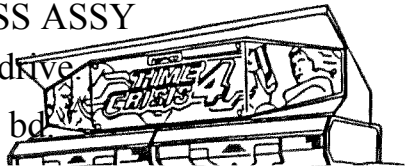


time crisis 4 razin storm neither gun works swap guns from side to side fixes it
Unplugging gun optic will also resolve issue if there are alignment issues.

standard resolution monitor/vid signal

namco

We think this cleans the connector and makes for a better connection since the camera Vcc is critical To remove gun remove top cover of pedestal by removing tamper proof screws and locate one square molex connector.



TF21-11954-00 gun hardware kit

TF50-11688-00-GUN HARNESS ASSY

NCI can copy and replace hard drive

Battery error -located on bottom bd

TF05-11689-01 Molded lens gun Smoked comes w lt rec bd also

TF05-11689-00 Sensor Bd./light rec

Monitor sync

Standard resolution per jORGE

MARQUEE BULB

F34T12 / CW - 34W T-12 Fluorescent Bulb

29PFX-46 = VG85-11669-00 chassis = Time Crisis 4

TF85-11587-00 complete mon assy
w / crt 29PFX-46

VG88-07671-01 PS 250
WATT 5VDC 12 VDC

a customer who wants to upgrade the software on a board set from a Time Crisis 3 game. He has a version Rom 1.A9 and wants to change it to Rom1.A12.

These are not ROMs they are Dongle versions A9 Had F.A.G. on the high score A12 also has a sticker on it that states Theater version in some cases.

light rec bd in backwards and misses top half of screen

TIME CRISIS 4 SD

On further checking with repair section, we won't supply the CPU for TIME CRISIS 4 PCB since we BNE does not have any stock of the electron element.

Actually, even we will forward the TIME CRISIS 4 PCB to manufacturer for repair.

The actual product you have received may differ slightly from the illustration.

VG56-10655-00 ISOLATION XFMR

VG88-07763-00 24VDC @ 5AMPS P.S. for gun kickback

Symptom: when the LT cab. emitters are plugged in the RT gun will not calibrate or work /vica versa.

CPU/Gun drive bd has a 3 pin plug that jumps pins

1 & 2 at CN-1 "FSENSE" this changes the freq of the emitter array so that there is no cross interference between cabinets / one bd. would have it and the other would not.

⚠ DANGER

Cust used a wells multi sync and it blew the rack due to pin 9 on cable being present

This monitor should be compatible TC4 correct? He hooked it up and his rack went dead I think it is coincidental because everything is hooked up correctly. Are there differences in VGA cables that could cause damage? He is using the standard vid cable from the game. Found out that the game VGA harness has a pin 9 most do not and the monitor had voltage present and blew the mother bd. there is a fusable link FL5 on the main bd.

NAMCO BANDAI Games Inc.

High pitch siren staccato like sound upon boot up can be caused by no dongle or a bad dongle

Emitters around mon used for gun optics - TI05-11581-00

>Time Crisis 4 uses a more sophisticated system that uses 10 LED
>infra-red emitters which are part of a matrix or pulsed in a clockwise fashion 1-10.
>As you position the gun the CCD device in the gun is divided into four
>parts or a quadrant so that it will see more or less light in some
>areas than others which helps it to calculate position. I'm not sure
>what LED's you are speaking of some pictures might help. The first
>question is, do the emitters light up with a dim red glow if yes they
>are probably OK. In most cases if the gun cursor is jumping or going
>off screen it is likely the camera. Swap Gun Drive CPU Bd. between
>sides to make sure. I have had strange cases where customers have
>unplugged and re-plugged the camera board connector in and out or
>swapped guns from side to side (bi-lateral swap) and they start working
>again. Another trick with calibration is to start in the middle forming
>a small box rather than the four corners as is recommended and sort of work your way out some people have
had success with this.
>
>

of national export control legislation. You shall at all times comply
fully with the requirements of such legislation and of all other
applicable laws of any jurisdiction in relation to this product.

Exception x02 is possible f4 on
main bd in rack.

Sega's testing showed that the Gun protect board that Mark has shown below, protected the LEDs in all situations they could throw at it (shorted gun wiring etc.). However, while it greatly improved the problem, it didn't fix it completely. I have still lost emitters in games with the protect board. In all cases, it always ends up being bad gun wiring.

Before the Gun Protect board was made, there was a cool little mod we all did. That was to install a fast blow fuse in line with the +12V of the IR System. For me, I installed it in between the +12V wire going to the IR Emitter PCBs (1/2Amp or 3/16 F/B). I never had another lost Emitter board as the fuse would blow when the boards would lock on.

As you said, the LEDs are being fired at full rate (like a 1 ohm resistor between the LED and power). With it being a quick burst, the LED survives (10 percent duty cycle is typically acceptable by LED spec sheets). But, if for any reason, the clock stream locks up (or Bogs down as you put it), it will blow some or all of the LEDs. With the low value fast blow fuse, the fuse blows instead of the Emitters.

The emitter PCBs used are almost identical to the SEGA boards so they probably came out of the same 3rd party vendor in Japan. I have never seen your "Gun Sense Board" (what Sega called the IR Controller board) so I don't know if it is the same. The Sega board converts the IR Curtain, though CCD camera cells, into an simple X/Y voltage like an analog Joystick for each player input.

I am not sure, but I think in our game's case, both Gun harnesses have already been replaced. Which is why Mark finally asked for more help in hopes you had already found a solution we didn't know about. Sadly, neither Mark or I have a game to stick our head into to see what the rest of the system consists of - or if we can determine the power pin to the LEDs.

Thanks. Sega came out with a Gun Input Protect PCB that stopped the failures on their system. It goes between the guns and the gun control PCB. When there is a harness failure in the gun, this board keeps the control board from blowing the LEDs.

Gun Optic CCD Looks the same but the pull up are different



if you rewire and fuse 1/2a fb on 12vdc gun harness feed shouldn't need protect bd per mike sehien /tricorp

1-1 Magnitudes of risk

Safety precautions and property damage are classified as shown below in accordance

Gun kick back coil has a flyback diode and a series device which looks like a thermistor on it. opens the circuit if the coil overheats. It looks like a thermistor or some type of thermal device that would open the circuit up if there is an over-current condition which would cause an increase in temperature. I have not heard from the techs yet so I do not have any resistance readings yet. You could bypass that device as long as your coil is not shorted. COIL RESISTANCE = 150HMS

Functional notes not related to safety are marked with the following indication.

SENSOR,PHOTO FOR FOOT PEDAL,
VG79-11619-00 or VG79-11614-00-NLA

Source # from manual K11249-AALF

VG79-11619-00 PEDAL SENSOR TC4 OPTO

Instructions or protection of the machine.

term "technician"

This operation manual is written for arcade personnel. However, the sections marked "- To be conducted by a technician only -" in the table of contents are written for technicians. These tasks must be conducted by technicians only.

dongle goes on left side only 8 beeps if it is good 3 if not. plug into rt side and get beeps and then a scratchy sound out of speaker

Service personnel must have the knowledge and experience to perform the maintenance service for a manufacturer of amusement equipment, or a person with the knowledge related to electricity, electronics or mechanical engineering at a level equal to or higher than that of technical high school graduates, and who is engaged routinely in the maintenance (repair) of amusement machines.

Repeater Bd. has 3 usb ports and p.s. connection p# TI05-10631-00

Can be used to daisy chain multiple games together or just link two. Normal for 2 games is just a crossover block for RJ45 connectors P# VG67-11137-00

Can be purchased thru East Coast Amusements.

used to convert raster and ProJo's to VGA /LCD

Amusement Technologies .com

AT3800 \$90.00 Scan convertors

Cust had really scratched and polished and sanded the smoked lense for gun and it worked.

The following dongles we stock and can A/R . Typical cost between \$150.00 and \$250.00.

Tekken Series

Time Crisis Series

Dead Storm Pirates

Razing Storm

Mario Kart

Tank, Tank, Tank

Maxi-Tune 1&2

If this dongle goes bad or is lost we do not have stock and the racks have to be sent to Japan if the HDD/ Dongle or Mother. Bd. fail.

Maxi-Tune 3:

Soft System Frequency(Hz)

Tekken 6 357,369 44.9k

Tekken 6BR

Razing Storm

Deadstorm Pirates

Tekken TAG 2

NIRIN ES1 47.6k

TANK!TANK!TANK!

DEADHEAT

Wangan 3 N2 31.3k

Time Crisis 4 SS256

Time Crisis 3 246

regularly and remove dust.

- Insert the power plug firmly in the power cord to avoid heating that can lead to a fire or damage to the power cord.

the following instructions:

the power cord away from

do not twist the power cord

do not bend the power cord

do not alter the power cord

do not bundle the power cord

do not pull the power cord

do not place anything on the power cord

do not pinch the power cord

Do not do anything else that might damage the power cord.

- Do not wet power cord or power plug with water. Water can cause an electric shock or leakage.

may cause over-

electrical leakage.

the plug, not the

acts, or against

Drives that are known to work in TC4:

Samsung SP0411N

Seagate ST340014A

Western Digital WD400BB

Western Digital WD400EB

There may be others that work, we have tried several in the 20G to 100G range that didn't.

Joe:

Here a costumer looking for help on TC4; they replace the power supply (this burn out and may damage de CPU) Now they replace the power supply and the game do not but up. They only see the massage in the screen - loading- then reset and finish loading the game. Please advise.

In this case I would swap the computer rack from the game that is not working to a game that is working. If the problem follows then there are a few areas in the rack that you can check. There are fuseable links F5 and F4 on the main bd. Sometimes when there is a voltage surge these "0 Ohm" resistors that act as fuses on the main Bd. do blow. You can solder a trace wire across them if they read open. Also HDD's can cause the symptoms you are seeing so swap the HDD with a working game after checking the fuseable links. The voltage problems can cause data to be corrupted during write or read cycles.

- When transferring the ownership of the machine, be sure to provide this Operation Manual with the machine.

Black screen flashes occasional blue screen and beeps once twice probable HDD / Mthr bd. usually no boot at all if dongle not seated or board that sockets are located on not seated get continuis beeping like alarm bad dongle also.

How to check pedal optic -In the schematic you will see "Foot Pedal" with a 4 pin connector. On the 4-pin connector you will see a red wire (5vdc) and Black wire (GND) make sure you have 5 vdc present at the optic connector. If you do check from ground (Blk wire) to the Blu-Pnk wire and you will see either approx. 5vdc or 0vdc. Then block the optic just as the plunger would when you press on the pedal and see if the voltage transitions (e.g. 5vdc to 0vdc or 0vdc to 5vdc) if it does transistion then that tells us the optic is working correctly. Then you need to inspect that wiring harness from the optic to the I/O board to make sure it's not pinched or intermittently shorting to anything which would explain why it failed again. Could just be a loose connection going back to the I/O Bd. If the wiring and voltages all check good then swap the I/O Bd. with the other side and see if the problem follows.

- The warning labels describe important safety precautions. Observe the following:

Boot sequence

Not very verbose. At power up there are 7 beeps, followed by over a minute of nothing, a brief solid red screen, then a blue screen with a brief JVS test, a brief grey screen, then game startup.

Beep codes

- 3 beeps, no (valid) memory card found

To order warning labels, contact your distributor.

Hello Joe,

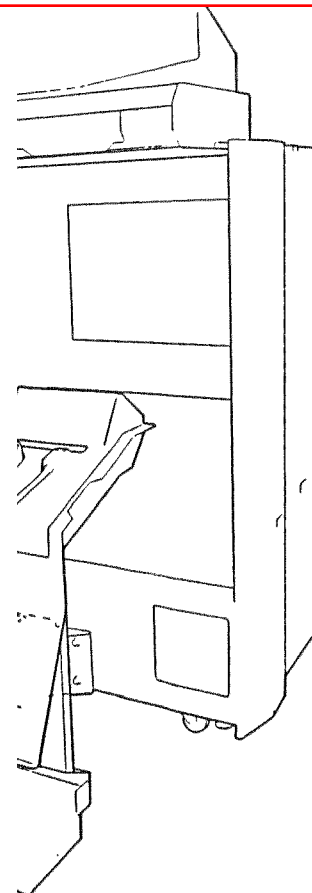
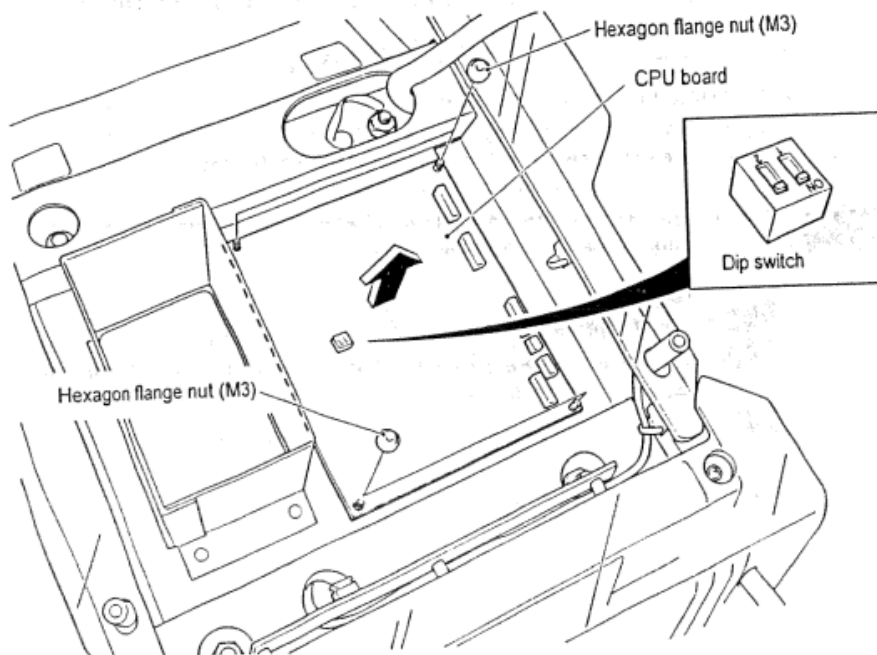
Yes, as Pierre told you, we will supply CPU PCB for TIME CRISIS 4 as spare parts(@US\$ 240.50 at current exchange rate), whereas we will charge @ US\$ 252.50 for repair of this PCB and you have to pay freight cost for out and home.

As above circumstance, I recommend you to purchase the PCB to save your cost.

Best regards.

Takeshi Tamura

5 Remove the four hexagon flange nuts (M3). Then remove the CPU board.

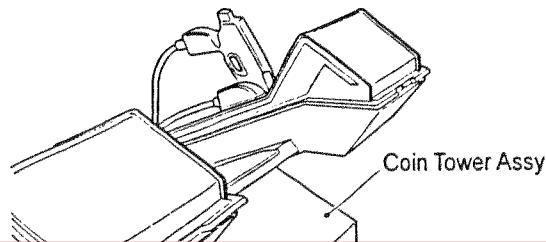


6 Confirm that the new CPU board's DIP switch is the same as shown in the figure.

7 To install, simply reverse this procedure.

1. SAFETY PRECAUTIONS - Be sure to read these instructions to ensure safety -

Rear View of Coin Tower Assy, Top View of Joint Assy.



Time Crisis 4 JV Master error

I recently encountered this error on one of our machines - at start up the Player 1 screen is black showing the following error:

JV Master (2.25): Reset followed by continuous count to 100

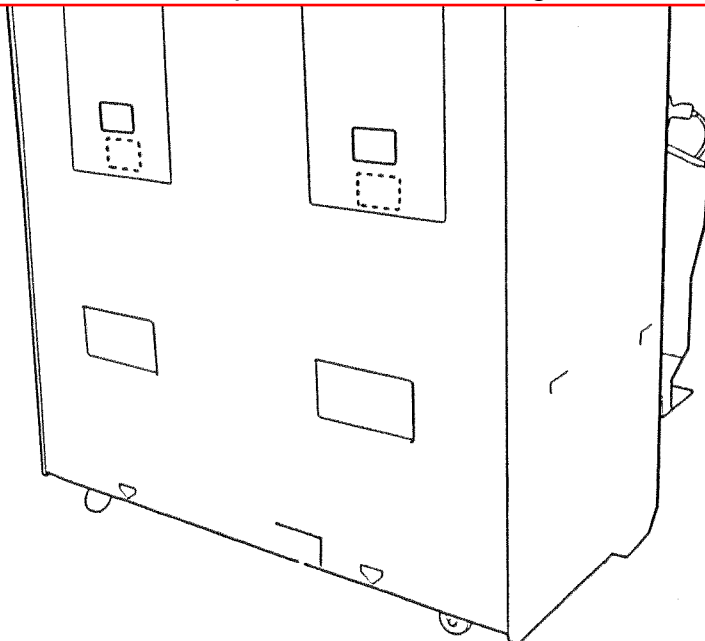
I/O Board 1: Nothing
and the game won't start.

I noticed some red LEDs flashing on the NA-JV Board corresponding to the Player 1.

I swapped the boards but on the same position some red LEDs are lit and the same errors appears on the screen.

Could you kindly advice any further checking I could do to pinpoint the cause of this error?

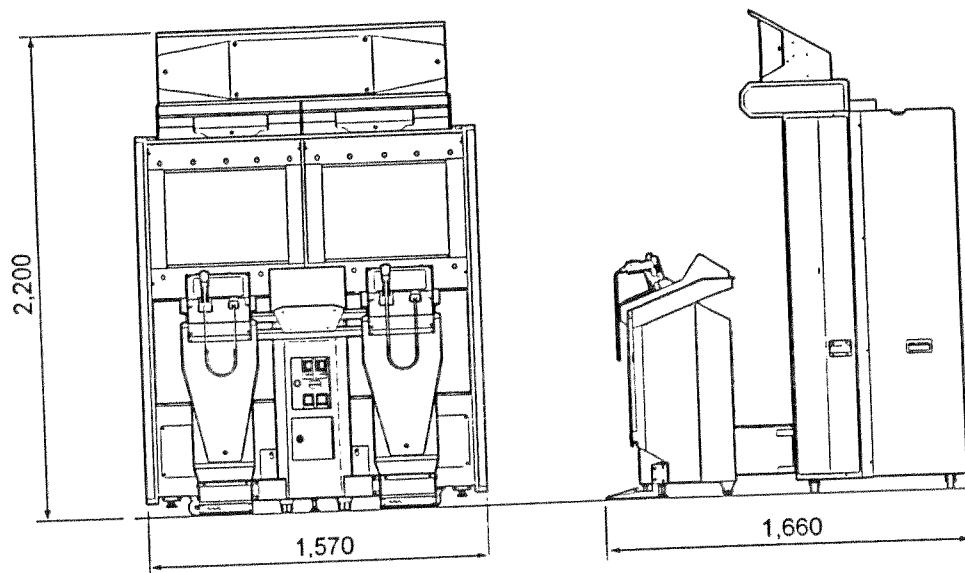
It sounds like you have what we call a sub PC time out. Once the main computer rack boots up it wants to communicate to the NAJV I/O Bd. and if it can't it eventually times out and presents this error. It sounds like the NAJV has VCC (flashing LED's) but check to make sure there is a solid 5vdc @ CN1 and inspect or swap the modified USB Cable coming from the computer rack to the NAJV board as it may be defective. I have seen rare cases where something on the I/O portion of the board is shorted and causes the NAJV to lock up and not be able to communicate. Try disconnecting CN2 and CN3 and rebooting the game to see if you can get past the I/O error. You can swap I/O Bds and computer racks between games also.



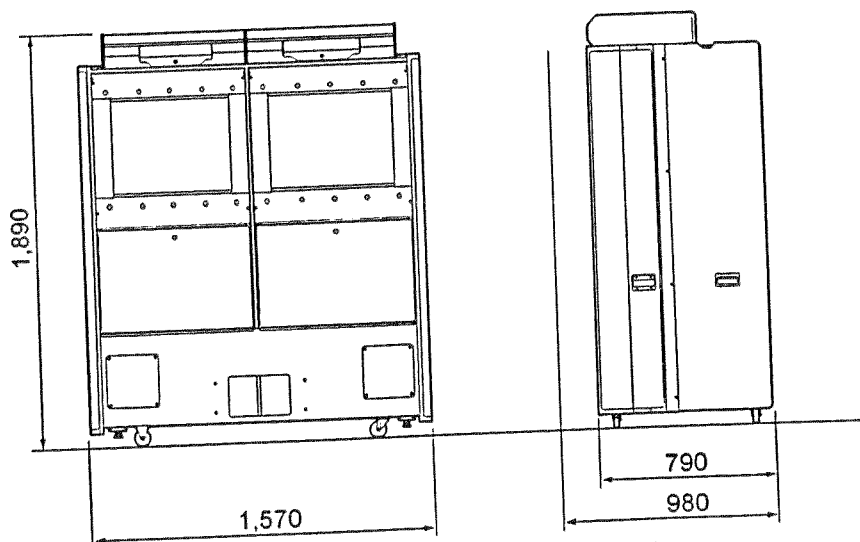
2. SPECIFICATIONS

- (1) Rated power supply : 110-120 VAC (50/60 Hz)
- (2) Maximum power consumption: 582 W
- (3) Maximum current consumption: 6.2
- (4) CRT: 29-inch color monitor X 2
- (5) Dimensions:

1 As installed 1,570 (W) x 1,660 (D) x 2,200 (H) [mm]

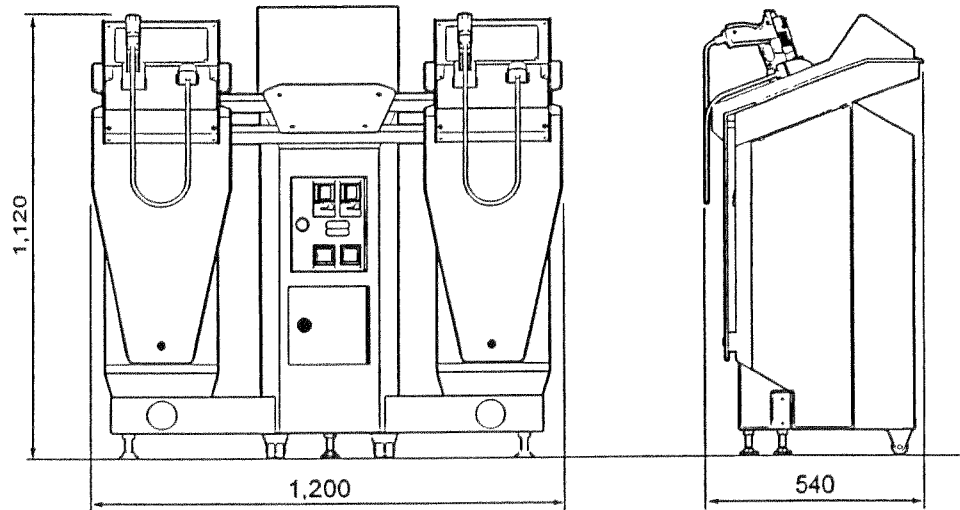


2 When divided:
Monitor Tower Assy 1,570 (W) x 790 (D) x 1,890 (H) [mm]

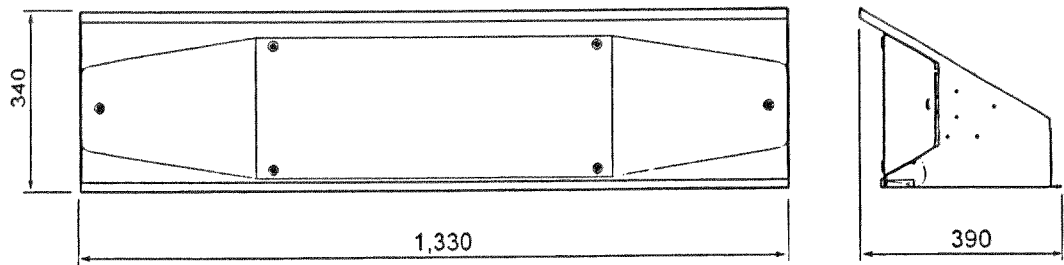


2. SPECIFICATIONS

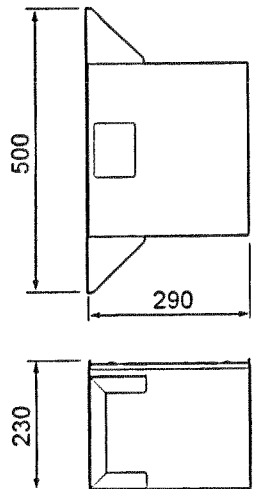
Control Assy 1,200 (W) x 540 (D) x 1,120 (H) [mm]



Signboard Assy 1,330 (W) x 390 (D) x 340 (H) [mm]



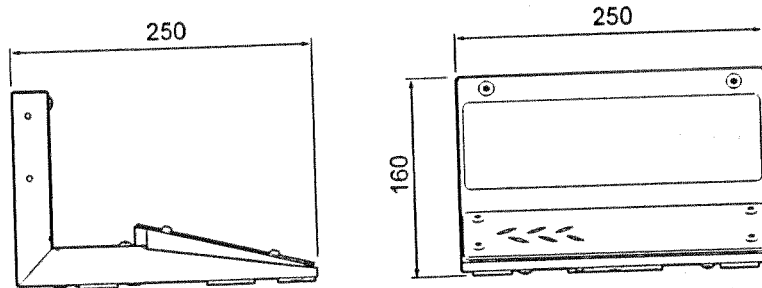
Joint Assy 500 (W) x 290 (D) x 230 (H) [mm]



2. SPECIFICATIONS

Pedal Assy

250 (W) x 250 (D) x 160 (H) [mm]



(7) Weight:

1 As installed :	380 kg
2 When divided:	
Monitor Tower Assy	275 kg
Signboard Assy	20 kg
Control Assy	70 kg
Pedal Assy	6 kgx 2 units
Joint Assy	6 kg
Speaker box Assy	22 kg

3. CHECKING THE PACKAGE CONTENTS

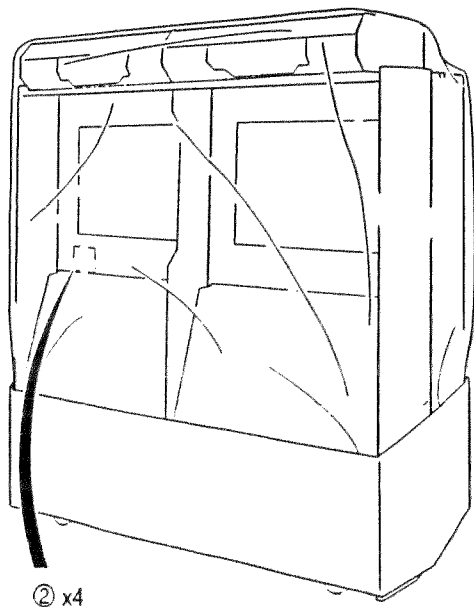
The product packages contain the following assemblies and accessories when shipped.



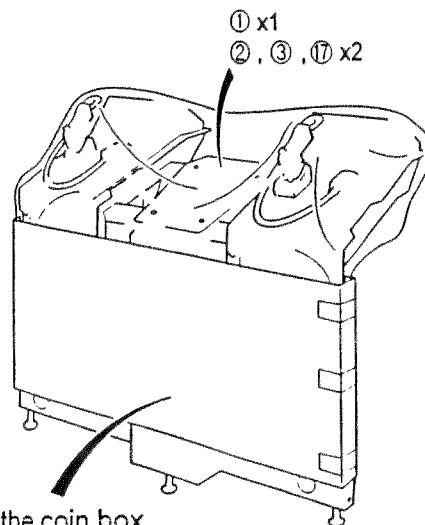
- Make sure all the assemblies and accessories shown below are included in the product packages.
- If any assembly or accessory is missing, contact your distributor.

Assemblies and accessories

● Monitor Tower Assy



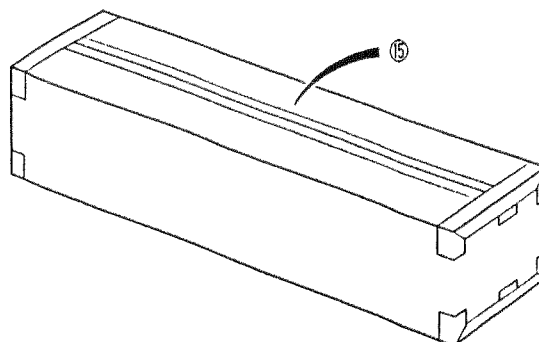
● Control Assy



Inside the coin box

- ④, ⑬ x1
⑤, ⑥, ⑩, ⑫ x2
⑨, ⑪ x4
⑧ x16

● Signboard Assy

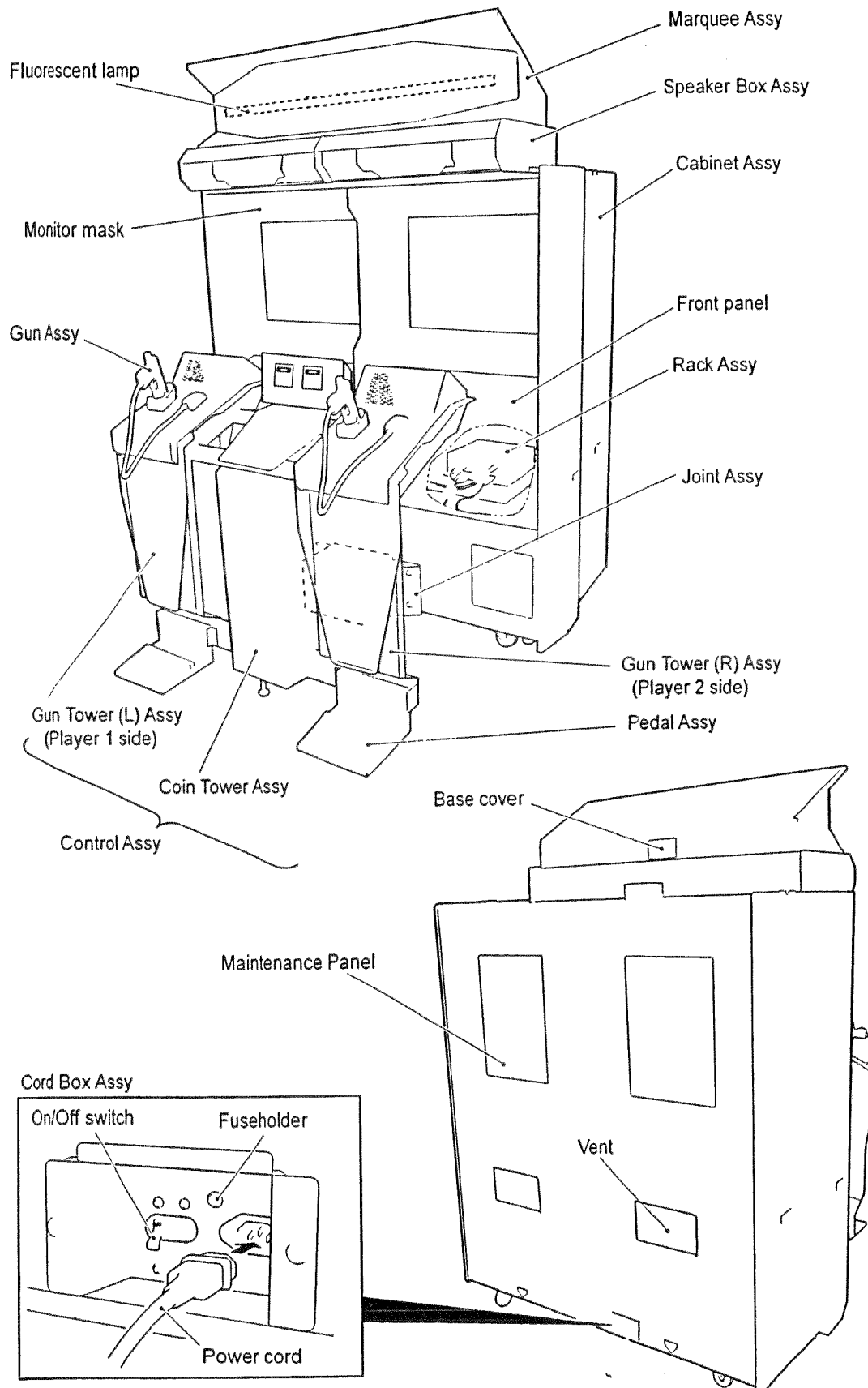


3. CHECKING THE PACKAGE CONTENTS

● Accessory list

No.	Name	Specification	Qty
1	Time Crisis 4 SD Operation Manual (this manual)		1
2			
3	Coin box key		2
4	Torx wrench	M5: 4 mm across flats 	1
5			
6			
7			
8			
9	Hex bolt 5/16x 3/4	For Joint Assy installation 	4
10	Tamper proof screw 10-32 X 3/4"	For Signboard panel installation 	2
11	Tamper proof bolt 5/16 x 1"	For Joint Assy installation 	4
12	Tamper proof screw 10-32 x 1/2" (with flat and spring washers)	For SD harness cover installation 	2
13	Power cord		1
15			
16	SD harness cover		1
17			

4. OVERALL CONSTRUCTION (Names of Parts)



5. INSTALLATION

WARNING

- Install the machine according to the instructions and procedures described in the Operation Manual. Failure to follow the specified procedures may result in a fire, electric shock, injury, or machine malfunction.
- Insert the power plug firmly into the service outlet. Poor contact may cause overheating that can lead to a fire or burns.
- Be sure to connect the ground conductor. Using the machine without proper grounding can result in an electric shock if electric leakage occurs. (See P. 28 "5-6 Connecting the power cord and ground conductor.")
- Install the machine securely in place by using the level adjusters. Unstable machine installation can result in an accident or injury. (See P. 20 "5-3-1 Adjusting the level adjusters.")

5-1 Installation conditions

5-1-1 Locations to avoid

WARNING

- The machine is designed for indoor use. Never install the machine outdoors or at any of the following locations:
 - Places exposed to direct sunlight
 - Places exposed to rain or water leakage
 - Damp places
 - Dusty places
 - Close to heating devices
 - Hot places
 - Extremely cold places
 - Places where dew condensation may occur due to temperature differences
 - Places where the machine may become an obstruction in emergencies (such as near emergency exit) and places where fire extinguisher or similar equipment is installed.
 - Unstable places or locations subject to vibration



NOTICE

- Do not install the machine at any of the following places since they may disallow the sensors from detecting the Gun Assy positions properly.
 - Places where bright light sources such as sunlight and spotlights shine directly on the Gun Assy or the monitor screen.
 - Places where bright flashing lights cause a strong contrast between light and dark.

5. INSTALLATION

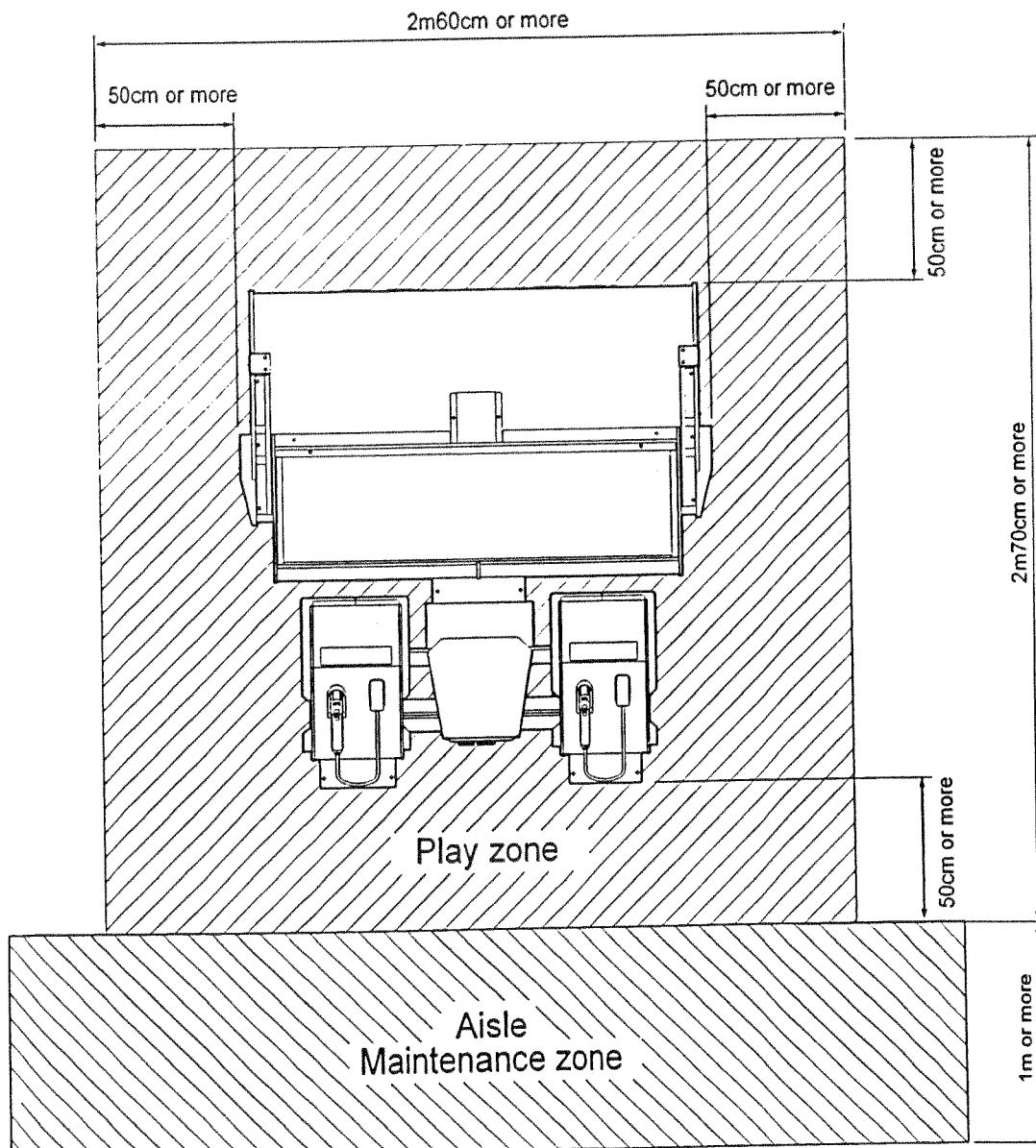
5-1-2 Play zone of installed machine

⚠ CAUTION

- Secure a play zone as illustrated in the diagram below to prevent contact between players and observers or passersby.



