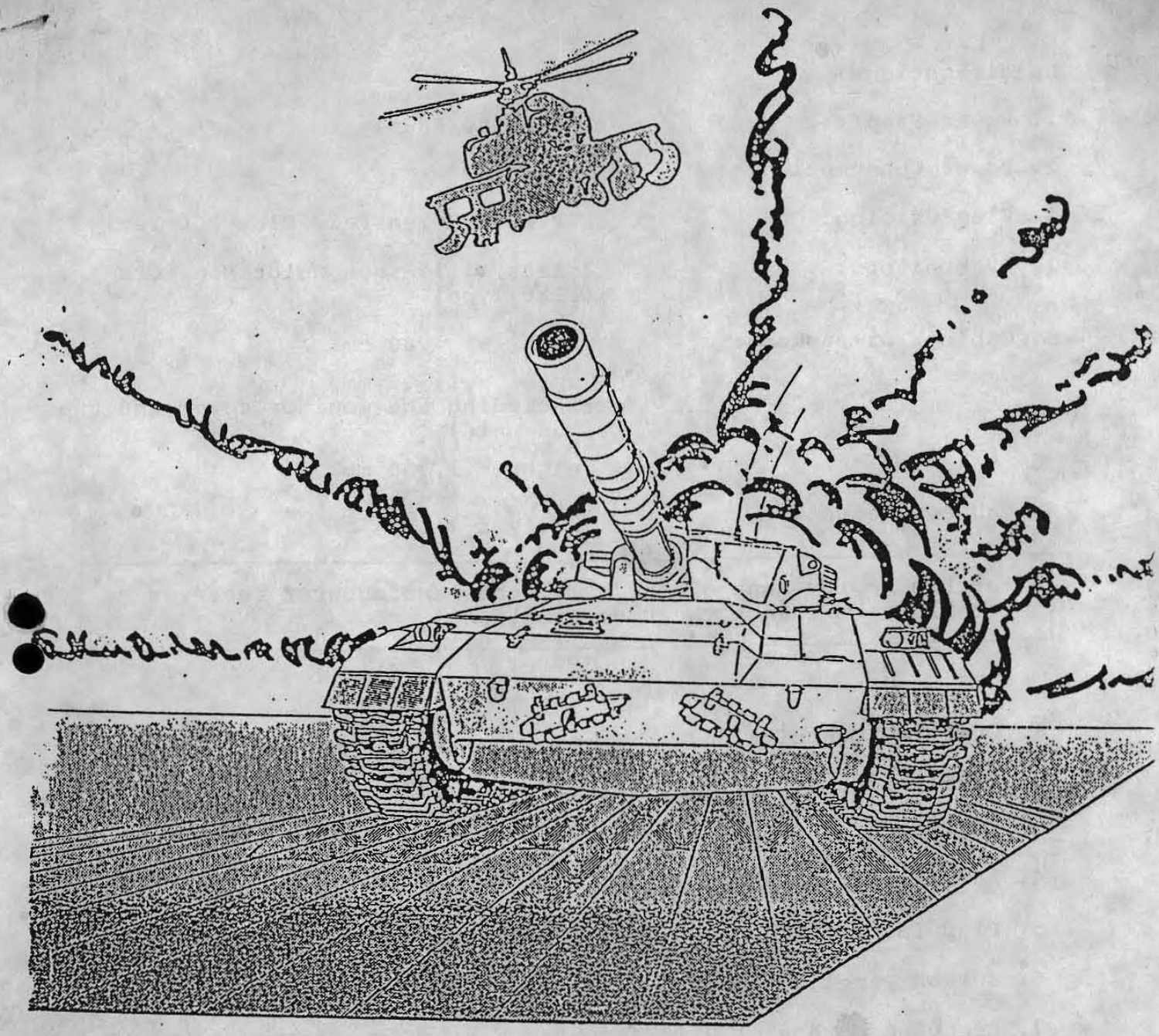

CYBER TANK

SERVICE INSTRUCTIONS AND PARTS CATALOGUE

CORELAND

CORELAND TECHNOLOGY INC.

Specifications:

1. Power Supply:	100VAC(50/60Hz)
2. Power Consumption:	305 W
3. Play Pricing:	1 Play-100 Yen(Pair Play-200 Yen)
4. TV Monitors:	2 sets of 19-inch Color Monitors (Flat Type)
5. Cabinet Dimensions:	Width - 780 mm Depth - 1,300 mm (including the monitor cover and the gun unit) Height - 1,750 mm
6. Cabinet Weight:	158 kg

For the improvement of the game, the manufacturer reserves the right to change the specifications.

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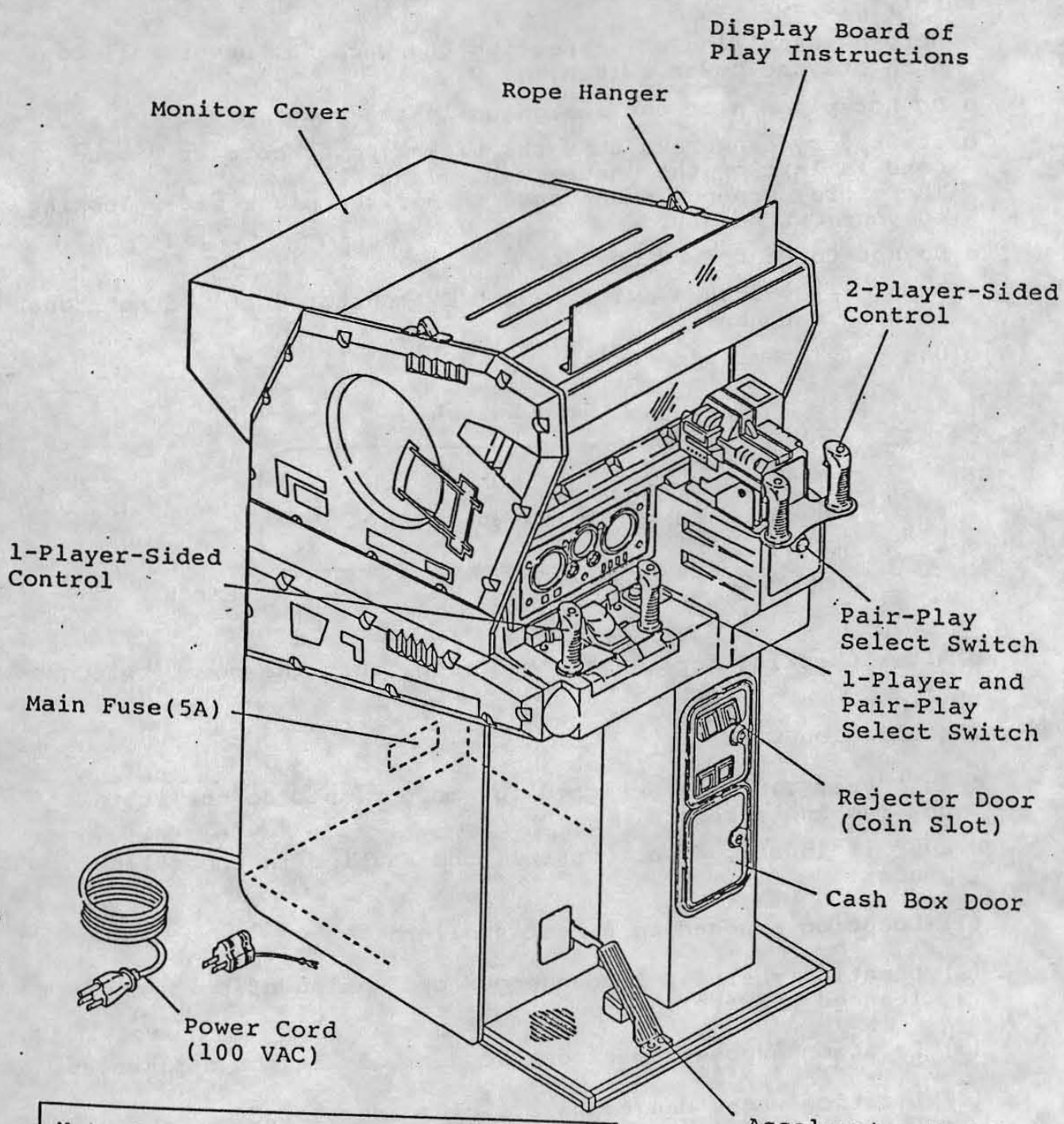
1. Overview Description

