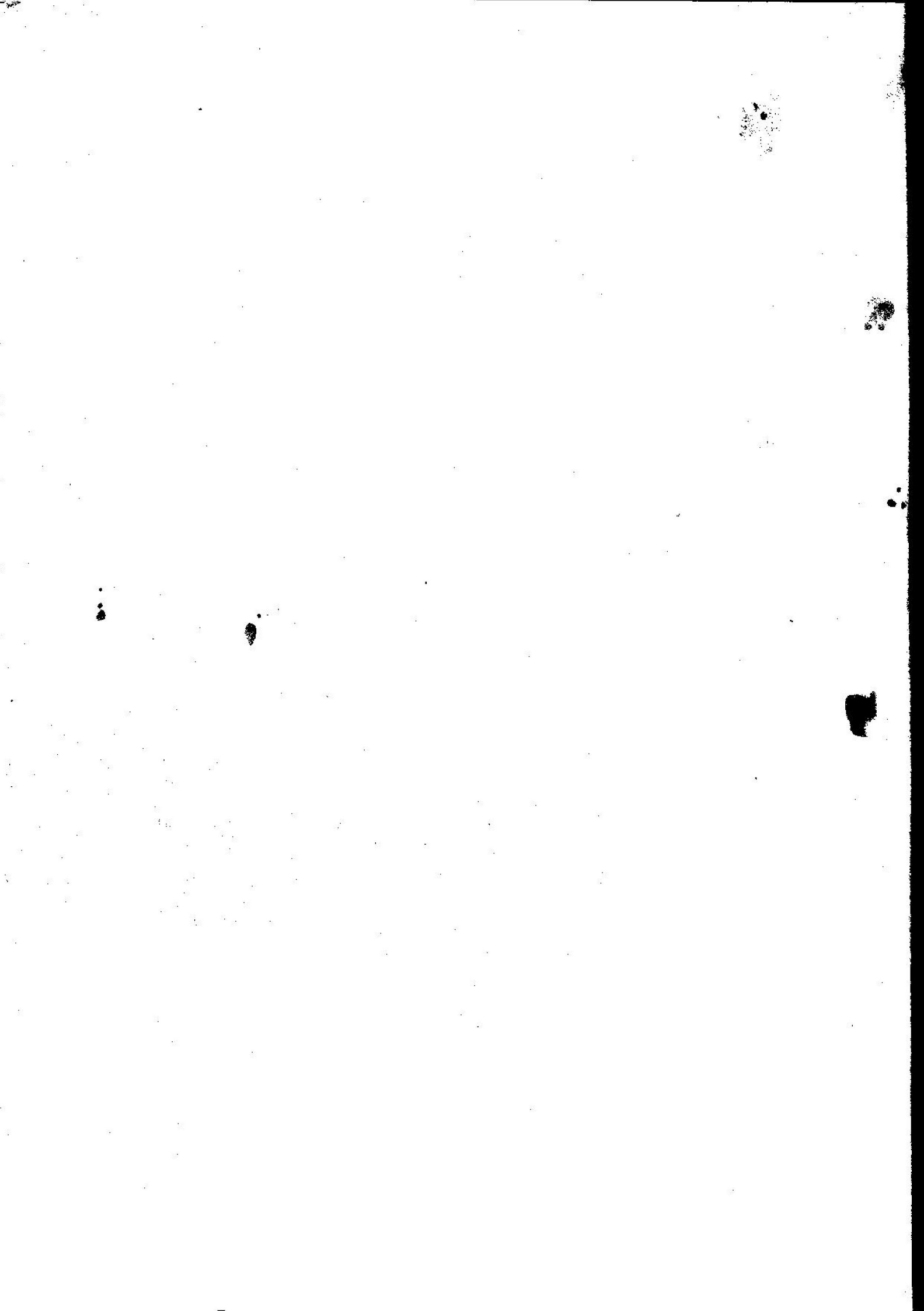


# Steel Gunner™



**namco**

OPERATION MANUAL



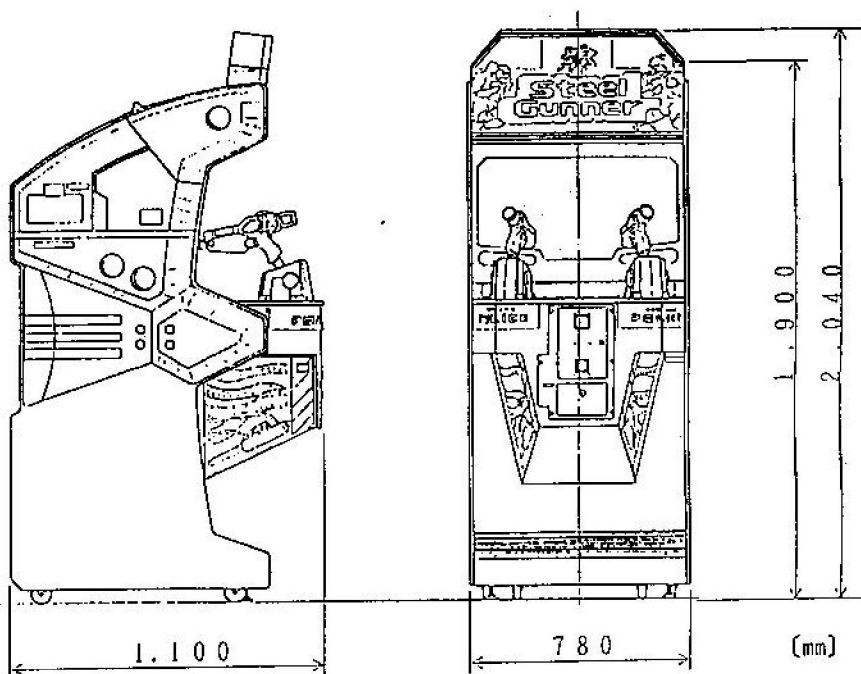
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1. SPECIFICATIONS

- |                      |   |  |
|----------------------|---|--|
| 1. POWER SUPPLY      | : | DEPENDING ON COUNTRY WHERE IT WAS INSTALLED  |
| 2. POWER CONSUMPTION | : | 205W   |
| 3. COIN BOX CAPACITY | : | 2,000 / 100YEN COINS   |
| 4. MONITOR           | : | 29" COLOR MONITOR  |
| 5. WEIGHT            | : | 165 KG   |
| 6. DIMENSIONS        | : | (W) 780 MM<br>(D) 1,100 MM<br>(H) 2,040 MM<br>1,900 MM (REMOVAL MARQUEE)   |
| 7. ACCESSORIES       | : | KEY (COIN BOX).....2<br>KEY (COIN BOX/REAR DOOR)....2<br>GLASS FUSE (4A).....1<br>LAMP<br>(DECORATION LAMP/DAMAGE LAMP:<br>24V, 0.11A).....1<br>OPERATION MANUAL.....1 |

\* THESE ABOVE ACCESSORIES SHOULD BE ATTACHED AS PURCHASING COMPLETE MACHINE.



\* NOTE : SPECIFICATIONS MAY CHANGE WITHOUT PRIOR NOTICE, AND YOU MAY VOID THE GAME WARRANTY IF YOU MODIFY OR ALTER ANY CIRCUITS IN THE GAME BY USING KITS OR PARTS NOT SUPPLIED BY NAMCO.

## 2. Precautions

### 2-1 Installation precautions

This equipment is made for use indoors. Do **NOT** install in the areas listed below.

- 1) Outdoors
- 2) In direct sunlight, places of high humidity or dust content, places affected by rain or water leakage, next to furnace or heating devices, or places subject to extreme cold.
- 3) In areas where it can impede access to emergency exits or existing fire prevention equipment such as sprinkler systems, smoke detectors, fire extinguishers, etc.
- 4) Unstable or shaky surfaces.

### 2-2 Handling precautions

- 1) Always maintain safe electrical standards for your machine by connecting a grounded line to the ground connector.
- 2) The monitor includes areas of high-voltage. Please use sufficient caution when checking or adjusting the machine.
- 3) Never pull the electric cord out of its socket by the cord itself, always pull the cord from the plug instead.
- 4) Always turn off the power before beginning such tasks as changing parts or plugging or unplugging the cord.
- 5) Repairs on the PC boards are to be carried out by the distributor who supplied the board. Do not attempt to use a tester to check for continuity or other such tests as the ICs (Integrated Circuits) may be damaged by the tester's internal voltage.

6) Take extra care not to subject the machine to severe shock when transporting or moving.

7) Always return the level adjustors to the extreme "up" position before moving the machine.

8) Adjustment is required when changing the game PC board, ROM, gun assembly or volume control. Please refer to page 14, 5-3 Adjusting replacement parts (gun adjustment), to make the required adjustments.

9) Please take sufficient heed to prevent against breakage of the glass mirror when handling this machine.