- A ceiling height of at least 2 m 30 cm is required.
- Provide a space of at least 50 cm between the rear of the machine and the wall or adjacent equipment to turn the power switch on and off or facilitate easier removal of the maintenance panel.



5-1-3 Preventing cross talk

If the machines using the same gun detecting system are installed side by side, cross talk may occur between them resulting in machine malfunction. If machines of the same type are to be installed side by side, make sure the frequency-changeover-harness installed CPU board models and non frequency-changeover-harness installed models are alternately placed.

This machine is equipped with the frequency changeover harness on the CPU board in the Gun Tower (R) Assy. (See P.78 "8-3-5 (4) Replacing the CPU board")

[The machine equipped with the same gun detection system]

- Cobra the Arcade

5. INSTALLATION

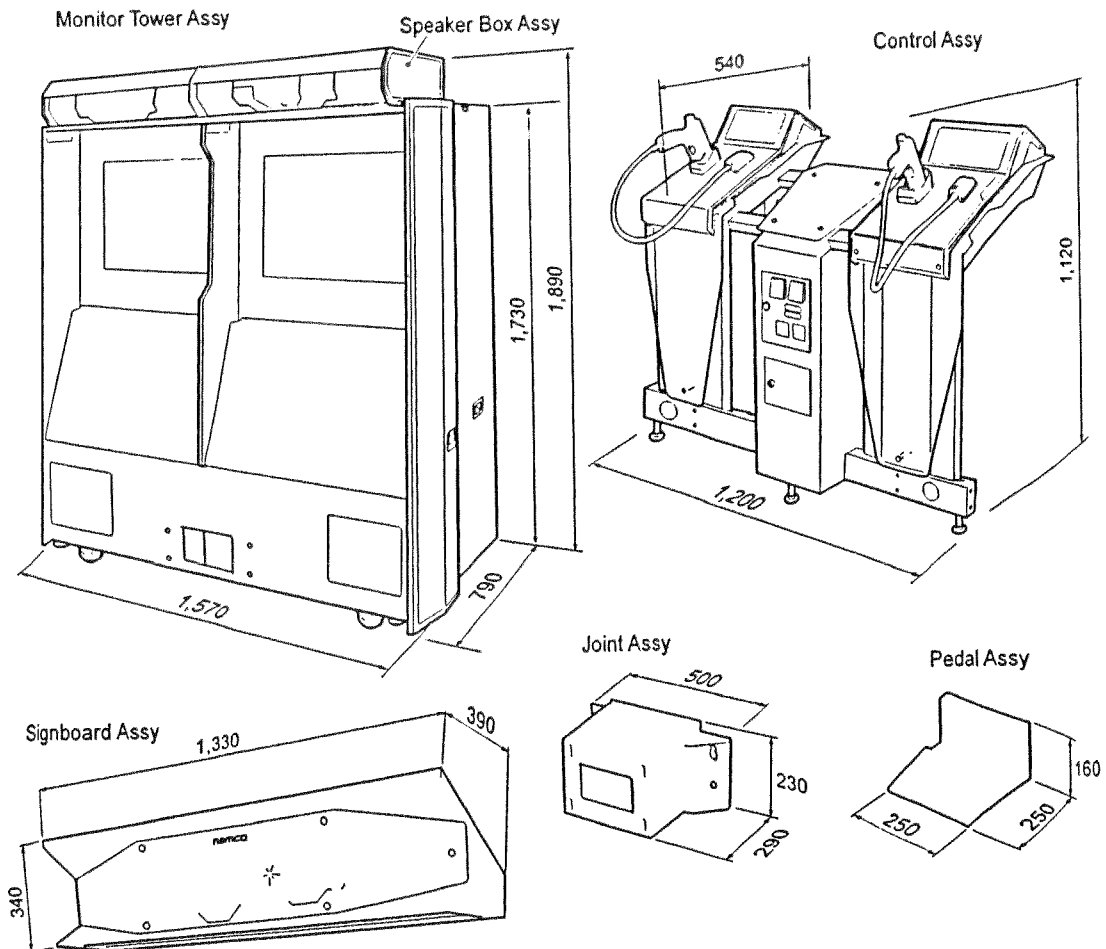
5-2 Required dimensions of carry-in passage (such as doors and corridors)

The machine is separated into the following assemblies for transportation. The size of each assembly is as follows.

• Monitor Tower Assy	1,570 (W) x 790 (D) x 1,890 (H) mm	Weight: 275 kg
• Control Assy	1,200 (W) x 540 (D) x 1,120 (H) mm	Weight: 70 kg
• Marquee Assy	1,330 (W) x 390 (D) x 340 (H) mm	Weight: 20 kg

The carry-in passage must be larger than the above dimensions in order to carry the assemblies to the installation site.

If the height of the passage opening is too low for carrying in the machine, the Speaker Box Assy can be temporarily separated from the Monitor Tower Assy to reduce its height to 1,730 mm.
For the method of removing the Speaker Box Assy, refer to P-19 "5-2-1 Removing the Speaker Box Assy (when necessary due to passage conditions)."



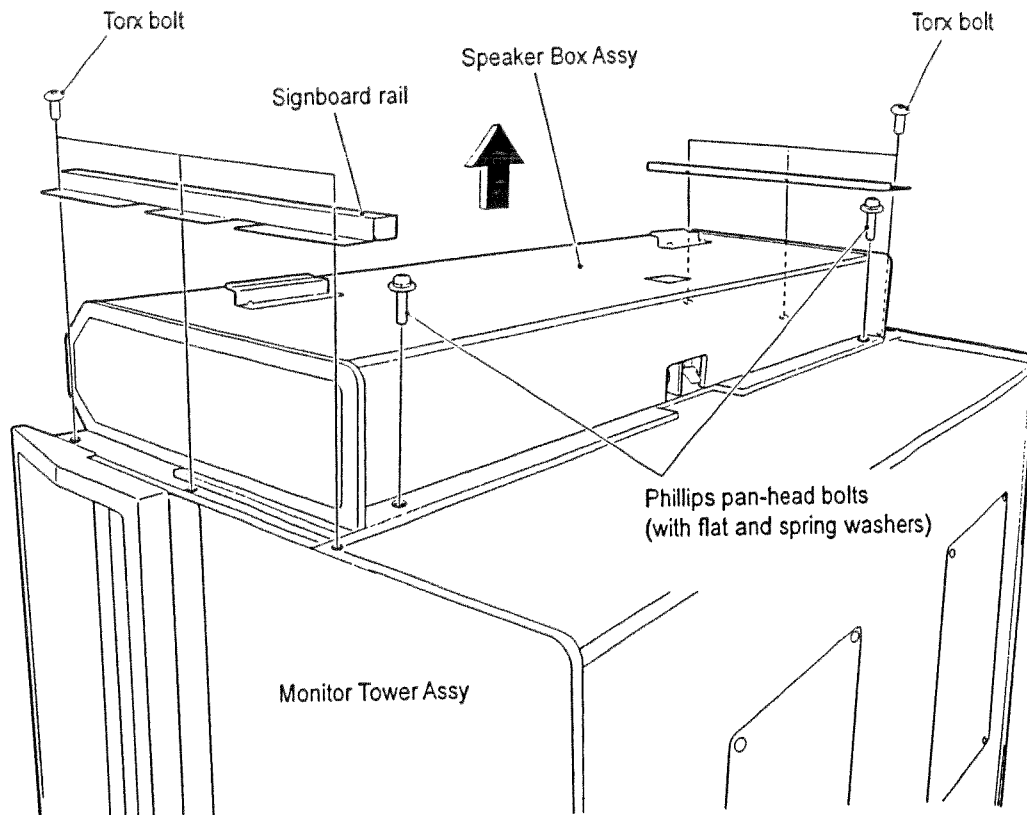
5-2-1 Removing the Speaker Box Assy (when necessary due to passage conditions) - To be conducted by a technician only -

- If the height of the passage opening is sufficient for carrying in the machine, this step must be skipped. Go to P-20 "5-3 Assembly".

WARNING

- The Speaker Box weighs approximately 22 kg. The speaker's removal should be performed by two persons to prevent accidents.

- 1** Remove the six Torx bolts from the top of the Monitor Tower Assy. Then remove the two signboard rails.
- 2** Remove the two Phillips pan-head bolts (with both flat and spring washers) and lift and remove the Speaker Box Assy with its both ends supported by the two persons.

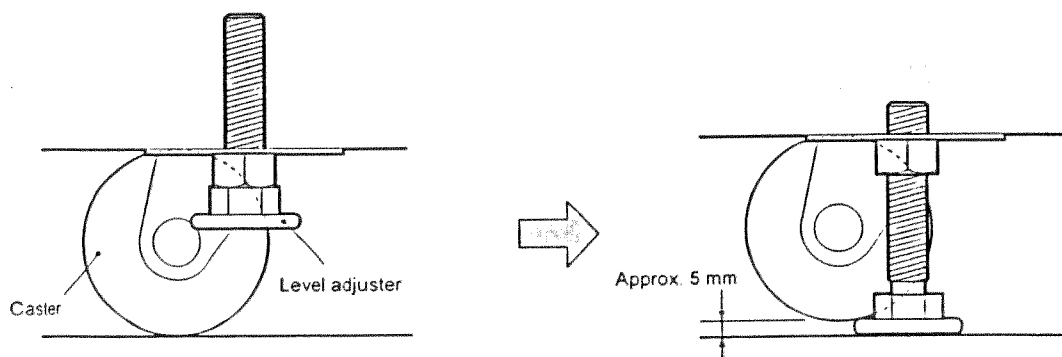


- 3** To reinstall, simply reverse this procedure.

5-3 Assembly

5-3-1 Adjusting the level adjusters

- 1 After setting up the Monitor Tower Assy in accordance with the directions in "5-1 Installation conditions" on page 15, lower the level adjusters (2 locations) until the casters are raised approximately 5 mm above the floor (casters should be able to rotate freely).



5-3-2 Assembling the Signboard Assy - To be conducted by a technician only

! WARNING

- The signboard box weighs approximately 20 kg. It should be installed by two or more persons in sufficient workspace in order to prevent accidents.

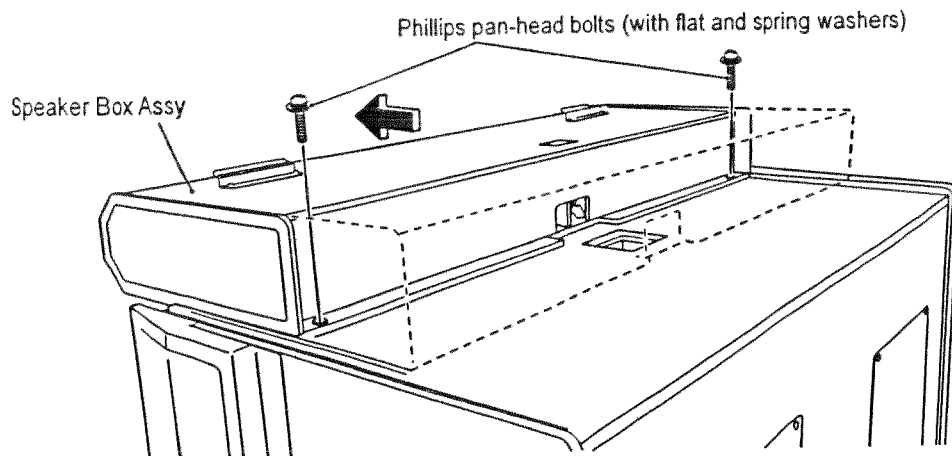
! CAUTION

- Use a stepladder or equivalent means to obtain sufficient height to install the Signboard Assy. Work at an insecure position may result in injury or machine damage.

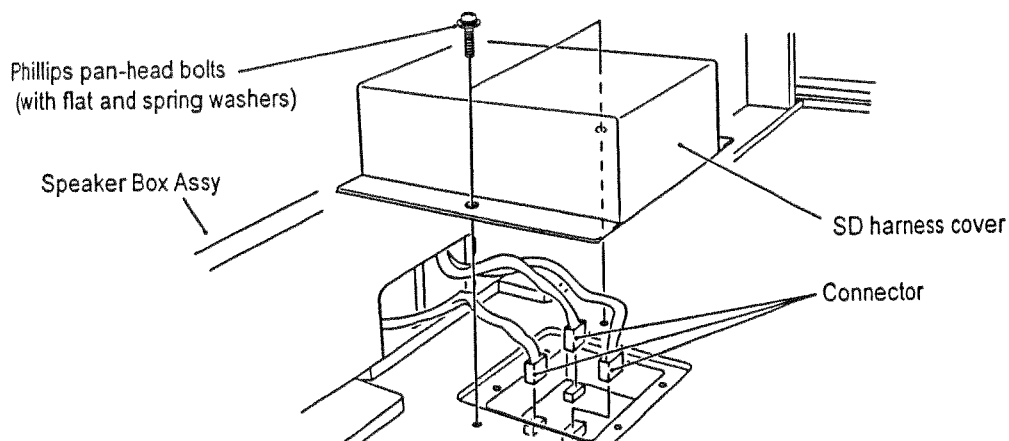
NOTICE

- Always confirm the direction when connecting the connectors in order to prevent damage to the electronic circuitry.

- 1** Remove the two Phillips pan-head bolts (with both flat and spring washers) . Slide the Speaker Box Assy to the front. Then secure it again with the two removed Phillips pan-head bolts (with both flat and spring washers).

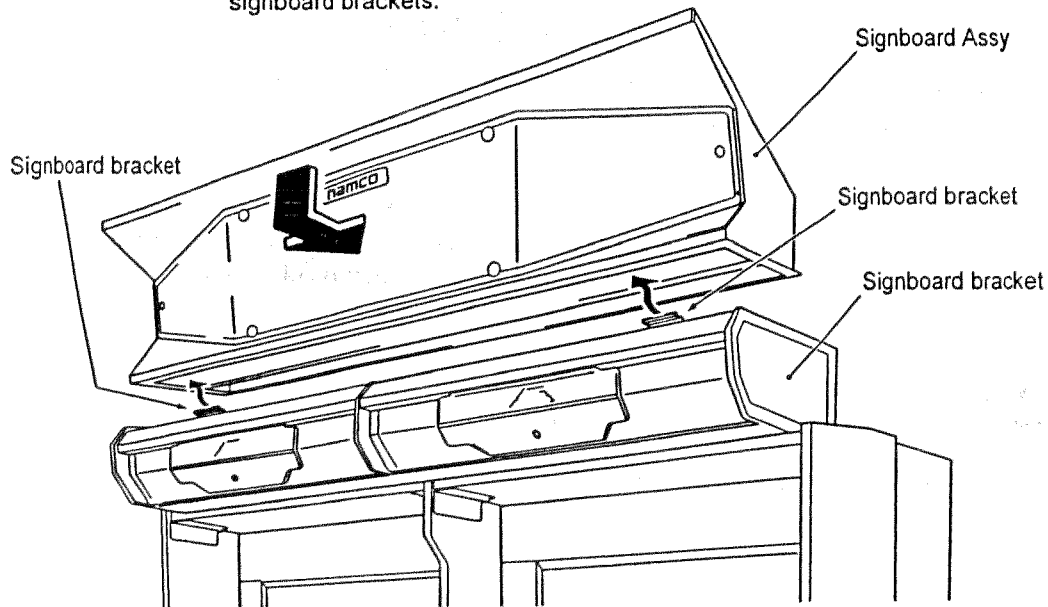


- 2** Draw out the three connectors from the rear of the Speaker Box Assy and connect each to its corresponding connector at the top of the Monitor Tower Assy.
- 3** Install the supplied SD harness cover with the two supplied Phillips pan-head bolts (with both flat and spring washers)

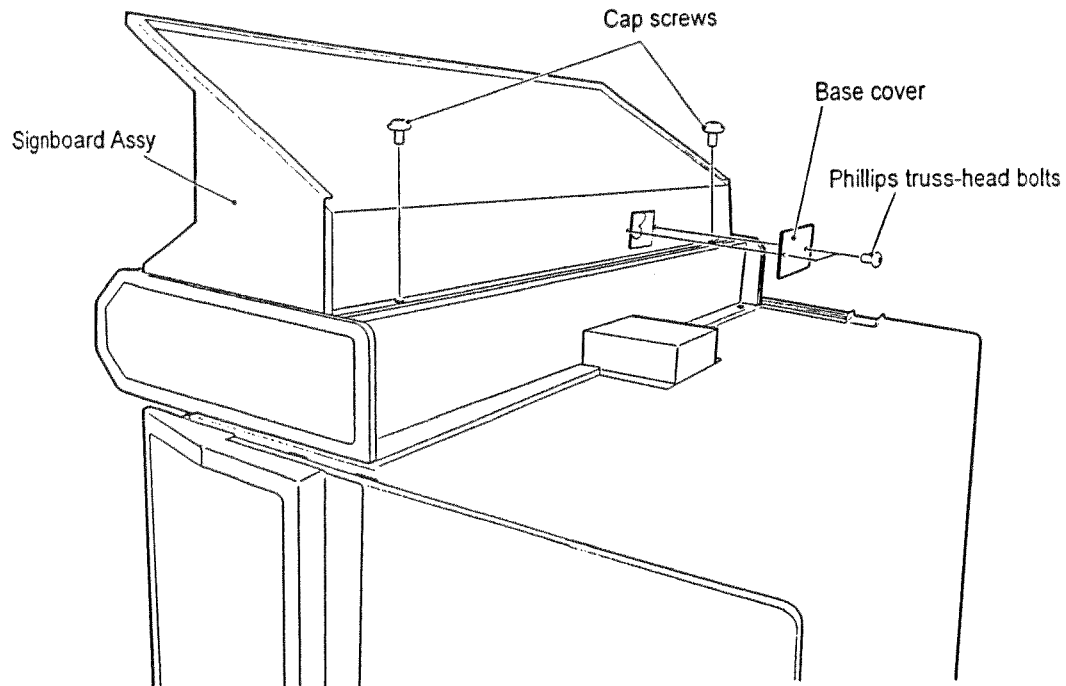


5. INSTALLATION

- 4** Put the Signboard Assy on the Speaker Box Assy. Engage the Signboard Assy to the signboard brackets.



- 5** Secure the signboard-installed Speaker Box Assy with the supplied two cap screws (M5 x 12).
- 6** Remove the two phillips truss-head bolts and remove the base cover.
- 7** Connect the Signboard Assy's connector to the Speaker Box Assy's connector and attach the base cover with the removed two phillips truss-head bolts.

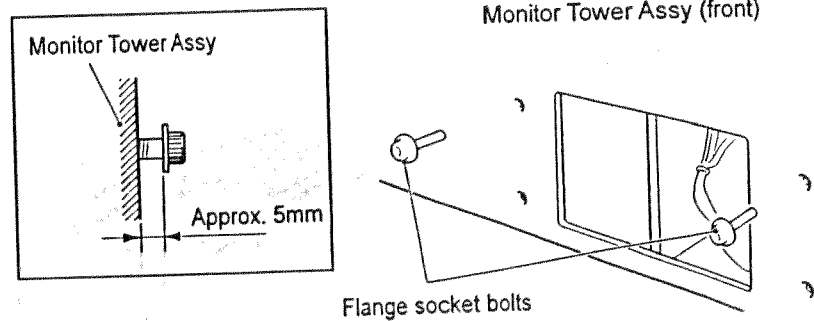


- 8** To disassemble, simply reverse this procedure.

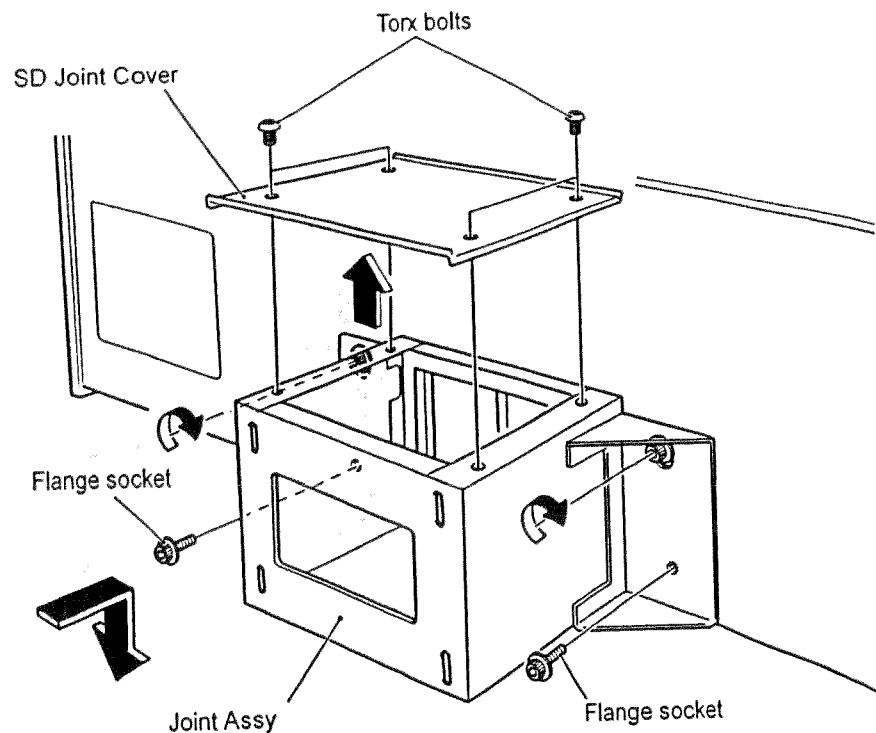
5-3-3 Connecting the Joint Assy to the Monitor Tower Assy

- To be conducted by a technician only -

- 1 Temporally secure the supplied two flange socket bolts at the front of the Monitor Tower Assy with approximately 5 mm raised from the Monitor Tower surface.



- 2 Remove the four Torx bolts (M5 x 12) from the Joint Assy and remove the SD Joint Cover.
- 3 Attach the Joint Assy in place to the Monitor Tower Assy and secure the Joint Assy with the two supplied flange socket bolts and the two flange socket bolts which were temporarily fastened at step 1.

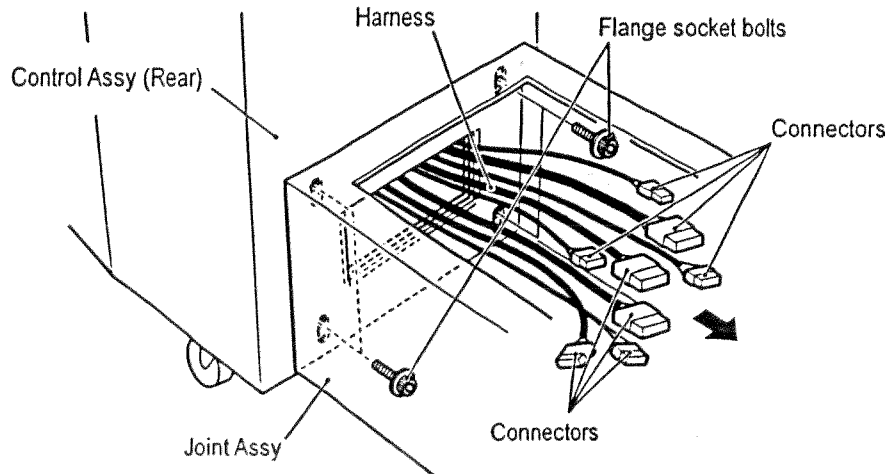


- 4 To disassemble, simply reverse this procedure.

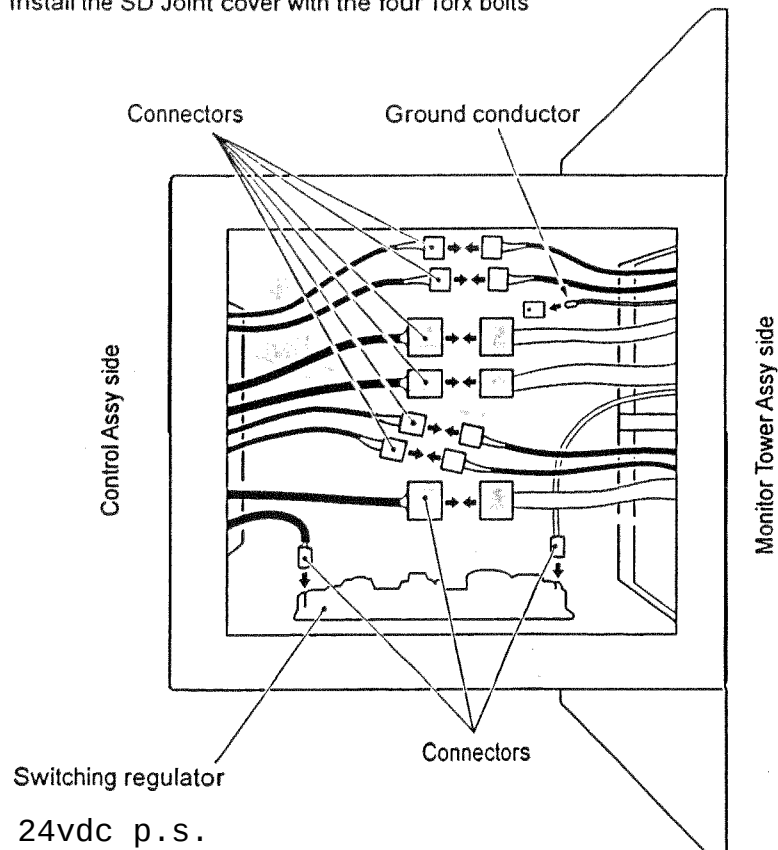
5. INSTALLATION

5-3-4 Connecting the Control Assy - To be conducted by a technician only -

- 1** Adjust the level adjusters of the Control Assy so that it is the same height as the Joint Assy.
- 2** Secure the Control Assy with the supplied four flange socket bolts.



- 3** Pull out the harnesses from the Monitor Tower Assy and the Control Assy.
- 4** Connect the nine connectors and one ground conductor. (See the diagram shown below.)
- 5** Install the SD Joint cover with the four Torx bolts

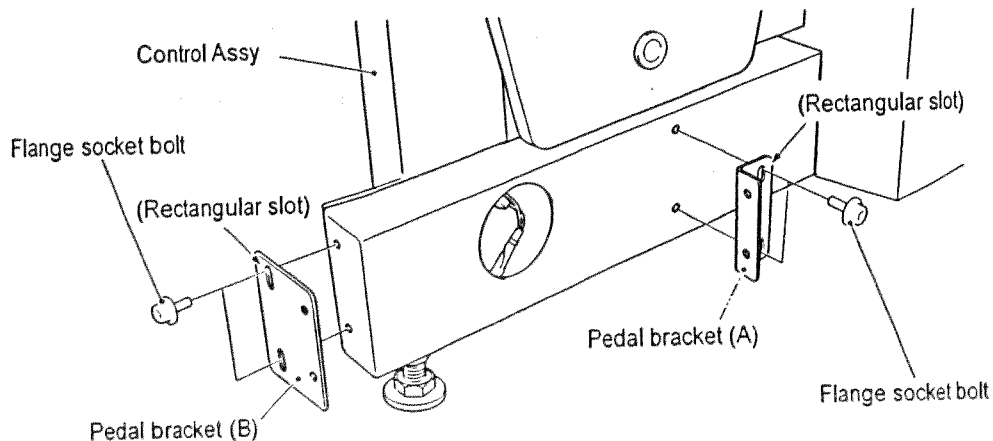


- 6** To disassemble, simply reverse this procedure.

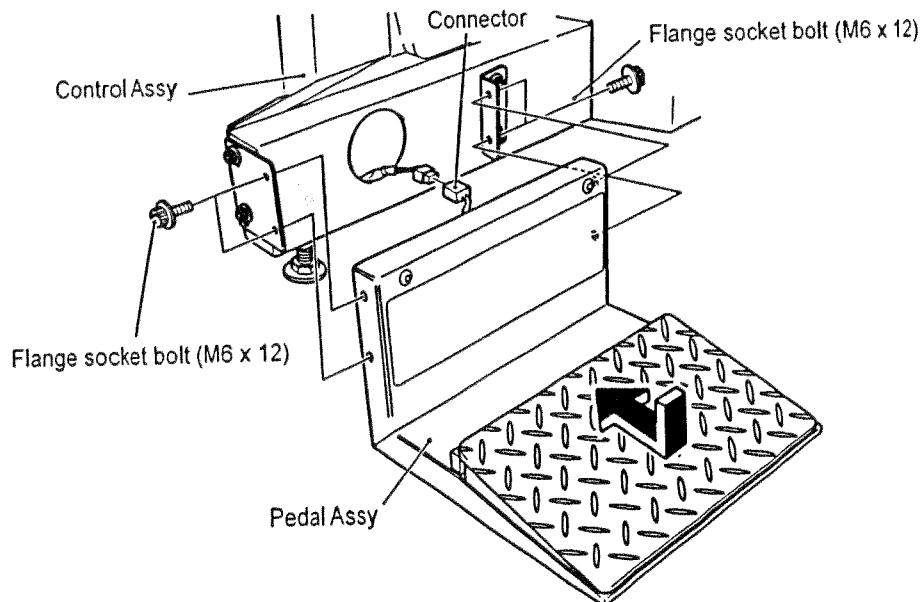
5-3-5 Installing the Pedal Assy - To be conducted by a technician only

* This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

- 1** Temporarily tighten the supplied four flange socket bolts (M6 x 12) into the rectangular slots of the two pedal brackets (A, B).



- 2** Connect the one connector, and temporarily install the Pedal Assy with the four supplied flange socket bolts (M6 x 12).
- 3** Push down the Pedal Assy so that it contacts the floor, and then retighten the eight flange socket bolts firmly. (Make sure that there is no space between the Pedal Assy and floor.)



- 4** To remove, simply reverse this procedure.

5-4 Removing and reinstalling the front panel

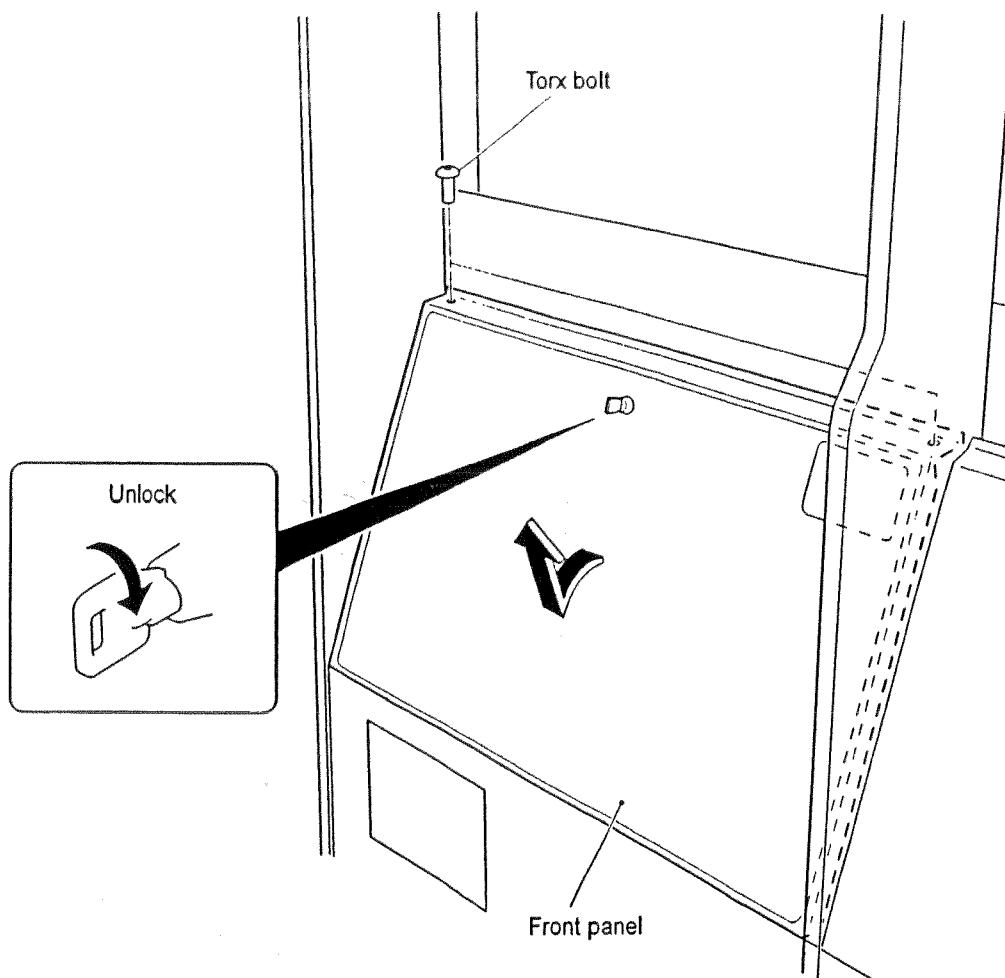
- To be conducted by a technician only -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

- 1** Remove the two Torx bolts, unlock the lock at the center of the front panel using the provided maintenance key.
- 2** Dismount the front panel.



- 3** To reinstall, simply reverse this procedure.

5-5 Inserting the dongle - To be conducted by a technician only -

- This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

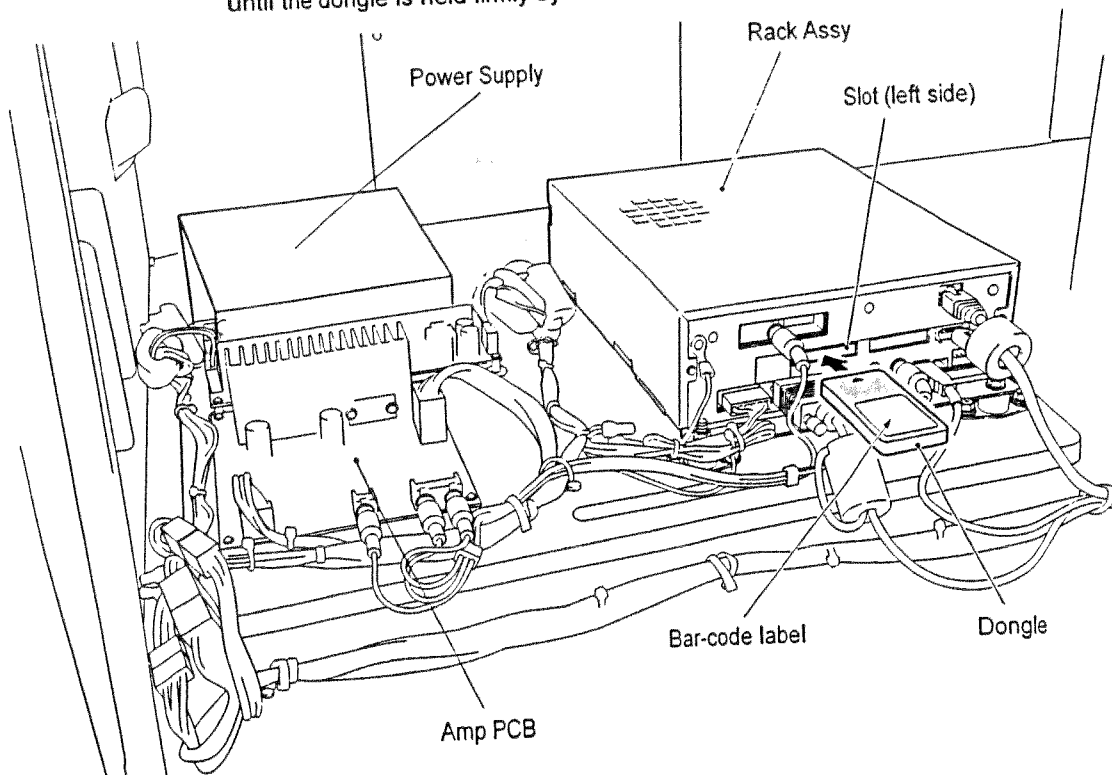
WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- The supplied dongle is designed exclusively for this machine. Do not use it in any other product. Also, do not use other dongle in this machine. Improper use of dongle results in a machine malfunction.