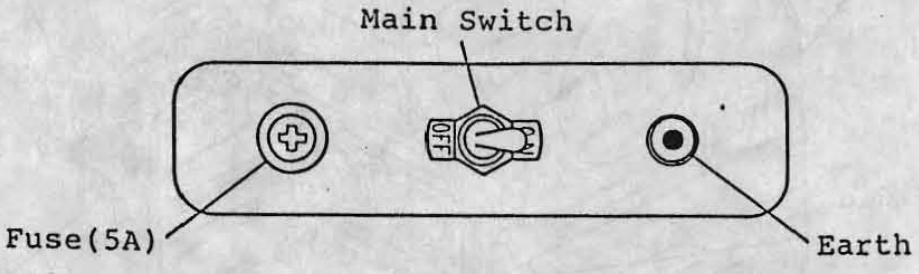


Note: In case that your wall outlet is not 3-wire system, use the accessory socket adapter (KPR-13, 15~125V) and connect the power cord into the outlet.

2. Handling Care

In installing or inspecting of "Cyber Tank", special care must be taken when handling the machine so that the game can be safely played.

- o Before installing or inspecting the machine, never fail to turn off the power switch.
- o Do not plug in or out instaneously the power plug.
- o It is very dangerous that the nacked power cord or ground cord is left on the passageway.
  Therefore, connect such cords in a fixed place after looking to your own safety.
- o Do not touch the PC boards.
- o As higher voltages exist in the TV monitor unit, do not touch it with wet hands.
- o Use only specified fuses.



- o After checking for normal condition, turn the power switch on.

3. Installation Care

- o As "Cyber Tank" is designed for indoor use, do not install the machine outdoors.
- o Ever if indoor, do not install the machine in the following places.

① Location exposed to direct sunlight.

② Location where it is dangerous of leaking of rain or leakage of water.

③ Location exposed to excessive heat of heation appliances.

④ Location where dangerous articles are stored.

⑤ Location with strong vibrations.

⑥ Location where the surface is inclined.

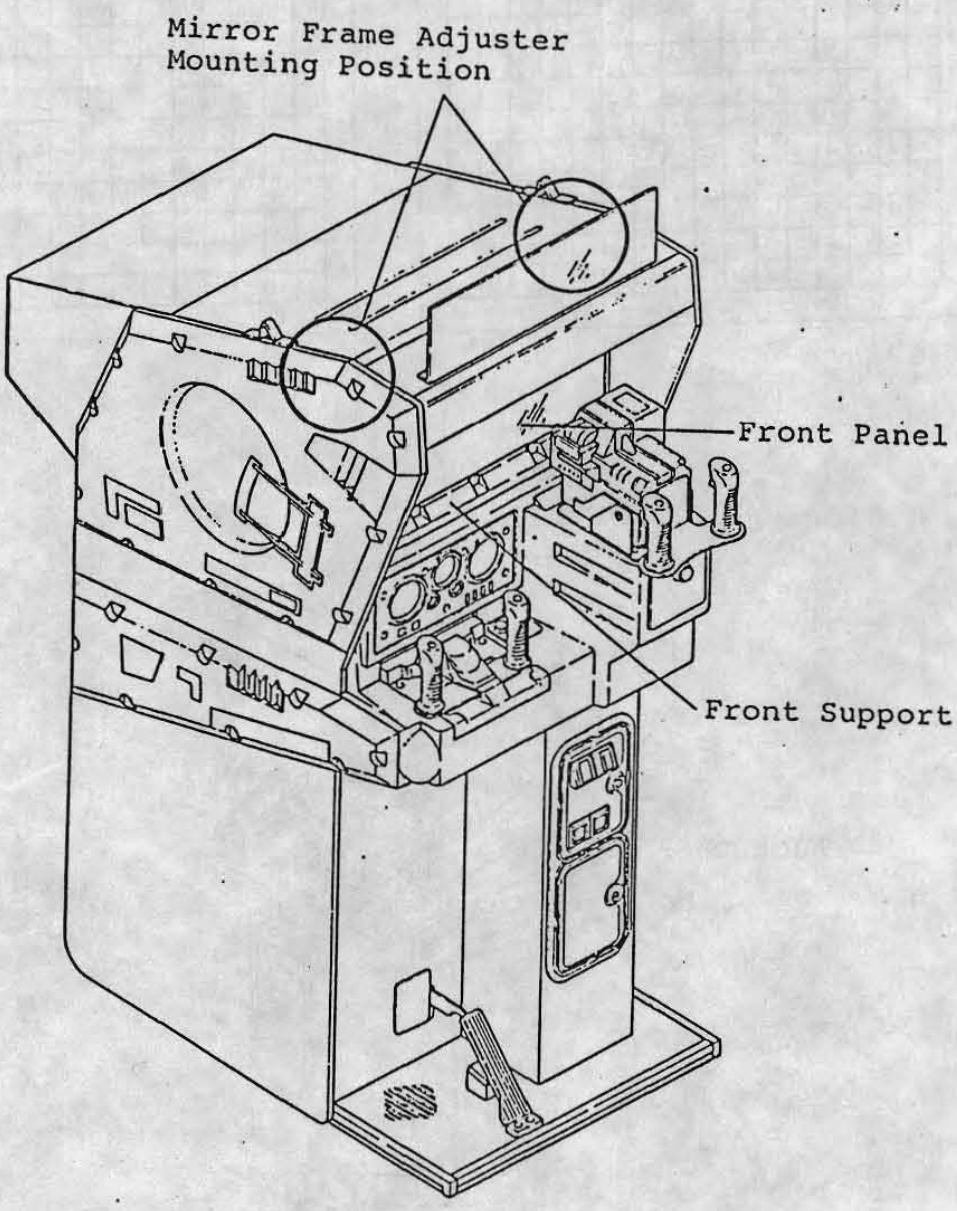
⑦ Location where installations for prevention of disasters such as a fire extinguister are equipped.

⑧ Location where the machine will obstacle emergency exits.