3 . ILLUSTRATED EACH PART

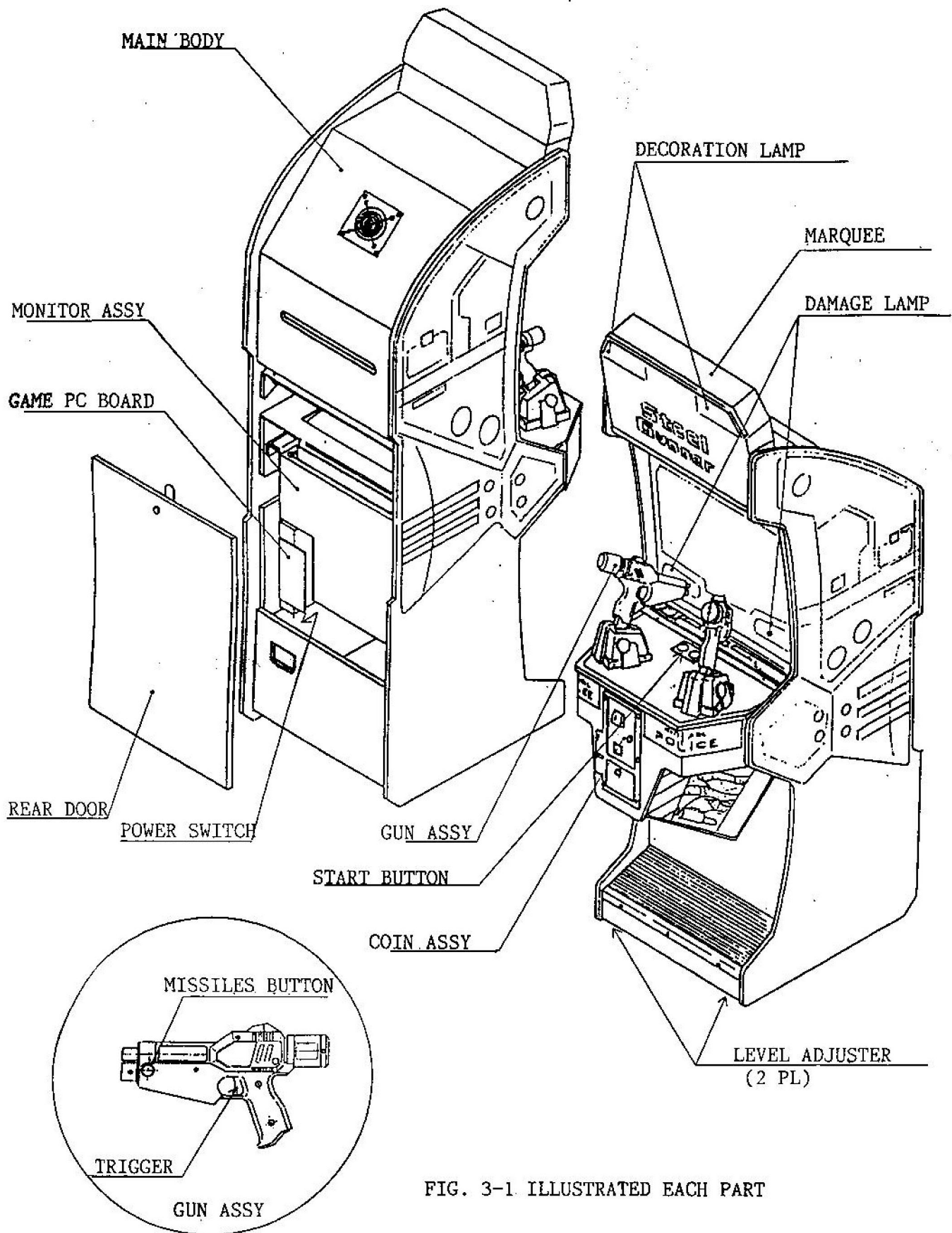


FIG. 3-1 ILLUSTRATED EACH PART

## 4. Installation

### 4-1 Level adjustment

Use a 17 millimeter wrench to rotate the two level adjusters until the machine rests firmly on the floor without any rickety movement.

### 4-2 Sign disassembly

You can remove the sign on this machine if needed.

- 1) Loosen and remove the three bolts (hexagonal socket button head bolts, M4 × 16) connecting the molding.
- 2) Remove the panel stopper (4-M4 × 16 screws).
- 3) Remove effect plates B (two plates), then remove the marquee.
- 4) Remove connector (4P).
- 5) Remove the six bolts (Cup screw bolts) holding down the lamp case, and remove the lamp case.

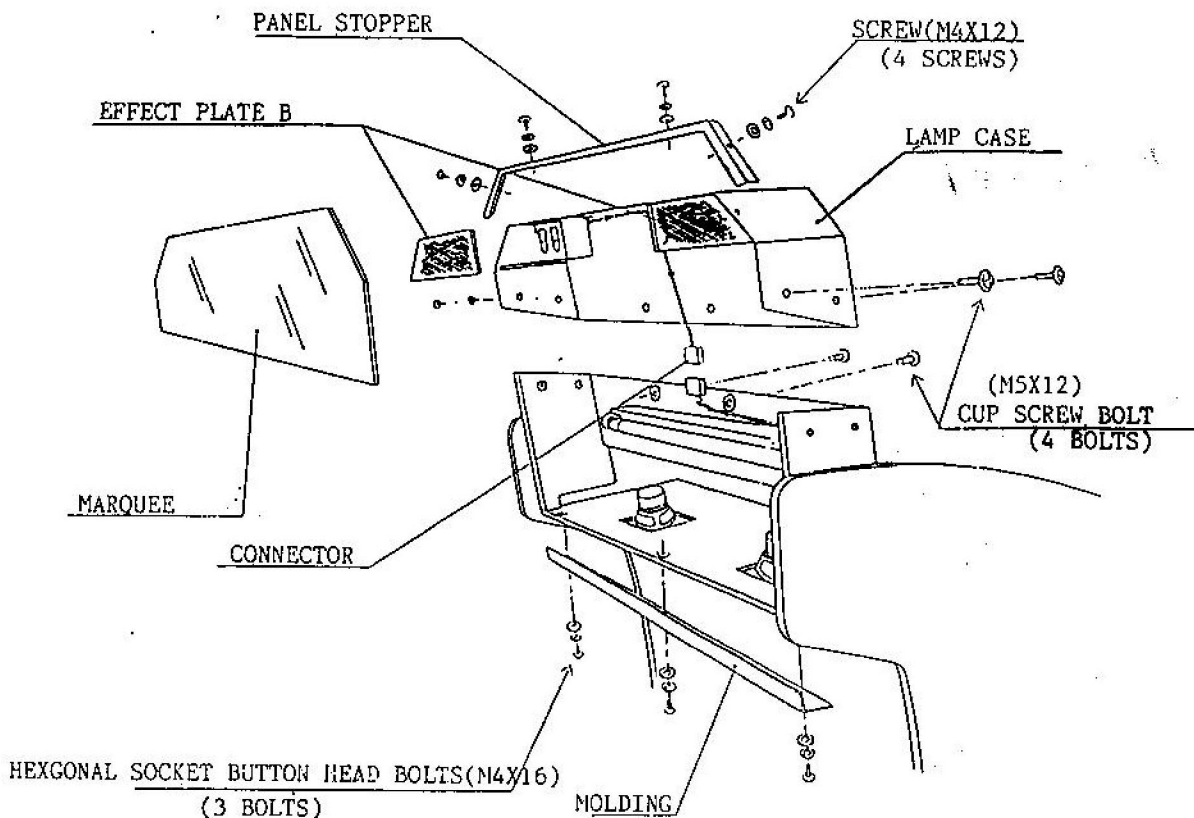


FIG. 4-1 SIGN DISASSEMBLY



## **5. Adjustment**

### **5-1 Adjustment switch**

Open the coin case door to gain access to the adjustment switch.

#### **1) Test switch**

Turn this switch on to use the machine in the test mode. The test mode is used, among other things, to change the fee charged for a game and test various sections of the machine. (Refer to page 8 ,

#### **5-2 Test Mode)**

#### **2) Volume control**

Rotate these volume controls right or left to adjust speaker sound level.

#### **3) Demagnetizing switch**

Depending on such factors as cabinet layout and building condition, the machine may at times be affected by the earth's magnetic field resulting in color variation on the screen. When this happens, use this switch to demagnetize the monitor.

#### **4) Service switch**

This switch is used to increase the number of credits without activating the counter.

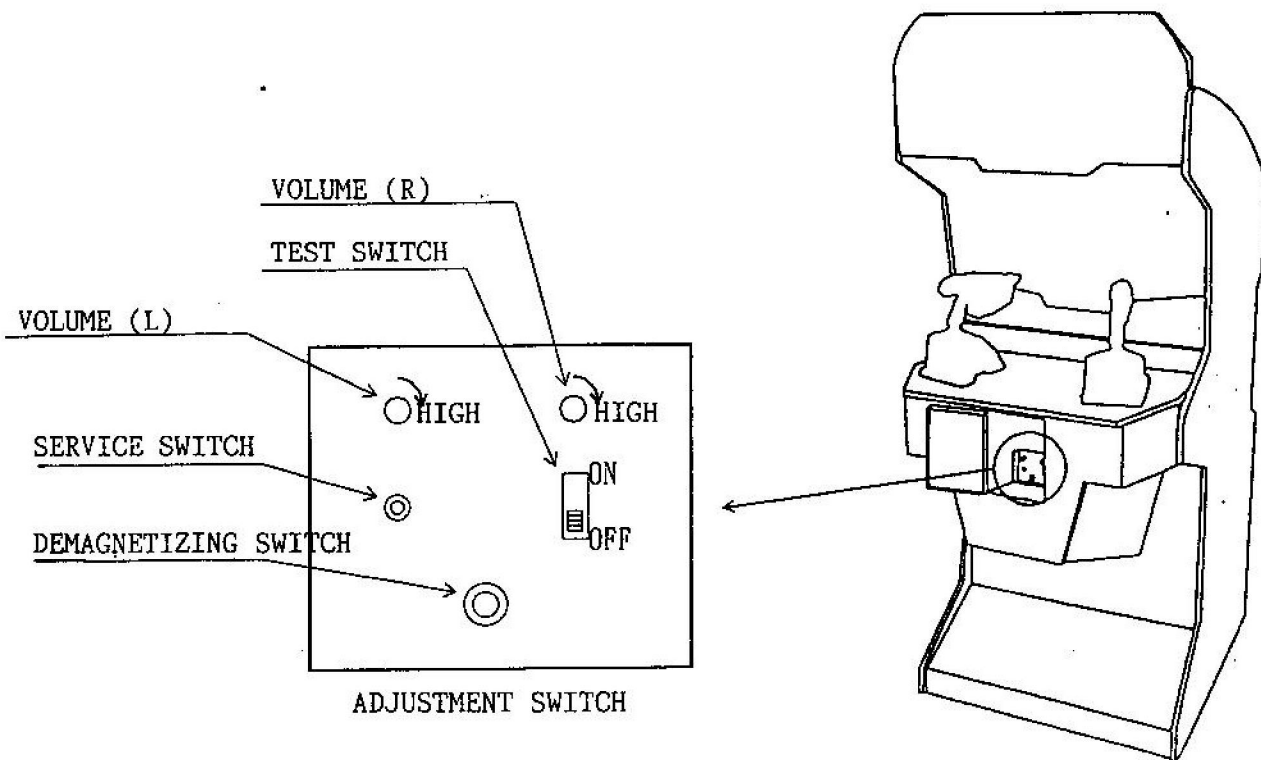


FIG. 5-1 ADJUSTMENT SWITCH

## 5-2 Test mode

This machine has a self test function. There are eight separate test mode screens which can be used to change game fees and test various sections of the machine. (as shown in FIGURE 5-2)

### 1) Self test

Self testing is conducted automatically in the first few seconds after the power is turned on. If no errors are found, the game screen will be displayed on the monitor.

If an error is detected, a screen like that shown below will be displayed.

This display indicates an error has been detected, **NOT** a malfunction.

33 TIP \*\*\*\*\*

EXIT = 1P BUTTON

(The area designated by the asterisks (\*\*\*\*\*)) differs depending on the specific error.)

- Press the 1P button to return to the game screen.
- If the error display does not disappear or if the above display appears when turning on the power, please contact either your distributor or a representative at one of the phone numbers listed on the back cover of this manual.

(The above display may appear after replacing ROM also.)

## 2) Test mode

Open the door to the coin box and turn the test switch to the "ON" position. The "Game Option Screen" will be displayed on the monitor. Game fees as well as other items can be changed from this "Game Option Screen".