- 1** Confirm that the Monitor Tower Assy's main power switch is OFF. (See P. 39 "7-3-1 Turning the power on")
- 2** Remove the front panel. (See P. 26 "5-4 Removing and reinstalling the front panel.")
- 3** With the bar-code label on the dongle facing up, insert the dongle into the left slot until the dongle is held firmly by the connector inside the slot.



- 4** Reinstall the front panel (See P. 26 "5-4 Removing and reinstalling the front panel.")

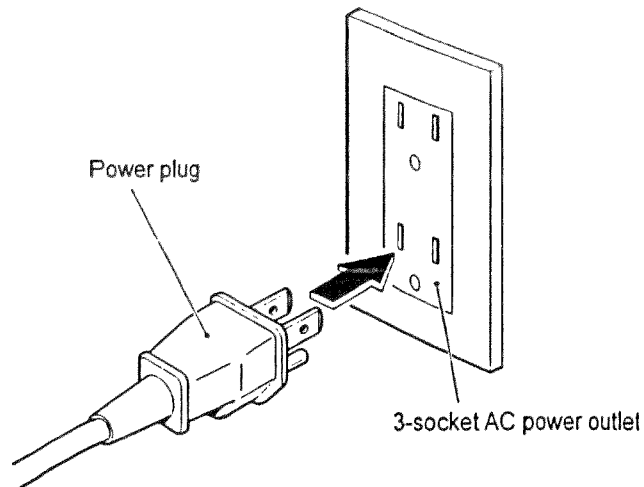
5-6 Connecting the power cord and ground lead

WARNING

- Be sure to ground the machine in one of the following methods. Failure to connect the ground conductor may cause an electric shock in the event of electric leakage.
 - (1) Connect the ground conductor by using the 3-pin plug.
 - (2) (When the machine cannot be grounded with the 3-pin plug) Connect the ground conductor from the 3-pin to 2-pin conversion plug to the ground terminal.
 - (3) (When the machine cannot be grounded with the 3-pin plug or 3-pin to 2pin conversion plug) Connect the ground conductor to the ground terminal of the machine.

(1) With a 3-pin service outlet

Simply insert the power plug.



6. MOVING AND TRANSPORTING

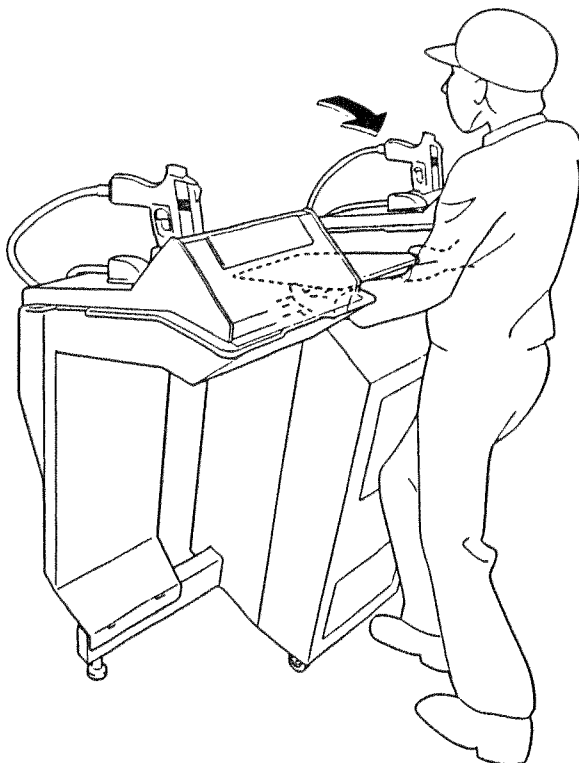
WARNING

- Do not leave the machine on a slope. The machine may topple or cause an unforeseen accident if it is left on an inclined surface.

6-1 Moving (on the floor)



- Before moving the machine, always divide the machine into the Monitor Tower Assy, Signboard Assy, Joint Assy, Control Assy and Pedal Assy. (See P. 20 "5-3 Assembly.")
- Secure the Speaker Box Assy by pushing it inside. (See P. 19 "5-2-1 Removing the Speaker Box Assy.")
- Always fully retract all level adjusters of the Monitor Tower Assy even when moving the machine over a short distance. (See P. 20 "5-3-1 Adjusting the level adjusters.") (It is unnecessary to raise the Control Assy's level adjusters.)
- The Monitor Tower Assy is 1,890 mm high. Check the heights of doors to carry in the machine. (If necessary, dismount the Speaker Box Assy and signboard panels. (See P. 19 "5-2-1 Removing the Speaker Box Assy.")
- Move the machine carefully to prevent damage to the machine.
- Do not drop the Gun Assy.
- Be careful not to get the tube of the Gun Assy caught and pulled when moving.



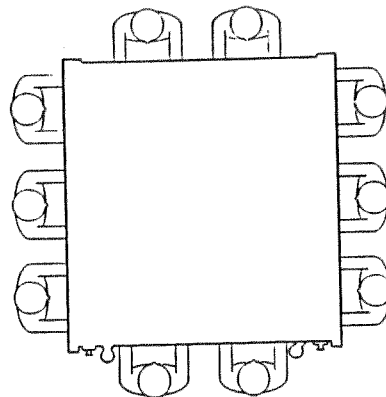
Control Assy carrying method

6-2 Transporting

6-2-1 Manual transport (carrying up or down stairs, etc.)

! WARNING

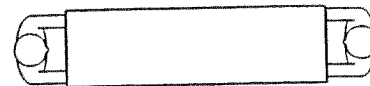
- When moving the machine, always divide the machine into the Monitor Tower Assy, Joint Assy, Signboard Assy, Control Assy and Pedal Assy. Failure to disassemble the machine may cause injury or unforeseen accidents. (See P. 20 "5-3 Assembly.")
- When manually carrying the machine, always divide the machine into the Monitor Tower Assy, Speaker Box Assy, Joint Assy, Signboard Assy, Control Assy and Pedal Assy. Failure to disassemble the machine may cause injury or unforeseen accidents. (See P.18 "5-2 Required dimensions of carry-in passage (such as doors and corridors)." P. 20 "5-3 Assembly.")
- When the machine is carried manually, it should be carried by the appropriate number of people specified below. An attempt to carry the machine by an insufficient number of people may result in accidents or injury.
 - Monitor Tower Assy (255 kg) : 10 persons or more
 - Signboard Assy (20 kg) : 2 persons or more
 - Control Assy (70 kg) : 3 persons or more
 - Speaker Box Assy (22 kg) : 2 persons or more



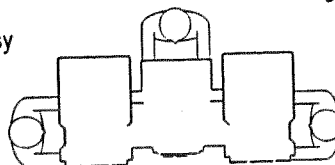
Monitor Tower Assy



Speaker Box Assy



Signboard Assy



Control Assy

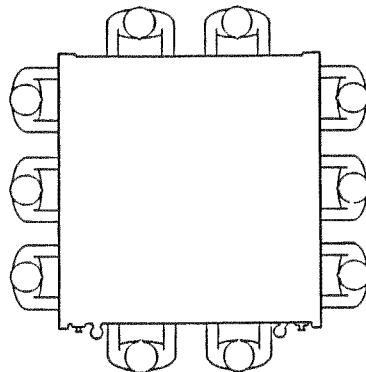
NOTICE

- Avoid shock when lowering the machine.
- Carry the machine carefully to prevent damage.
- Be sure to fully retract all level adjusters of the Monitor Tower Assy. (See P. 20 "5-3-1 Adjusting the level adjusters.") (Do not adjust the Control Assy's level adjusters.)
- Do not drop the Gun Assy.
- Pay attention not to be caught in Gun Assy's tube.

6-2-2 Loading and unloading from a vehicle

WARNING

- When moving the machine, always divide the machine into the Monitor Tower Assy, Joint Assy, Signboard Assy, Control Assy and Pedal Assy. Failure to divide the machine may cause injury or an accident. (See P. 20 "5-3 Assembly.")
- When manually carrying the machine, always divide the machine into the Monitor Tower Assy, Speaker Box Assy, Joint Assy, Signboard Assy, Control Assy and Pedal Assy. Failure to divide the machine may cause injury or an accident. (See P.18 "5-2 Required dimensions of carry-in passage (such as doors or corridors)." P. 20 "5-3 Assembly.")
- When carrying the Monitor Tower Assy with forklift, be sure to obey the following instructions. If not, it may cause unforeseen accidents such as machine toppling.
 - Insert the fork to the specified slot.
 - Be careful not to topple the Monitor Tower Assy off the forklift.
- The Control Assy is not designed to be carried by forklift. Do not use the forklift to move the Control Assy. By so doing, it may cause unforeseen accidents such as the Control Assy toppling.
- Before carrying the Monitor Tower Assy by hand, always divide the Speaker Box Assy. If the Monitor Tower Assy is carried without removing the Speaker Box Assy, it may cause unexpected injury.
(See P.19 "5-2-1 Removing the Speaker Box Assy.")
- When the machine is carried manually, it should be carried by the appropriate number of people specified below. An attempt to carry the machine by an insufficient number of people may result in accidents or injury. (See P.31 "6-2-1 Manual Transport carrying up or down stairs, etc.)
 - Monitor Tower Assy (255 kg) : 10 persons or more
 - Signboard Assy (20 kg) : 2 persons or more
 - Control Assy (70 kg) : 3 persons or more



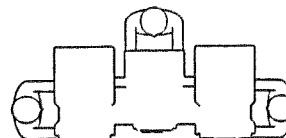
Monitor Tower Assy



Signboard Assy



Speaker Box Assy

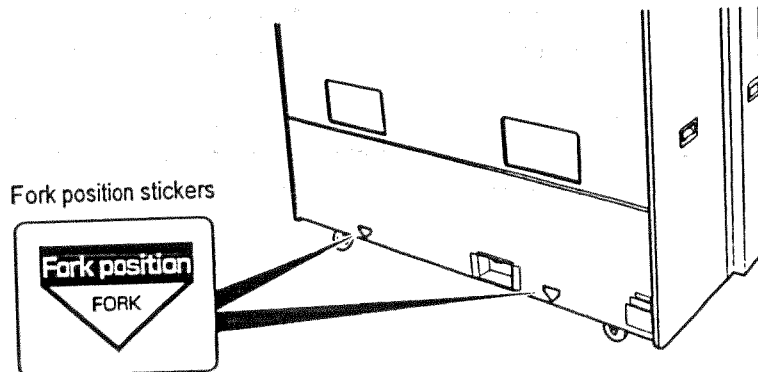


Control Assy

6. MOVING AND TRANSPORTING



- Carry the machine carefully to prevent damage.
- Be sure to fully retract all level adjusters of the Monitor Tower Assy. (See P. 20 "5-3-1 Adjusting the level adjusters.") (Do not adjust the Control Assy's level adjusters.)
- Avoid shock when moving the machine over a bump.
- Do not drop the Gun Assy.
- Pay attention not to be caught in Gun Assy's tube.



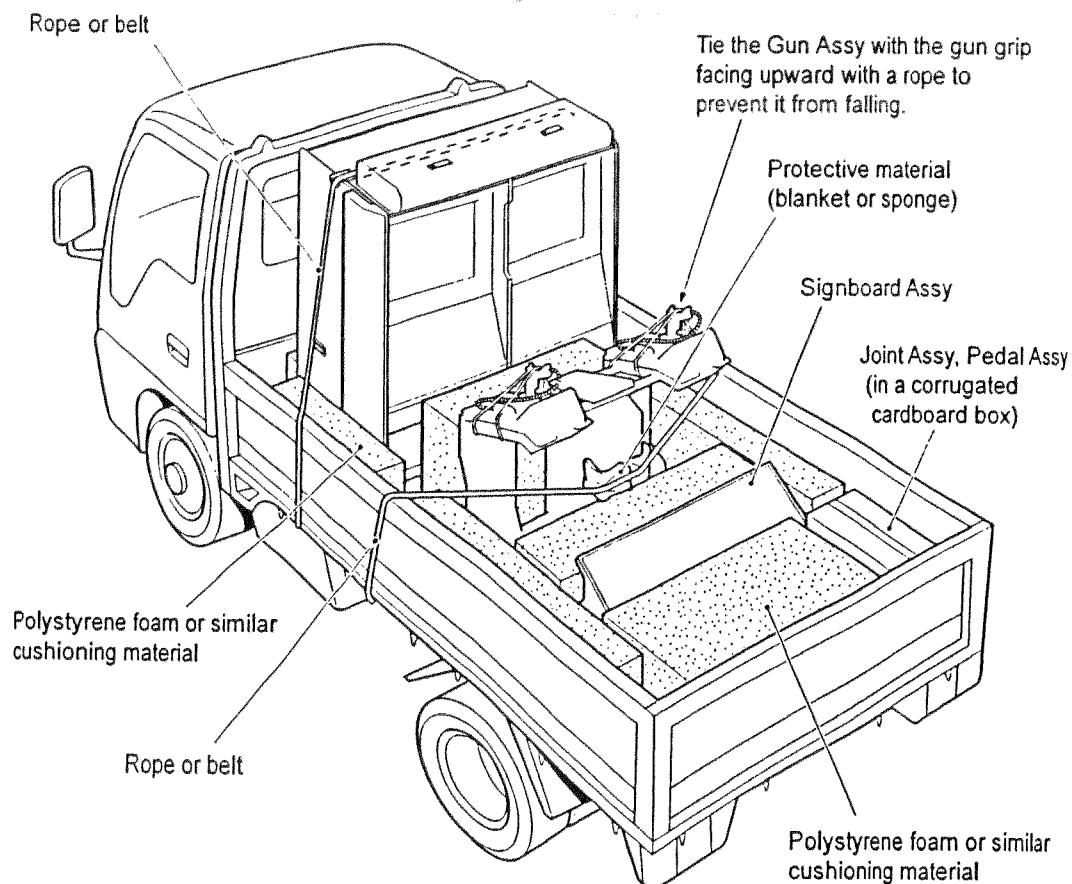
6-2-4 Trucking

WARNING

- When transporting the machine on a vehicle, secure the machine to the vehicle in order to prevent it from moving due to acceleration or deceleration of the vehicle. Failure to tie the machine to the vehicle may result in unexpected accidents.

NOTICE

- Avoid shock when moving the machine over a bump.
- When roping the machine, observe the following:
 - Be sure to position the ropes at the locations indicated in the diagram below.
 - Insert polystyrene foam or similar cushioning material between the machine and the cargo bed for the protection of machine surfaces.
- Tie the Gun Assy with the gun grip facing upward with a rope to prevent it from falling.



7. OPERATION

WARNING

- Should any problem occur, turn off the power switch immediately to stop operating the machine. Then, unplug the power cord from the service outlet. Operating the machine without correcting a problem may cause a fire or accident.
- Dust accumulated on the power plug may cause a fire. Check the power plug regularly and remove dust.
- Insert the power plug firmly into the service outlet. Poor contact may cause overheating that can lead to a fire or burns.
- Before operating the machine, make sure that the machine has been installed in accordance with the instructions and procedures specified in this Operation Manual (See P. 15 "5. INSTALLATION"). If the machine is installed improperly, a fire, electric shock, injury or malfunction may result.
- The warning labels describe important cautions. Observe the following. (For the locations of warning labels, refer to P. 3 "1-4 Description of warning labels attached to the machine.")
 - Install the machine at a proper location with ample illumination, and keep it clean, and free of dirt so that the warning labels attached to the machine are easily legible. Also, make sure that the labels are not hidden behind another game machine or other objects.
 - Do not remove or alter the warning labels.
 - If warning labels become dirty or damaged, replace them with new ones.
To order warning labels, contact your distributor.
- To ensure safe operation of the machine, be sure to conduct the pre-service check (See P. 35 "7-1 Pre-service check") and maintenance (See P. 58 "8. MAINTENANCE").
Failure to perform the specified inspection and maintenance can result in unexpected

7-1 Pre-service check

Check the following items before commencing operation.

If any problem is found, take corrective measures by referring to "8-2 Troubleshooting" on page 62.

7-1-1 Safety check (before power On)

WARNING

- To prevent accidents and injury, be sure to check the following before commencing operation.

- (1) Are all warning indications legible?
(See P. 3 "1-4 Description of warning labels attached to the machine.")
- (2) Are all level adjusters adjusted properly to stabilize the machine? (Front Assy and Control Assy) (See P. 20 "5-3-1 Adjusting the level adjusters.")
- (3) Is the play zone area established as specified? (See P. 16 "5-1-2 Play zone.")
- (4) Are the power cord and communication cable routed in such a way that they will not cause customers to trip over?
- (5) Are both ends of the gun tube secured in place? Are they free of damage?

- (6) Are the bolts on the Gun Assy tightened firmly?
- (7) Is the Joint Assy attached securely to the Monitor Tower Assy? Is the Control Assy attached securely to the Joint Assy?
- (8) Is the Pedal Assy attached securely to the Coin Tower Assy? (There must be no space between the Pedal Assy and floor.)
- (9) Is the Speaker Box Assy installed securely to the Monitor Tower Assy?
- (10) Is the Signboard Assy installed securely to the Speaker Box Assy?

Check the following items after turning on the power switch. If any abnormality is found, turn off the power switch immediately and stop the machine operation. Then, unplug the power cord from the service outlet and contact your distributor.

- (11) Is any part of the power cord or plug abnormally hot?
- (12) Does touching the machine give an electrical tingle?
- (13) Is there a burning smell, abnormal noise or vibration?
- (14) Is there any other sign of abnormality or malfunction?

7-1-2 Operation check (after power On)

Turn on the power switch, and check the following items. (See P. 39 "7-3-1 Turning the power on.")

- (1) Check the sound. (Is sound produced by each speaker?) (See P. 51 "7-4-6 Sound test.")
- (2) Check the fluorescent lamp in the Signboard Assy. (Is the lamp lit?)
- (3) Check the SIDELED PC board. (Are the LEDs on the board illuminated?)
(Two LEDs for the Gun Tower (L) and (R) Assys respectively, Two LEDs for the Speaker Box Assy)
(See P. 49 "7-4-4 (g) LED TEST.")
- (4) Check the displayed image. (Does the monitor show images properly?)
(See P. 50 "7-4-5 Monitor test.")

**To check the following items, press the Service switch and play the game.
(See P. 40 "7-3-2 Adjustment switches.")**

- (5) Check the gun for proper operation.
If the gun aiming is inaccurate, adjust the gun sight. (See P. 54 "7-4-9 Setting the Gun Assy sight (GUN INITIALIZE).")
- (6) Check the Pedal Assy for proper operation.
- (7) Check that all switches are operational. (See P. 45 "7-4-4 Input/output test of switches.")



- Do not install the machine at the locations as follows. Otherwise, the sensors may not detect the Gun Assy positions.
 - Places where bright light sources such as sunlight or spotlights shine directly onto the monitor screen.
 - Places where bright flashing lights cause a strong contrast between light and dark.
- Make sure that there is no space between the Pedal Assy and floor.

7-2 How to play

WARNING

- If a player becomes sick while watching game images or flashing lights, have the person discontinue the game immediately and let him/her rest.
- In rare cases, stimulation by lights or video images can cause a convulsion or loss of consciousness. If this happens, advise the person to see a doctor for medical examination as soon as possible. When pre-school children play, request their parents or guardians to observe the children.

This is a shooting game in which the player can hide behind a cyberspace object to dodge shots from enemies and then move out from behind the same to shoot enemies by using the pedal.

(1) Operation

1. Depressing the pedal: Attack mode: The player can shoot the gun, and can be also shot by enemies.
2. Releasing the pedal: Hide mode: The player hides behind an object. Enemies' shots cannot reach the player.
Releasing the pedal allows the hand gun to be reloaded.

(2) Game Mode

1. Linked play mode: The mode allows two players to cooperate in a game play. In this mode, a player can join in the middle of the game.
 2. Solo play mode: This mode allows a single player to play the game. Another player cannot join in the middle of the game.
- * The player can select the game mode on the Mode Select screen immediately after coin insertion.

(3) Game rules

1. The player loses one "life" when shot by an enemy.
When the time limit reaches zero, the player also loses one "life."
The time limit extends when the player destroys all enemies in front of him/her, or receives attacks from enemies.
The game ends when the player has no "life."
2. The player's performance level is indicated by the score. The higher the score, the better the performance.
3. The four types of weapons can be selected by releasing the pedal and pulling the trigger. Weapons have limited ammunition except for the hand gun, and when the ammunition runs out, the player cannot use this weapon. When the specified enemy is shot, the ammunition reloading item will appear.

The demonstration scene inserted between game segments can be skipped by shooting the gun at the screen.

(4) Event play

The player plays the game following event specific battle rules. The rule is explained in the game screen for each event. There are roughly categorized into two types of rules.

1. Multiscreen battle event

The player searches and attacks the enemy while changing the screen.

The player can change the screen by pointing the muzzle toward the arrow icon appeared on the screen.

In this event, the barricade durability is indicated instead of the player's life. If the barricade durability reduced to zero, this event will end and the player loses one "life".

2. Special weapon "life" event

The following two weapons can be used.

When a player selects either of two weapons, he/she cannot replace it with other weapon in the same event.

A. Special machinegun

Limitless bullets. While the trigger is pulled, the machinegun continuously shoots.

B. Sniper rifle

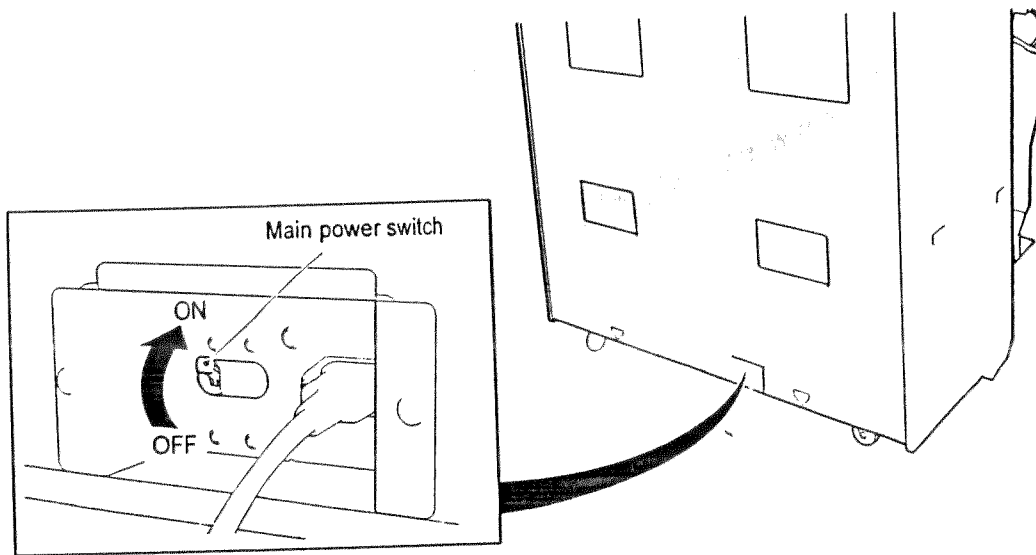
When the pedal is depressed, the screen zooms toward the target.

When the pedal is released, the ammunition will be reloaded.

7-3 Adjustment

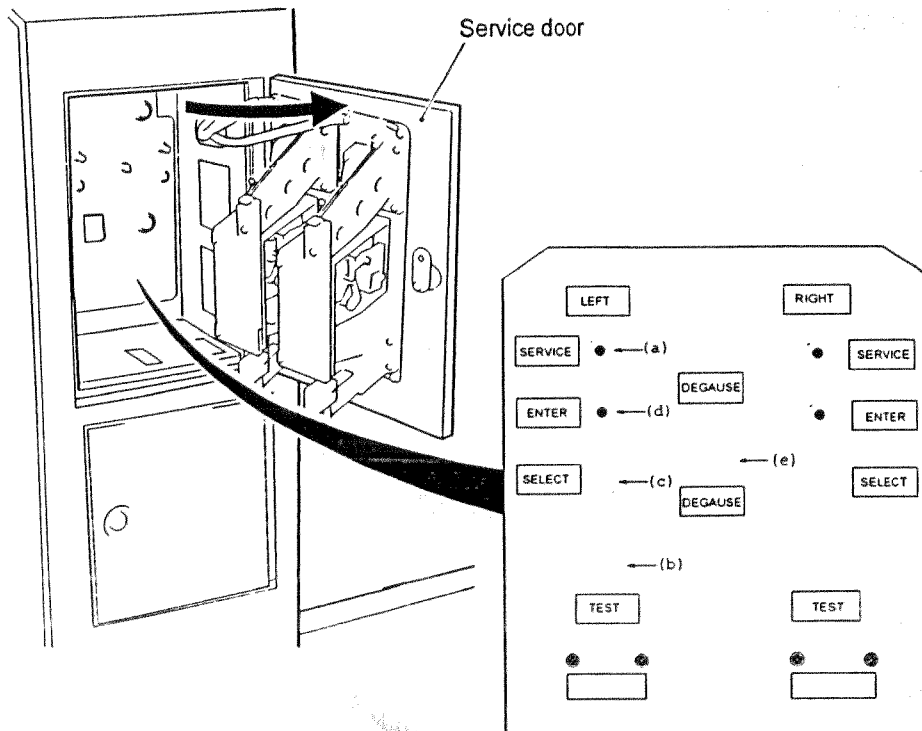
7-3-1 Turning the power on

- 1 Turn on the power switch in the cord box on the rear of the machine.



7-3-2 Adjustment switches

Open the service door on the Coin Tower Assy to locate the adjustment switches.



(a) Service switch

Press this switch to increase the credit count without activating the coin counter.

(b) Test switch

Set this switch to ON to activate the Test mode.

The Test mode is used to change the game price and perform various tests.

(See P. 41 "7-4 Test mode.")

(c) Select switch

Flick this switch up or down to select an item in the Test mode.

(d) Enter switch

After an item is selected by using the Select switch, press the Enter switch to finalize the selection or to execute the selected item.

(e) Degauss switch

Press this switch to degauss the monitor when the monitor displays irregular color due to the earth magnetism at the installation location or building conditions.



- Press the Service switch slowly and firmly.
- The Service switch may not operate properly if it is pressed too quickly.

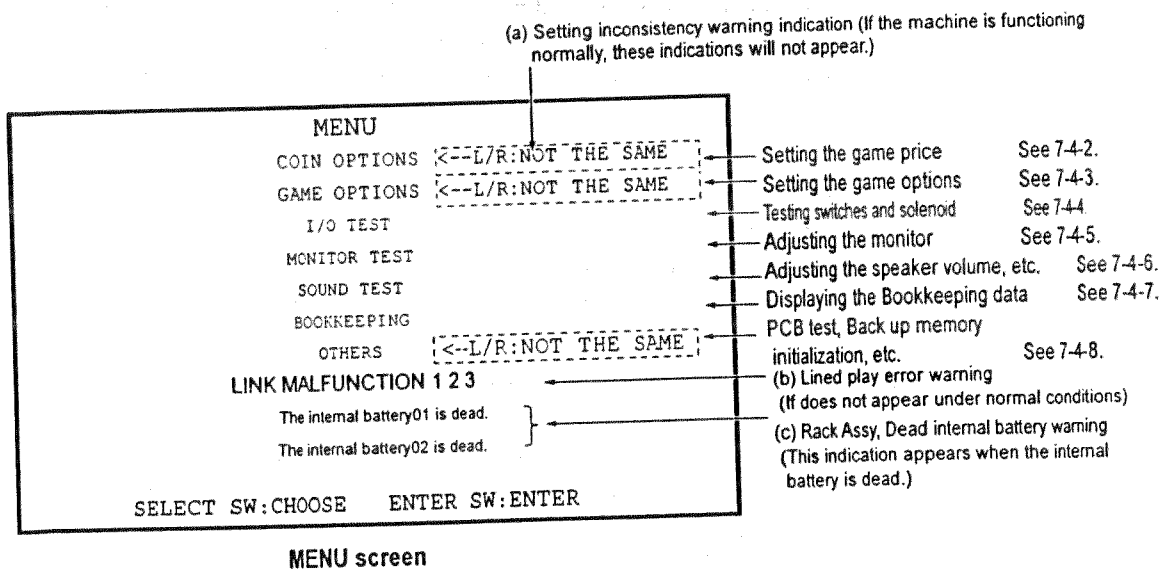
7-4 Test mode

7-4-1 Description of the MENU screen

- 1** Open the Coin Tower Assy's service door, and set the Test switch to ON.
The Menu screen appears on the monitor. (See P. 40 "7-3-2 Adjustment switches.")



- When two players are playing the game in the linked play mode, do not turn on the Test switch.
If the Test switch of one unit is set to ON, the other player's game screen will return to the beginning of the game and the player's conditions will be initialized (score, weapon, ammunition, "life" level).



- 2** Flick the Select switch up or down and select an item. The selected item flickers.
 - 3** Press the Enter switch to enter the selection.
 - 4** After adjustment is completed, select EXIT and press the Enter switch. The display returns to the MENU screen.
 - 5** After adjustments in all modes are completed, set the Test switch to OFF. The display returns to the game screen.
- If setting is not properly done, the error messages such as (a), (b) and (c) shown above may appear.

(a) Setting inconsistency warning indication

When Player 1 and Player 2 game parameters are inconsistent, this warning will appear. Check and set the correct game parameters again.

Setting inconsistency warning items	
COIN OPTION	GAME COST
	CONTINUE COST
	FREE PLAY
GAME OPTIONS	PLAYER'S LIFE
	DIFFICULTY

(b) Error indications related to linked play

- This message will appear if there is an abnormality in the linked play function. The game will run improperly while the error message is being indicated. The number on the right of the message indicates the type of error.
- If "1" or "2" is indicated, possible error cause is circuit board malfunction (Game PC Port or NA-JV PC Board). (See P. 69 "8-3-1 (4) Replacing the Rack Assy, P. 74 8-3-4 "Replacing the NA-JV PC board.") When this number appears, contact your distributor.
- If "3" is indicated, inconsistency exists between right and left players' software versions. When this number appears, contact your distributor.

(c) Error indications for dead internal battery of the Rack Assy

- If this indication appears, turn off the power switch and wait for about 10 minutes. Then, turn on the power switch and check that the MENU screen in the Test mode displays the same error message. If the error message appears even after repeating the above process two or three times, the remaining power of the internal battery may be too low or the battery may be faulty.

7-4-2 Setting the game price and free play (COIN OPTIONS)

This screen is used for game pricing and free-play setting.

- 1** Select "COIN OPTIONS" on the MENU screen, and press the Enter switch.
The COIN OPTIONS screen appears.

COIN OPTIONS [DEFAULT IN GREEN]			
GAME COST	1	COIN(S)	1 CREDIT
CONTINUE COST	1	COIN(S)	1 CREDIT
FREE PLAY	NO		
EXIT			
SELECT SW: CHOOSE ENTER SW: ENTER			

COIN OPTIONS screen

Item	Description	Default setting
(a) Game pricing	Number of coins required for one game play 1 coin to 9 coins	1
(b) Continue Game pricing *1	Number of coins required for one Continue Game play 1 coin to 9 coins	1
(e) Free play setting *2	NO YES	NO

COIN OPTIONS settings

- 2** Use the Select switch to choose an item.
The selected item flickers.
- 3** Press the Enter switch to enter the selection.
- 4** After the selection is entered, change the setting of the item by using the Select switch.
- 5** After the setting is changed, press the Enter switch to return to the item selection screen.
- 6** Select "EXIT" and press the Enter switch to return to the MENU screen.

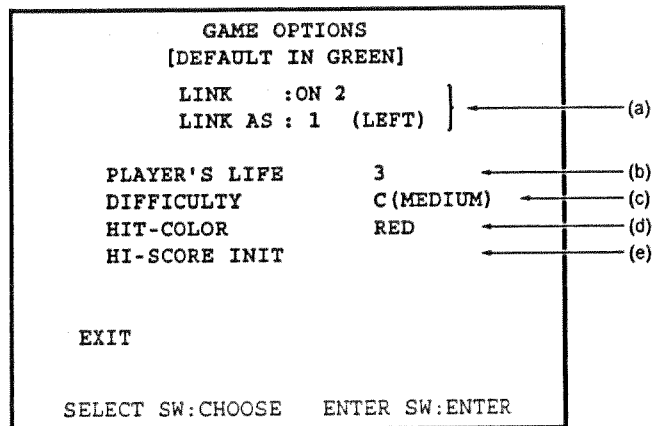
*1 The number of coins set for the Continue Game price cannot be set higher than the number of coins set for the Game price. When increasing both Game and Continue Game prices, increase the Game price first.

*2 When the free-play setting is set to "YES," depress the pedal to start the game.

7-4-3 Setting the game options (GAME OPTIONS)

This screen is used to set the game options.

- 1** Select "GAME OPTIONS" on the MENU screen, and press the Enter switch.
The GAME OPTIONS screen appears.



GAME OPTIONS screen

Item	Description	Default setting
(a) Link status indication	See P. 45 "7-4-4 Input/output test of switches (I/O test)"	
(b) Player's LIFE setting	Number of Lives player has at start of game 1 to 9	3
(c) Difficulty level setting*	A (VERY EASY) B (EASY) C (MEDIUM) D (HARD) E (VERY HARD)	C (MEDIUM)
(d) High score initialization	When this item is selected and entered, the screen displays "HI-SCORE INITIALIZE?" and prompt for the input of "YES" or "NO." NO: Returns to the screen displayed prior to the "HI-SCORE INITIALIZE" message. YES: Initializes the high score data.	

GAME OPTIONS settings

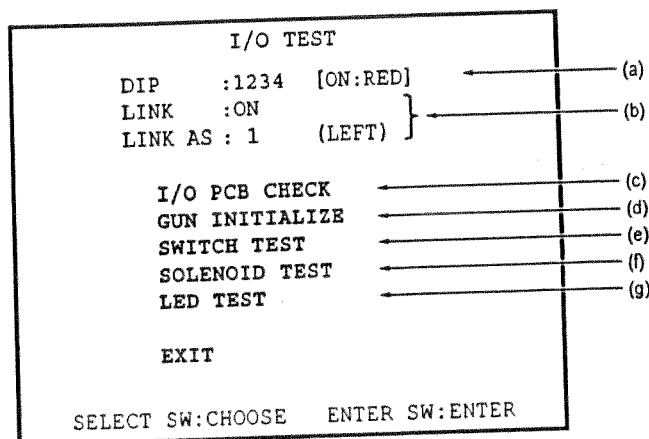
- 2** Use the Select switch to choose an item.
The selected item flickers.
- 3** Press the Enter switch to enter the item.
- 4** After the selection is entered, change the setting of the item by using the Select switch.
- 5** After the setting is changed, press the Enter switch to return to the item selection screen.
- 6** Select "EXIT" and press the Enter switch to return to the MENU screen.

* If the Difficulty level setting (c) for the Player 1 unit and the Player 2 unit in the Test

7-4-4 Input/output test of switches (I/O TEST)

This screen is used to test the input and output of each switch.

- 1** Select "I/O TEST" on the MENU screen, and press the Enter switch.
The I/O TEST screen appears.



I/O TEST screen

- 2** Use the Select switch to choose an item.
The selected item flickers.
- 3** Press the Enter switch to display the test screen of the selected flickering item.
- 4** Select "EXIT" and press the Enter switch to return to the MENU screen.

(a) DIP switch settings

- Indicates the settings of the DIP switches on the Game PC Board.
The switches indicated in red are set to ON. (All DIP switches are set to OFF before shipment.)
- The DIP switches should be set to OFF for normal operation.