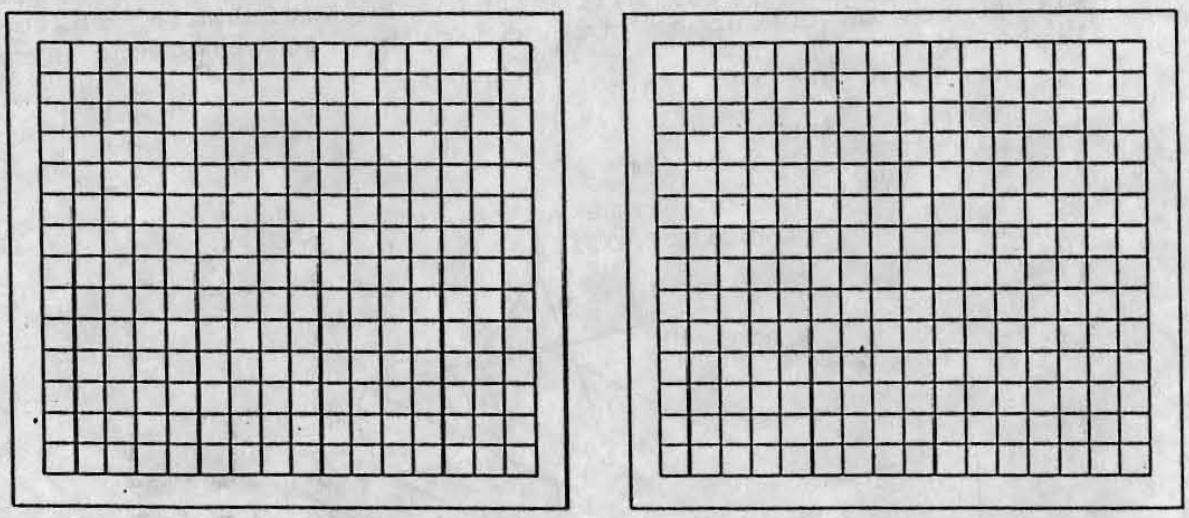
4. Adjustments of Screens

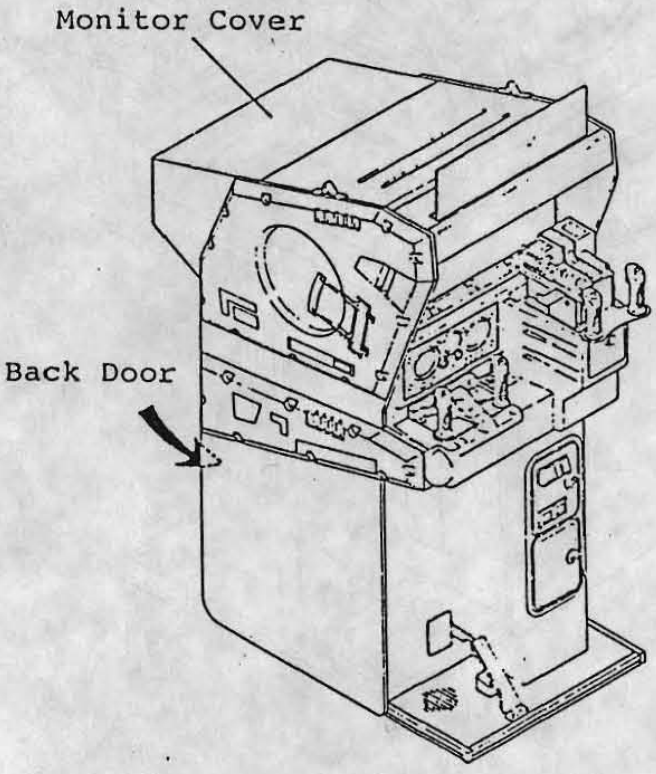
o Although this game is adjusted before shipping, the both monitor screens may not slightly meet each other depending on the condition of location. In such case, adjust the screens as follows:

☆ In case that the both screens get out of position in back and borth directions:
Remove the front support and the front panel, and adjust the screens by changing the mounting angle of the half mirror.
Adjusting method: Adjust the screens by shifting the position of the(pentagon-shaped) mirror frame adjuster(which fastens the half mirror on the upper both sides) by loosening the screws slightly.



☆ In case that the both screens get out of position in up, down, left and right directions:
Once press the "TEST SW" when the attract mode is displayed and the screens with 15 horizontal lines and 17 vertical lines appear as shown below.
Adjust these screens by using the "H-POSITION" and "V-POSITION" potentiometers shown in the potentiometer layout drawing(in next page).
When adjusting, the right-sided monitor can be adjusted after removing the back door, and the left-sided monitor can be adjusted after removing the monitor cover.

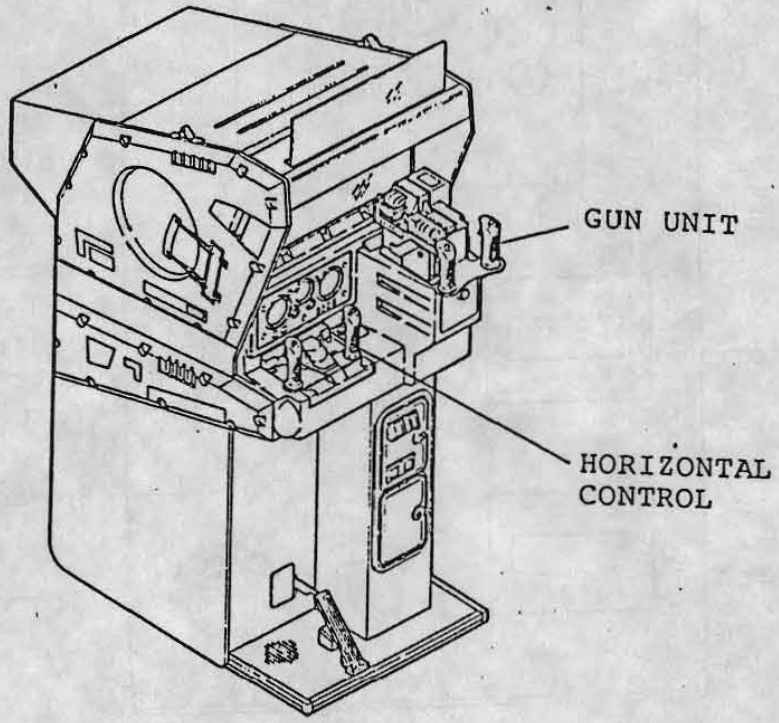




5. Play Instructions

- This game can be played by 2 players at the same time, and the 2nd player can join the game during playing by the 1st player.

- The 1st player uses the horizontal control and the 2nd player uses the gun unit to destroy the attacking enemies.



- Player's bullets are supplied depending on the time and distance.