Pressing the service switch while in the Game Option Screen will generate a display of the various test screens in order on the monitor.

Once the testing has been completed, turn the test switch to the "OFF" position. The Game Screen will always reappear from whatever screen is being displayed at that moment.

Note that the test switch should normally be in the "OFF" position.

## 3) To change the game fee (Game Option Screen)

Change the fee charged for the game from the Game Option Screen.

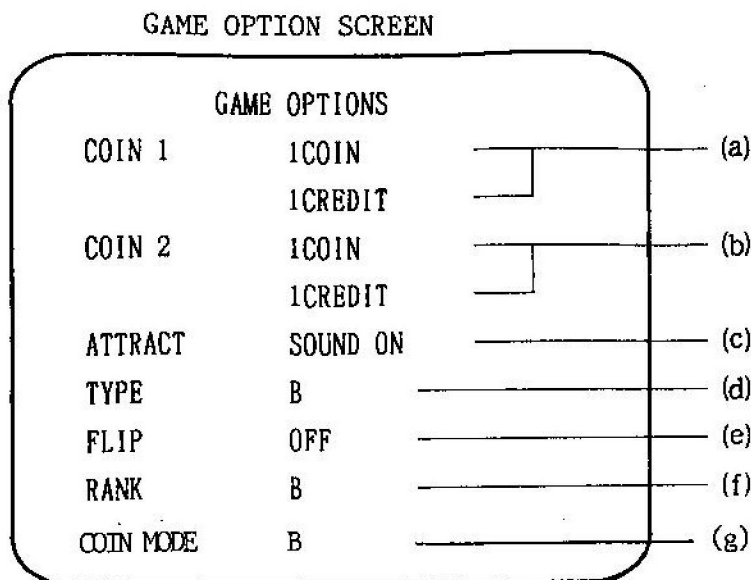
Turn the test switch to the "ON" position to display the Game Option Screen. You can change any of the items which are displayed in red letters on the Game Option Screen.

By pressing the missile shooting switch on the left side (1P), you can select the option which is to be changed.

Pressing the start switch changes the content of the selected option.

Change the contents of the options according to the Game Option Setting Display.

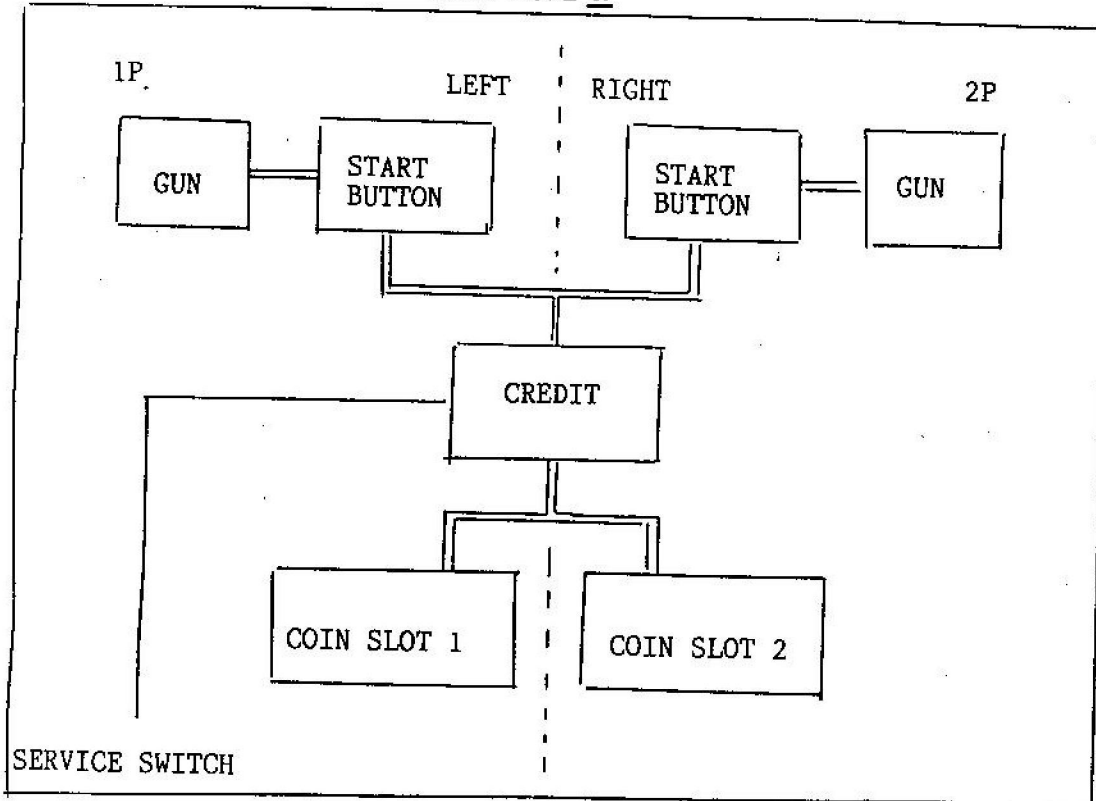
Once the option changes have been completed, return the test switch to the "OFF" position. The monitor will return to the Game Screen.



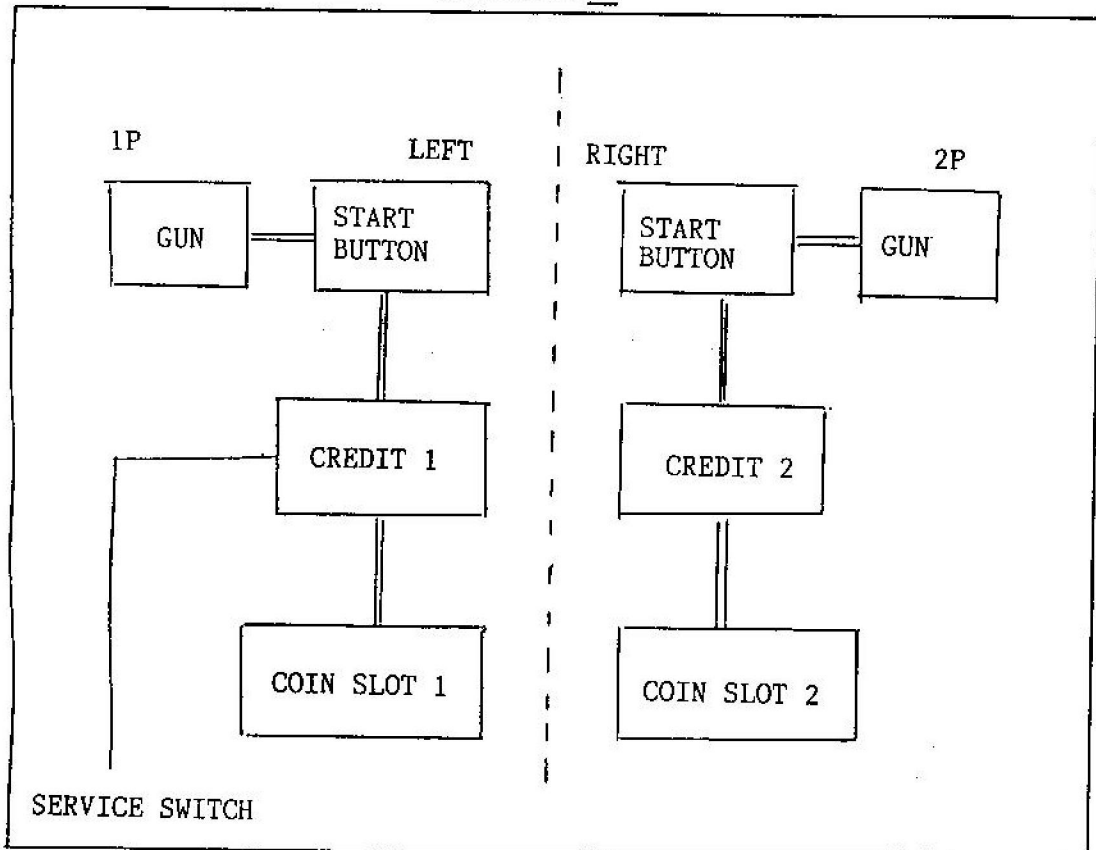
THE CONTENT OF THE SELECTED OPTION

ITEM	CONTENT	
(a) Game Fee (Coin 1)	Coin	1-9 (Original setting is 1)
	Credit	1-9 ( ditto 1)
(b) Game Fee (Coin 2)	Coin	1-9 ( ditto 1)
	Credit	1-9 ( ditto 1)
(c) Attract Sound	SOUND ON SOUND OFF	
(d) Type	No Use	
(e) Screen Flip	No Use	
(f) Difficulty	A (=easy) - E (=hard) Original setting is B	
(g) Coin Mode	A : Mutual Credit (refer to page 11) B : Separate Credit	

COIN MODE A



COIN MODE B



4) Test screens

1. Switch Test Screen (which can be used to test various switch)  
a) The status of the option switch on the game PC board (CPU-PCB) will be displayed. If the switch is in the "ON" position, the numerals corresponding to the option switch will be red.

b) Characters should be displayed in red on the screen.

c) The numerals should increment by one when the "Coin 1" switch is pressed.

d) The numerals should increment by one when the "Coin 2" switch is pressed.

e) Test the sound volume on the gun. The values should change as specified below.

Left (1P) gun.....Moving left and right: The value of Channel 4 will change  
.....Moving up and down: The value of Channel 6 will change.

Right (2P) gun.....Moving left and right: The value of Channel 5 will change.  
.....Moving up and down: The value of Channel 7 will change.

f) The characters should turn red when the start button is pressed.

g) Test the gun switch. (Number 3 is not used.)

Pull the trigger. Number 1 should turn red.

Press the missile shooting button. Number 2 should turn red.