(b) Link check

- Indicates the communication status between Player 1 and Player 2.
- LINK:

Indication	Communication status
ON	Normal
OFF*	Data not received.
NG *	Unknown data received.

Link check chart 1

Indication	Internal setting
1 (LEFT)	The screen on the left.
2 (RIGHT)	The screen on the right.

Link check chart 2

7. OPERATION

- If "LINK OFF" or "LINK NG" is indicated, the game will not properly run. Or if the combination other than that shown in the Link check chart 2 is indicated, the game will not properly run. The Rack Assy may be defective.

In this case, contact your distributor.

If one unit is under repair and only one Game PC Board is used, linked game cannot be played.

(c) I/O PCB CHECK

This screen is used to check the I/O PC.

I/O TEST	
DIP	:1234 [ON:RED]
LINK	:ON
LINK AS	: 1 (LEFT)
I/O PCB CHECK:Connect OK	
namco ltd.;NA-JV;ver1.00;JPN	
Multipurpose	
EXIT	
SELECT SW:CHOOSE	ENTER SW:ENTER

I/O PCB CHECK screen

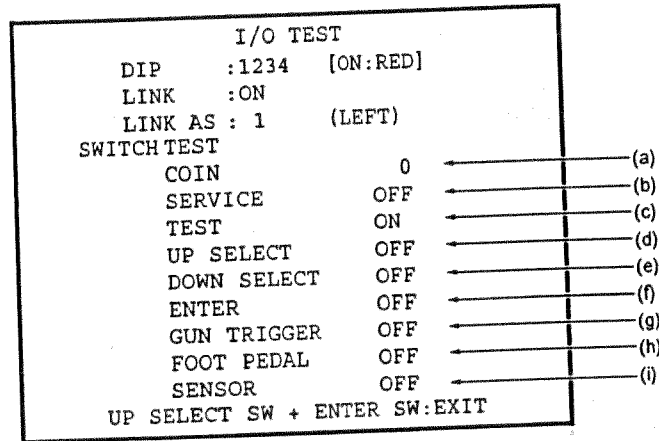
- Press the Enter switch to return to the I/O TEST screen.

(d) GUN INITIALIZE

This screen is used to adjust the gun sight. See P. 54 "7-4-9 Setting the Gun Assy sight (GUN INITIALIZE)"

(e) SWITCH TEST

This screen is used to test the switches.



SWITCH TEST screen

- 1** The SWITCH TEST screen indicates the setting conditions of the switches.
- 2** When a switch is operated, the corresponding indication changes.
 - (a) Increments each time the Coin selector's microswitch is activated.
 - (b) Changes to ON when the Service switch is pressed.
 - (c) The Test switch is ON because the machine is in the Test mode.
 - (d) Changes to ON when the Select switch is flicked up.
 - (e) Changes to ON when the Select switch is flicked down.
 - (f) Changes to ON when the Enter switch is pressed.
 - (g) Changes to ON when the Gun Assy's trigger is pulled.
 - (h) Changes to ON when the pedal is depressed.
 - (i) Changes to ON when the player aims the Gun Assy at the screen.
- 3** Press the Enter switch while the Select switch is being flicked upward to return to the I/O Test.

(f) SOLENOID TEST

This screen is used to test the Gun Assy's blowback mechanism.

```

                                I/O TEST
DIP      :1234  [ON:RED]
LINK     :ON
LINK AS : 1    (LEFT)
SOLENOID TEST

PULL GUN TRIGGER TO ACTION

EXIT

SELECT SW:CHOOSE  ENTER SW:ENTER
```

SOLENOID TEST screen

- 1** When the Gun Assy's trigger is pulled, its blowback mechanism will activate.
- 2** Select "EXIT" and press the Enter switch to return to the MENU screen.

(g) LED TEST

This screen is used to test the SIDELED PC board.

I/O TEST	
DIP	:1234 [ON:RED]
LINK	:ON
LINK AS :	1 (LEFT)
LED TEST	
ALL	OFF
LED (MAIN SP)	OFF
LED (GUN TOWER)	OFF
LED (VOICE SP)	OFF
EXIT	
SELECT SW:CHOOSE ENTER SW:ENTER	

(a) ←
(b) ←
(c) ←
(d) ←

LED TEST screen

- 1** Flick the Select switch up or down and select an item by pressing the ENTER switch.
The selected item flickers.
- 2** Flick the Select switch up or down to cause LED to alternate between ON and OFF.

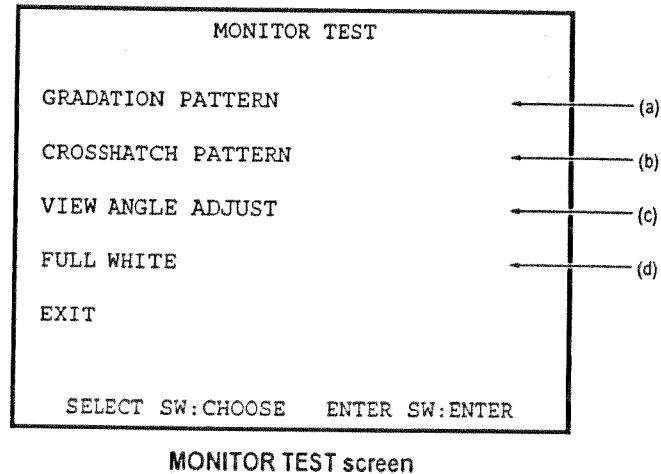
Indication	Status
(a) ALL	Turn ON or OFF all LEDs.
(b) LED (MAIN SP)	The main speaker assembly's LEDs located on the upper part of the Monitor Tower Assy are turned ON or OFF.
(c) LED (GUN TOWER)	The LEDs located on the front acrylic panel of the Gun Tower Assy are turned ON or OFF.
(d) LED (VOICE SP)	The voice speaker assembly's LEDs located on the upper part of the Gun Tower Assy are turned ON or OFF.

- 3** Select "EXIT" and press the Enter switch to return to the I/O TEST screen.

7-4-5 Monitor test (MONITOR TEST)

This screen is used to adjust the monitor settings.

- 1** Select "MONITOR TEST" on the MENU screen, and press the Enter switch.
The MONITOR TEST screen appears.



- 2** Use the Select switch to choose an item.
The selected item flickers.
 - 3** Press the Enter switch to display the selected pattern.
To exit from the pattern screen, press the Enter switch again.
- (a) Displays the gradation pattern.
(b) Displays the cross-hatching pattern.
(c) Displays the adjustment screen.
(d) Displays the white screen.
- 4** Select "EXIT" and press the Enter switch to return to the MENU screen.

7-4-6 Sound test (SOUND TEST)

This screen is used to adjust the sound volume level and check stereo sound reproduction.

- 1 Select "SOUND TEST" on the MENU screen, and press the Enter switch. The SOUND TEST screen appears.

SOUND TEST
[DEFAULT IN GREEN]

VOLUME	GAME	[0~15]	6		(a)
	ATTRACT	[0~15]	4		(b)
OUTPUT	LEVEL	LEFT	70	}	(c)
		RIGHT	70		
		VOICE	90		
		((((•))))			
REQUEST SONG	NO.	000			(d)
MESSAGE:					(e)
EXIT					
SELECT SW :CHOOSE			ENTER SW:ENTER		
SERVICE SW :REQUEST			ON/OFF		

SOUND TEST screen

- 2 Use the Select switch to choose an item to be changed. The selected item flickers.
- 3 Select item (a), (b), (c), or (d) and press the Enter switch. The numerical value of the selected item flickers. Flick the Select switch up or down to adjust the value.

Item	Description	Default setting
(a) Volume level for game	0 (min.) to 15 (max.)	6
(b) Volume level for Attract mode	0 (min.) to 15 (max.)	4
(c) Output level of right, left and Voice speakers		LEFT 70 RIGHT 70 VOICE 90
(d) Music selection		000

SOUND TEST settings

- 4 When item (d) is selected, every time the Enter switch is pressed, the adjusting digit changes.
Use the Select switch to adjust each digit and set a desired number.
When the Service switch is pressed, the music or sound effect corresponding to the selected number will be reproduced.
 - * When "000" is selected and the Service switch is pressed, sound will be produced by the left speaker, right speaker, voice speaker and woofer in that order. The volume reference ("GAME" or "ATTRACT") and the present sound reproduction "LEFT," "RIGHT," "VOICE" or "WOOFER" will be displayed on the screen at the section (e).
- 5 Select "EXIT" and press the Enter switch to return to the MENU screen.

7-4-7 Displaying and initializing the game data (BOOKKEEPING)

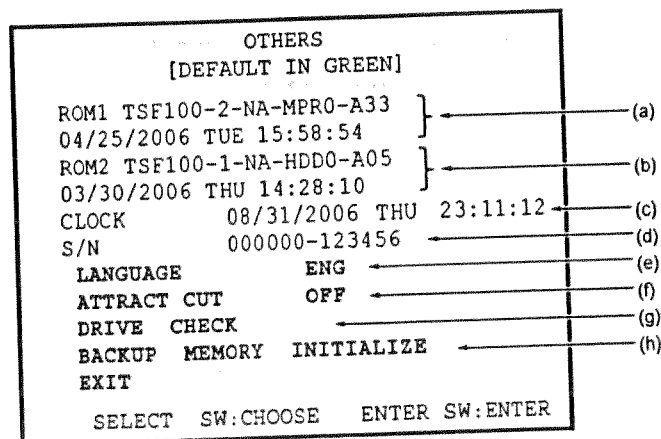
This screen displays various game data.

- 1** Select "BOOKKEEPING" on the MENU screen, and press the Enter switch.
The BOOKKEEPING screen appears.
- 2** Execute "INITIALIZE" or "BACKUP MEMORY INITIALIZE" in "OTHERS" to initialize the game data.
- 3** After checking the game data, select "EXIT" and press the Enter switch to return to the MENU screen.

7-4-8 Others (OTHERS)

This screen is used to initialize the backup memory.

- 1** Select "OTHERS" on the MENU screen, and press the Enter switch.
The OTHERS screen appears.



OTHERS screen

- 2** Use the Select switch to choose an item to execute.
The selected item flickers.

- (a) Displays the version of ROM 1 which contains the program.
- (b) Displays the version of ROM 2 which contains data.
- (c) Displays the current time set in the internal clock.
- (d) Displays the software serial number.
- (e) Checks data saved in the HDD. (This item is not used in normal operation.)
- (f) Initializes the backup memory.
Selecting "YES" then pressing the Enter switch clears the gun sight setting, high score data, play data and other variables, and then returns the machine to its default condition.

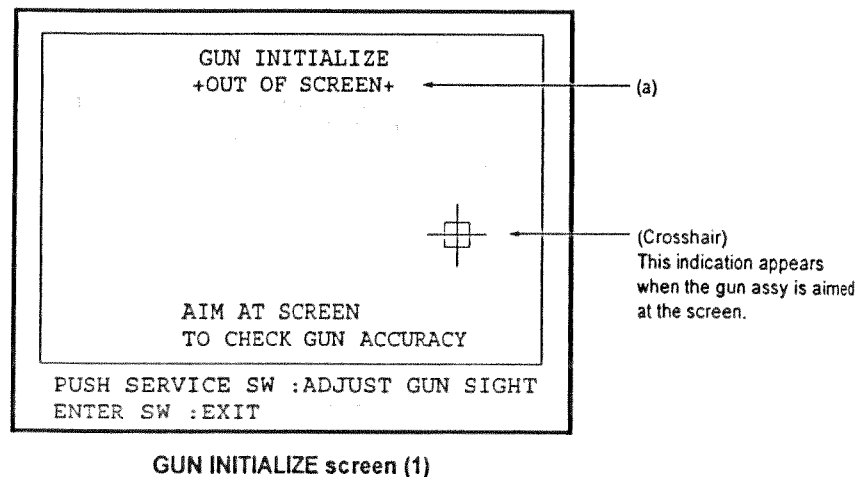
- * If the software versions of the Player 1 unit and the Player 2 unit displayed by item (a) and (b) in the Test mode do not match, the game will not properly run.
In this case, contact your distributor.

- 3** Press the Enter switch to execute the flickering item.
- 4** Select "EXIT" and press the Enter switch to return to the MENU screen.

7-4-9 Setting the Gun Assy sight (GUN INITIALIZE)

This screen is used to adjust the Gun Assy sight.

- 1** Select "GUN INITIALIZE" on the I/O TEST screen, and press the Enter switch.
(Or turn on the TEST switch while keep pressing the ENTER switch.)
The GUN INITIALIZE 1 screen will appear.

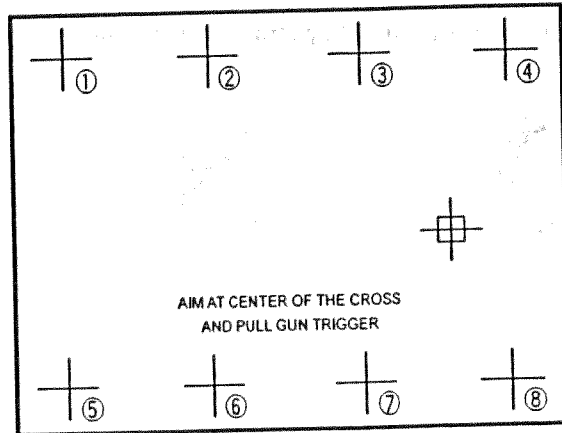


- 2** The Gun Assy sight can be confirmed on the GUN INITIALIZE 1 screen.
When the gun is aimed at the screen, the gun sight (crosshair) will appear on the screen.
Confirm that the gun crosshair appears exactly at the point the Gun Assy aims at.
(Check all over the screen.)
When the Gun Assy is aimed away from the screen, the "+ OUT OF SCREEN +" indication will appear on the screen at position (a).
If the "+ OUT OF SCREEN +" indication frequently appears even though the Gun Assy is aimed at the screen, the following are possible causes:

- Many LED light reflective objects exist near the machine.
- Gun Assy is too close to the screen (60 cm or closer)
- The aiming angle against the screen is too large.

Readjust the Gun Assy sight by relocating the machine or correcting the shooting position.

- 3** When the Service switch is press'ed while the GUN INITIALIZE 1 screen is being indicated (or the pedal is being depressed), the GUN INITIALIZE 2 screen will appear to adjust the gun sight. The Gun Assy's light sensor, LED PC board mounting deviation and/or individual differences in properties will be compensated on this screen.



GUN INITIALIZE screen (2)

The Gun Assy sight setting is made by shooting at eight targets (four targets each at the top and the bottom of the screen).

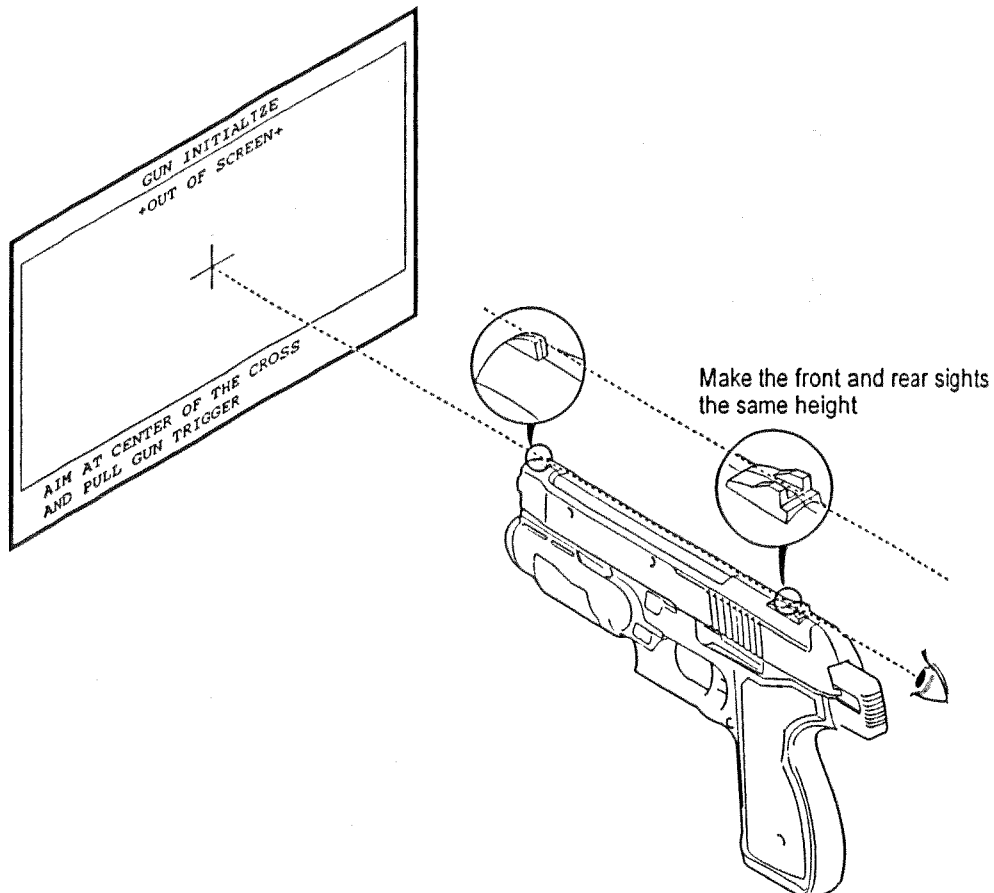
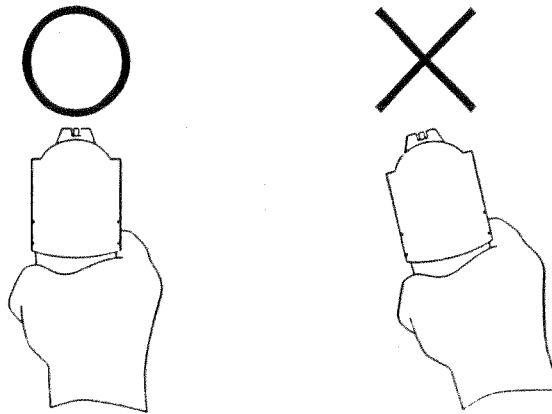
Pull the gun trigger aiming at the designated crosshair center following the designated number from one to eight appearing in this order on the screen. Each time the gun trigger is pulled, the crosshair (+) will appear at the next position. After the eighth crosshair is shot, the GUN INITIALIZE 1 screen will reappear.

- 4** Confirm that the Gun Assy can aim properly at any desired point all over the GUN INITIALIZE screen.
- If the sight is inaccurate, press the service switch (or depress the pedal) to return to the GUN INITIALIZE 2 screen and repeat the adjustment procedure.
- 5** Press the ENTER switch to return to the I/O TEST screen.

7. OPERATION



- To adjust the gun sight, refer to the following procedure.
 - Hold the Gun Assy toward the screen so that the rear sight notch aligns with the horizontal line of the crosshair (+) on the screen.
 - Also, align the front sight post at the tip of the Gun Assy with the horizontal line of the crosshair (+) on the screen.
 - Make sure that the rear sight center and the front sight are level with the crosshair (+). Then, hold the Gun Assy vertically and fire a shot.
 - Be sure to hold the Gun Assy straight. Do not tilt the Gun Assy.



7-5 Cleaning



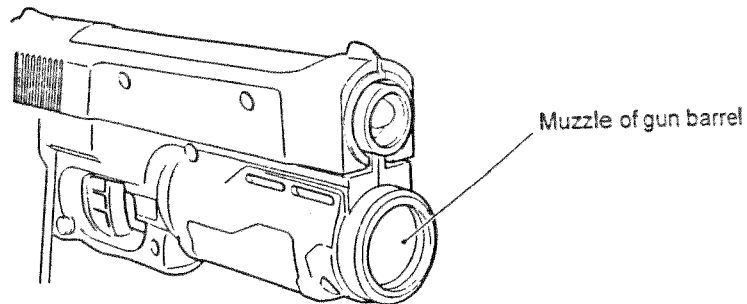
- Do not use organic solvents such as thinner, benzene, and gasoline. They can deteriorate the surface materials.

To clean the machine, wipe with a dry soft cloth. If the unit is extremely dirty, use a soft cloth dampened with a neutral detergent to remove dirt, and then rub lightly with a cloth dampened slightly with water. Lastly, wipe with a dry soft cloth thoroughly.

7-5-1 Cleaning the Gun Assy



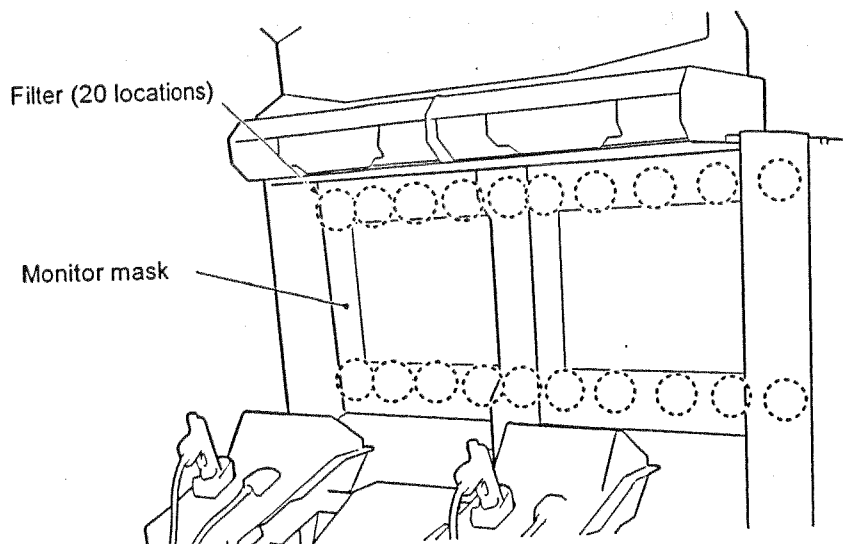
- Clean the muzzle of the gun barrel everyday to maintain gun accuracy. Use a clean soft cloth to wipe the muzzle of the gun barrel.
- Do not use detergents or chemicals for cleaning.
- Be careful not to damage the muzzle of the gun barrel.



7-5-2 Cleaning the front acrylic cover



- Clean the following sensor sections' filters (20 locations) on the monitor mask everyday to maintain gun accuracy. Clean the filter on the LED board with a soft cloth to prevent scratching the surface. Scratches on the monitor mask can affect the Gun Assy detection performance.



8. MAINTENANCE

WARNING

- Before conducting maintenance (troubleshooting, repair, etc.), be sure to turn off the power switch to protect the service staff and other people from electric shock, accidents and injury.
- The monitor section remains hot and charged with high voltage even after the power switch is turned off. Do not touch those parts to avoid electric shock and burns.

8-1 Maintenance and inspection

WARNING

- Conduct maintenance regularly. Failure to conduct periodic maintenance may lead to unexpected accidents.
- Conduct a pre-service check everyday. Pre-service check is important for preventing accidents. (See P. 35 "7-1 Pre-service check.")

8-1-1 Inspection items

After completion of the pre-service check (See P. 35 "7-1 Pre-service check."), check the following items regularly to make sure there are no abnormalities.

(1) Inspection of the level adjusters

Make sure that the machine is stably installed. (See P. 20 "5-3-1 Adjusting the level adjusters.")

(2) Inspection of the power plug

1. Make sure that the power cord is plugged firmly into the Cord Box Assy receptacle and the service outlet.
2. If the connecting section is covered with dust, clean.
3. Check the power cord for cracks and dirtiness. If there is any abnormality in the power cord, be sure to replace it with a new cord.

(3) Inspection of bolts for tightness

Check the following screws and bolts for tightness. If they are loose, tighten them firmly.

1. Signboard Assy fastening bolts (See P. 21 "5-3-2 Assembling the Signboard Assy")
2. Joint Assy fastening bolts (See P. 23 "5-3-3 Connecting the Joint Assy to the Monitor Tower Assy")
3. Control Assy fastening bolts (See P. 24 "5-3-4 Connecting the Control Assy")
4. Pedal Assy fastening bolts (See P. 25 "5-3-5 Installing the Pedal Assy")
5. Speaker Box fastening bolts (See P. 21 "5-3-2 Assembling the Signboard Assy")

8-1-2 Maintenance items

(1) Greasing the Pedal Assy plunger - To be conducted only by a technician -

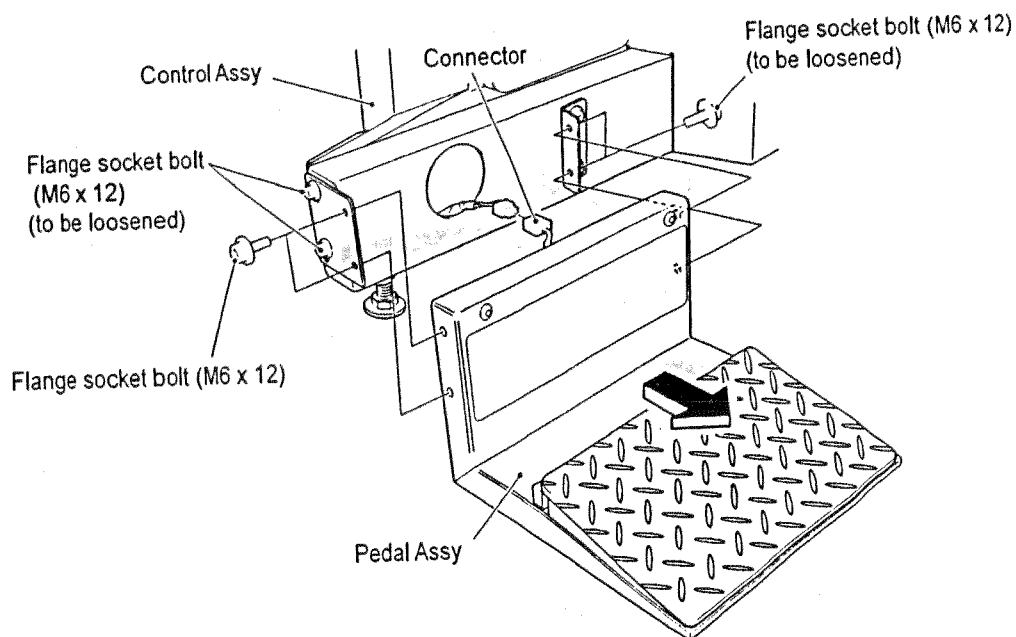
- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

⚠ WARNING

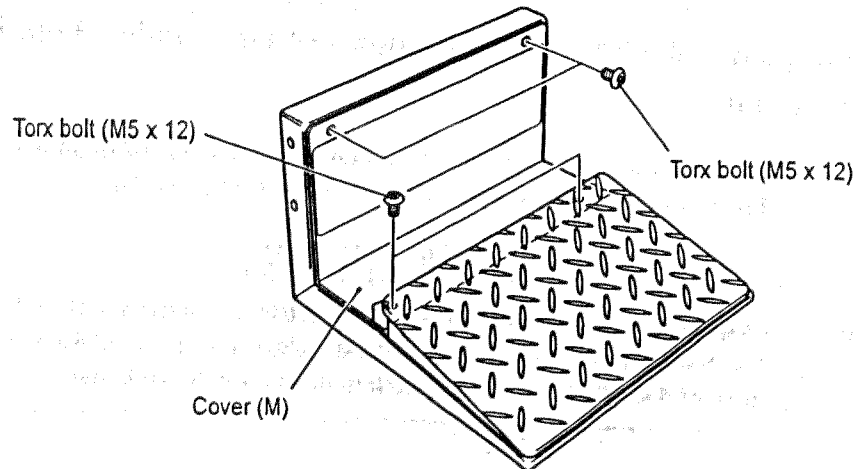
- To protect the service staff and other people from an electric shock, accident and injury, as well as to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.



- Grease the plunger once every six months.
 - Pay attention to prevent grease or dust from adhering to the photosensor.
 - Always carefully confirm the direction when connecting the connectors in order to prevent damage to the electronic circuits.
- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on")
 - 2** Make sure that the power switch is turned off. Loosen the four flange socket bolts (M5 x 12) on the Control Assy side.
 - 3** Remove the four flange socket bolts (M5 x 12) from the Pedal Assy side, disconnect the connector, and then dismount the Pedal Assy.



- 4** Remove the four Torx bolts (M5 x 12) and detach the cover.

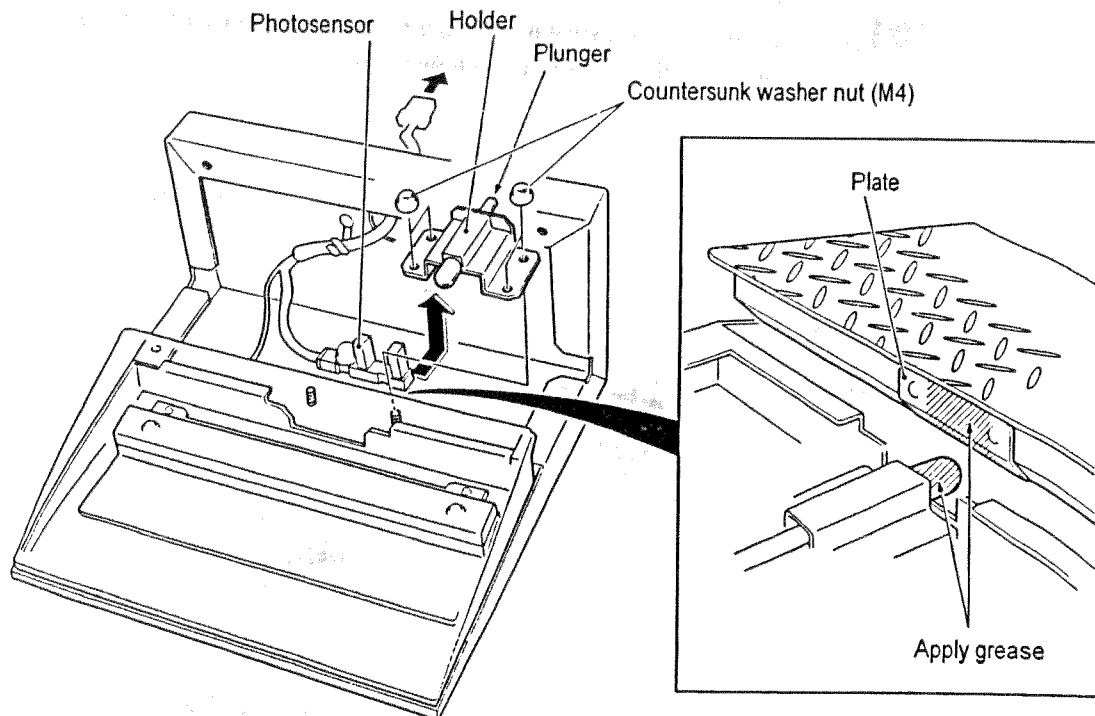


- 5** Remove the four countersunk washer nuts (M4) used to mount the holder. Lift the holder while pulling the plunger.

- 6** Wipe grease off the plunger and the plate surface on the pedal side.

- 7** Apply grease to the plate and the contact area between the plunger holder and the plate.

• Designated grease: Alvania grease No. 2 (Showa Shell)



- 8** To reinstall, simply reverse this procedure.



- After assembling the Pedal Assy, be sure to check the operation.
(See P. 47 "7-4-4 (e) SWITCH TEST")

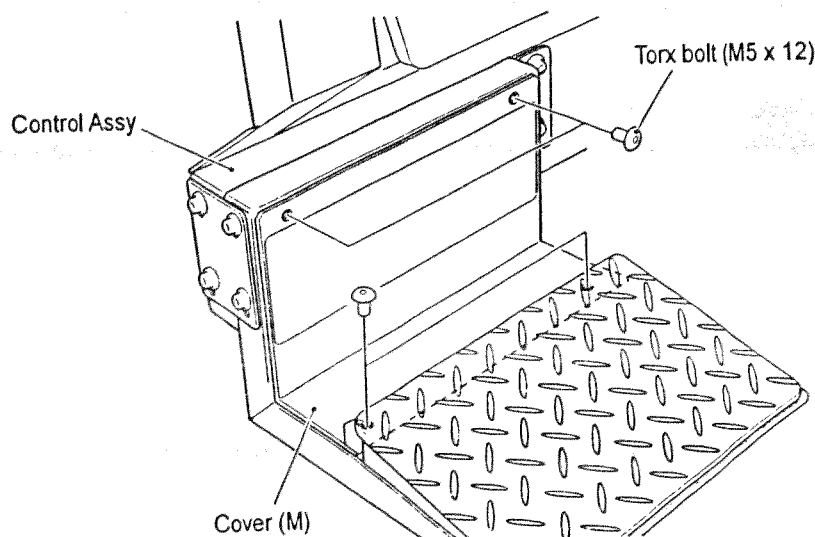
(2) Checking the Pedal Assy plunger for wear - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

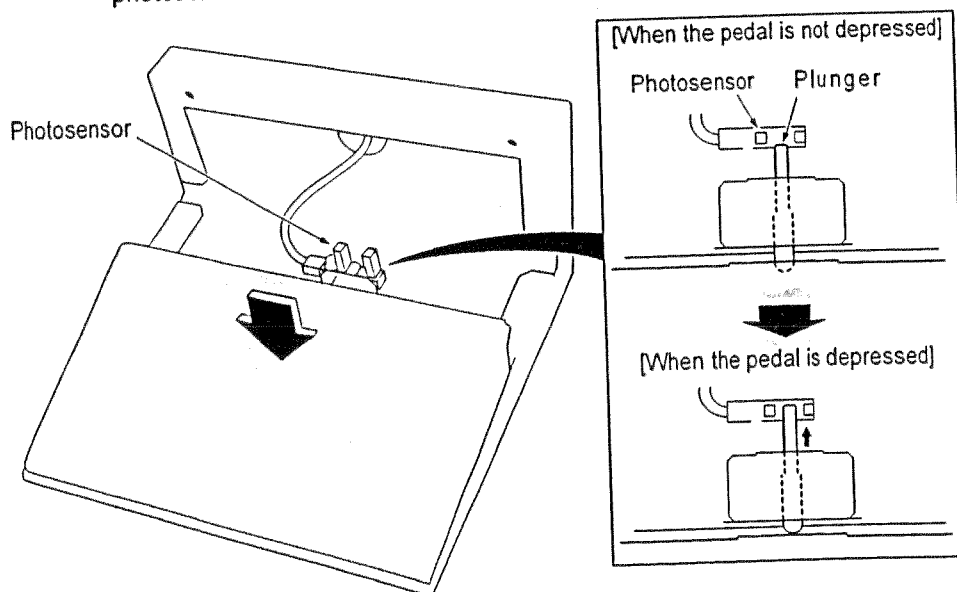


- Do not allow grease or dust to adhere to the photosensor.

- 1** Remove the four Torx bolts (M5 x 12) and detach the cover (M).



- 2** Depress the pedal by hand and visually check to see if the plunger passes onto the photosensor in the Test mode. (See P. 47 "7-4-4 (e) SWITCH TEST.")



- 3** If the plunger is worn and does not pass onto the photosensor, replace the plunger. (See P. 89 "8-3-7 (2) Replacing the plunger.")
- 4** The reinstall, simply reverse this procedure.

8-2 Troubleshooting

WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.
- If any trouble not specified herein occurs, or if trouble persists after several attempts, turn off the power switch immediately to stop machine operation, then contact your distributor. If the machine is used without trouble being resolved, an unforeseen accident may result.



- In the event of a problem, make sure that all connectors are firmly connected.
- If there is a problem in any of the PC boards, do not use a circuit tester or equivalent to check the conductivity. Otherwise, the tester's internal voltage may damage the ICs.