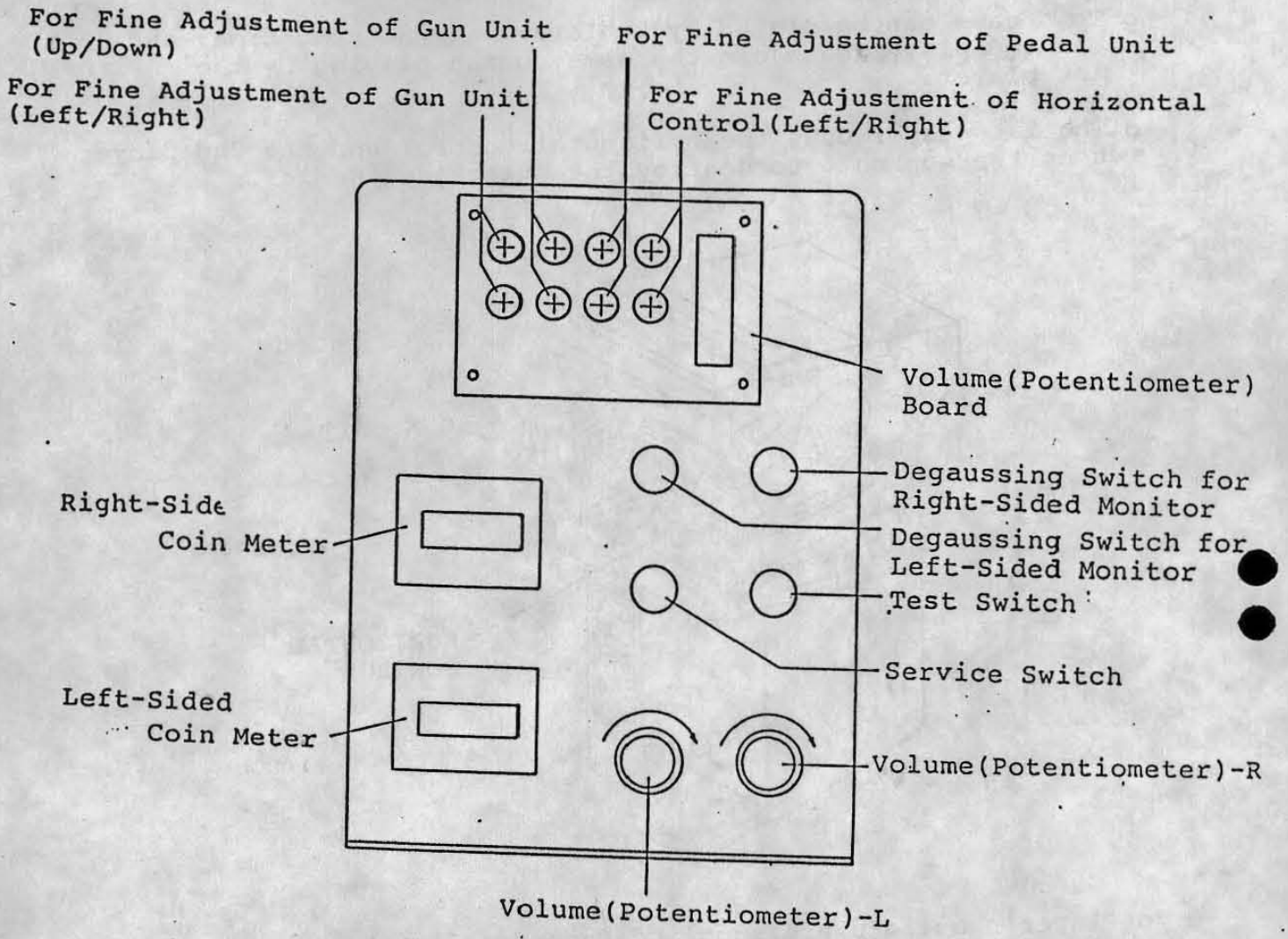
- The 1st player receives shocks when a player's tank hits an obstancle or when a player's tank is lost. The 2nd player feels vibrations of the gun unit itself during attacking.

- There are 4 rounds. Game ends when the player(s) can clear the final round or all of player's tanks have been lost.

- Chaning-over of the continue play can be done by using the DIP-SW located on the PCB. And the factory setting for this is "With". In the final round, however, the setting of the continue play cannot be made regardless of this feature.

- One player's tank is added for higher scoring points (See page 19.)
  The scoring points are reset to "0" when the 2nd player joins the game.

6. Switch Panel



o Volume(potentiometer) Board

For fine-adjusting the 1-P and 2-P control as well as the pedal unit.

o Service Switch

By using this switch, the number of credits can be increased without actuating the counter.

o Test Switch

For operation test. See the section of the self test.

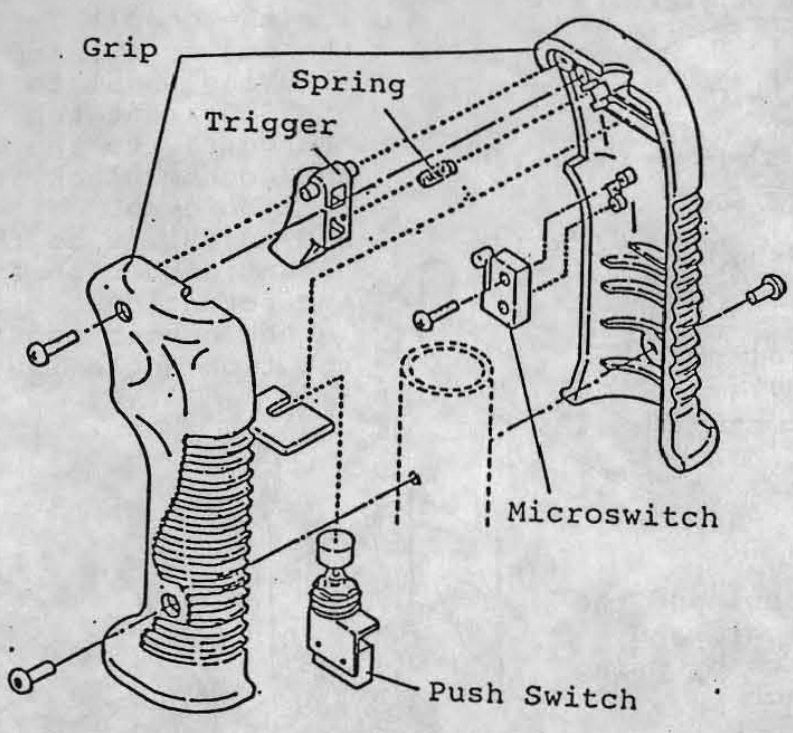
o Volumes(Potentiometers), R & L

For adjusting the sound volume on the R-and L-sides.

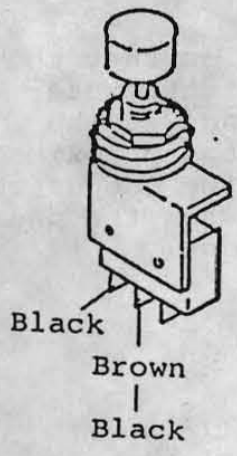
o Degaussing Switches

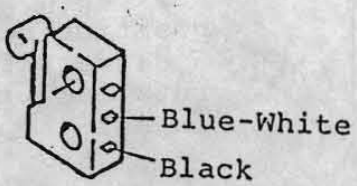
As this game uses the color video monitors, color aberration may occur when the machine is installed or moved. In such cases, press these degaussing switches.(Use these switches only after an interval of 10 minutes when once used.)

7. Removing Method of Grip Assy and Wiring for Microswitches

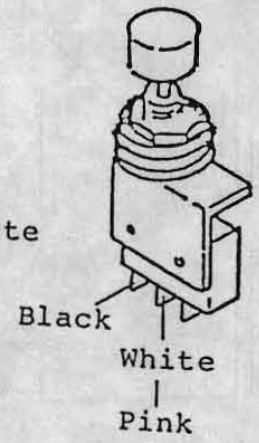


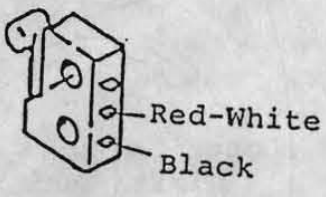
HORIZONTAL CONTROL(1P)





GUN UNIT(2P)





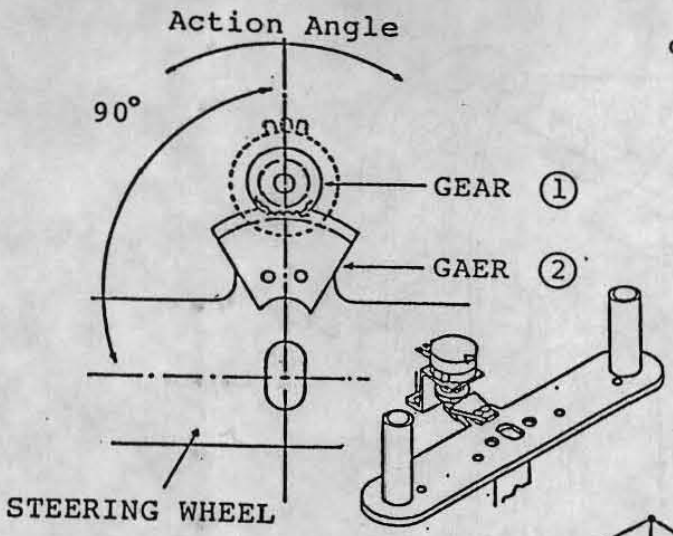
Notes:

1) Remove the screws and separate the left and right grips.