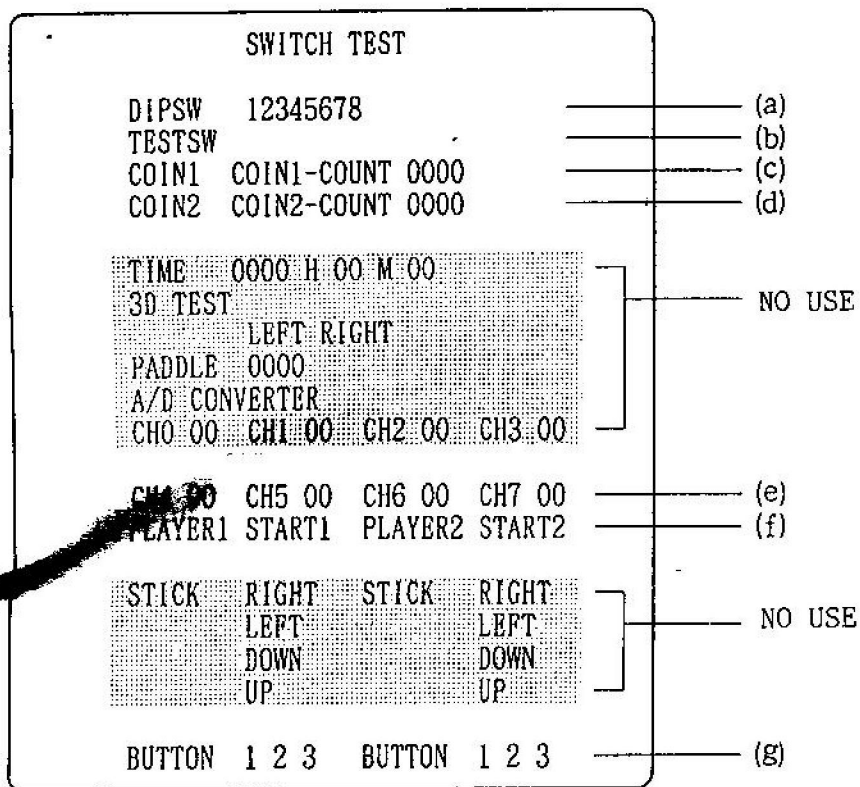


FIG. 5-2 SWITCH TEST SCREEN

2. Sound Test Screen \_\_\_\_\_ Conducts various sound tests.
3. Option Switch Pattern Screen \_\_\_\_\_ Use for monitor adjustments
4. Color Bar Test Screen \_\_\_\_\_ Use for monitor adjustments
5. ADS 1 Screen \_\_\_\_\_
6. ADS 2 Screen \_\_\_\_\_ } The various game play data
7. ADS 3 Screen \_\_\_\_\_

#### 5) Option switch

There is an option switch on the game PC board (CPU-PCB).

Number 1 option switch corresponds to test switch; however, you should normally use the test switch located inside the coin box door.

The other switches are not in use at present, therefore they should all be in the "OFF" position.

### 5-3 Adjusting replacement parts (gun adjustment)

The game will not operate correctly if the game PC board, ROM, gun assembly, and the volume control are not adjusted after replacing.

Always carry out the steps listed below when replacing parts.

1) Open the coin box door.

2) Turn the test switch to the "ON" position while holding down the service switch. Screen 1 will appear.

3) Adjust the gun on the left side (1P).

1. Aim the gun on the left side (1P) up and to the right as far as possible, and pull the trigger.

A "◎" will flash red on the upper-right of the screen

2. Now, press the service switch. Screen 2 will appear.

3. Aim the gun on the left side (1P) down and to the left as far as possible, and pull the trigger.

A "◎" will flash red on the lower-left of the screen.


4. Now, press the service switch. You have now completed adjusting the gun on the left side.

4) Adjust the gun on the right side (2P).


Follow the steps listed above for adjusting the gun on the left side.

5) Turn the test switch to the "OFF" position to complete the adjustments.



ADJUSTMENT OF CONTROL   
SHOOT IT TOP RIGHT ICON  
PLAYER 1 GUN

SCREEN 1

ADJUSTMENT OF CONTROL  
SHOOT IT BOTTOM LEFT ICON  
PLAYER 1 GUN  


SCREEN 2

\*If the gun aim does not line up with the line of shot displayed on the screen during game play, repeat the procedure outlined above.

## 6. How to Play

- This machine displays enemies on the screen which are to be shot down with the gun.
- An interactive play of 2 players is available, and a second person can join in midplay even during one person play.
  
- Bullets are shot from the gun by pressing the trigger. The gun recoils in response to the bullets being shot.
- Holding the trigger down sends out a continuous stream of bullets. There is no limit to the number of bullets which can be shot.
- Missiles can be fired by pressing the button to the left side of the barrel of the gun. The missiles are designed to inflict heavy damage on the enemy displayed on the screen. The number of missiles is limited.
  
- The enemy attack will come soon after the enemy appears on the screen. (machine gun, missiles, hand grenades, etc)
- As the player will sustains damage under the enemy attack, the player's "LIFE" gauge will decrease.
- Once the player's "LIFE" gauge reaches "0", the game is over.
- The status of the player's "LIFE" gauge for each player, 1 and 2, is shown on the lower part of the respective player's screen.
- Non-enemy civilians also appear on the screen. The player will sustain damage if he/she hits a civilian.
  
- The game has four different screens in all. After the player clears all of the screens the game ends.
- After each screen has been completed, the results are tallied up and displayed. The "LIFE" gauge of the player will then be increased according to these results.
- Missiles are replaced at a fixed rate after each screen has been completed.

## 7. Regular Maintenance

To prevent electrical shock, always turn off the power before working on the machine.

### 7-1 Fuse replacement

- 1) Open the rear door and you will see the power switch and the fuse holder behind the cord box.
- 2) First, make sure the power switch is off, then replace the fuse.

### 7-2 Fluorescent and decoration lamp replacement

- 1) Loosen and remove the three bolts (hexagonal socket button head bolts M4 × 16) holding the molding.
- 2) Remove the panel stopper (4-M4 × 12 screws)
- 3) Remove effect plates B after removing the marquee.
- 4) Replace the fluorescent lamp (20W) and/or the decoration lamps (24V, 0.11A).