8-2-1 General - To be conducted by a technician only -

Symptom	Usual cause	Action	Page
The machine does not start up.	The dongle is not properly installed.	Insert the dongle properly.	27
	Some connectors are disconnected.	Connect the connectors and Faston terminals securely.	68, 69
	The Rack Assy is defective.	Contact your distributor.	69
The machine operates unstably or generates malfunctions.	The power supply voltage is not within a range of 90 to 110 VAC.	Disconnect any large power consuming equipment (air conditioners, large ride attractions, etc.) to ensure that the machine receives the specified power voltage.	—

Continue to next page

Continued from previous

Symptom	Usual cause	Action	Page
The machine turns off during operation.	The internal circuit protector of the power switch was activated and turned off the power switch. * The circuit protector is designed to cut off the power supply when an abnormal current flows.	Turn on the power switch again. If the circuit protector is activated frequently, there may be some problems in the machine. Contact your distributor.	39

8-2-2 Front Assy - To be conducted by a technician only -

Symptom	Usual cause	Action	Page
No image is displayed on the monitor.	A connector is disconnected.	Connect the connector securely.	24,68,69
	The monitor is defective.	Replace the monitor.	90
	The Rack Assy is defective.	Replace the Rack Assy.	69
No sound is produced from the speakers.	The sound volume is too low.	Adjust the volume level.	51
	A connector is disconnected.	Connect the connector securely.	21
	The AMP PC board is defective.	Replace the AMP PC board.	70
	The Rack Assy is defective.	Replace the Rack Assy.	69
The SIDELED PC board is not lit.	A connector is disconnected.	Connect the connector securely.	71
	The SIDELED PC board is defective.	Replace the SIDELED PC board.	71
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74

8-2-3 Signboard Assy - To be conducted by a technician only -

Symptom	Usual cause	Action	Page
The fluorescent lamp does not light.	A connector is disconnected.	Connect the connector securely.	21,24
	The fluorescent lamp is burned out.	Replace the fluorescent lamp.	73
	The glow lamp is burned out.	Replace the glow lamp.	73

8-2-4 Control Assy - To be conducted only by a technician -

Symptom	Usual cause	Action	Page
The SIDELED PC board is not lit. (Inside the Control Panel, inside the Gun Tower)	A connector is disconnected.	Connect the connector securely.	24,76,77
	The SIDELED PC board is defective.	Replace the SIDELED PC board.	76,77
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74
There is no sound from the speakers.	The sound volume is too low.	Adjust the volume level.	51
	A connector is disconnected.	Connect the connector securely.	24,75
	The AMP PC board is defective.	Replace the AMP PC board.	70
	The Rack Assy is defective.	Replace the Rack Assy.	69

8-2-5 Gun Assy - To be conducted only by a technician -

Symptom	Usual cause	Action	Page
The gun does not shoot correctly.	The sight alignment is incorrect.	Adjust the gun sight.	54
	The muzzle of gun barrel is dirty.	Clean.	57
	The filter is dirty.	Clean.	57
	The muzzle of the gun is positioned too close to the screen.	Keep the gun away from the screen (more than 60 cm gap between screen and muzzle).	—
	The same detecting systems are installed next to each other.	Connect the frequency changeover harness properly.	17,78
	A connector is disconnected.	Connect the connector securely.	24,67,74, 75,83,84, 86,87
	The LED board is defective.	Replace the LED board.	67
	The light receiving unit is defective.	Replace the light receiving unit.	83
	The CPU board is defective.	Replace the CPU board.	78
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74

Continue to next page

Continued from previous

Symptom	Usual cause	Action	Page
The trigger does not work.	A connector is disconnected.	Connect the connector securely.	24,74,75, 83,86, 87
	The micro-switch is defective.	Replace the micro-switch.	86
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74
Blowback mechanism does not work.	A connector is disconnected.	Connect the connector securely.	24,74,75, 83,84, 86,87
	The solenoid is worn out.	Replace the solenoid.	84
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74

8-2-6 Pedal Assy - To be conducted only by a technician -

Symptom	Usual cause	Action	Page
The pedal does not function properly.	A connector is disconnected.	Connect the connector securely.	88
	The photosensor is defective.	Replace the photosensor.	88
	The plunger is worn out.	Replace the plunger.	89
	The NA-JV PC board is defective.	Replace the NA-JV PC board.	74

8-3 Removing, reinstalling and replacing Assys and parts

8-3-1 Monitor Tower Assy

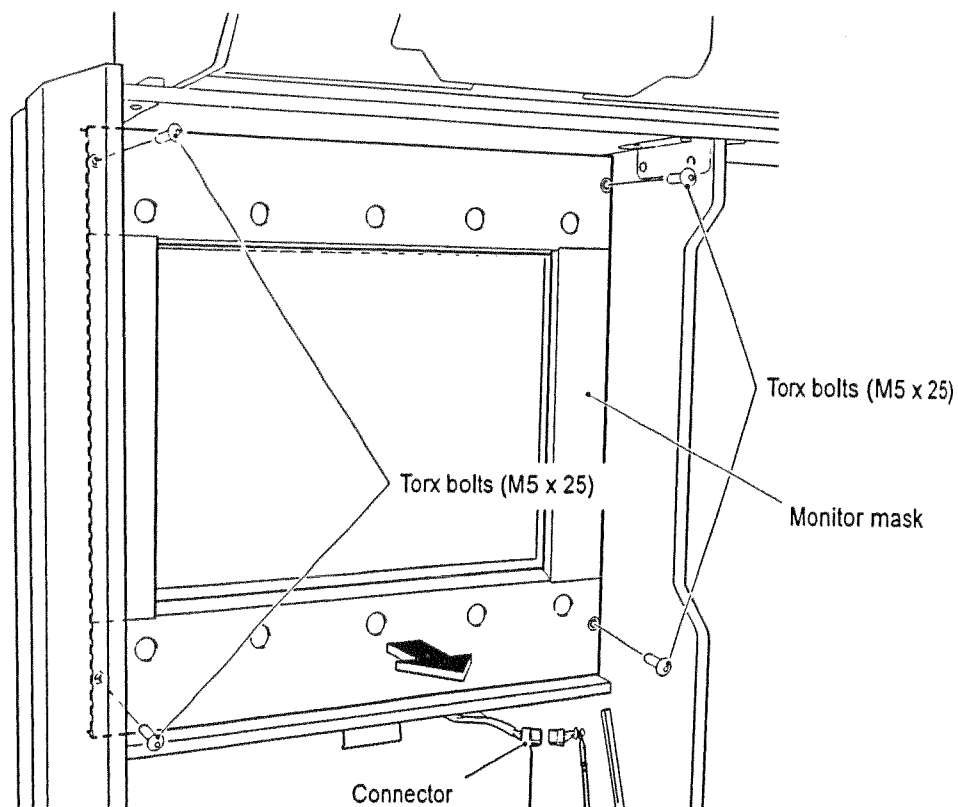
- (1) Removing and reinstalling the monitor mask - To be conducted only by a technician -

* This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Remove the front panel. (See P. 26 "5-4 Removing and reinstalling the front panel.")
- 3** Disconnect the one connector.



- 5** To reinstall, simply reverse this procedure.

(2) Replacing the LED board - To be conducted only by a technician -

! WARNING

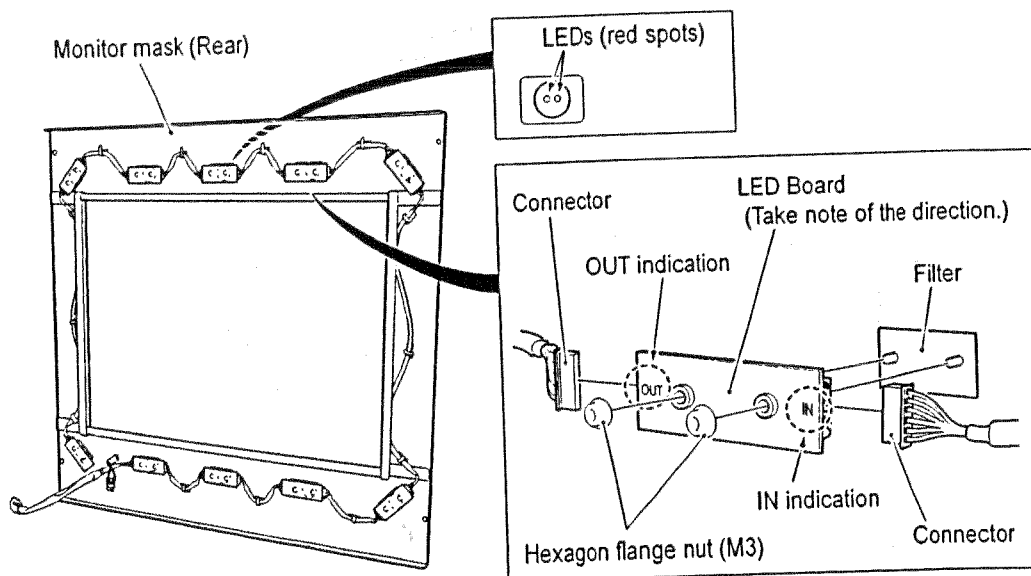
- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.
- The LED board is sensitive for static electricity. If a technician changed with static electricity handles it, the parts on the LED board can be damaged. Before handling the LED board, always touch the grounded metal surface to discharge static electricity.

If the two LEDs (red spots) under the monitor mask's filter (see the figure below) do not illuminate after the power is supplied, the LED board may be defective or malfunctioning. Because defective LED board disallows proper game play, replace the defective LED board promptly by following the procedure described below.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the monitor mask. (See P. 66 "8-3-2 (1) Removing and reinstalling the monitor mask.")
- 3** Disconnect the LED board's two connectors, remove the two hexagon flange nuts (M3), and dismount the LED board.



- 4** To reinstall, simply reverse this procedure.

(3) Removing and reinstalling the Control Board Assy - To be conducted only by a technician -

- This section describes the pedal installation for player 1. For player 2, install the pedal as for player 1 pedal installation.

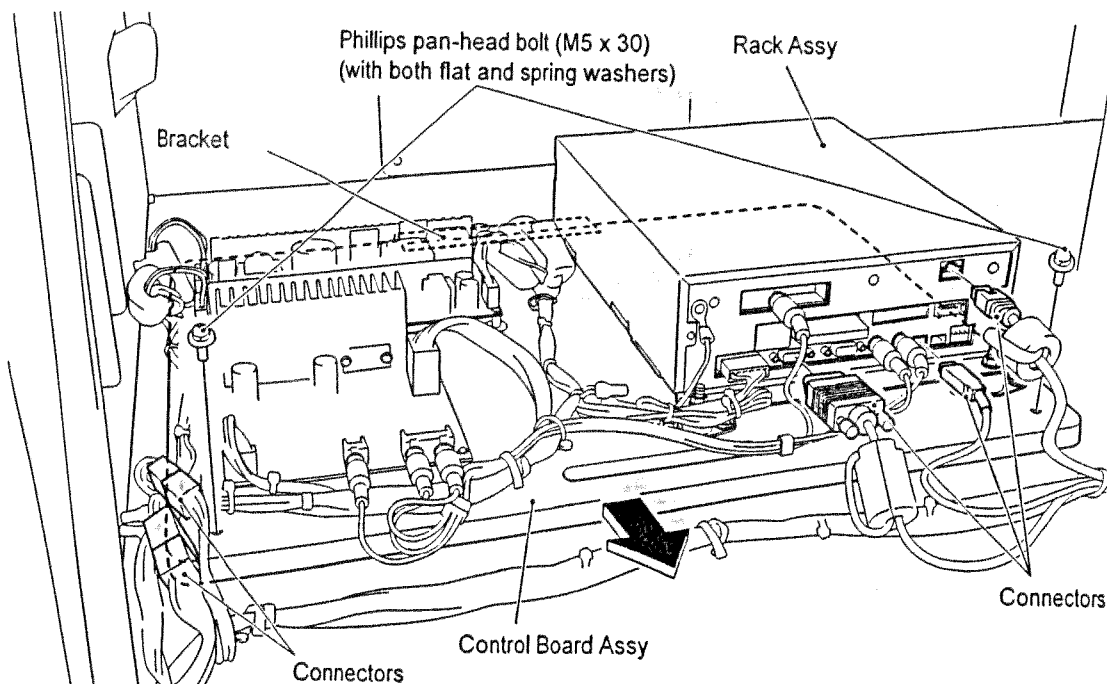
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- Insert the Control Board Assy properly into the bracket located inside. Do not pinch cables against the board.
- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The Control board is sensitive to static electricity. If a technician changed with static electricity handles it, the parts on the Control board can be damaged. Before handling the Control board, always touch the grounded metal surface to discharge static electricity.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the front panel. (See P. 26 "5-4 Removing and reinstalling the front panel.")
- 3** Disconnect the five connectors. (See the figure below.)
- 4** Remove the two Phillips pan-head bolt (M5 x 30) (with both flat and spring washers). Pull the Control Board Assy to the front a little to remove from its bracket and then remove it.



- 5** To reinstall, simply reverse this procedure.

(4) Replacing the Rack Assy - To be conducted only by a technician -

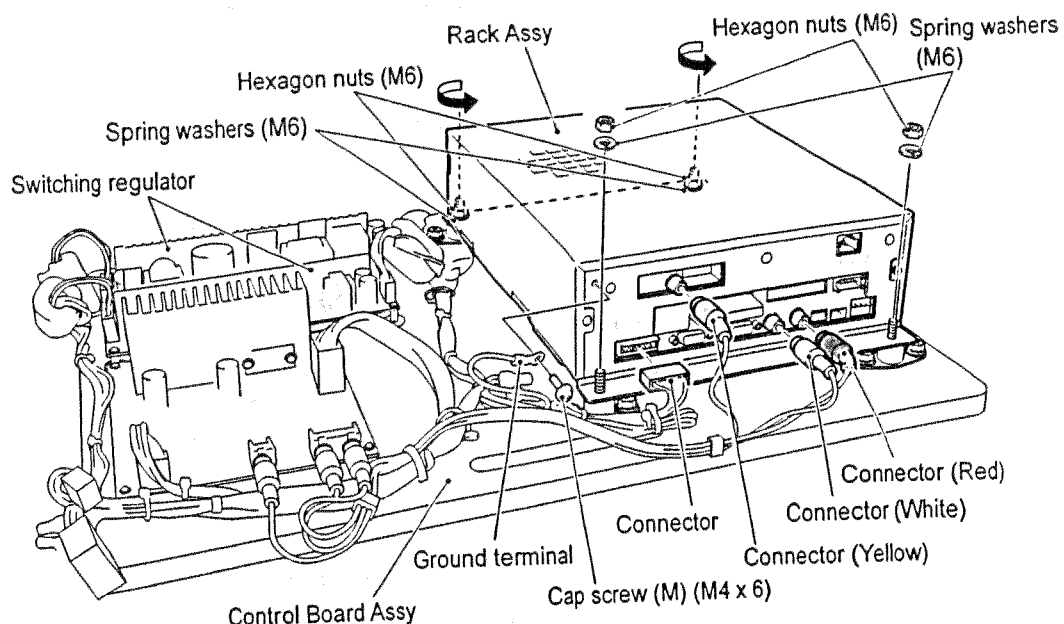
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.



- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician changed with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the front panel. (See P. 26 "5-4 Removing and reinstalling the front panel.")
- 3** Remove the Control Board Assy. (See P. 68 "8-3-1 (3) Removing and reinstalling the Control Board Assy.")
- 4** Disconnect the four connectors. (See the figure below.) Remove the one cap screw (M)(M4 x 6) to remove the ground terminal. (See the figure below.)
- 5** Remove the four spring washers (M6) and the four hexagon nuts (M6) and then remove the Rack Assy.



- 6** To reinstall, simply reverse this procedure.



- After replacing the Rack Assy, be sure to check the operation (See P. 41 "7-4 Test mode.")

(5) Replacing the AMP PC board - To be conducted only by a technician -

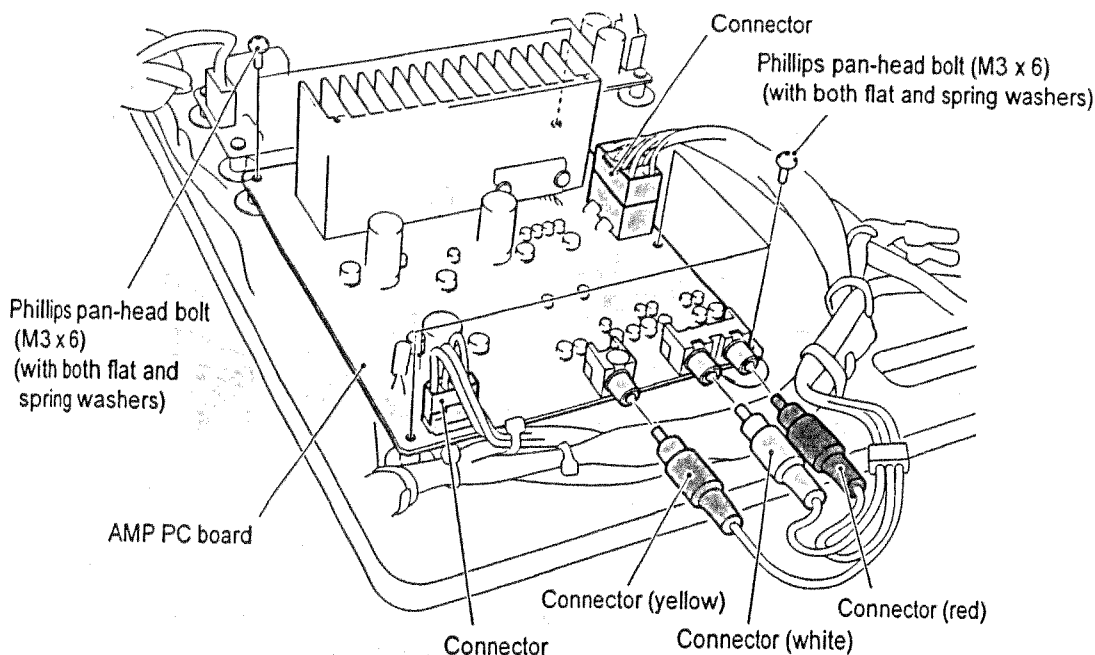
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician charged with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the front panel. (See P. 26 "5-4 Removing and reinstalling the front panel.")
- 3** Remove the Control Assy. (See P. 68 "8-3-1 (3) Removing and reinstalling the Control Board Assy.")
- 4** Disconnect the five connectors. Remove the five Phillips pan head bolt (M3 x 6) (with both flat and spring washers). Then remove the AMP PC board.



- 5** To reinstall, simply reverse this procedure.

NOTICE

After replacing the NA-JV PC board, be sure to check the operation (See P. 51 "7-4-6 Sound test. ")

8-3-2 Speaker Box Assy

(1) Replacing the SIDELED PC Board - To be conducted only by a technician -

- This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

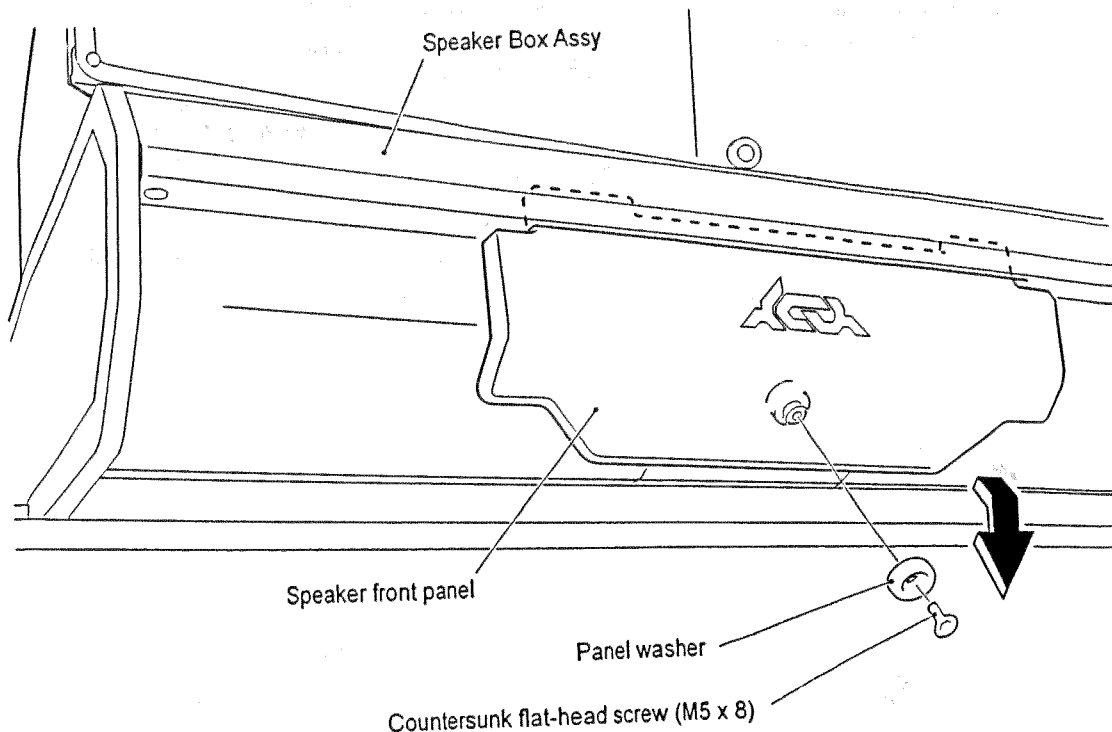
⚠ WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

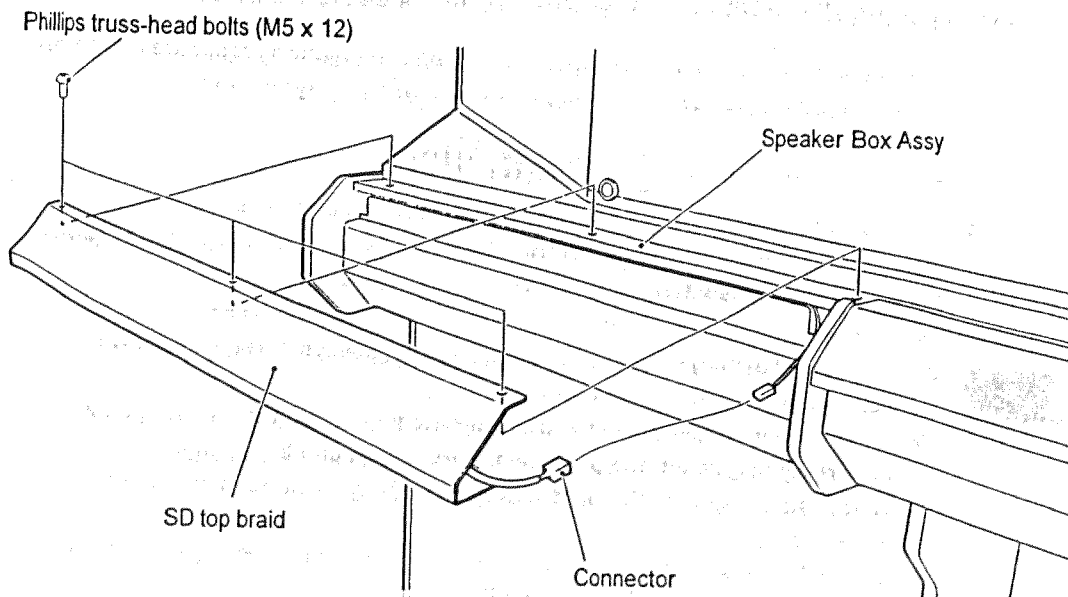
NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician charged with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.
- The red color seal is affixed to the side of the SIDELED PC board. The blue color seal is affixed to the SIDELED (B) PC board.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the panel washer and the countersunk flat head screw (M5 x 8) and then remove the speaker front panel.

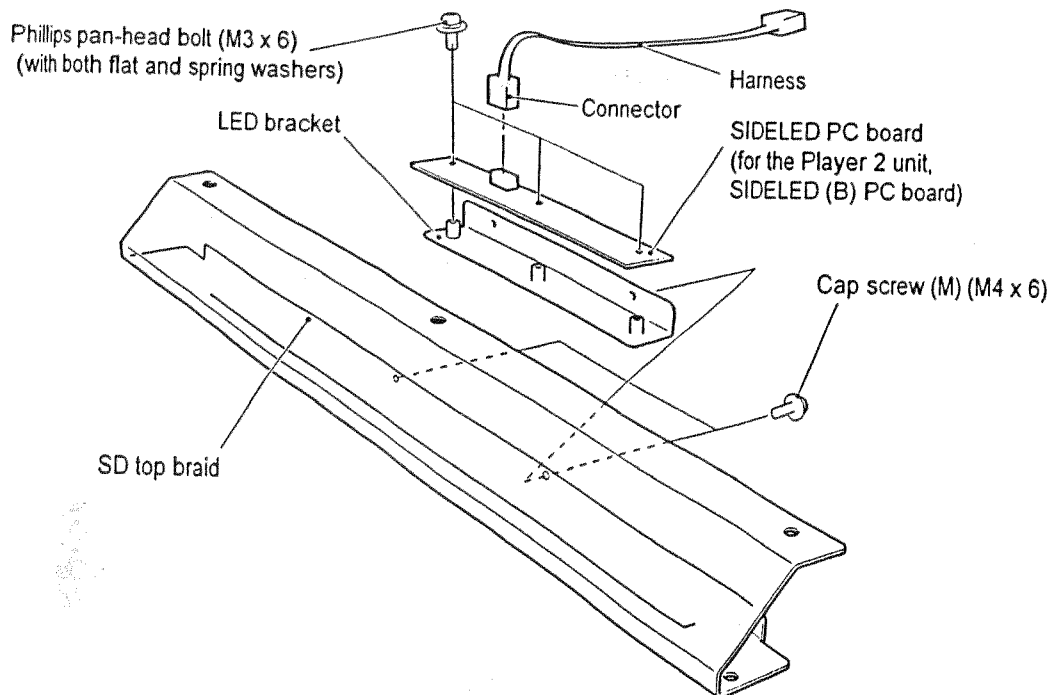


- 3** Remove the three Phillips truss-head bolts (M5 x 12) and the one connector and then remove the SD top braid.



- 4** Remove the two cap screws (M4 x 6) and then remove the LED bracket.

- 5** Remove the three Phillips pan-head bolts (M3 x 6) (with both flat and spring washers) and the one connector and then remove the SIDELED PC board from the LED bracket (for the Player 2 unit, SIDELED (B) PC board).



- 6** To reinstall, simply everse this procedure.

8-3-3 Signboard Assy

(1) Replacing the fluorescent lamp/glow lamp - To be conducted only by a technician -

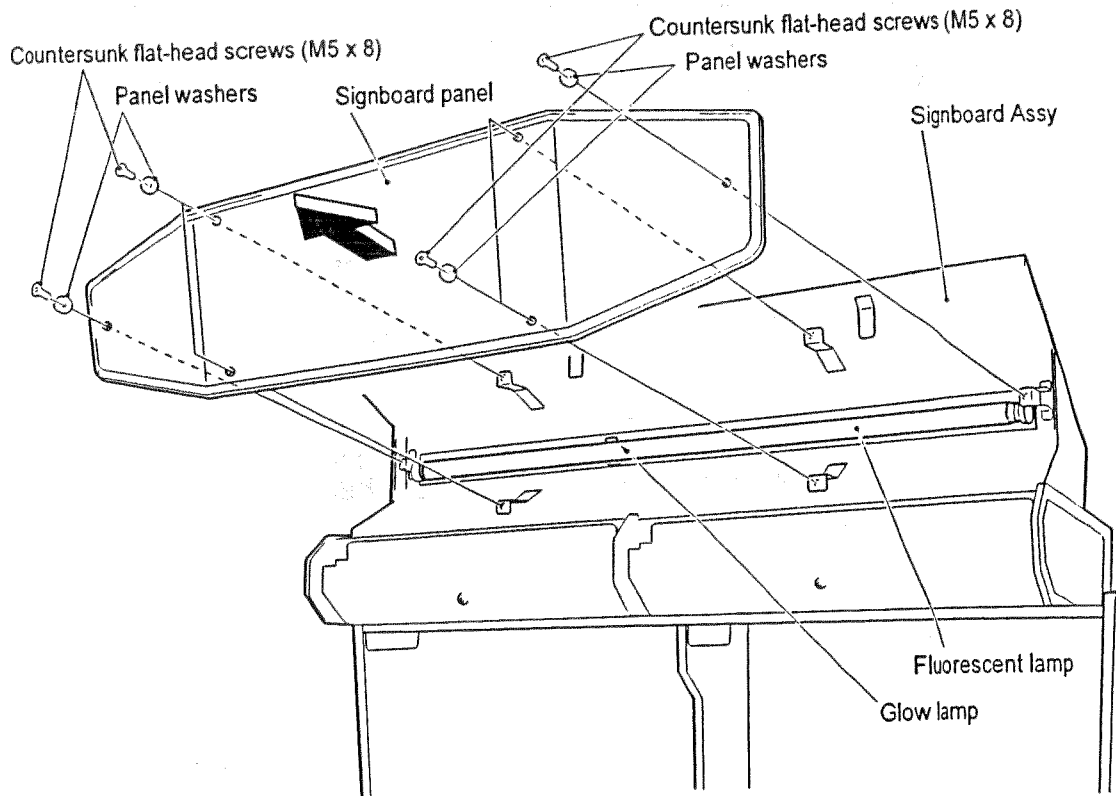
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

! CAUTION

- The fluorescent lamp becomes very hot. Be careful when removing the fluorescent lamp.
- Exercise caution when replacing the fluorescent lamp or glow lamp, since the replacement work must be conducted at a height.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the six panel washers and the six countersunk flat head screws (M5 x 8) and then dismount the signboard panel.
- 3** Replace the fluorescent lamp (40W) and/or glow lamp (FG-4P).



- 4** To reinstall, simply reverse this procedure.

8-3-4 Coin Tower Assy

(1) Replacing the NA-JV PC Board - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

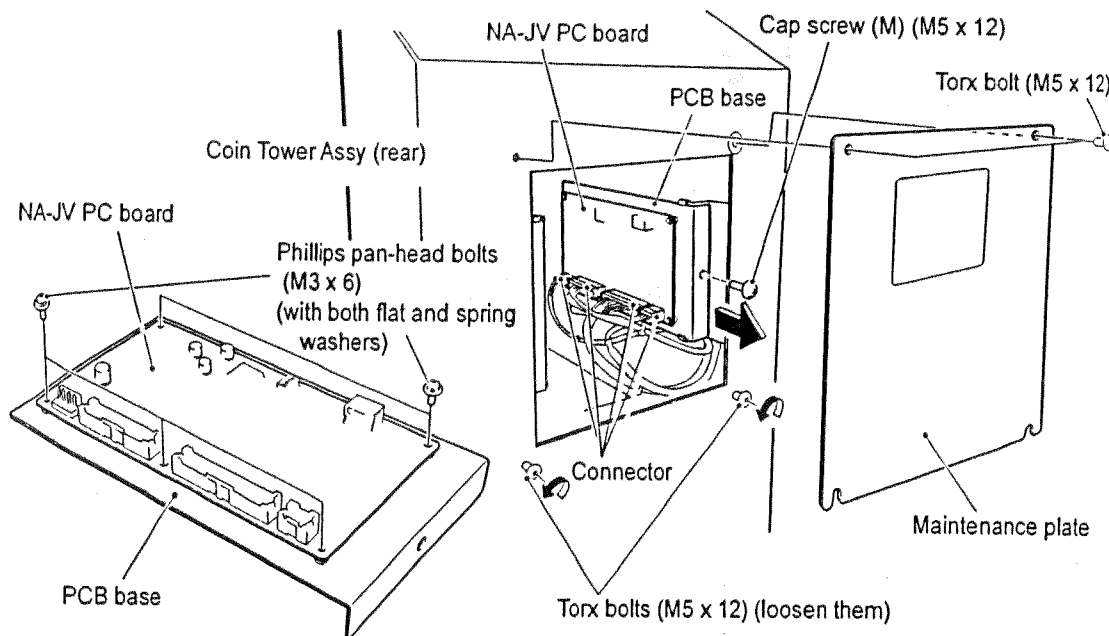
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician changed with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on")
- 2** Remove the two Torx bolts (M5 x 12) at the upper portion of the rear of the Coin Tower Assy and loosen the two Torx bolts at the lower portion of the Coin Tower Assy and then dismount the maintenance plate.
- 3** Disconnect the four connectors and remove the one cup screw (M) (M5 x 12). Remove the NA-JV PC board together with the BCB base.
- 4** Remove the five Phillips pan-head bolts (M3 x 6) (with both flat and spring washers). Then remove the NA-JV PC board.



- 5** To reinstall, simply reverse this procedure.

NOTICE

- After replacing the NA-JV PC board, be sure to check the operation. (See P. 45 "7-4-4 Input/output test of switches.")

8-3-5 Gun Tower Assy

(1) Removing and reinstalling the control panel - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

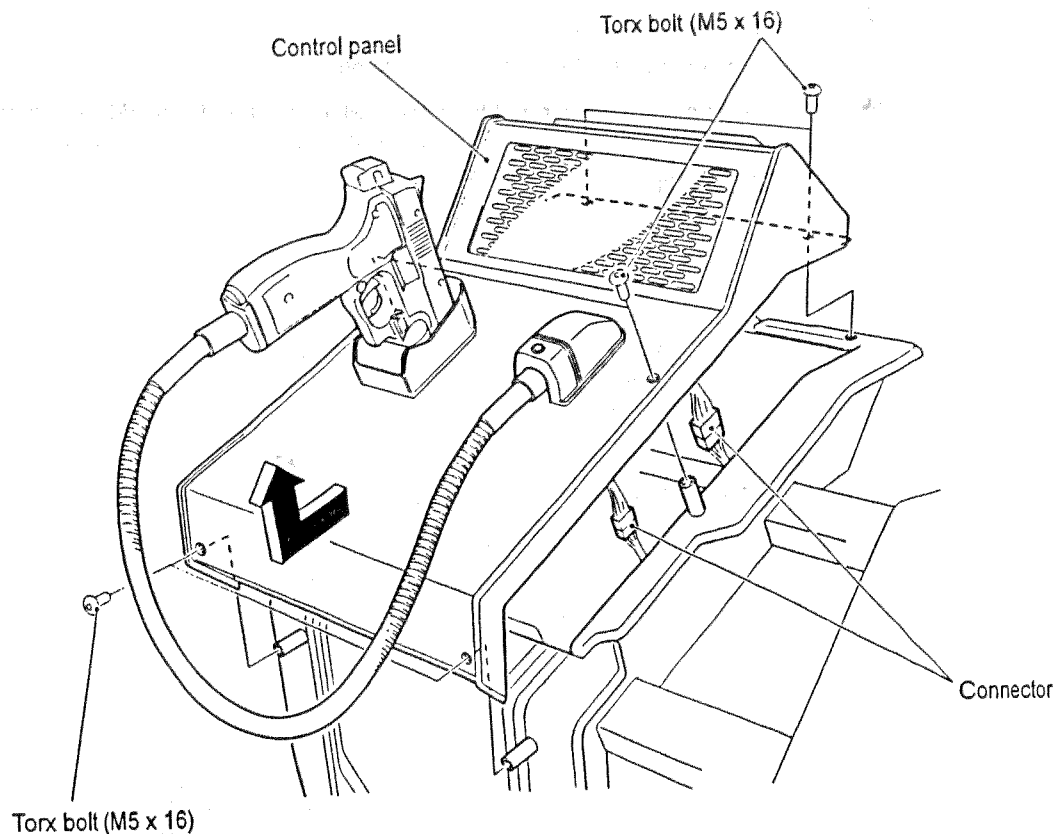
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1 Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2 Make sure that the power is turned off. Remove the six Torx bolts (M5 x 16).
- 3 Pull the control panel to the front a little and raise it. Then disconnect the two connectors at the back of the panel and remove it.



- 4 To reinstall, simply reverse this procedure.

NOTICE

- After reinstalling the control panel, be sure to check the operation. (See P. 36 "7-1-2 Operation check (after power on).")

(2) Replacing the SIDELED PC Board (inside the control panel) - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

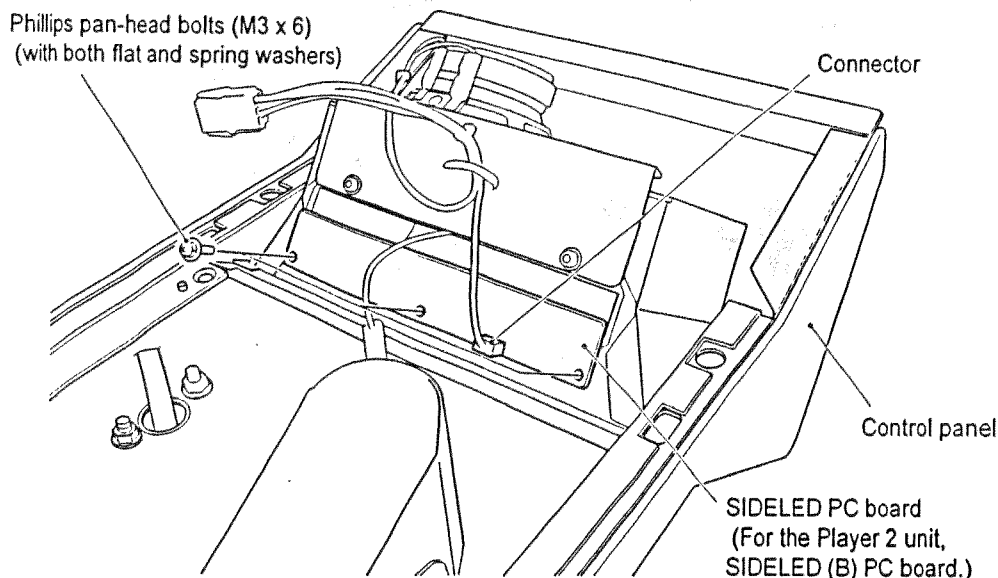
⚠ WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician charged with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.
- The red color seal is affixed to the SIDELED PC board's connector. The blue color seal is affixed to the SIDELED (B) PC board's connector.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the control panel. (See P. 75 "8-3-5 (1) Removing and reinstalling the control panel.")
- 3** Remove the one connector and the three Phillips pan-head bolts (M3 x 6) (with both flat and spring washers). Then remove the SIDELED PC board. (For the Player 2 unit, SIDELED (B) PC board.)