2) Attention must be paid so that the trigger spring will be not lost.

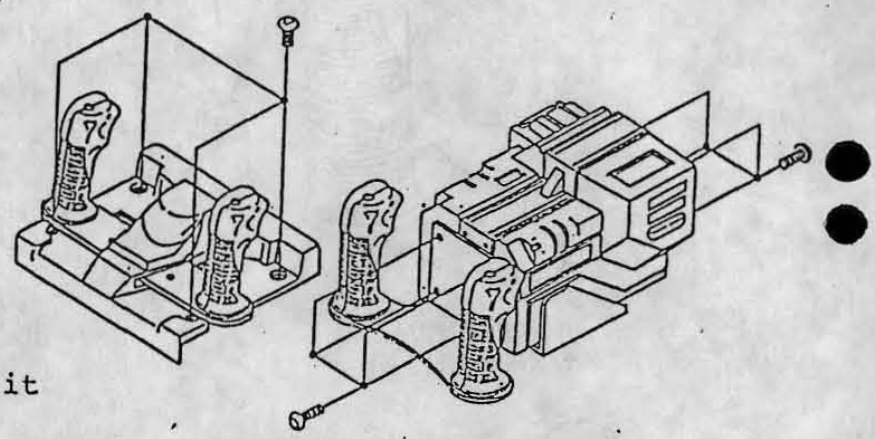
3) The microswitch is fastened by using two screws. And the push switch is held by using the plate. The terminal cord colors for each microswitch are specified. Connect them accordingly, and sloder them correctly.

8. Adjustments of Steering Wheel Potentiometer (including Gun Unit)

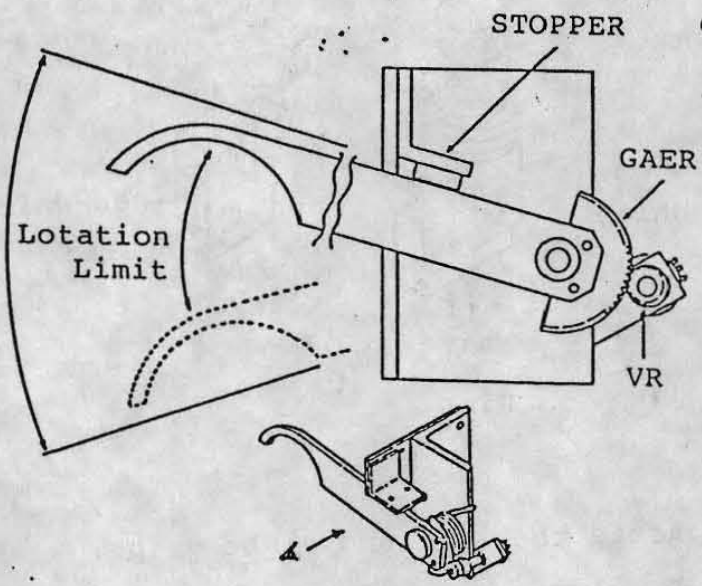


o For the gear ①, fully basten the set screw, and set the steering wheel to the position of 90° so that the rotation of the gear ② to the clockwise and counterclockwise directions will be even.
And adjust it so that the potentiometer shaft will be in the potentiometer shaft will be in the center position when the rotation angle is 90°.

Remove the screws and the cover shown right, and make adjustments by using the align wrench (accessory).



9. Adjustments of Pedal Unit



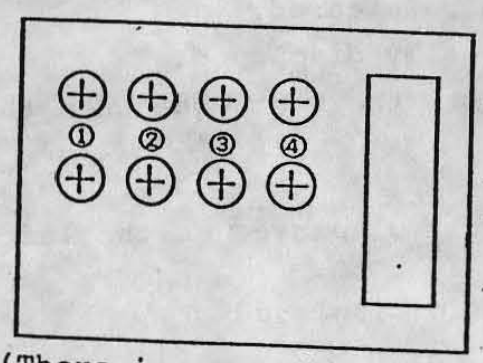
o Adjust the unit so that the shaft of the potentiometer will be positioned at the position rotating approximately 5 degrees from the end of the rotation limit when the pedal is not stepped on.

After finishing the above adjustment, adjust the VRs (potentiometers) on the VR board by referring to next page.

☆ Adjustments of VRs(Potentiometers) on VR Board

After finishing the adjustment on the previous page, press the "TEST SW" 4 times during the attract mode, and adjust each VR (potentiometer) by looking at the level shown in the lower half of the screen(of the left-sided monitor) in Figure 9 on page 18. (See page 8.)

(The Δ-mark always flickers and is difficult to be read clearly.)



(There is no problem to make the adjustments by using the either upper or lower potentiometers.)

① When the 2-P sided gun is turned to the extreme left: [2Δ], and to the extreme right: [BΔ].

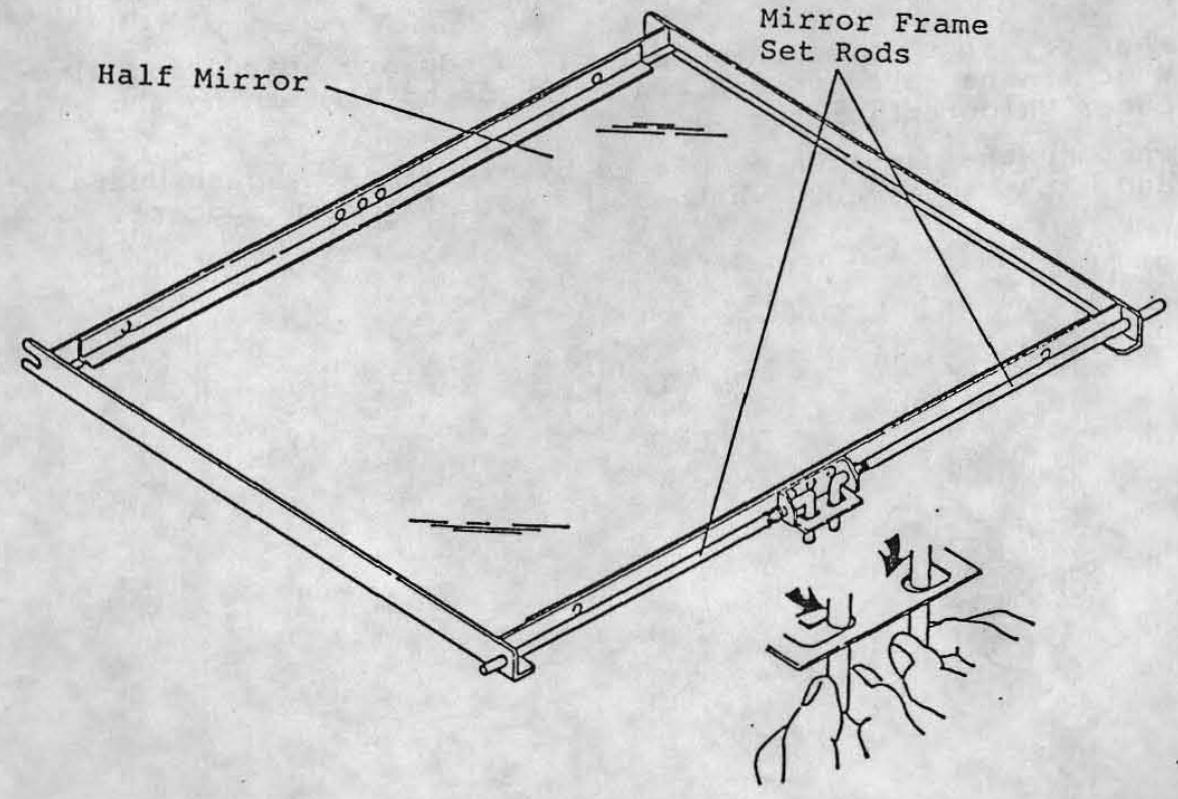
② When the 2-P sided gun is turned to the extreme upward direction: [5Δ], and to the extreme downward direction: [BΔ].