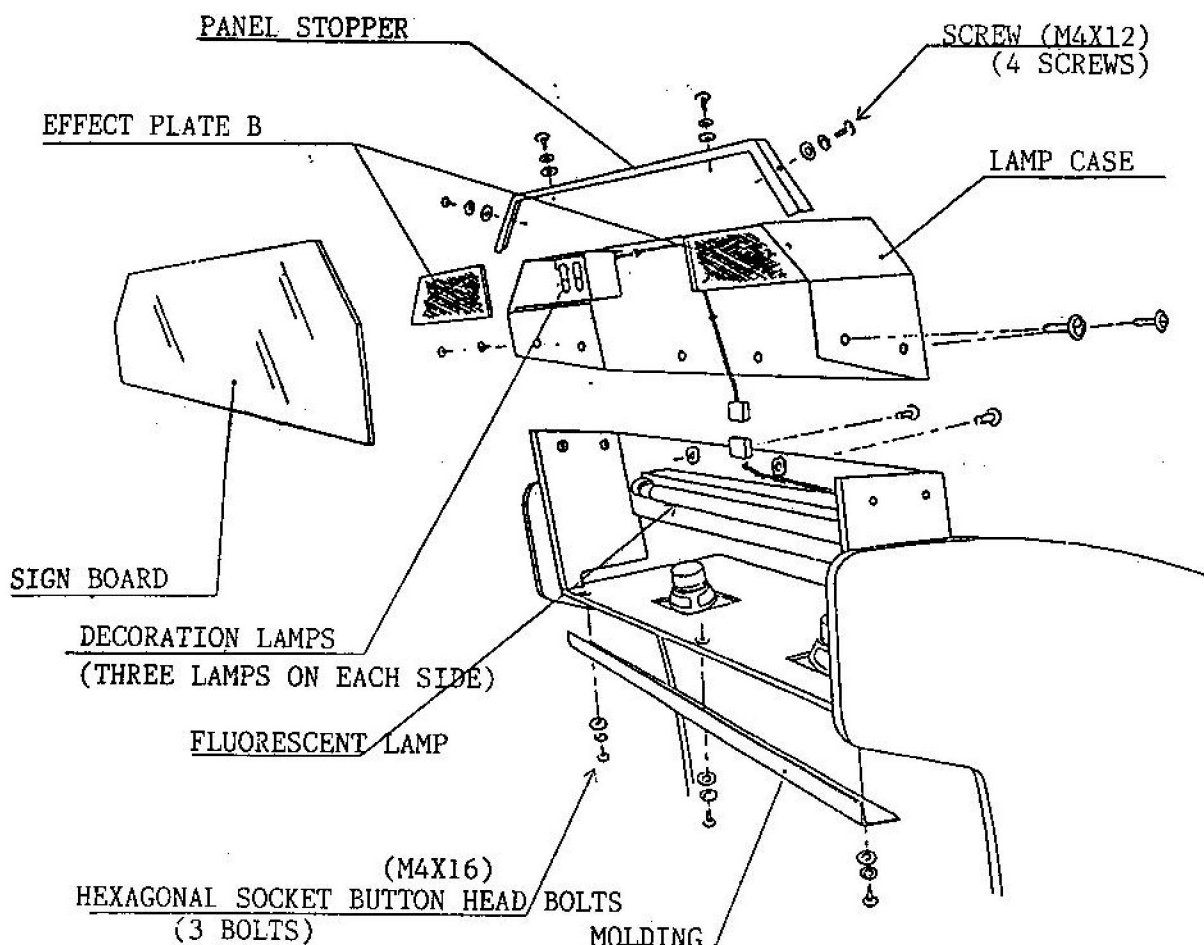


FIG. 7-1 FLUORESCENT AND DECORATION LAMP REPLACEMENT

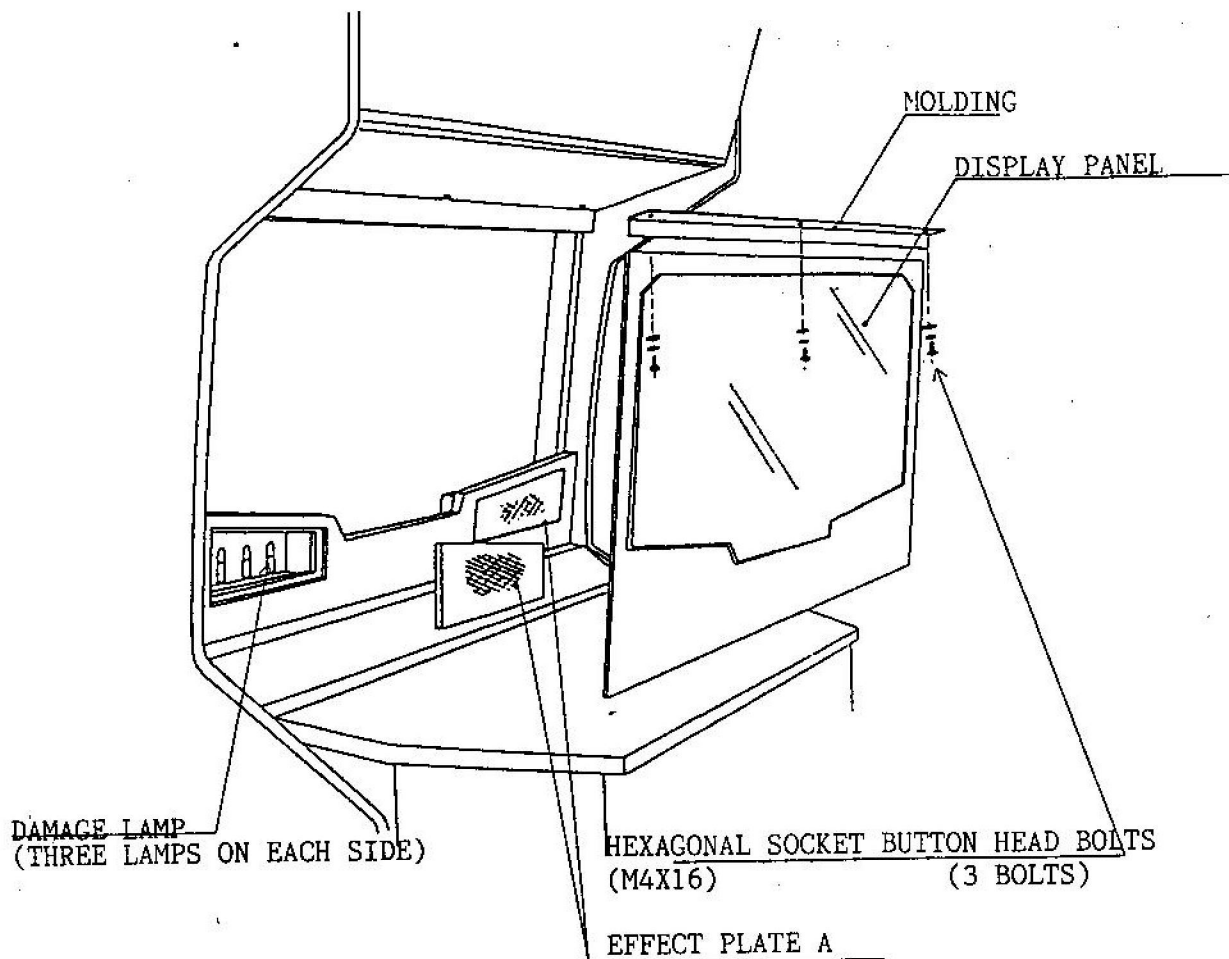


FIG. 7-2 DAMAGE LAMP REPLACEMENT

### 7-3 Damage lamp replacement

- 1) Loosen and remove the three bolts (hexagonal socket button head bolts M4 × 16) holding the molding down.
- 2) Being careful not to hit the gun, remove the display panel.
- 3) Remove effect plates A, and replace the damage lamps (24V, 0.11A)

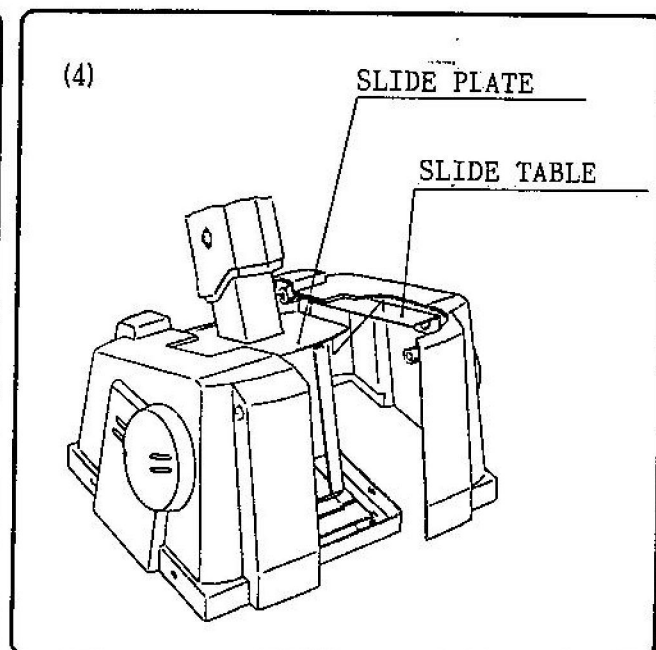
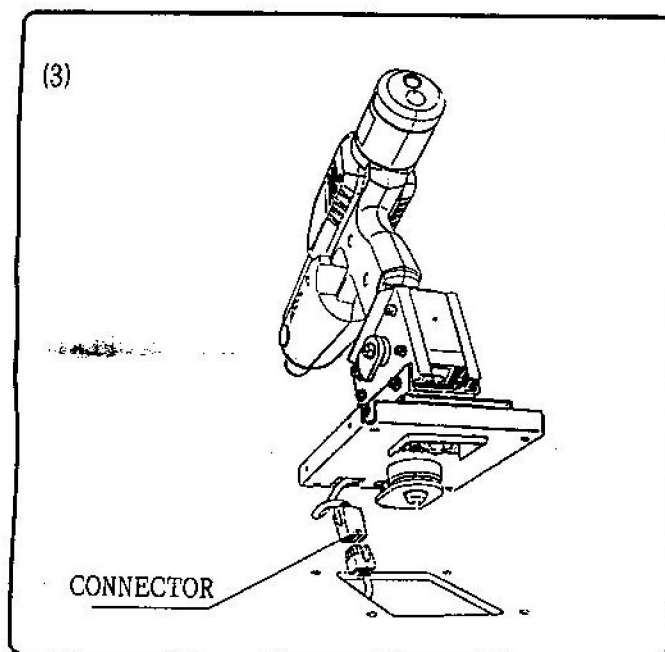
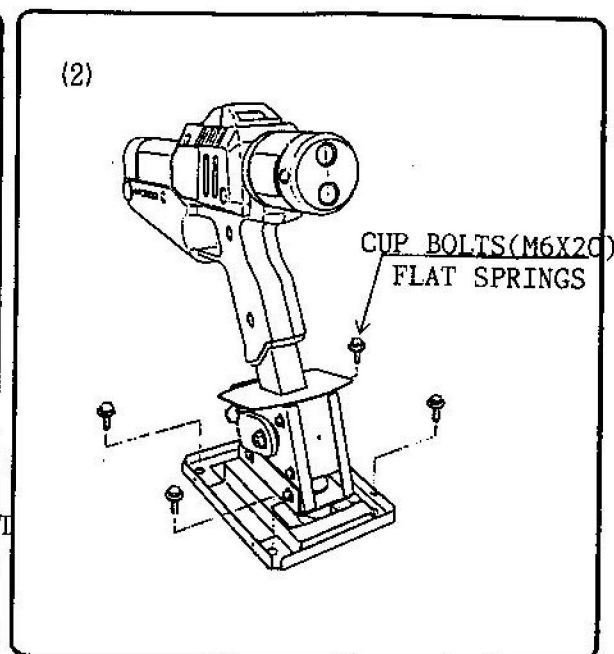
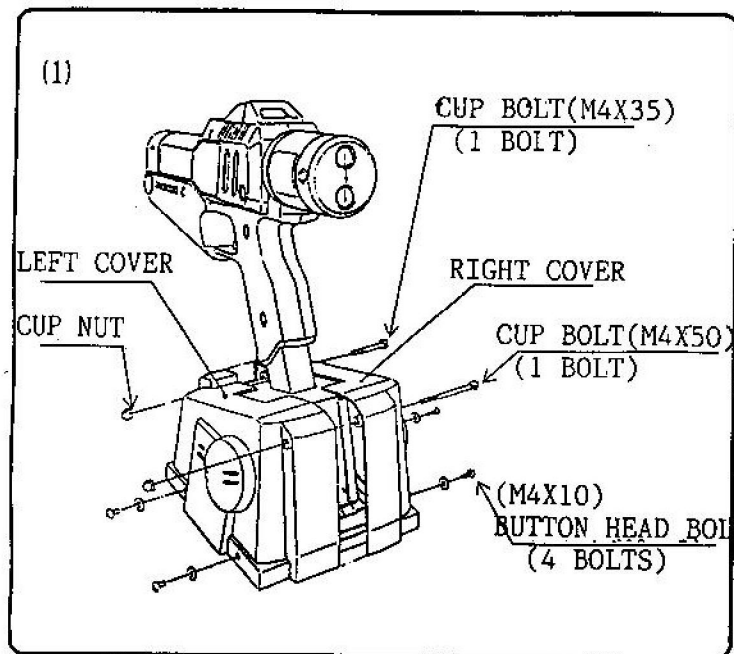


FIG. 7-3 GUN ASSY REPLACEMENT

#### 7-4 Gun assembly replacement

- 1) Remove the left and right pedestal covers (cup bolt M4 × 35: 1 screw, M4 × 50: 1 screw, button head bolts M4 × 10: 4 screw).
- 2) Remove the pedestal from the cabinet (cup bolt M6 × 20, 4 flat springs).
- 3) Lift the gun assembly a little ways, disconnect the connector, and lift completely out of the cabinet.
- 4) Reverse these steps to assemble. When attaching the pedestal cover, be careful to put the slide plate on top of the slide table.