- 4** To reinstall, simply reverse this procedure.

(3) Replacing the SIDELED PC Board (inside the Gun Tower) - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

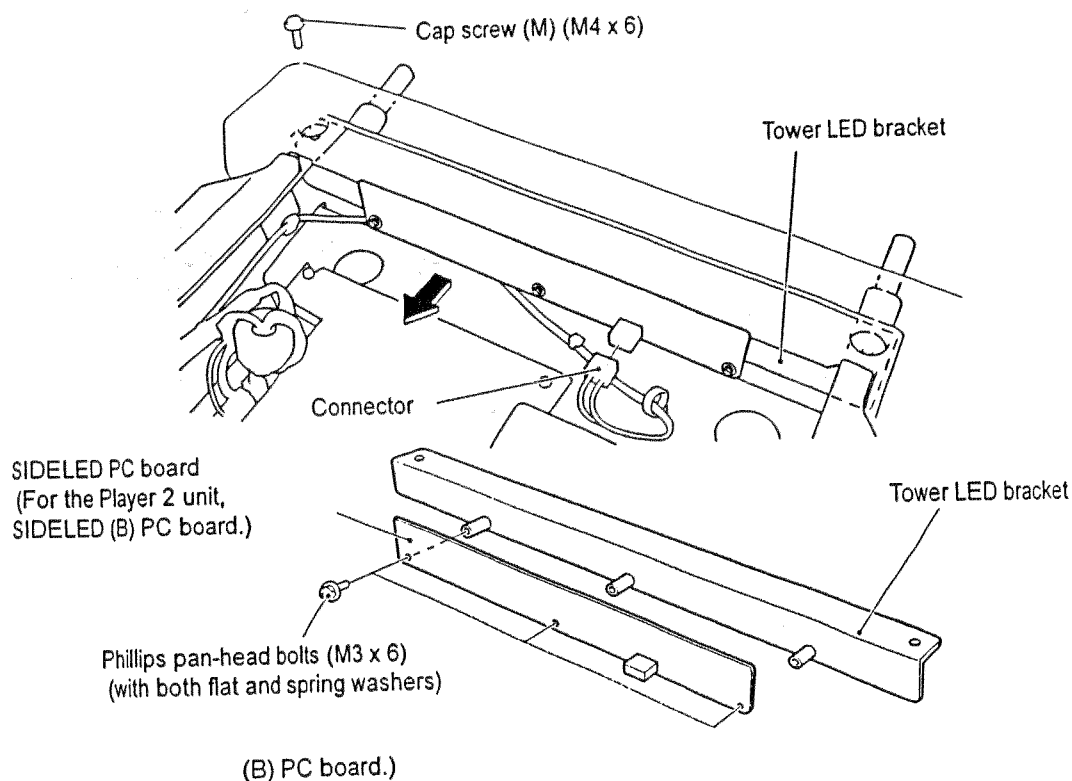
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician changed with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.
- The red color seal is affixed to the SIDELED PC board's connector. The blue color seal is affixed to the SIDELED (B) PC board's connector.

- 1 Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2 Make sure that the power is turned off. Remove the control panel. (See P. 75 "8-3-5 (1) Removing and reinstalling the control panel.")
- 3 Remove the connector and the two cap screws (M4 x 6). Then remove the tower LED bracket.
- 4 Remove the three Phillips pan-head bolts (M3 x 6) (with both flat and spring washers). Then remove the SIDELED PC board. (For the Player 2 unit, refer to the SIDELED



(4) Replacing the CPU Board - To be conducted only by a technician -

- * This section describes Assy (part) removal/reinstallation procedure for the Player 1 unit. Simply repeat the same procedure for the Player 2 unit.

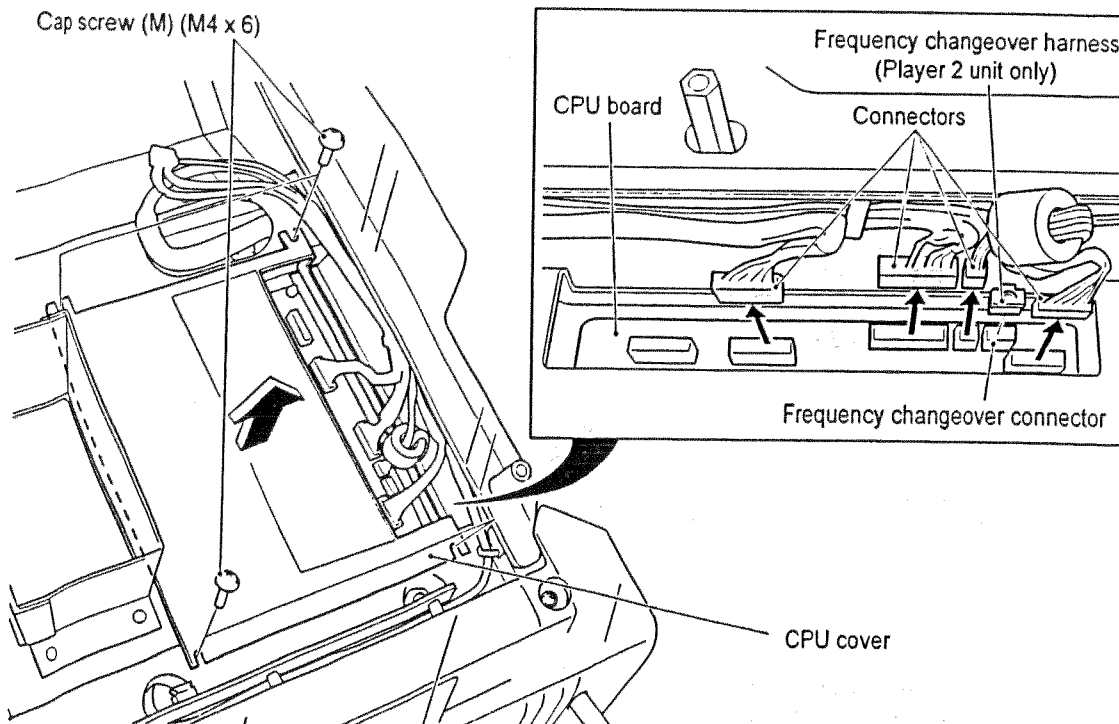
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

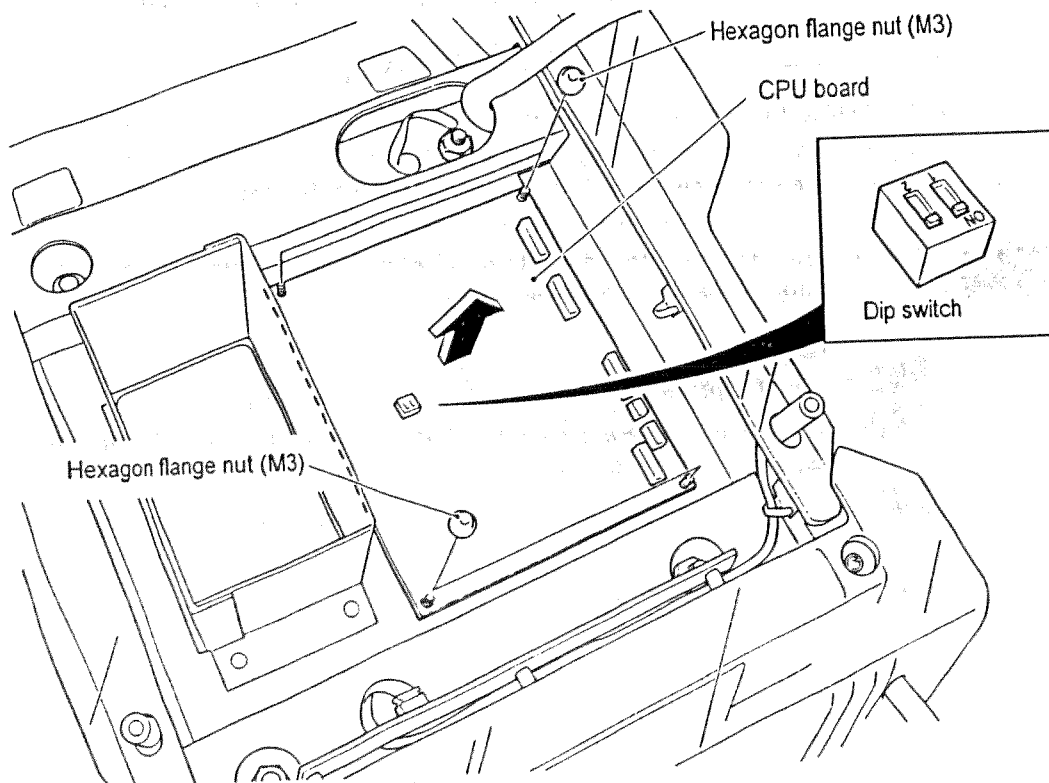
NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.
- The PC board is sensitive to static electricity. If a technician charged with static electricity handles it, the parts on the PC board can be damaged. Before handling the PC board, always touch the grounded metal surface to discharge static electricity.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the control panel. (See P. 75 "8-3-5 (1) Removing and reinstalling the control panel.")
- 3** Disconnect the four connectors from the CPU board. (For the Player 2 unit, furthermore disconnect the frequency changeover harness.)
- 4** Remove the four cap screws (M4 x 6). Then remove the CPU cover.



- 5** Remove the four hexagon flange nuts (M3). Then remove the CPU board.



- 6** Confirm that the new CPU board's DIP switch is the same as shown in the figure.
- 7** To reinstall, simply reverse this procedure.



- After replacing the CPU board, be sure to make Gun Assy's sight adjustments. (See P. 54 "7-4-9 Setting the Gun Assy site (GUN INITIALIZE).")
- After the Player 2 CPU board is replaced, be sure to connect the jumperr harness to the CPU board. If this harness is not connected, the Gun Assy detection system may confuse with the Player 1 CPU board and a malfunction may result.

8-3-6 Gun Assy

(1) Replacing the Gun Assy - To be conducted only by a technician -

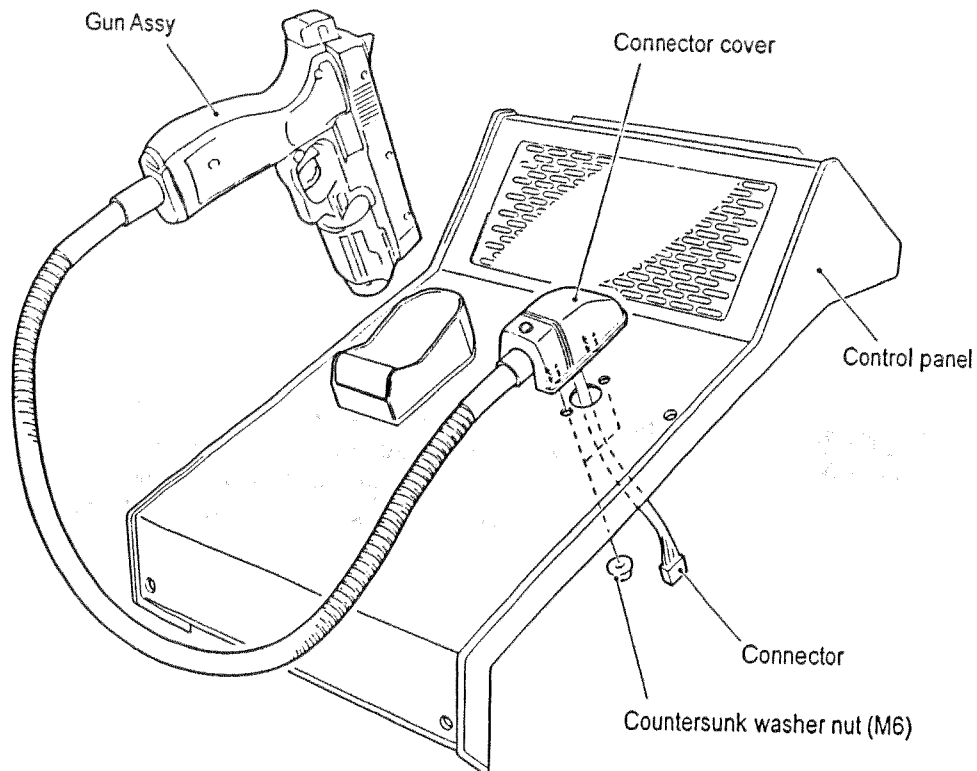
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, always carefully confirm the direction when connecting the connectors.

- 1** Turn off the power switch. (See P. 39 7-3-1 "Turning the power on.")
- 2** Make sure that the power is turned off. Remove the control panel. (See P. 75 "8-3-5 (1) Removing and reinstalling the control panel.")
- 3** Remove the two countersunk washer nuts (M6) that secure the Gun Assy from the rear of the control panel.
- 4** Pull up and remove the connector cover and remove the Gun Assy.



- 5** To reinstall, simply reverse this procedure.

NOTICE

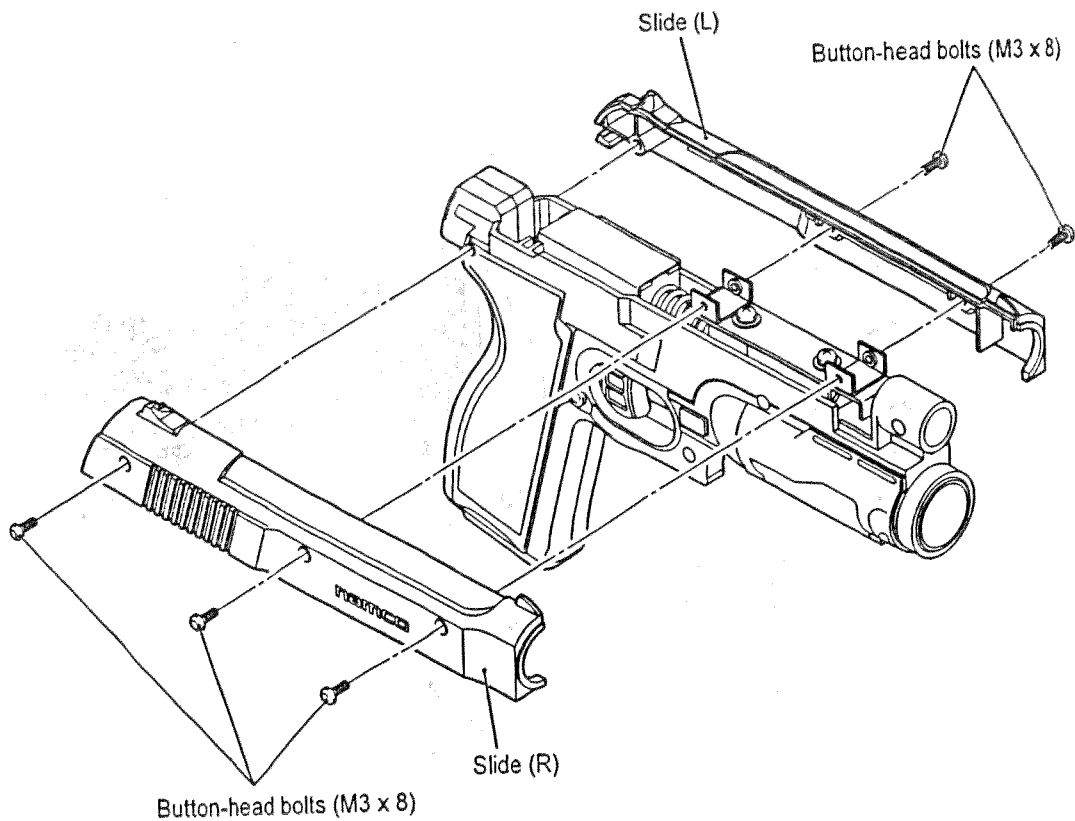
- After the Gun Assy is replaced, be sure to check the operation. (See P. 45 "7-4-4 Input/Output test of switches.")

(2) Disassembling the slides - To be conducted only by a technician -

! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the five button-head bolts (M3 x 8), and then remove the slides (L and R).



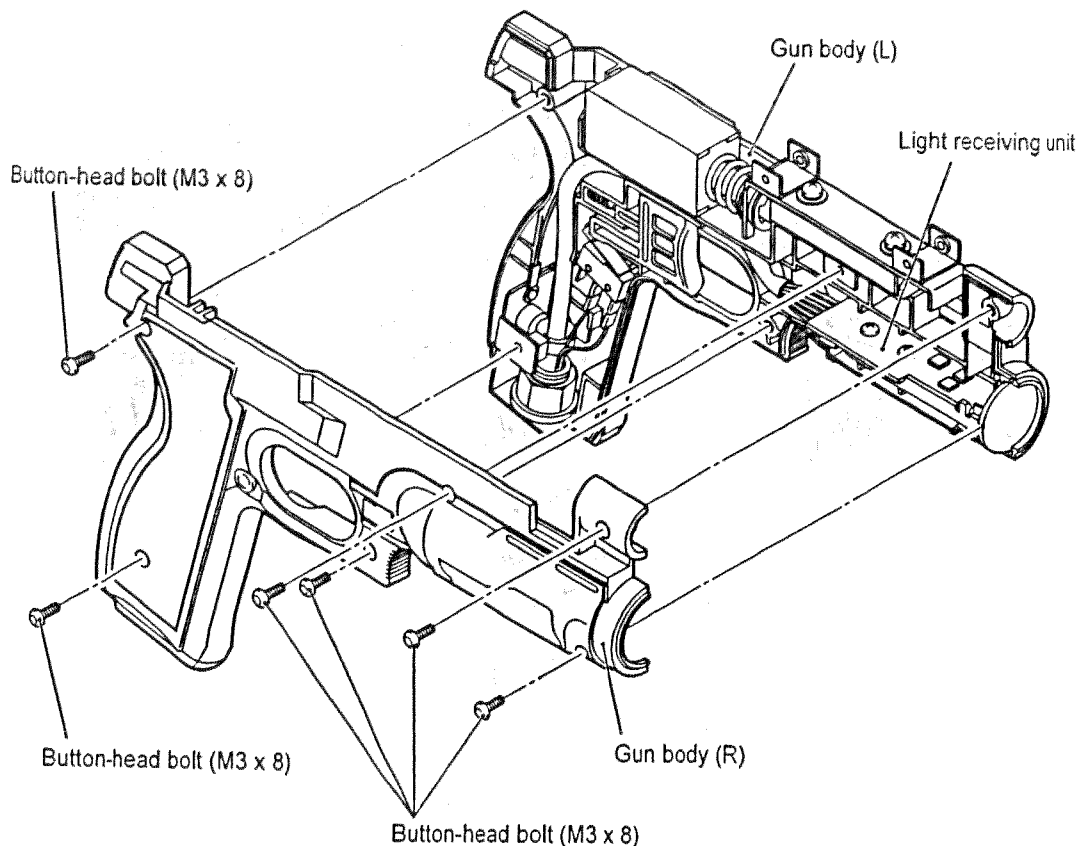
- 3** To reinstall, simply reverse this procedure.

(3) Disassembling the gun body - To be conducted only by a technician -

! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the slides (L and R). (See P. 81 "8-3-6 (2) Disassembling the slides.")
- 3** Lay the gun body with the left side (L) facing down. Remove the six button-head bolts (M3 x 6) and then remove the gun body (R).



- 4** To reinstall, simply reverse this procedure.

(4) Replacing the light receiving unit - To be conducted only by a technician -

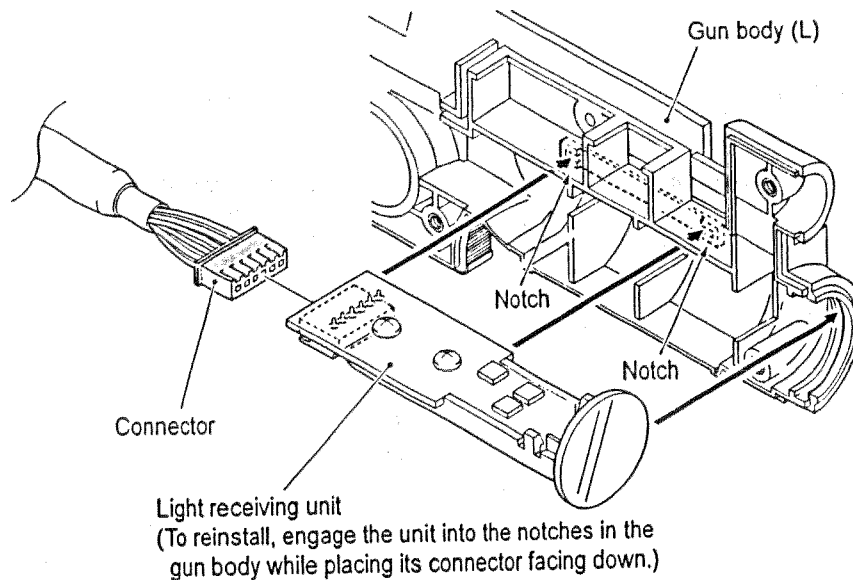
⚠ WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- Be sure to turn off the power before performing the following task. If the connector of the light receiving unit is disconnected or reconnected with the power on, damage occurs in the light receiving unit.
- The light receiving unit is sensitive to static electricity. If the light receiving unit is handled by a person charged with static electricity, parts in the light receiving unit can be damaged.
Before touching the light receiving unit, be sure to touch a grounded metal surface to remove static electricity from your body.
- Do not disassemble the light receiving unit. Do not touch the knob on the light receiving unit. An attempt to disassemble the unit or move the knob can disallow the unit from operating correctly.
- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Open the gun body. (See P. 82 "8-3-6 (3) Disassembling the gun body.")
- 3** Remove the light receiving unit from the notches in the gun body and disconnect the one connector to dismount the light receiving unit.



- 4** To reassemble, simply reverse this procedure.

NOTICE

- After replacing the light receiving unit, be sure to check the operation. (See P. 54 "7-4-9 Setting the Gun Assy sight (GUN INITIALIZE).")

(5) Replacing the solenoid unit - To be conducted only by a technician -

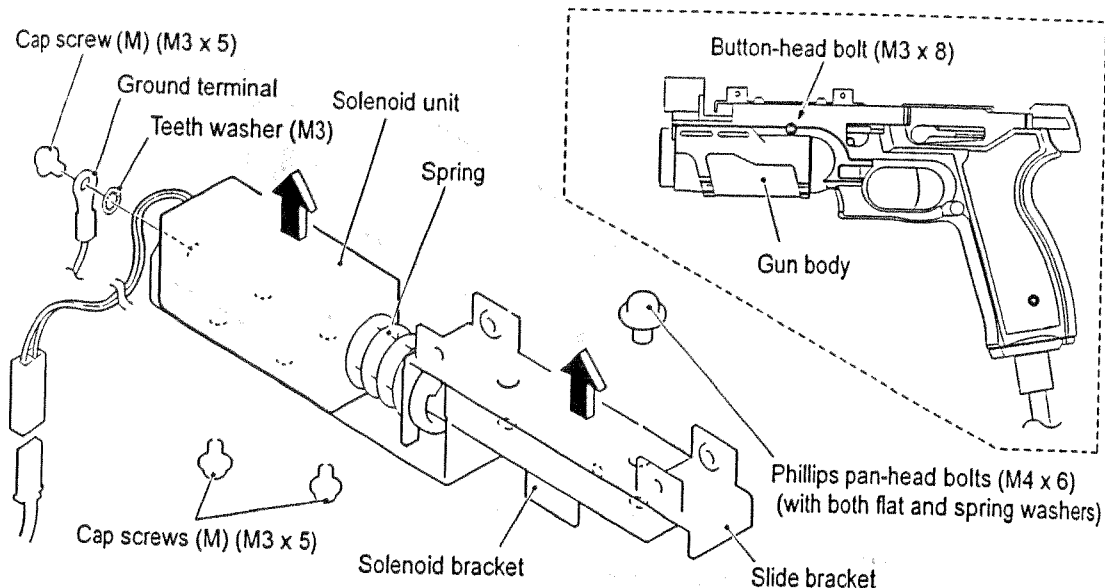
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

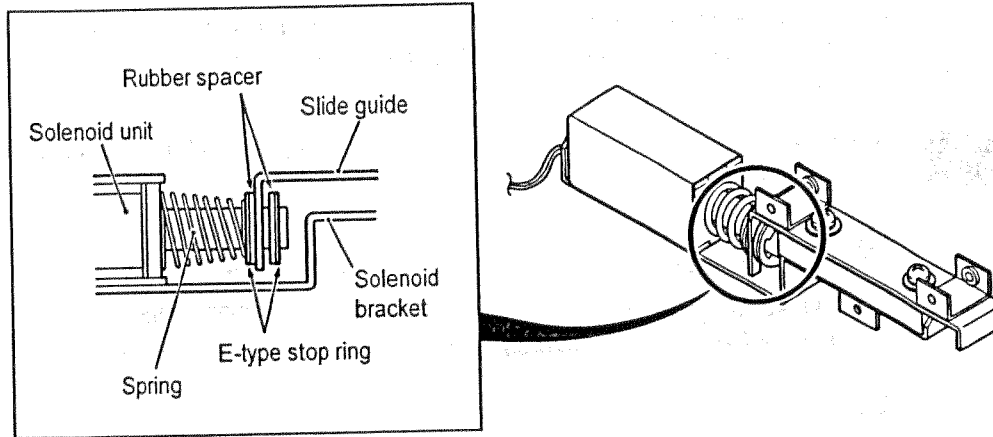
NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 turning the power on.")
- 2** Make sure that the power is turned off. Remove the slide and gun body. (See P. 81 "8-3-6 (2) Disassembling the slides" and P. 81 "8-3-6 (3) Disassembling the gun body.")
- 3** Disconnect the one solenoid connector.
- 4** Remove the one button-head bolt (M3 x 8) from the gun body (L) and remove the solenoid bracket.
- 5** Remove the one cap screw (M) (M3 x 5). Then remove the one ground terminal and the one teeth washer (M3).
- 6** Remove the two Phillips pan-head bolts (M4 x 6) (with both flat and spring washers). Then remove the slide bracket.
- 7** Remove the four cap screws (M) (M3 x 5) and then remove the solenoid unit.
- 8** Remove the rubber spacer from the solenoid unit. Pay attention not to lose the spring while removing the rubber spacer.



- 9** To reassemble, simply reverse this procedure. Pay attention to the installing order of the E-type stop ring and rubber spacer and the direction of the spring.



- After replacing the solenoid unit, be sure to check the operation. (See P. 48 "7-4-4 (f) SOLENOID TEST.")

(6) Replacing the microswitch - To be conducted only by a technician -

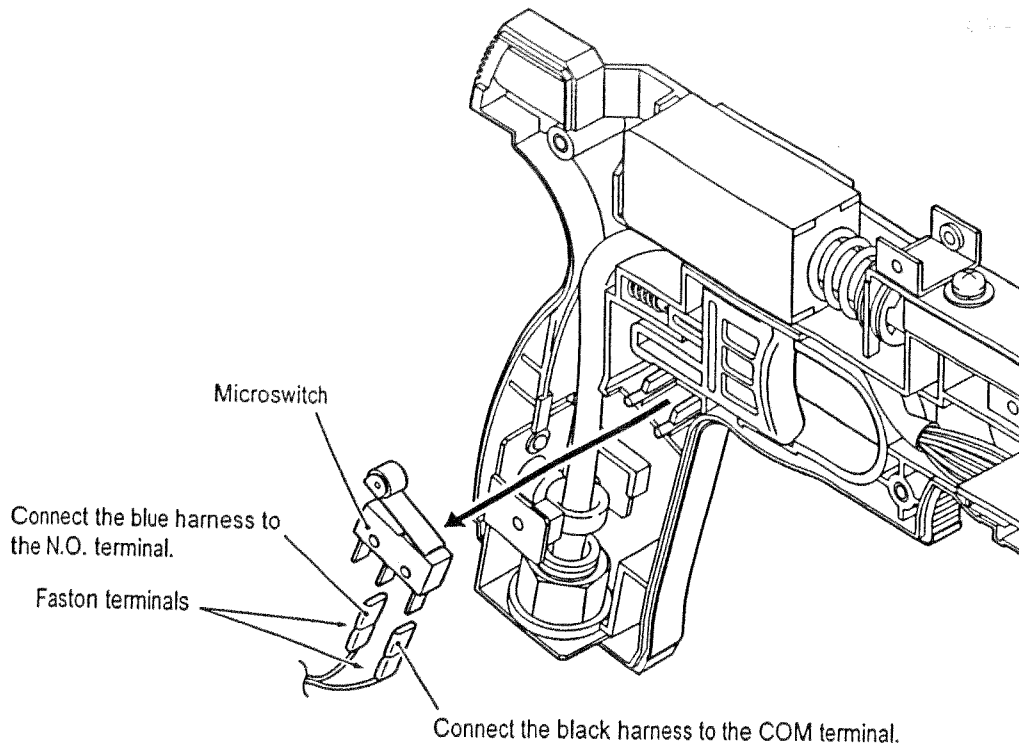
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the slide and the gun body (R). (See P. 81 "8-3-6 (2) Disassembling the slides" and P. 82 "8-3-6 (3) Disassembling the gun body.")
- 3** Disconnect the two Faston terminals and replace the microswitch with a new one.



- 4** To reassemble, simply reverse this procedure.

NOTICE

- After replacing the microswitch, be sure to check the operation. (See P. 47 "7-4-4 (e) SWITCH TEST.")

(7) Replacing the Gun Harness Assy - To be conducted only by a technician -

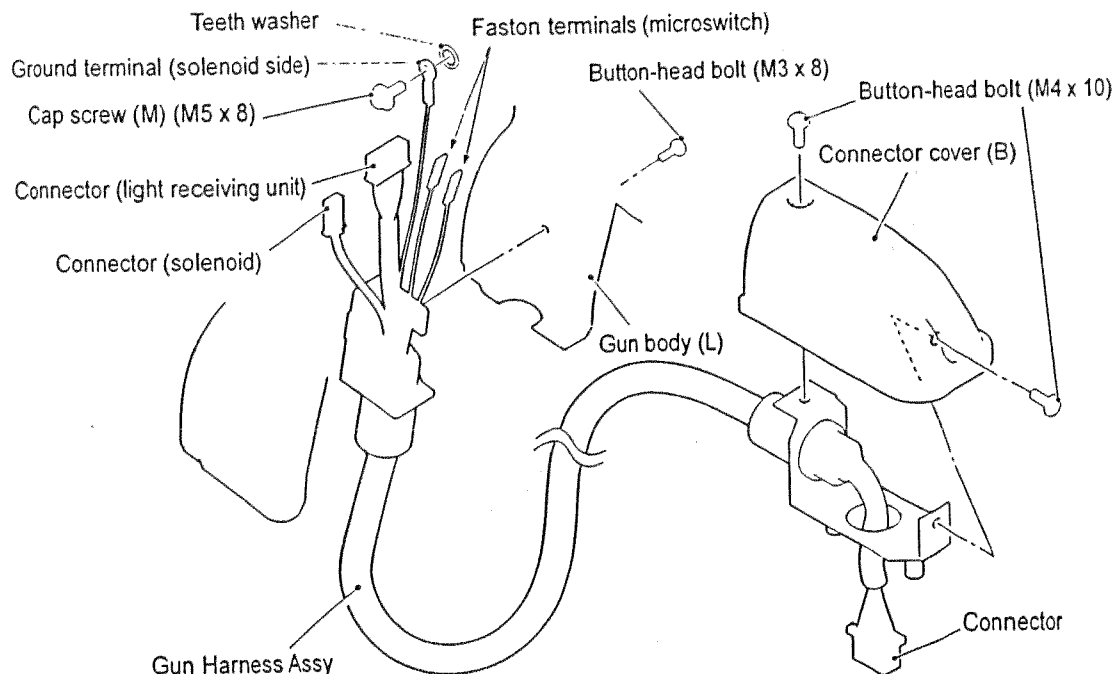
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Remove the Gun Assy. (See P. 80 "8-3-6 (1) Replacing the Gun Assy.")
- 3** Remove the two button-head bolts (M4 x 10), and detach the connector cover B.
- 4** Remove the slide and the gun body. (See P. 81 "8-3-6 (2) Disassembling the slides" and P. 82 "8-3-6 (3) Disassembling the gun body.")
- 5** Remove the one cap screw (M) (M3 x 5). Then remove the ground terminal and the teeth washer (M3).
- 6** Disconnect the two connectors and unplug the two Faston terminals from the micro-switch. (See P. 86 "8-3-6 (6) Replacing the microswitch.")
- 7** Remove the one button-head bolt (M3 x 8) that attaches the Gun Harness Assy to the gun body (L), and replace the Gun Harness Assy.



- 8** To reassemble, simply reverse this procedure.

NOTICE

- After replacing the Gun harness Assy, be sure to check the operation. (See P. 45 "7-4-4 Input/output test of switches (I/O TEST).")

8-3-8 Pedal Assy

(1) Replacing the photosensor - To be conducted only by a technician -

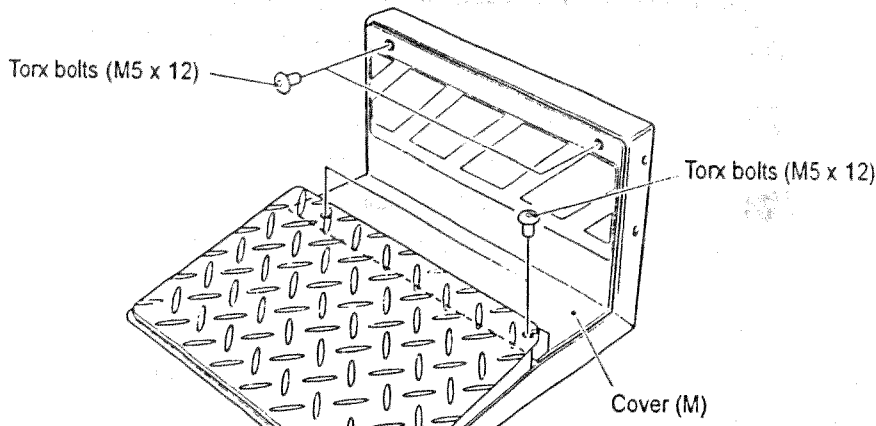
⚠ WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

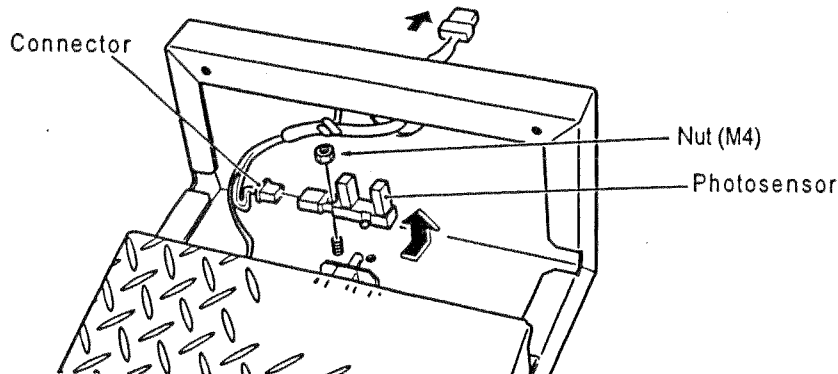
NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.
- Pay attention to prevent grease or dust adhering to the photosensor.

- 1 Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2 Make sure that the power is turned off. Then remove the Pedal Assy from the Coin Tower Assy. (See P. 59 "8-1-2 (1) Greasing the Pedal Assy plunger.")
- 3 Remove the four Torx bolts (M5 x 12), and detach the cover (M).



- 4 Remove the one nut (M4) and disconnect the one connector, and dismount the photosensor.
- 5 Replace the photosensor with a new one.



- 6 To reassemble, simply reverse this procedure.

NOTICE

- After replacing the photosensor, be sure to check the operation. (See P. 47 "7-4-4 (e) SWITCH TEST.")