③ It is not necessary to adjust this VR. The degree of the speed(when the accelerator pedal is depressed) is different.

④ When the player releases his hold from the 1-P sided steering wheel: [8Δ].(In this case, "8" flickers a little bit, and "7" can be seen.)

10. Removing Method of Half Mirror

o The half mirror is mounted on the cabinet in the state that it is attached to the mirror mounting assy. First, remove the front support and the front panel.(See page 3.) Then, pull out the half mirror by sliding the both mirror frame set rods(which fasten the half mirror on the upper front side) toward inside and by turning it toward you as shown below.



11. Self Test

Inspection Items for T-8008 T-Type Board(Main and Sound Board):
(See the "Explanation for Operation Confirmation".)

Check:

1. whether the normal screen appears when the power switch is turned on.
2. whether the "IC CHECK" mode can be cleared.
3. whether the attract mode is normally displayed.
4. whether the screen mode changes to the test mode when the "TEST" button is pressed.
5. also check(in the test mode):

(1) whether ruled lines are correctly displayed on the left and right CRTs.

(2) whether the normal color bars are displayed (with low brightness).

(3) whether the normal color bars are displayed (with high brightness).

(4) whether all(10 pieces of) push-button switches are correctly inputted.

(5) whether the DIP switches are correctly inputted by them (ON/OFF).

(6) whether all four VR(potentiometer) inputs are correctly inputted(ØØ→FF).

(7) whether all sounds are heard by pressing the "1P START" push button.

6. whether the normal screen is displayed for five minutes or more.
7. whether, at this moment, correct sounds are heard, and also whether the sound volume can be adjusted by turning the outer VR(potentiometer).
8. whether the game can be played by pressing the push button, and, at this moment, whether the normal screen appears.

T-8008 T-Type Board

Explanation for Operation Confirmation

1. Power-on

When the power is turned on, the screens ①, ② and ③ are displayed in this order, then the screen is changed to the attract mode.

① This shows that the screen will enter the check mode at the intical time.

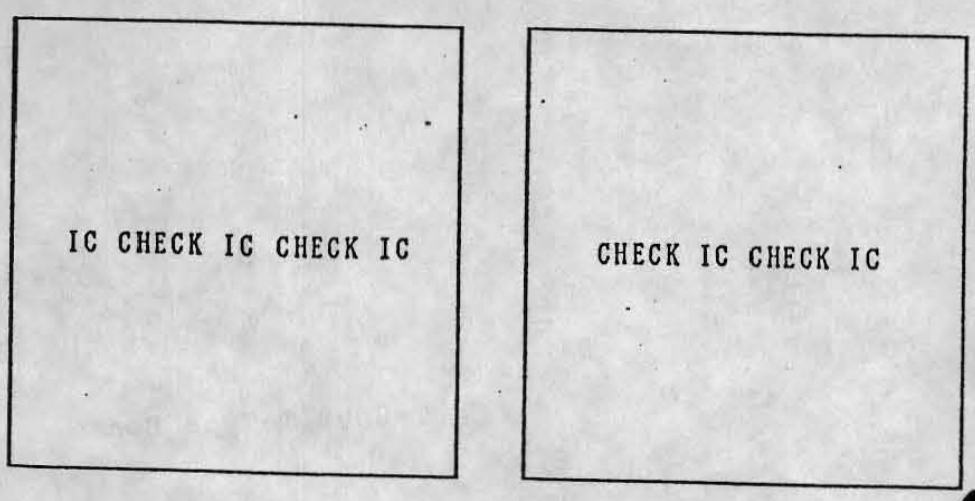


Figure 1

② On the whole surface of the screen, "0"s are displayed.

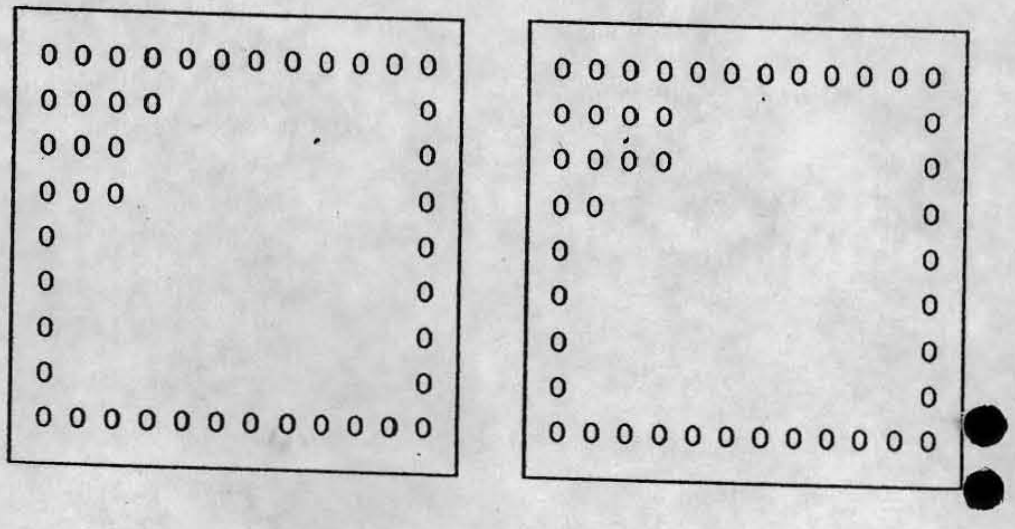


Figure 2

③ This shows the initial condition of each IC. When "BAD" is displayed in red, the test is repeated from the above ② until all ICs become OK.

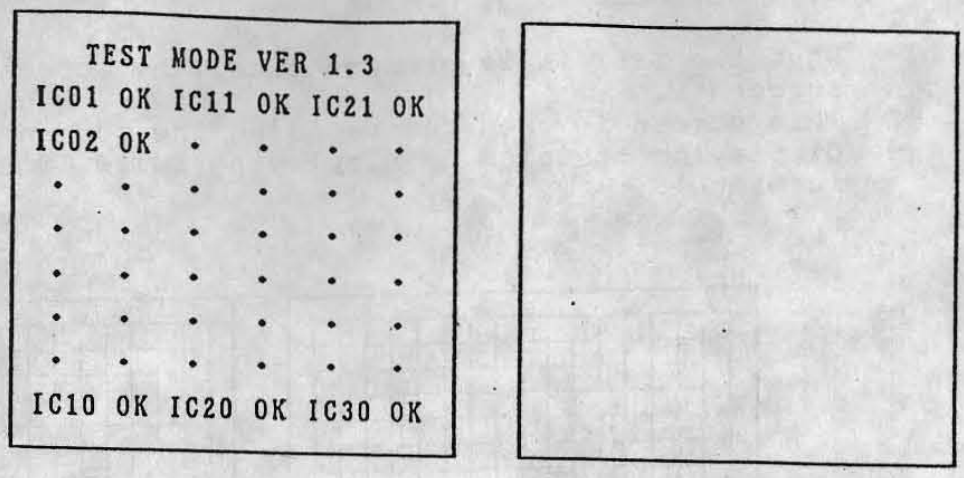


Figure 3

④ Attract Mode.