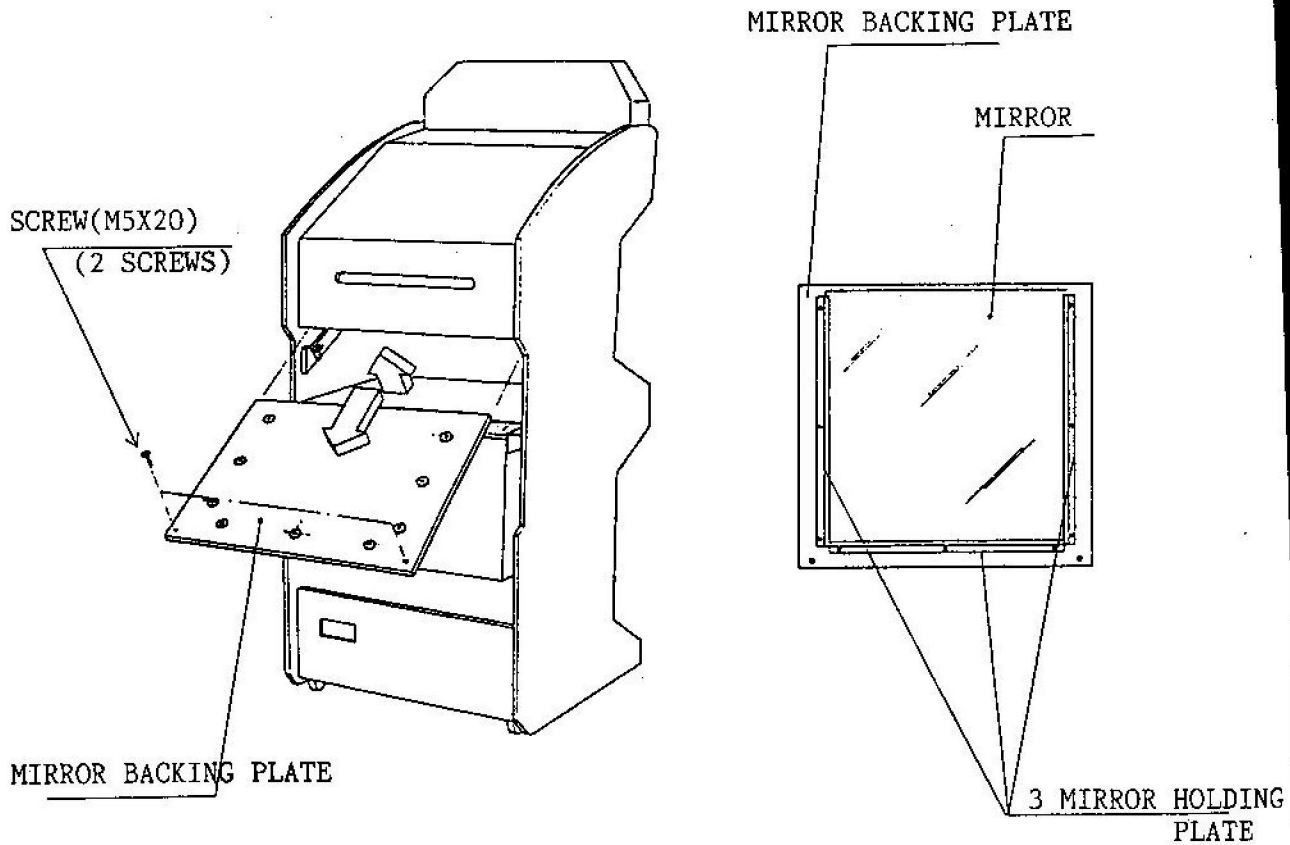


FIG. 7-4 MIRROR REPLACEMENT

### 7-5 Mirror replacement

- 1) Open the rear door and remove the two screws (M5 × 20) from the rear of the mirror backing plate (ply wood).
- 2) Slowly pull the mirror backing plate up and then out to remove.
- 3) Turn the mirror over so that its front side is facing up.
- 4) Remove the three mirror holding plates and replace the mirror.

#### Cautions:

Do not touch the front surface of mirror directly with your hands. The mirror is made of glass. Be careful not to break or scratch it when handling it.

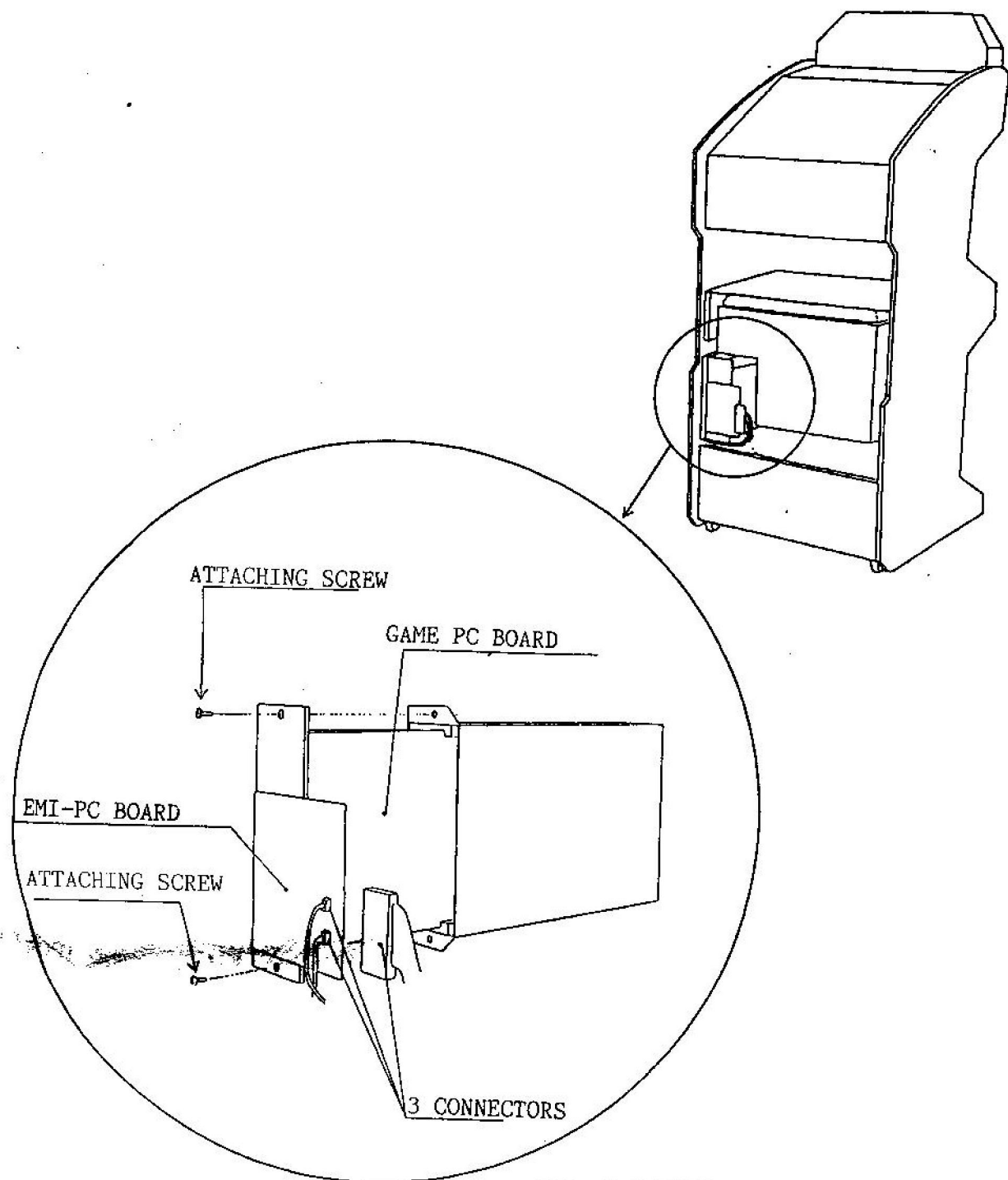


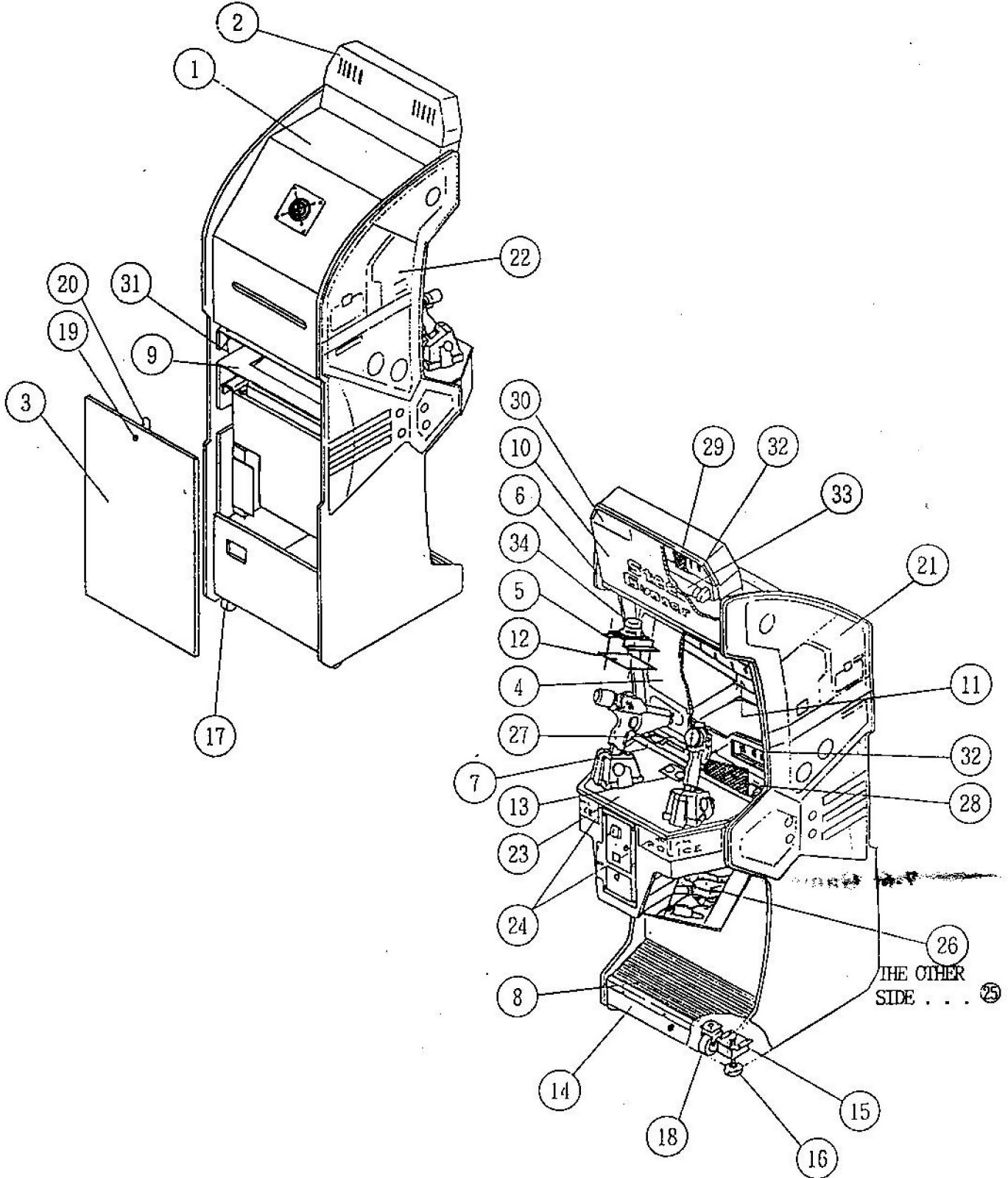
FIG. 7-5 GAME PC BOARD REMOVAL

### 7-6 Game PC board removal

- 1) Unplug the machine to cut the power.
- 2) Open the rear door and remove the three connectors to the EMI-PC board.
- 3) Remove the two attaching screws, pull the EMI-PC board with the PC board out toward you.
- 4) Disconnect the EMI-PC board from the PC board.

