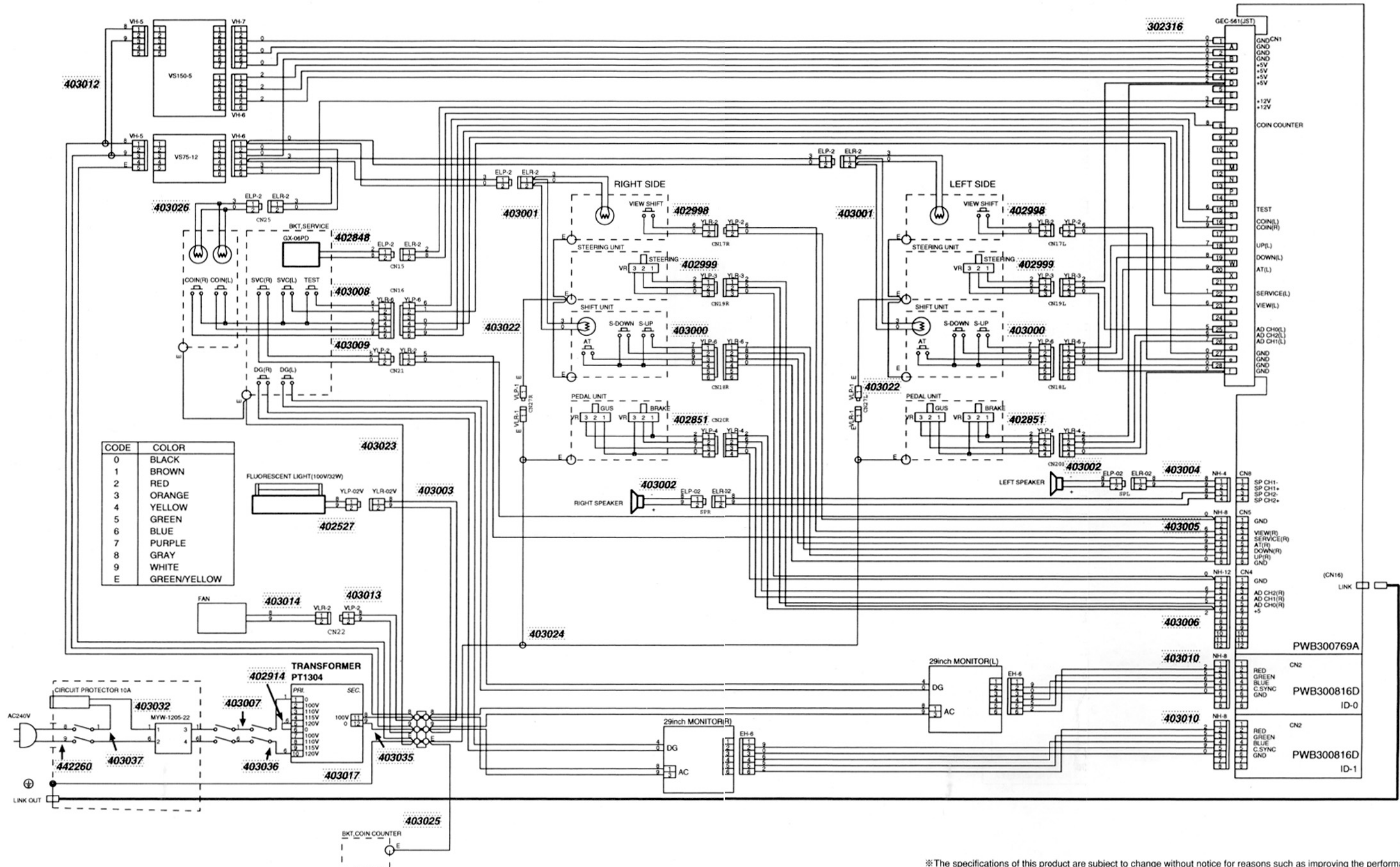
Wiring diagram

GM677-AC specifications for regions using 240 voltage area.

CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	PURPLE
8	GRAY
9	WHITE
E	GREEN/YELLOW

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

KONAMI®

WINDING HEAT™

TWIN TYPE