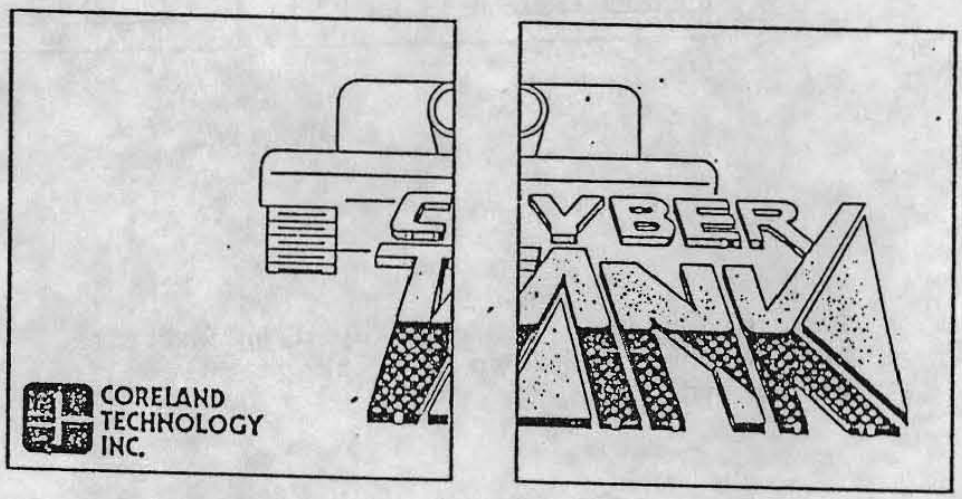


Figure 4

2. Screen Check-1

When the TEST SW is pressed once, the screen changes to the screen ⑤ .
This screen is used for deciding the screen linearity and displaying position by displaying ruled lines(15 in length x 17 in width).

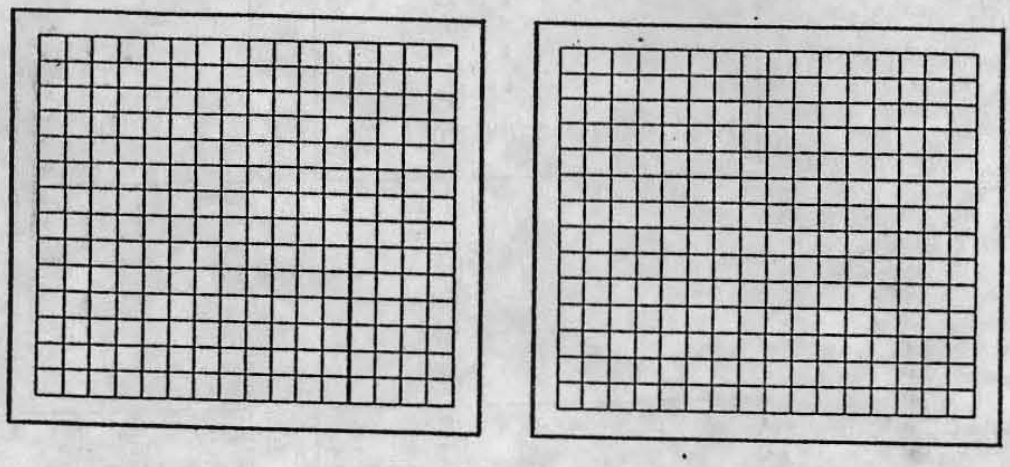


Figure 5

The ruled lines are displayed in white.
Adjust the screen so that these ruled lines will be not cut or distorted.

3. Color Bar-1

In the "Screen Check-1"(the above item 2), when the "TEST" switch is pressed, the screen changes to a screen shown in Figure 6.
This screen shows the low brightness color bars.
Make sure that changing of the brightness of each color(bar) is well ballanced.

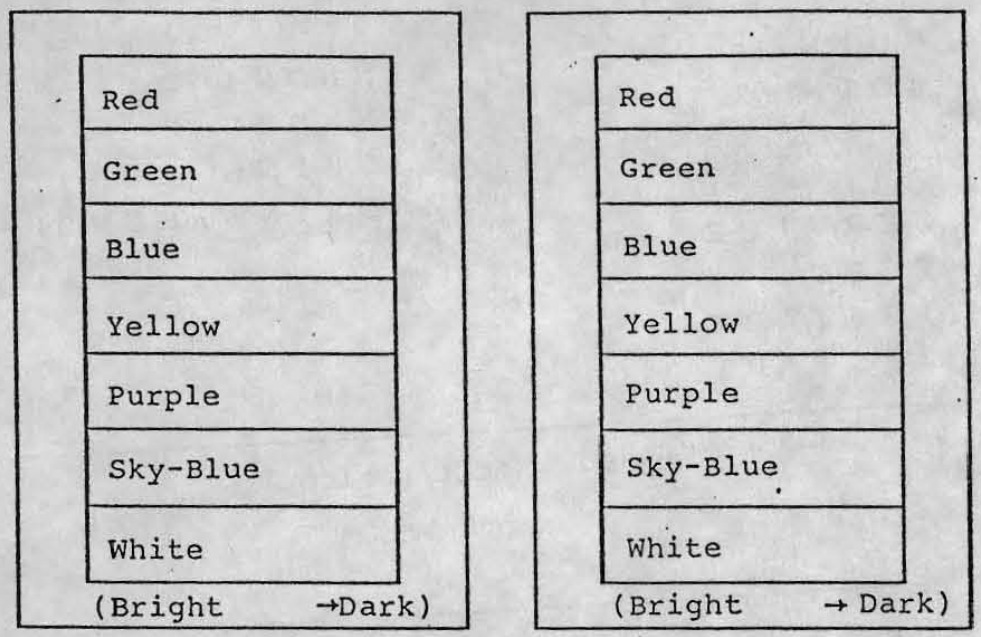


Figure 6 (Low Brightness Color Bars)

4. Color Bar-2

In the "Color Bar-2"(the above item 3), when the "TEST" switch is pressed once again, the screen changes to a screen shown in Figure 7.
This screen shows the high brightness color bars.
Make sure that changing of the brightness of each color(bar) is well ballanced.

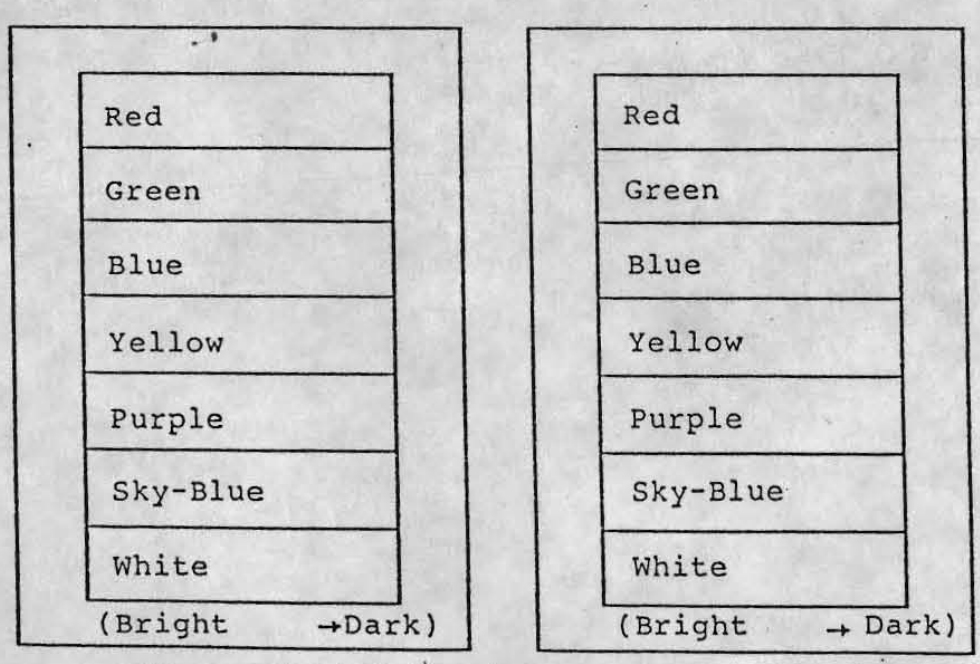


Figure 7 (High Brightness Color Bars)