# 8 . PARTS LIST

## 8 - 1 MAIN BODY



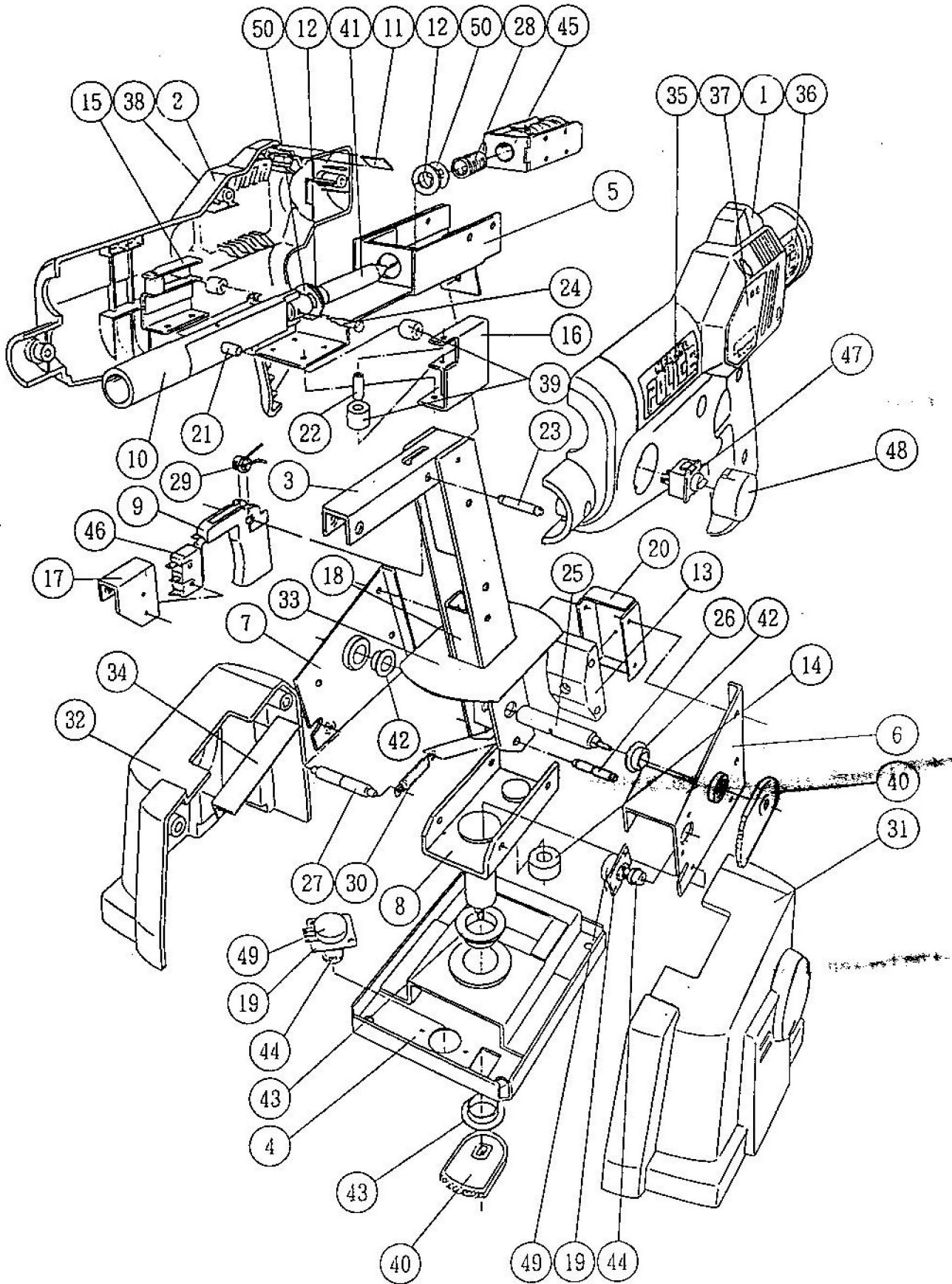


MAIN BODY

No.	N A M E	PART NO.
1	CABINET	246-001
2	LAMP CASE	246-002
3	MAINTENANCE DOOR	246-003
4	DISPLAY PANEL	246-004
5	SPEAKER BRACKET	246-005
6	MOLDING	246-006
7	FRONT PANEL	246-007
8	MAT	246-008
9	MONITOR MASK	246-009
10	MARQUEE	246-010
11	MIRROR	246-011
12	SPEAKER PLATE	246-012
13	SWITCH PLATE	246-013
14	FOOT MOLE	246-014
15	ADJUSTER BRACKET	246-015
16	LEVEL ADJUSTER MKRL-50·12·80B6	246-016
17	CASTER (FIXED) 420SR-N75	102-014
18	CASTER (FLEXIBLE) 420S-N75	102-013
19	COIN LOCK C-88-1	101-011
20	CLASP 2.3T	—

No.	N A M E	PART NO.
21	STICKER A	246-017
22	STICKER B	246-018
23	STICKER C	246-019
24	STICKER D	246-020
25	STICKER E	246-021
26	STICKER F	246-022
27	STICKER G	246-023
28	EFFECT PLATE A	246-024
29	EFFECT PLATE B	246-025
30	PANEL STOPPER	246-026
31	MIRROR BRACKET	246-027
32	LAMP ML1208(24V 0.11A)	002-003
33	FLUORESCENT 20W	002-045
34	SPEAKER F92A33-3	006-009

8 - 2 GUN ASSY

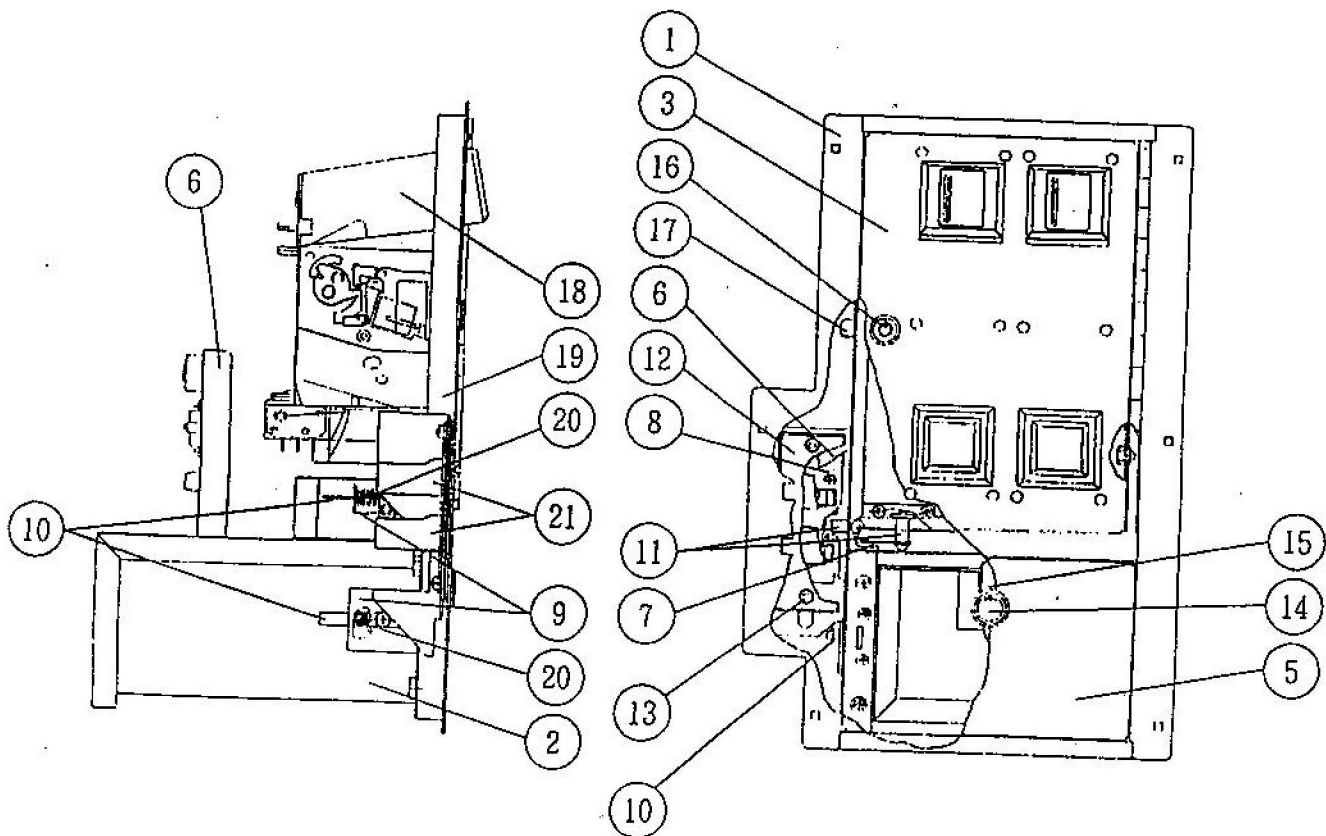


GUN ASSY

No.	N A M E	PART NO.
1	GUN COVER L	246-101
2	GUN COVER R	246-102
3	GRIP	246-103
4	BASE	246-104
5	GUN FLAME	246-105
6	FLAME L	246-106
7	FLAME R	246-107
8	BASE FLAME	246-108
9	TRIGGER	246-109
10	GUN BARREL	246-110
11	SCOPE PLATE	246-111
12	PLUNGER RUBBER	246-112
13	V STOPPER	246-113
14	H STOPPER	246-114
15	RAIL R	246-115
16	RAIL L	246-116
17	SWITCH BRACKET	246-117
18	GRIP COVER	246-118
19	VOLUME BRACKET	246-119
20	V STOPPER BRACKET	246-120
21	ROLLER PIN	246-121
22	ROLLER SPACER	246-122
23	TRIGGER PIN	246-123
24	PLUNGER PIN	246-124
25	GRIP PIN	246-125

No.	N A M E	PART NO.
26	SPRING HOLDER A	246-126
27	SPRING HOLDER B	246-127
28	PLUNGER SPRING	246-128
29	TRIGGER SPRING	246-129
30	GRIP SPRING	246-130
31	COVER L	246-131
32	COVER T	246-132
33	SLIDE PLATE	246-133
34	SLIDE TABLE	246-134
35	GUN STICKER A	246-135
36	GUN STICKER B	246-136
37	GUN STICKER C1	246-137
38	GUN STICKER C2	246-138
39	ROLLER	246-139
40	GEAR	246-140
41	PLUNGER	246-141
42	FLANGE BUSH LFF-1212	246-142
43	FLANGE BUSH LFF-2212	246-143
44	SPAR GEAR S75B20B+0306	231-093
45	SOLENOID COIL ST-1261B2	246-144
46	MICRO SWITCH SS-5GL13	000-054
47	PUSH SWITCH SDK-1-2N	246-145
48	PUSH BUTTON 2NY	246-146
49	VOLUME EWS-UOA20E53	008-006
50	E RING	—

8 - 3 COIN ASSY (2 WAY)



No.	N A M E	PART NO.
1	COIN VESSEL (II)	
2	COIN CASE (II)	
3	COIN DOOR (II)	
4	SHUTTER (II)	
5	CASH BOX	246-204
6	SERVICE BRACKET	246-205
7	PIPE STAY	246-209
8	COUNTER BRACKET	409-097
9	SLIDE GUIDE	409-098
10	PUSH PLATE	409-102

No.	N A M E	PART NO.
11	PIPE	409-107
12	HOLE COVER	409-111
13	SPACER	409-106
14	COIN LOCK C-88-1	101-011
15	CLASP (THIN) 2.3T	—
16	ELECTRICAL LOCK VM78Z	100-023
17	CLASP CAM2V	—
18	CHANNEL BRACKET ADD-FT	100-053
19	COIN SELECTOR AD-81P	100-015
20	CO SPRING NO. 1121	246-210
21	COIN COUNTER NX-06FD	003-023

## 9. Troubleshooting

When beginning any troubleshooting, please consider the following points.