(2) Replacing the plunger - To be conducted only by a technician -

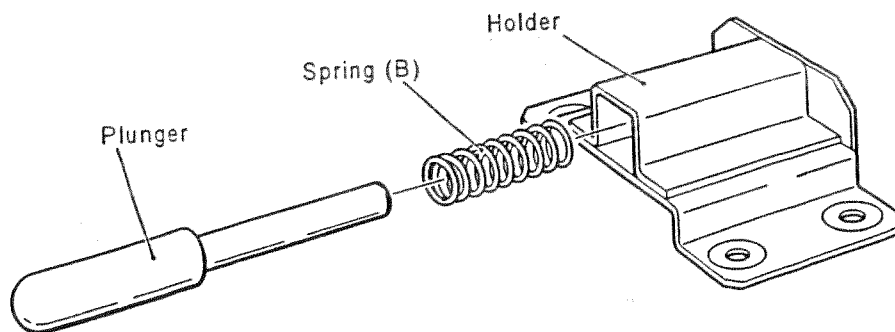
! WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.

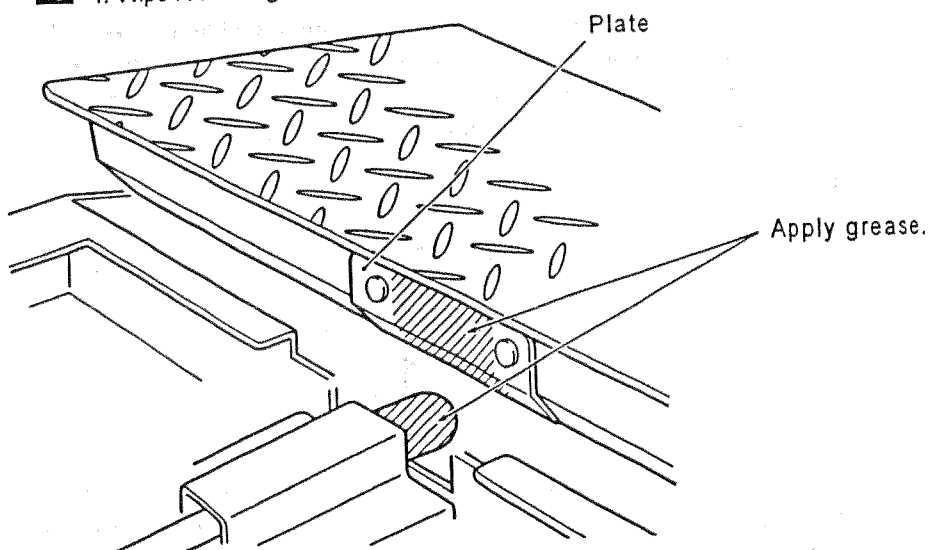
NOTICE

- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on..")
- 2** Make sure that the power is turned off. Then remove the holder. (See P. 59 "8-1-2 (1) Greasing the Pedal Assy plunger.")
- 3** Pull out the plunger from the holder, and replace the plunger with a new one. When installing a new plunger, apply grease to the entire contact area between the plunger holder and the plate.
 - Designated grease: Alvania grease No. 2 (Showa Shell)



- 4** Wipe residual grease off the plate surface on the pedal, and apply new grease.



- 5** To reassemble, simply reverse this procedure.

NOTICE

- After replacing the plunger, be sure to check the operation. (See P. 47 "7-4-4 (e) SWITCH TEST.")

8-4 Replacing and adjusting the monitor

8-4-1 Replacing the monitor - To be conducted a technician only -

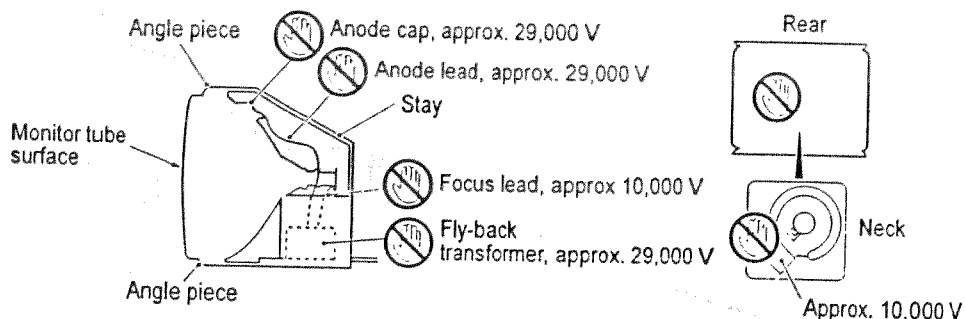


This symbol indicates that the part must not be touched.

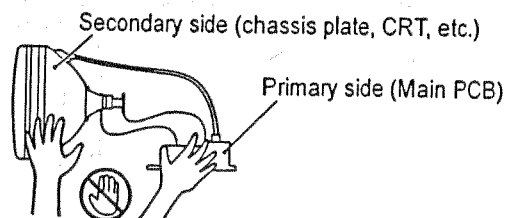


WARNING

- To protect the service staff and other people from an electric shock, accident and injury, and to prevent damage to the electrical circuitry of the machine, always turn off the power switch before initiating the described task.
- Some internal parts of the monitor are charged with a voltage of 20,000 V or higher. To prevent an electric shock, do not touch any internal parts of the monitor.
- The anode cap, anode lead, and fly-back transformer retain high voltage even after the power switch is turned off. Never touch these parts to avoid an electric shock.
- When replacing the monitor, do not touch any parts other than the stay, frame and monitor tube surface.



- The monitor circuitry consists of the primary side and secondary side, and they are electrically insulated from each other. Do not touch the primary side, or touch (short-circuit) the primary side and secondary side simultaneously. Touching these parts can result in an electric shock or machine malfunction.

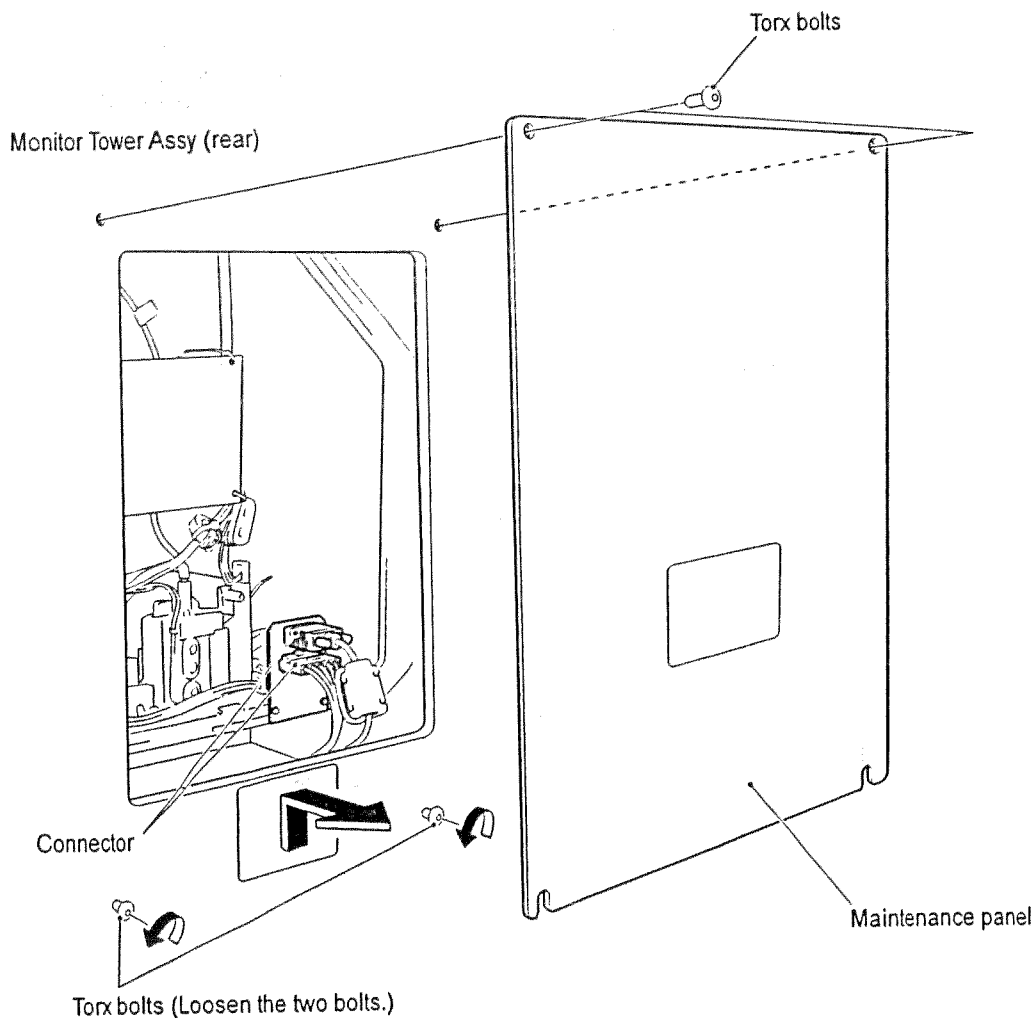


- If solder chips, paper or other foreign objects enter the monitor, turn off the power switch to prevent a fire and machine malfunction, then contact your distributor.
- If the monitor generates an abnormality, turn off the power switch immediately and contact your distributor.
- The monitor weighs approximately 42 kg. It must be handled by at least two per-



- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully and then connect it.

- 1** Turn off the power switch. (See P. 39 "7-3-1 Turning the power on.")
- 2** Make sure that the power is turned off. Then separate the machine into the Monitor Tower Assy and Control Tower Assy. (See P. 23 "5-3-3 Connecting the Joint Assy to the Monitor Tower Assy.")
- 3** Remove the two Torx bolts on the rear upper side of the Monitor Tower Assy and loosen the two Torx bolts at the rear bottom side of the Monitor Tower Assy and then dismount the maintenance panel.

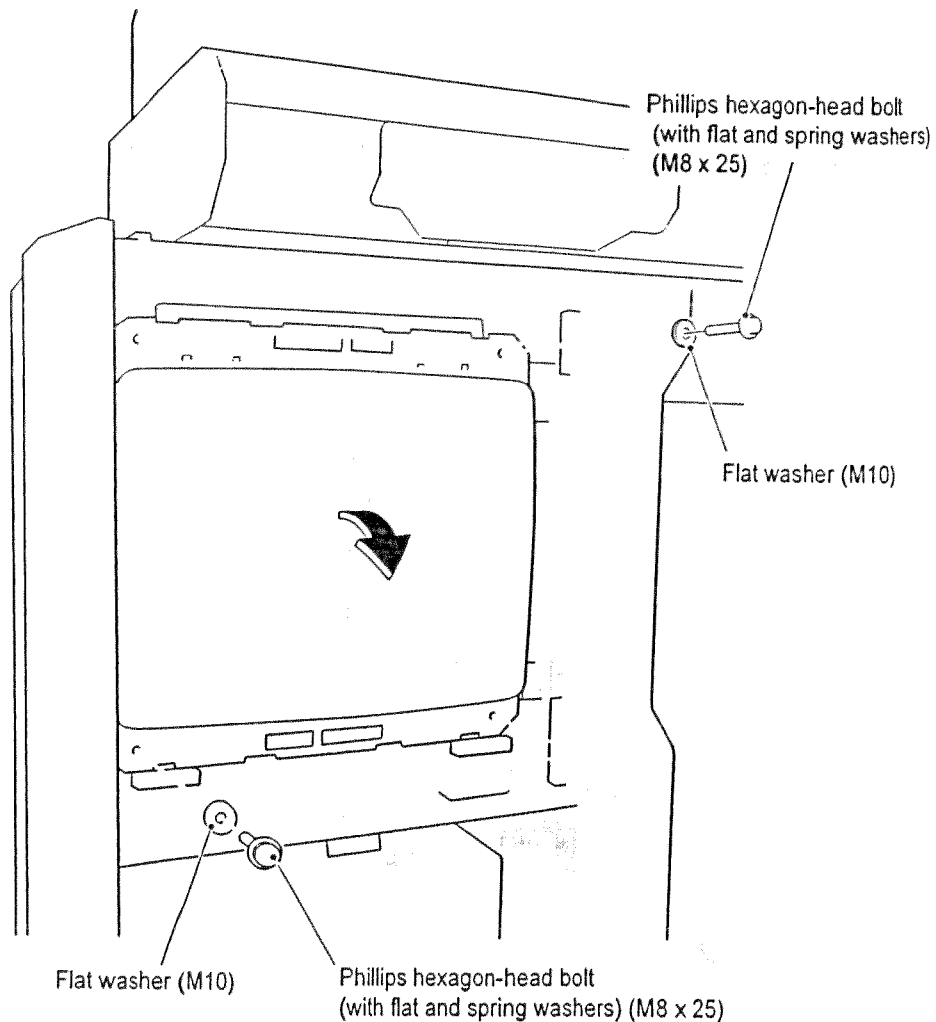


- 4** Disconnect the two connectors from the monitor.
- 5** Remove the monitor mask. (See P. 66 "8-3-1 (1) Removing and reinstalling the monitor mask.")

WARNING

- The monitor weighs approximately 42 kg. It must be handled by at least two persons and the work should be performed slowly in order to prevent accidents.

- 6** Remove the four Phillips hexagon-head bolts (with flat and spring washers) (M8 x 25) and the four flat washers (M10).
- 7** Slowly tilt the monitor forward first, then dismount it.



- 8** To reinstall, simply reverse this procedure.

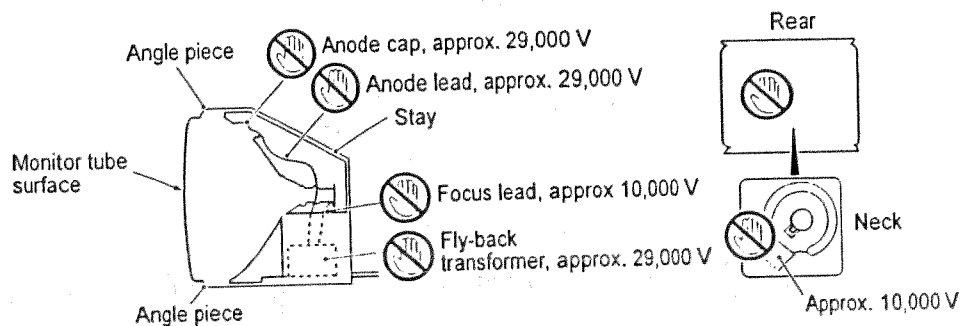
8-4-2 Adjusting the monitor - To be conducted by a technician only -



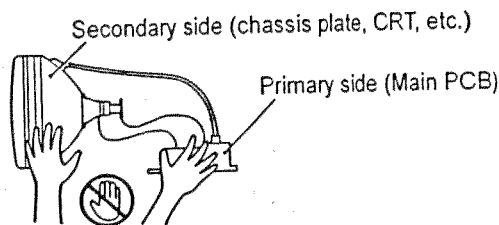
This symbol indicates that the part must not be touched.

⚠ WARNING

- The monitor must be adjusted with the power switch on. To prevent an electric shock, accident and injury, do not touch any section other than those specified in the adjustment procedures.
- Some internal parts of the monitor are charged with a voltage of 20,000 V or higher. To prevent an electric shock, do not touch any internal parts of the monitor.



- The monitor circuitry consists of the primary side and secondary side, and they are electrically insulated from each other. Do not touch the primary side, or touch (short-circuit) the primary side and secondary side simultaneously. Touching these parts can result in an electric shock or machine malfunction.



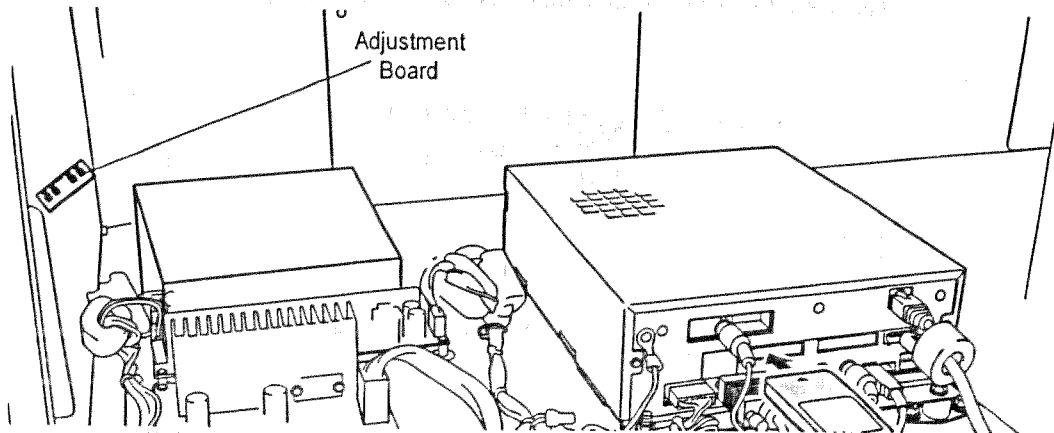
- If solder chips, paper or other foreign objects enter the monitor, turn off the power switch to prevent a fire and machine malfunction, then contact our distributor.
- If the monitor generates an abnormality, turn off the power switch immediately and contact our distributor.

- * The monitor has been optimally adjusted before shipment. Normally, it does not need to be readjusted.

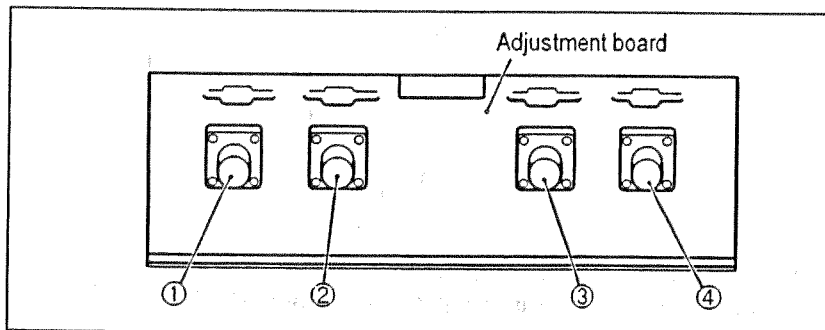


- To prevent damage to the electronic circuits, confirm each connector's shape and coupling direction carefully before connecting it.

- 1** Remove the access panel below the monitor and you will find the monitor adjustment board secured to the inside wall of the cabinet.

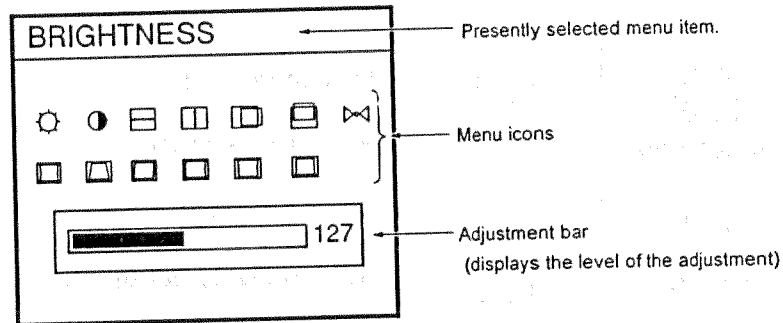


- 2** The following shows the monitor adjustment board.



- | | |
|-------------------|---|
| ① UP switch | Used to move and adjust the selected item on the Menu screen. |
| ② DOWN switch | Used to move and adjust the selected item on the Menu screen. |
| ③ FUNCTION switch | Used to enter the desired item on the Menu screen. |
| ④ DEGAUSS switch | Used to clear the selection on the Menu screen. |

- 3** When FUNCTION is pressed, the Menu will appear on the screen.
- 4** If the vertical position is to be adjusted, shift the menu icon to the "V POSITION" by pressing UP or DOWN switch, and then press the FUNCTION switch.



Adjustment menu screen

- 5** The selected icon will blink. Adjust the screen to the desired level by pressing the UP and DOWN switches.
- 6** To end the adjustment, press the DEGAUS switch. The screen will return to the icon selection screen.
- 7** If an other item is to be adjusted, repeat **3** to **6** steps.
- When the DEGAUS switch is pressed again on the icon selection screen, the onscreen display will go off and the modification will be saved in the machine.

(a) Adjustment functions

 BRIGHTNESS		Too dark -> UP
		Too bright -> DOWN
 CONTRAST		Too weak -> UP
		Too strong -> DOWN
 H SIZE		Too narrow -> UP
		Too wide -> DOWN
 V SIZE		Too short -> UP
		Too high -> DOWN
 H POSITION		Shifted to the left -> UP
		Shifted to the right -> DOWN

 V POSITION		Shifted to the bottom -> UP
		Shifted to the top -> DOWN
 RESET	Reset to the factory default setting. NOTE: Selecting this reset menu erases adjusted data completely and reset all settings back to factory default.	
 PINCUSHION		Bobbin state -> UP
		Barrel state -> DOWN
 TRAPEZOID		Bottom widened trapezoidal -> UP
		Top widened trapezoidal -> DOWN
 PARALLELOGRAM		Inclined to the left -> UP
		Inclined to the right -> DOWN
 PINBALANCE		Bow-shaped toward the left side -> UP
		Bow-shaped toward the right side -> DOWN
 TOP CORNER		Bobbin-shaped on top -> UP
		Barrel-shaped at bottom -> DOWN
 BOTTOM CORNER		Bobbin-shaped on top -> UP
		Barrel-shaped at bottom -> DOWN

(b) Preparing for adjustment

- The display position and the picture size on the screen vary depending on the direction of the installed machine. Therefore, make all adjustments with the machine set up in a final installation location. If the machine is moved for the purpose of adjustment, make sure that the machine is facing the same direction as in the final installation position.
- If the machine is frequently moved or if it is adjusted at a place other than the final installation location, make adjustments with the monitor facing east.

- 8** Turn on the power switch and wait for 30 minutes or more before conducting adjustment.

(c) Adjusting the monitor display

- 9** Display the MONITOR TEST screen in the Test mode. (See P. 50 "7-4-5 Monitor test (MONITOR TEST).")

- 10** There are two types of adjustments: display size adjustment and contrast adjustment.

< Display size adjustment >

- 11** To adjust the display size, follow the procedure described below.

1. Use the MONITOR TEST screen to display "VIEW ANGLE ADJUST (CRT)" (Fig. 3 Display size/display position adjustment diagram). (See P. 50 "7-4-5 Monitor Test (MONITOR TEST).")
2. Adjust the center of the display position.
Adjust "H POSITION (horizontal position adjustment)" and "V POSITION (vertical position adjustment)" alternately.
3. Adjust the horizontal picture size and position.
 - ✕ Adjust "H SIZE (horizontal size adjustment)" so that the right and left screen edges at the center are aligned with the borderline of the green and white sections of the pattern.
 - ✕ Adjust "H SIZE" and "H POSITION" alternately until the deviations on the right and left edges are within 5 mm.
4. Adjust the vertical picture size and position.
 - ✕ Adjust "V SIZE (vertical size adjustment)" so that the top and bottom screen edges at the center are aligned with the borderline of the green and white sections of the pattern.
 - ✕ Adjust "V SIZE" and "V POSITION" alternately until the deviations on the top and bottom edges are within 5 mm.

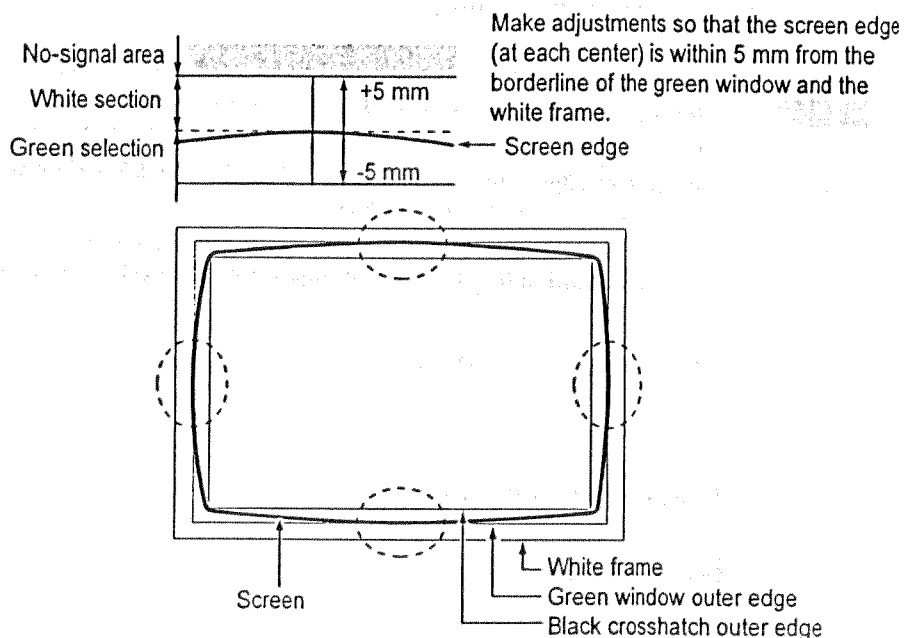


Fig. 3 Display size/display position adjustment diagram

< Contrast adjustment >

12 To adjust the contrast, follow the procedure described below.

1. On the MONITOR TEST screen, select "GRADATION PATTERN."
2. Adjust "CONTRAST" and "BRIGHTNESS" so that the darkest section is black and each color including the darkest section is expressed in 16 gradation steps.

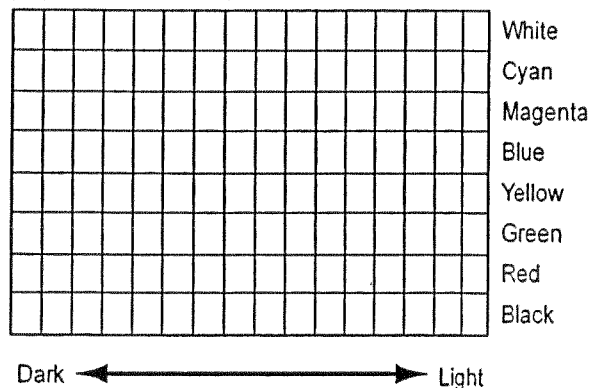


Fig. 4. 16-step gradation pattern

13 Set the Test switch to OFF. The display will return to the game screen.

14 After adjustments are completed, reinstall the monitor mask.

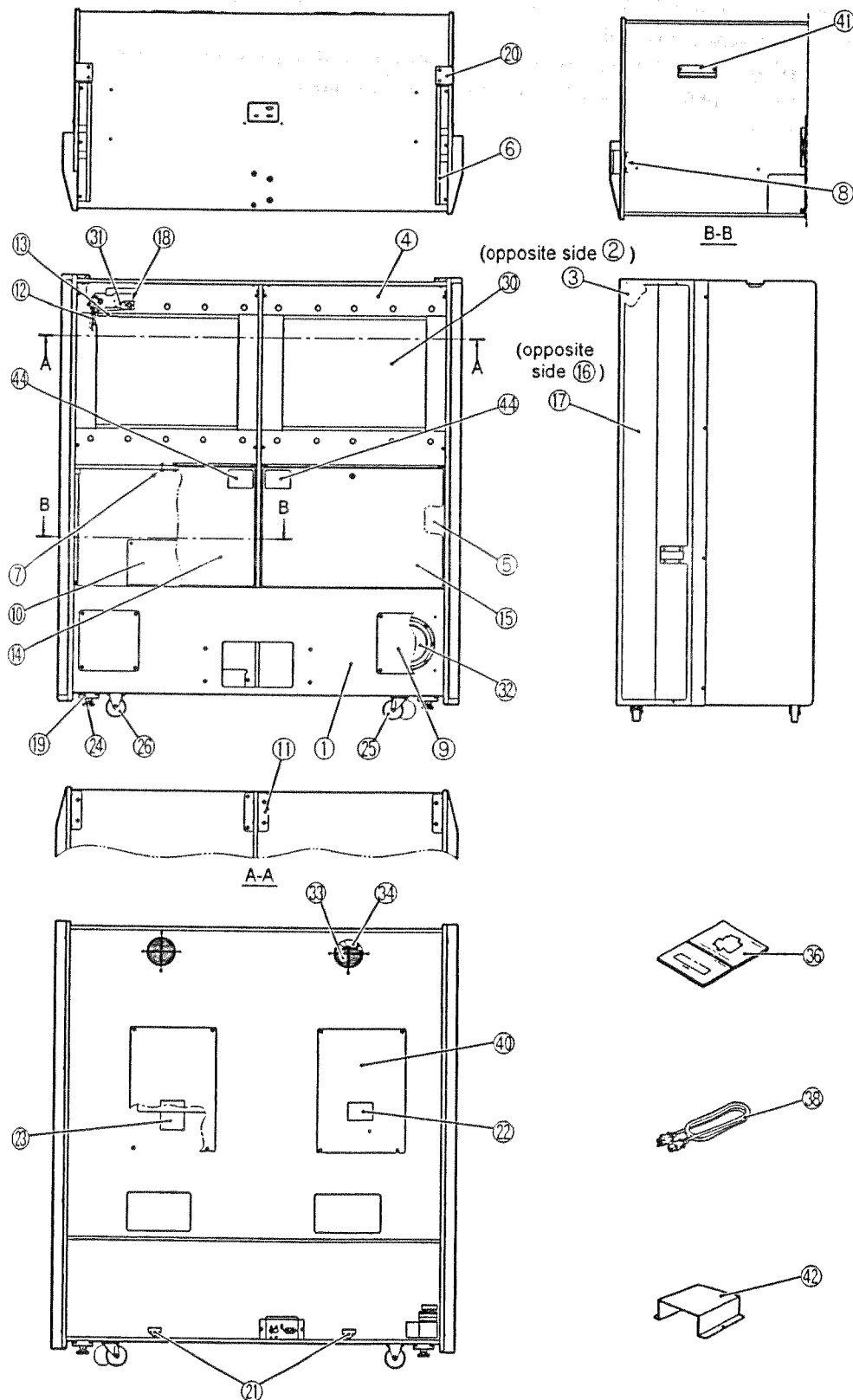
9. DISCARDING THE MACHINE

WARNING

- The machine must be collected, transported and discarded in accordance with the local laws and regulations.
- When entrusting a third party to collect, transport and discard the machine, be sure to use specialist companies to perform those tasks.

10. PARTS LIST

10-1 Monitor Tower Assy

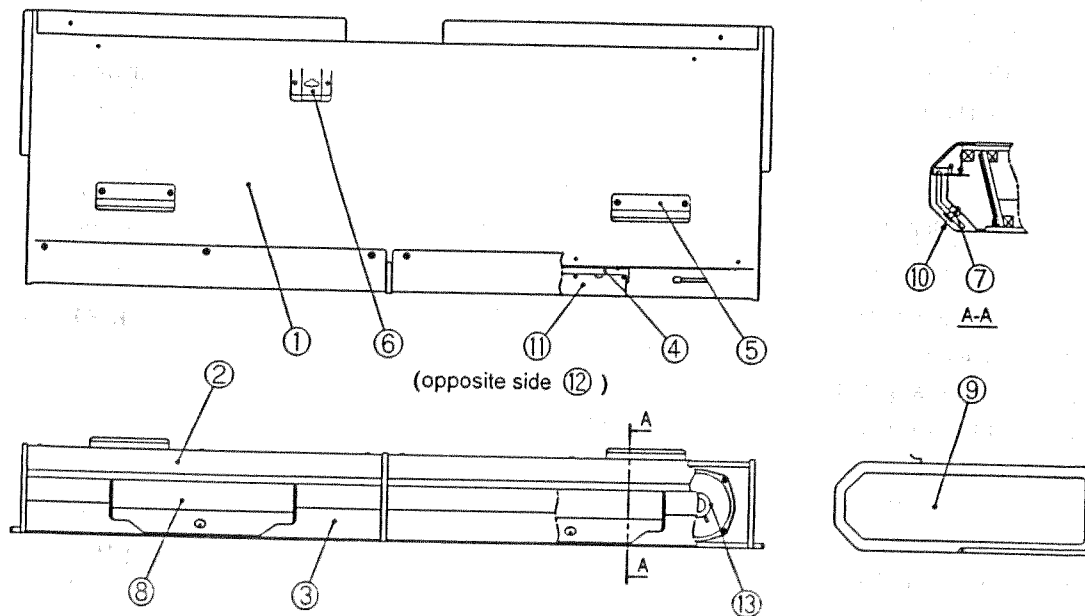


10. PARTS LIST

No.	Name	Qty	Type and rating	Parts No.
1	Cabinet	1		(K160-600-000)
2	SD side pillar L	1		(K106-027-000)
3	SD side pillar R	1		(K106-027-000)
4	Monitor mask	2		(K106-028-0PA)
5	Front panel	2		(K106-164-0PA)
6	Signboard rail	2		(K106-139-0PA)
7				
8	Pillar stopper	2		(K160-166-000)
9	Woofer cover	2		(K160-140-000)
10	Hole cover (Vent Hole)	2		(K160-167-000)
11	L-angle	4		(K160-141-000)
12	EPT sealer (vertical)	4		
13	EPT sealer (horizontal)	4		
14	SD front sticker L	1		TF40-11607-00
15	SD front sticker R	1		TF40-11607-01
16	SD pillar sticker L	1		TF40-11609-00
17	SD pillar sticker R	1		TF40-11609-01
18	Filter	20		TF95-11594-00
19				
20				
21	Fork sticker	2		VG40-06882-00
22	Warning sticker (high voltage)	2		VG40-10599-00
23	Warning sticker (Inside)	2		VG44-02642-00
24	Leg Leveler	4	1/2-13 3~l	(0066-003-000)
25	Caster	4	160-2 1/2	(0066-007-000)
26				
27				
28	Door lock	2		(0069-001-601)
29				
30	Monitor	2	29PFX-46	VG85-11587-00
31	LED board	20		TI05-11582-00
32	Woofer	2	FAD205GA2713	VG54-11590-00
33	Finger guard	2	FG-12 (B-5)	
34	Fan motor	2		(0053-225-000)
35				
36	Time crisis 4 SD Operation Manual	1	This document	TF44-11621-00
37	Coin insertion seal A	1	1PLAY	
38	Power cable	1		(A053-016-100)
39				
40	Maintenance panel	2		
41	Signboard bracket	2		(K160-101-000)
42	SD harness cover	1		

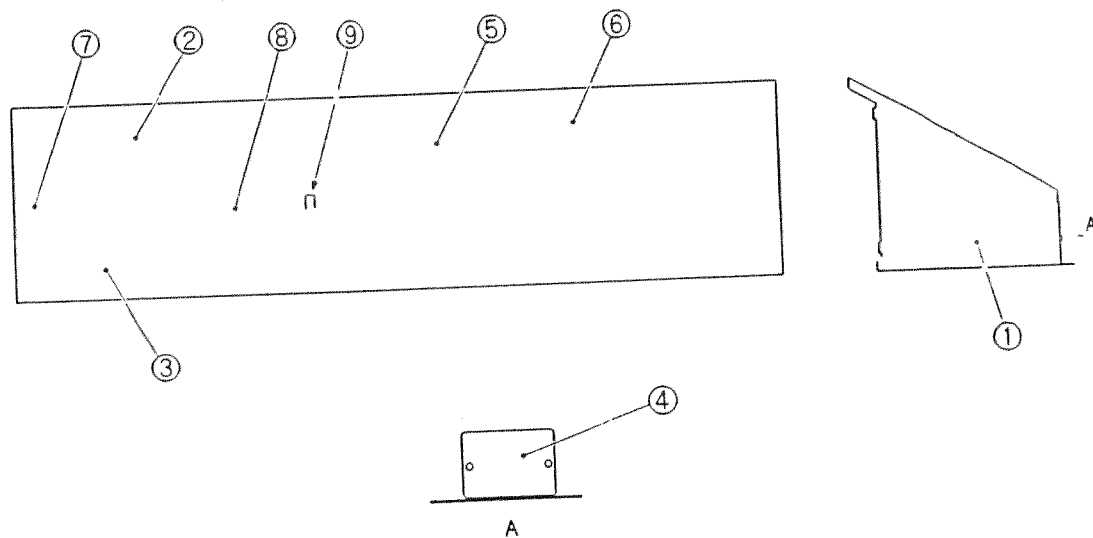
*1: Parts No. 30 is repairable.