1) The machine can operate from a power source in the range of 90~110 VAC basically (depending on country where it was installed). However, if there are large capacity devices (Air conditioners, multiple pinball machines, kiddie rides, etc) connected on the same line, the voltage required may exceed this limit, and with the resulting fluctuations in voltage, bring on breakdowns and malfunctions.

2) If you have plugged in the power to the machine and it does not turn on, remove and plug in the cord once more. If the machine still does not turn on, check the fuse.

3) When replacing the game PC board, ROM, gun assembly, or volume control, the game will not work normally unless you make the proper adjustments.

Refer to page 14, 5-3 **Adjusting replacement parts (gun adjustment)** to make the proper adjustments.

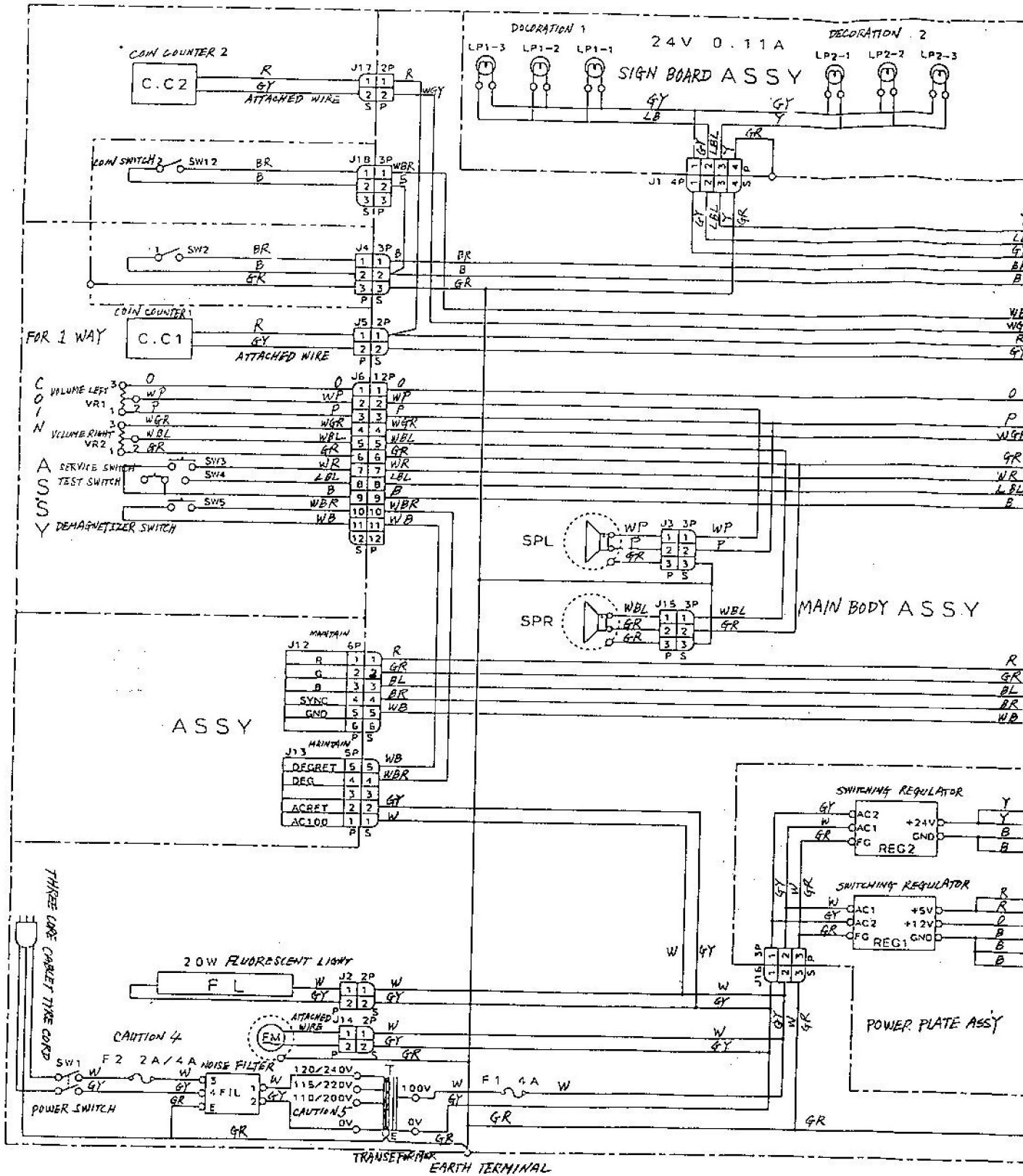
4) If the gun aim does not line up with the line of shot displayed on the screen, refer to page 14, 5-3 **Adjusting replacement parts (gun adjustment)** to make the proper adjustments.

5) Malfunctions are often caused by a loose connector. Double check the line connection points.

6) Dust or foreign substances on the game PC board or the monitor PC board can cause malfunctions or improper operations. Always take care to keep the PC boards free from dust and foreign substances.

7) When conducting electrical tests, look at the circuit diagram and check the connector numbers and color of the lines connected to the the various components.

- If there are no problems with any of the above checkpoints or if corrections carried out do not solve the problem, please contact the distributor you purchased the machine from or one of the representatives listed on the back cover of this manual.
- Do **NOT** attempt to conduct continuity tests on the PC boards. The tester's internal voltage may damage the ICs. The boards are to be tested and repaired by the distributor only.
- When shipping parts to be repaired, write down clearly and specifically what the problem is, and ship using protective packaging. PC boards in particular should be packed in sponge or air bubble packaging and further placed inside a cardboard box to protect them from direct shock during shipping. Additionally, pack the monitor in a wooden crate when shipping to protect against subjecting the cathode-ray tube (CRT) or the PC boards to too much weight.



- CAUTION: 1. CONNECTOR UNLESS OTHERWISE SPECIFIED INDICATE MINI UNIVERSAL MAINTAINANCE TYPE.
2. THICK LINES UNLESS OTHERWISE SPECIFIED INDICATE AWG18, AND THIN LINES AWG22.
3. APPLY SOCKET CONTACT FOR PLUG CONNECTOR AND PIN CONTACT FOR CAP CONNECTOR.
4. USE F2 FUSE FOR INPUT VOLTAGE V2 AND USE F4 FUSE FOR INPUT VOLTAGE V1.
5. CONNECT TRANSFORMER-TAP, ADJUSTING INPUT VOLTAGE.

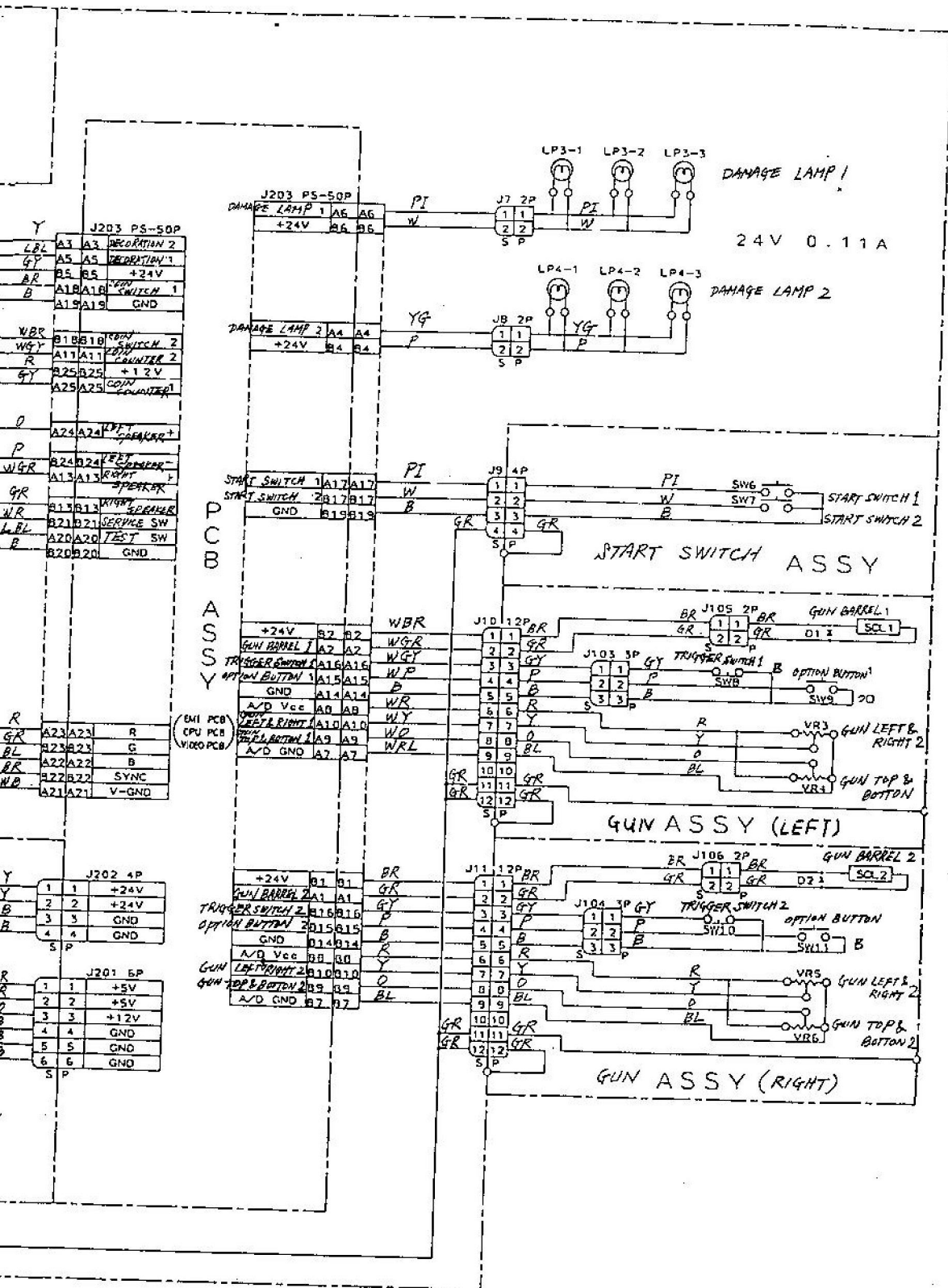
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