10-2 Speaker Box Assy



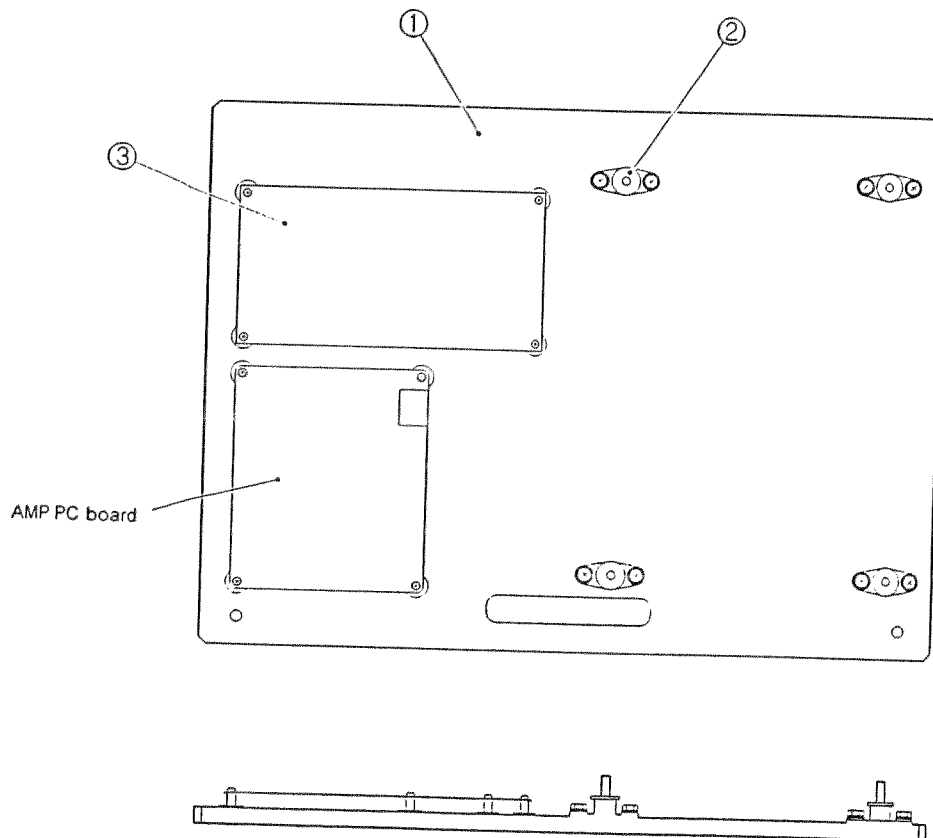
No.	Name	Qty	Type and rating	Parts No.
1	Speaker box	1		(K160-102-000)
2	SD top braid	2		(K160-126-000)
3	SD speaker cover	2		(K160-109-000)
4	LED bracket	2		(K160-100-000)
5	Signboard bracket	2		(K160-100-000)
6				
7	Front panel pin	2		(K160-300-0PL)
8	Speaker front panel	2		TF40-11603-00
9	Speaker side decal	2		TF40-11627-00
10	Panel washer	2		(K160-300-0PL)
11	SIDELED (B) PC board	1	Blue	T105-11584-01
12	SIDELED PC board	1	Red	T105-11584-00
13	Speaker	2	F00213D0	VG54-11591-00

10-3 Signboard Box Assy



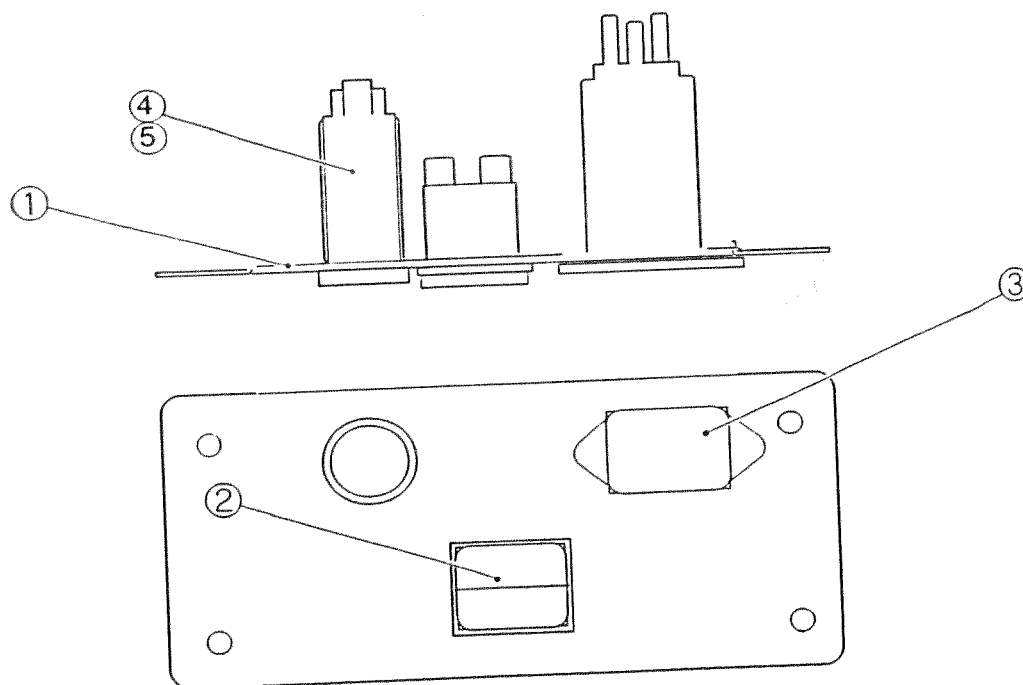
No.	Name	Qty	Type and rating	Parts No.
1	Signboard base	1		(K160-015-0PA)
2	Reflection plate U	1		(K160-016-000)
3	Reflection plate L	1		(K160-017-000)
4	Base cover	1		(K160-122-0PA)
5	Signboard panel	1		TF40-11602-00
6	Panel washer	6		(K160-301-1PL)
7	Fluorescent Fixture	1		(A056-037-000)
8	Fluorescent lamp	1		(A056-041-000)

10-4 Control Assy



No.	Name	Qty	Type and rating	Parts No.
1	Rack base	1		(K160-604-000)
2	Round vibration-isolation rubber	4		(0040-089-000)
3	Switching regulator	1	+5V & +12V 250W	VG88-07671-01

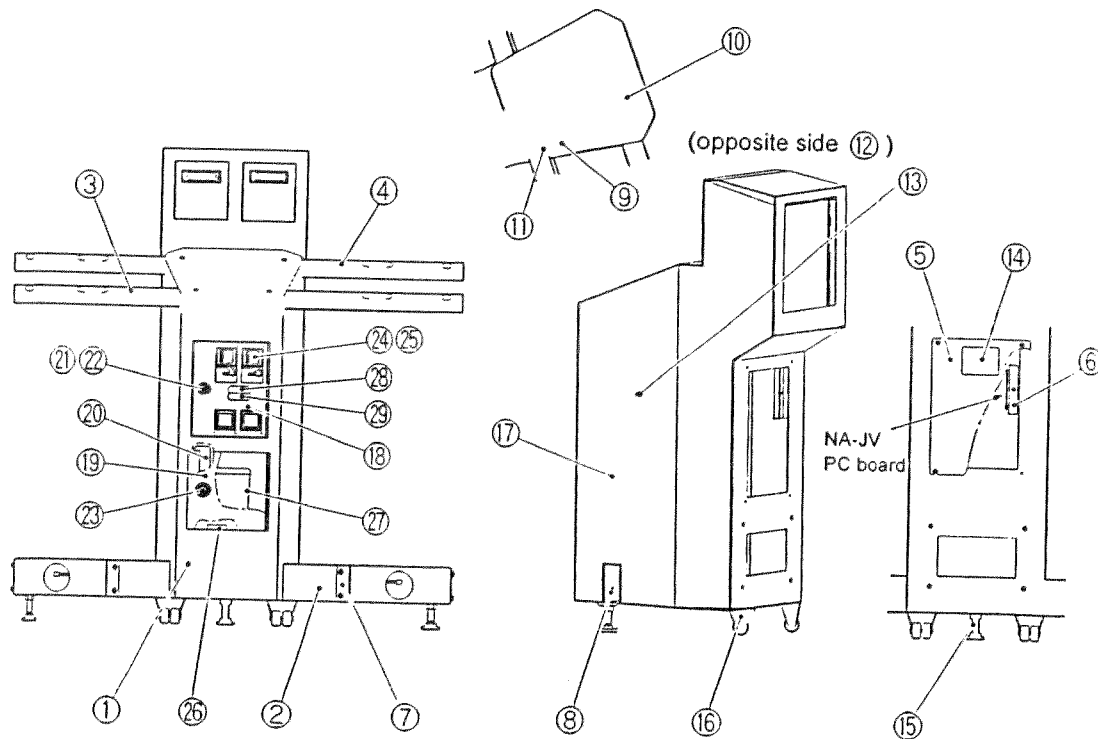
10-5 Cord Box Assy



No.	Name	Qty	Type and rating	Parts No.
1	Cord box	1	AC Plate, Detach Cord	VG10-09494-00
2	On/Off Switch	1	Switch,Rocker 350 series	VG53-04683-00
3	Noise filter	1	Filter, EMI 10Amp	VG78-07695-00
4	Fuse	1	6 Amp Slo-Blow	
5	Fuseholder	1	10A 250V	VG52-09496-00

10-6

Coin Tower Assy

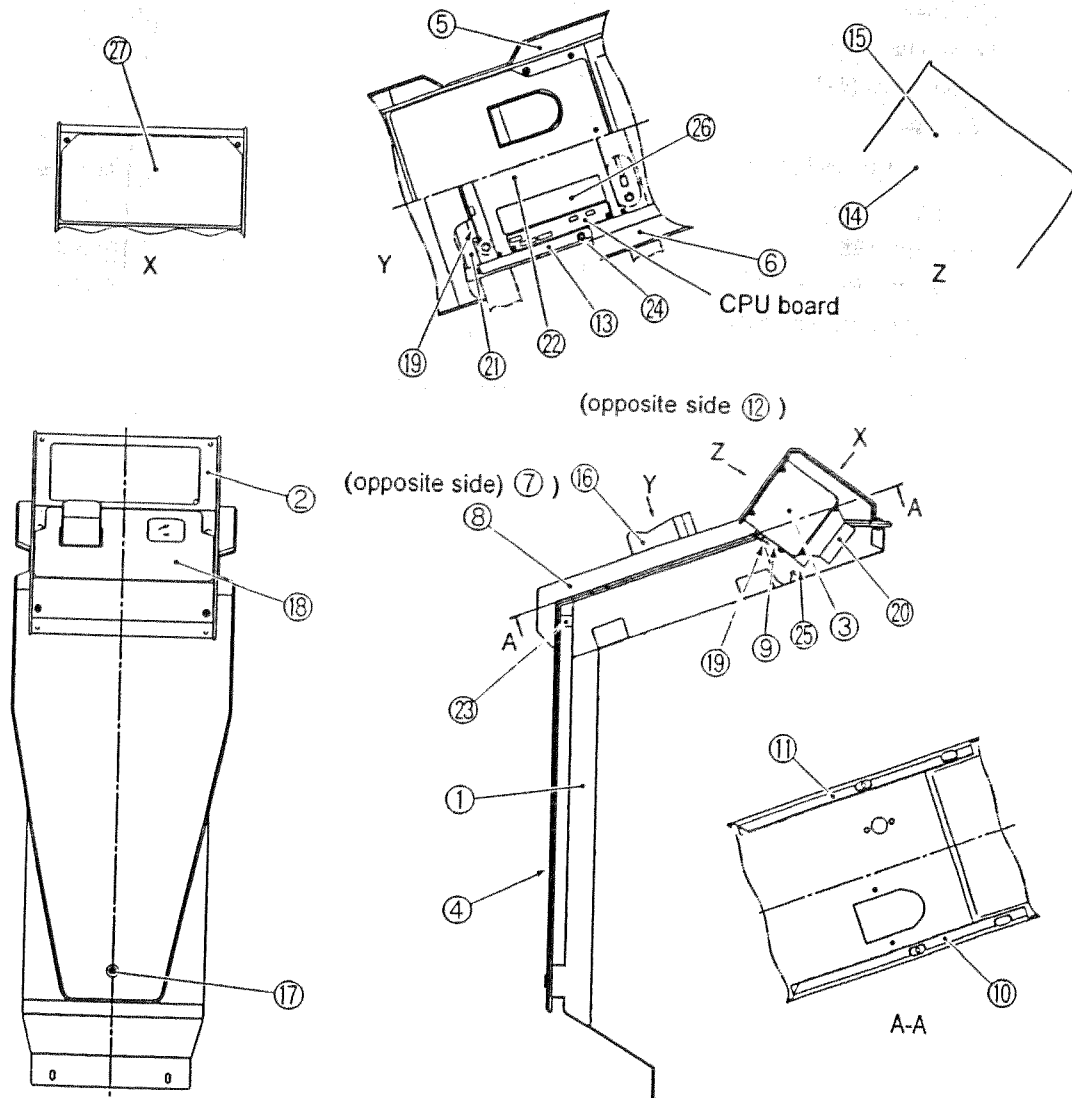


10. PARTS LIST

No.	Name	Qty	Type and rating	Parts No.
1	Coin box	1		(K160-022-0PA)
2	Under pipe	1		(K160-105-0PA)
3	Joint bar (A)	1		(K160-106-0PA)
4	Joint bar (B)	1		(K160-107-0PA)
5	Maintenance door	1		(K160-144-0PA)
6	PCB base	2		(K160-128-0PA)
7	Pedal bracket (A)	2		(K160-127-0PA)
8	Pedal bracket (B)	2		
9	Seal board	1		
10	Instructions (Plastic cover)	1		(K160-508-000)
11	Instruction Decal	1		TF40-11598-00
12	Coin tower side sticker L	1		TF40-11599-00
13	Coin tower side sticker R	1		TF40-11599-01
14	Warning sticker maintenance B	1		VG40-11599-00
15	Leveler Leg	3	1/2-13 3~L	(0066-026-000)
16	Caster (fixed)	2	160-2 Swivel	(0066-007-100)
17	Under box	1		
18	Service door	1		
19	Coin door	1	Over /Under Entropy	VG83-11595-00

10-7

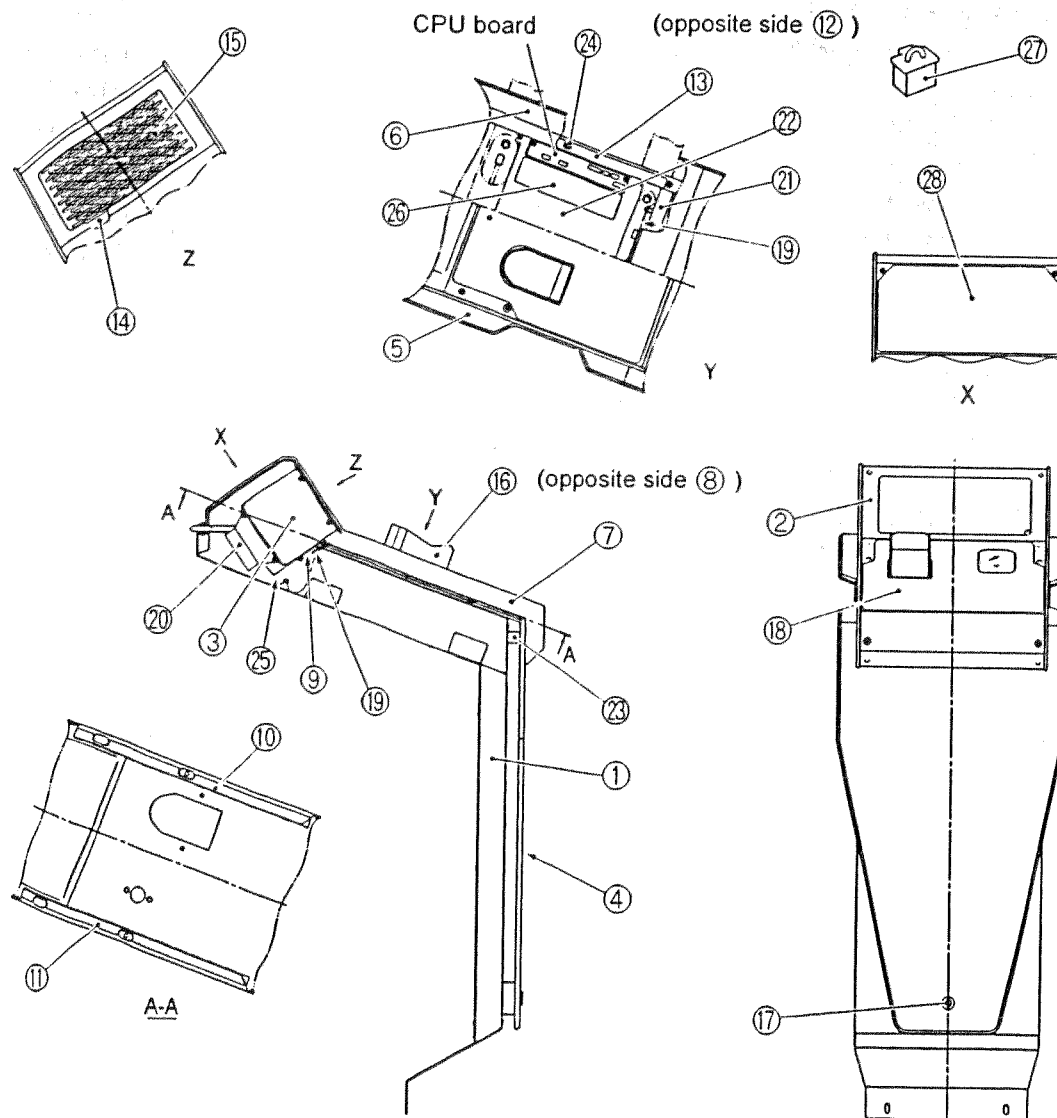
Gun Tower (L) Assy



10. PARTS LIST

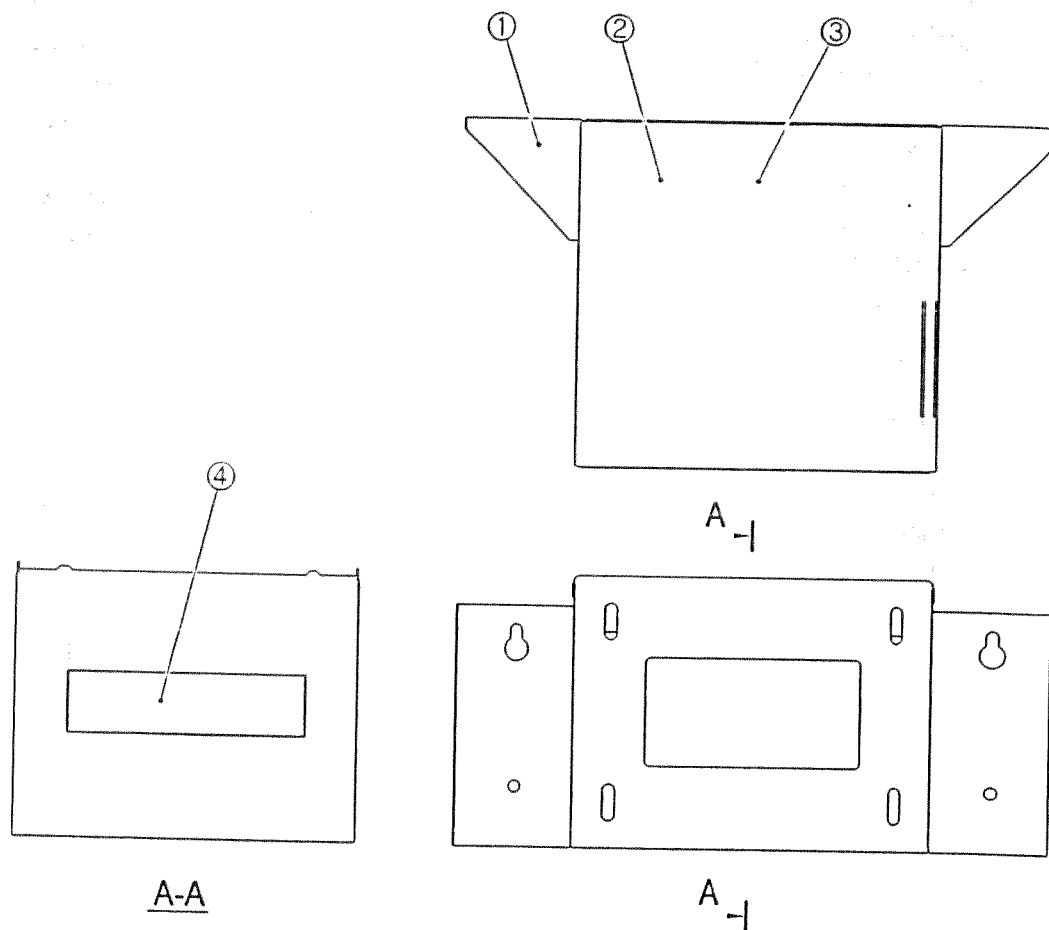
No.	Name	Qty	Type and rating	Parts No.
1	Gun tower L	1		(K160-006-00L)
2	Control panel	1		
3	Speaker duct L	1		(K160-134-000)
4	Gun tower panel A	1		TF40-11604-00
5	Gun tower panel BL	1		TF40-11605-00
6	Gun tower panel BR	1		TF40-11606-00
7	Gun tower side panel L	1		TF40-11607-00
8	Gun tower side panel R	1		TF40-11607-01
9	LED cover	1		(K160-501-000)
10	EPT sealer L (L)	1		(K160-502-000)
11	PT sealer L (R)	1		(K160-503-000)
12	EPT sealer M (L)	1		(K160-504-000)
13	EPT sealer M (R)	1		(K160-505-000)
14	EPT sealer S	1		(K160-506-000)
15	Speaker net	1		(K160-126-000)
16	Gun holder	1		(K160-021-0PA)
17	Panel washer	1		(K160-301-1PL)
18	Gun tower front sticker L	1		TF40-11601-00
19	SIDELED PC board	2	Red	TI05-11584-00
20	Speaker	1	F00210D1	VG54-11592-00
21	Tower LED bracket	1		(K160-133-000)
22	CPU cover	1		(K160-132-000)
23	Boss A	2		(K160-302-0PL)
24	Boss B	2		(K160-303-0PL)
25				
26				
27	Reflection decal	1		TF40-11610-00

10-8 Gun Tower (R) Assy



No.	Name	Qty	Type and rating	Parts No.
1	Gun tower R	1		(K160-006-00R)
2	Control panel	1		
3	Speaker duct R	1		(K160-134-000)
4	Gun tower panel A	1		TF40-11604-00
5	Gun tower panel BL	1		TF40-11605-00
6	Gun tower panel BR	1		TF40-11606-00
7	Gun tower side panel L	1		TF40-11607-00
8	Gun tower side panel R	1		TF40-11607-01
9	LED cover	1		(K160-501-000)
10	EPT sealer L (L)	1		(K160-502-000)
11	EPT sealer L (R)	1		(K160-503-000)
12	EPT sealer M (L)	1		(K160-504-000)
13	EPT sealer M (R)	1		(K160-505-000)
14	EPT sealer S	1		(K160-506-000)
15	Speaker net	1		(K160-126-000)
16	Gun holder	1		(K160-021-0PA)
17	Panel washer	1		(K160-301-1PL)
18	Gun tower front sticker R	1		TF40-11601-01
19	SIDELED (B) PC board	2	Blue	TI05-11584-01
20	Speaker	1	F00210D1	VG54-11592-00
21	Tower LED bracket	1		(K160-133-000)
22	CPU cover	1		(K160-132-000)
23	Boss A	2		(K160-302-0PL)
24	Boss B	2		(K160-303-0PL)
25				
26				
27	Jumper harness	1		
28	Reflection preventing sticker	1		TF40-11610-00

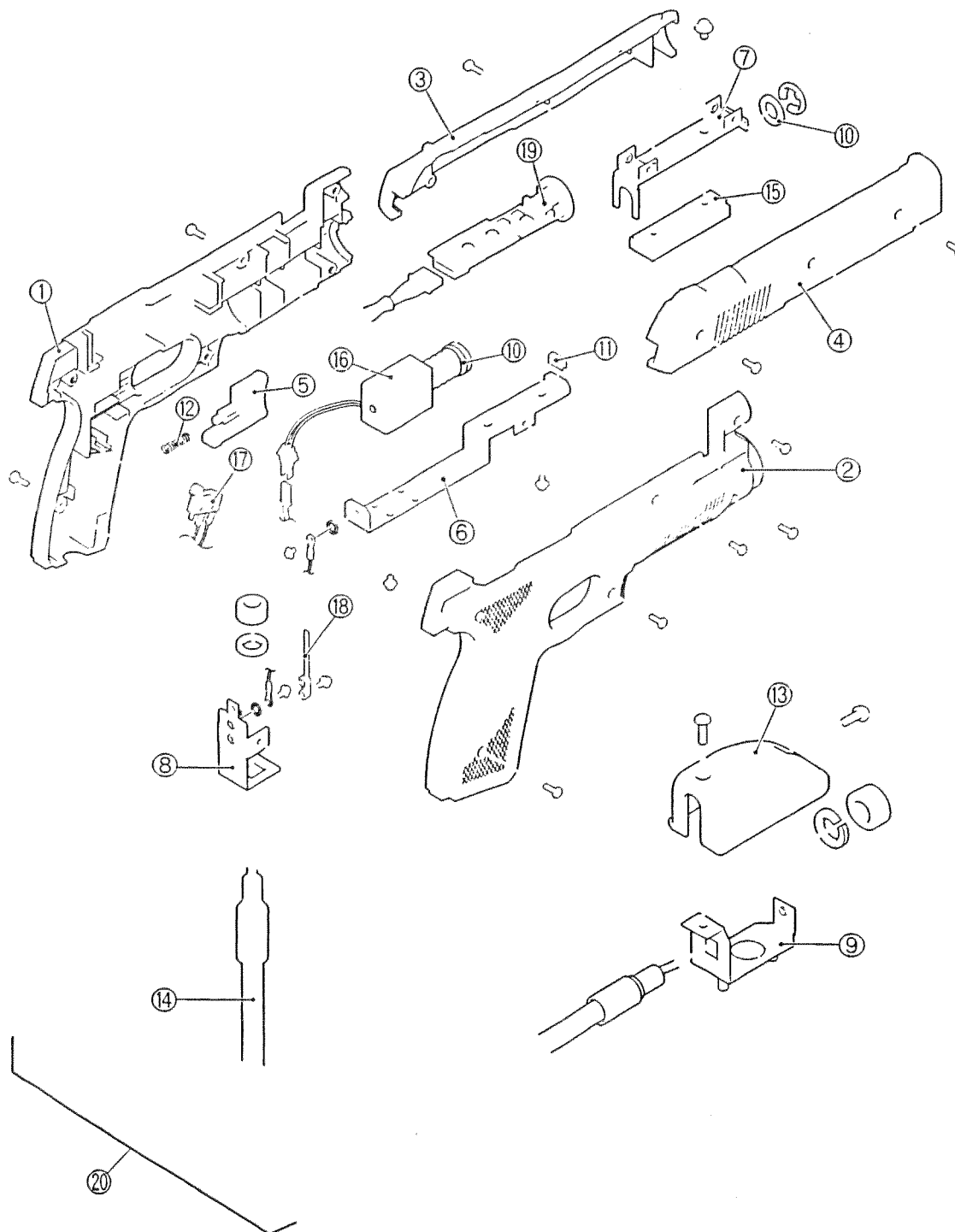
10-9 Joint Assy



No.	Name	Qty	Type and rating	Parts No.
1	SD joint	1		(K160-026-0PA)
2	SD joint cover	1		(K160-134-0PA)
3	Warning sticker maintenance B	1		VG44-02642-00
4	Switching regulator, 24V	1		VG88-07763-00

MEMO

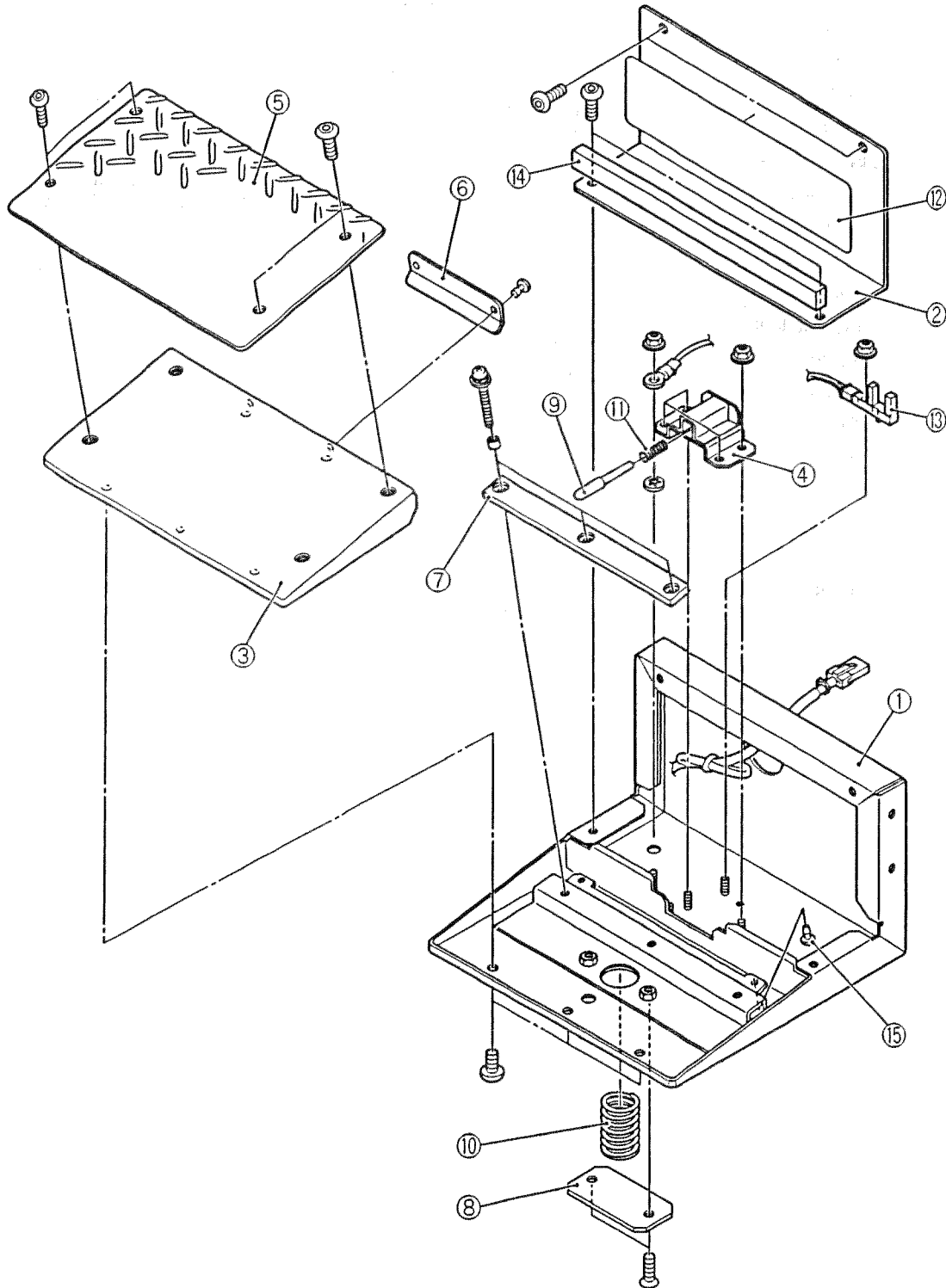
10-10 Gun Assy



Gun (R) Assy (Red gun)

No.	Name	Qty	Type and rating	Parts No.
1	Gun body (L)	1	1 set (L, R)	717-300
2	Gun body (R)	1		
3	Slide (L)	1	1 set (L, R)	717-301
4	Slide (R)	1		
5	Finger lever	1		717-302
6	Solenoid bracket	1		717-303
7	Slide bracket	1		717-304
8	Tube bracket (A)	1		717-305
9	Tube bracket (B)	1		717-306
10	Rubber spacer	2		717-307
11	Rubber stopper	1		717-308
12	Trigger spring	1		717-309
13	Connector cover B	1		701-906
14	Gun Harness Assy	1		717-315
15	Slide rail	1	E20+F15R2/60L (THK)	107-150
16	Solenoid unit	1		717-316
17	Microswitch	1	SS-01GL2T	000-666
18	Pantai (Convex)	1	Qty: 1000	007-143
19	Light receiving unit	1		306-754
20	Gun Assy	1		717-310

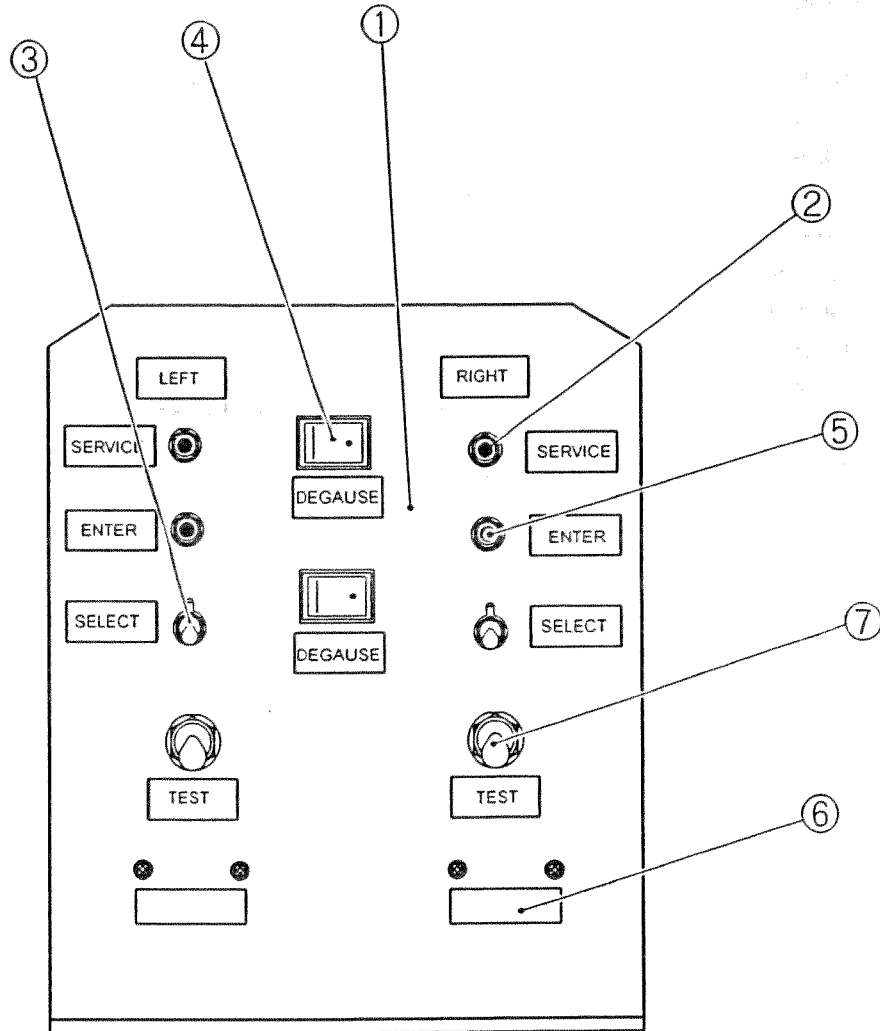
10-11 Pedal Assy



10. PARTS LIST

No.	Name	Qty	Type and rating	Parts No.
1	Pedal base (M)	1		717-320
2	Cover (M)	1		717-321
3	Foot base	1		717-322
4	Holder	1		717-323
5	Pedal plate	1		631-215
6	Plate	1		631-216
7	Stopper rubber	1		631-217
8	Spring cover	1		717-324
9	Plunger	1		631-219
10	Spring (A)	1		717-325
11	Spring (B)	1		717-326
12	Pedal sticker	1		707-283
13	Photosensor	1	KI1249-AALF	000-664
14	EPT sealer-sealant	1	EE-910 W10×t15×L248	106-041
15	Plug cushion rubber	2	TM-96	106-017

10-12 Service Plate Assy



No.	Name	Qty	Type and rating	Parts No.
1	Plate (SD)	1		(K160-177-000)
2	Service switch	2	TEST PB .5AMP	(0054-003-000)
3	Select switch	2	MINI TOGGLE ON-OFF	(0054-150-000)
4	Degauss switch	2	SPST RCKR MINI	(0054-003-300)
5	Enter switch	2	TEST PB .5AMP	(0054-003-000)
6	Coin Meter	2	+12V	(0053-013-008)
7	Test switch	2	DPST TOGGLE 15A	(A059-019-000)