5. Part Check

In the "Color Bar-2"(the above item 4), when the "TEST" switch is pressed once more, the screen changes to that shown in Figures 8 and 9.

```
                PORT  CHECK

COIN 1     0      CANNON1          0
COIN 2     0      CANNON2          0
                  MACHINE GUN1     0
                  MACHINE GUN2     0
SERVICE    0
TEST       0
1PSTART    0
2PSTART    0
```

Figure 8 (Left Monitor)

```
                                  ※
 DIP SW1      DIP SW2      DIP SW3
12345678     12345678     12345678
00000000     00000000     00000000
                        MACHINE GUN
                         UP    LEFT
ACCELE HANDLE           DOWN  RIGHT
  00      00             00    00
SOUND PORT
  00
```

Figure 9 (Right Monitor)

※ The DIP SW-3 is not used.

When the screen enters into this mode, the "1P LAMP" and "2P LAMP" LEDs are turned off among.

5-1 Input Port Check

Check for that the display of the left monitor changes(0→1), corresponding to each SW as shown below.

	SW		Left Monitor(Figure 8)	
	1) COIN 1	ON ←→ OFF	COIN 1	1 ←→ 0
	2) COIN 2	ON ←→ OFF	COIN 2	1 ←→ 0
	3) SERVICE	ON ←→ OFF	SERVICE	1 ←→ 0
※	4) (TEST	ON ←→ OFF	TEST	1 ←→ 0)
	5) 1P START	ON ←→ OFF	1P START	1 ←→ 0
	6) 2P START	ON ←→ OFF	2P START	1 ←→ 0
	7) CANNONE 1	ON ←→ OFF	CANNONE 1	1 ←→ 0
	8) CANNONE 2	ON ←→ OFF	CANNONE 2	1 ←→ 0
	9) MACHINE GUN 1	ON ←→ OFF	MACHINE GUN 1	1 ←→ 0
	10) MACHINE GUN 2	ON ←→ OFF	MACHINE GUN 2	1 ←→ 0

※ At this moment, when the "TEST" switch is pressed, the screen changes from the port check mode to the initial check mode (the item ①, Figure 1).
The checking of the test switch can be done at the time when the screen enters into this mode.

5-2 DIP SW Check

Check for that the display of the right monitor(Figure 9) changes(0←→1), corresponding to the upper board DIP SWs as shown below.

o IC BOARD

DIP SW1	DIP SW2	※ DIP SW3
1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
ON	ON	ON
↑ _____	↑ _____	↑ _____
↓	↓	↓
OFF	OFF	OFF

o RIGHT MONITOR(Figure 9)

DIP SW1	DIP SW2	※ DIP SW3
1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
ON	ON	ON
↑ _____	↑ _____	↑ _____
↓	↓	↓
OFF	OFF	OFF

Note) When checking the DIP SWs, check bit by bit by repeating OFF→ON→OFF.

※ The DIP SW-3 is not used.

5-3 A/D Check

Check for that the display of the right monitor(Figure 9) changes(ØØ←FF), corresponding to each potentiometer as shown below.

POTENTIOMETER		RIGHT MONITOR(Figure 9)	
ACCELE	Left←→Right	ACCELE	00←→FF
HANDLE	Left←→Right	HANDLE	00←→FF
UP/DOWN	Left←→Right	UP/DOWN	00←→FF
LEFT/RIGHT	Left←→Right	LEFT/RIGHT	00←→FF

5-4 Sound Check

Check for that the sound port value of the right monitor changes(ØØ→3ØH) whenever the "1P START" SW is pressed. At the same time, check for the sound board.

5-5 End

When each check is finished, press the "TEST" SW so that the screen changes from the mode shown in Figure 1 to the attract mode.

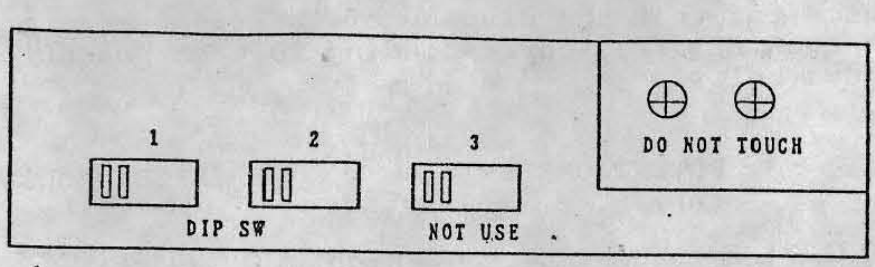
6. Check on Attract Mode

The game attract mode begins from the screen shown in Figure 4. Check for that the back scenerys, the characters, the objects, etc. are normal.

(Note) When the service switch is pressed, the number of credits shown on the lower right part of screen is increased from ØØ to the number equals to that how many times the button is pressed, and the game sounds are heard. At this moment, when the "2P START" button is presed, the game starts from the 2-player mode. Check for that the screen is normal.

(Note) Watch the screen for five minutes or more. Also, check for that the correct sounds are heard during the attract mode.

12. Adjustments of Game PC Board



◇DIP SW 1

(*) : FACTORY SETTING

SETTING		POSITION	1	2	3	4	5	6	7	8
PLAY PRICING COIN 1	*	1 COIN 1 PLAY					OFF	OFF	OFF	OFF
		1 COIN 2 PLAYS								ON
		1 COIN 3 PLAYS							ON	OFF
		1 COIN 4 PLAYS								ON
		1 COIN 5 PLAYS						ON	OFF	OFF
		1 COIN 6 PLAYS								ON
		1 COIN 7 PLAYS							ON	OFF
		2 COINS 1 PLAY								ON
		2 COINS 3 PLAYS					ON	OFF	OFF	OFF
		2 COINS 5 PLAYS								ON
		3 COINS 1 PLAY							ON	OFF
		3 COINS 2 PLAYS								ON
		3 COINS 4 PLAYS						ON	OFF	OFF
		4 COINS 1 PLAY								ON
		4 COINS 3 PLAYS							ON	OFF
		FREE PLAY								ON
PLAY PRICING COIN 2	*	1 COIN 1 PLAY	OFF	OFF	OFF	OFF				
		1 COIN 2 PLAYS				ON				
		1 COIN 3 PLAYS			ON	OFF				
		1 COIN 4 PLAYS				ON				
		1 COIN 5 PLAYS		ON	OFF	OFF				
		1 COIN 6 PLAYS				ON				
		1 COIN 7 PLAYS			ON	OFF				
		2 COINS 1 PLAY				ON				
		2 COINS 3 PLAYS	ON	OFF	OFF	OFF				
		2 COINS 5 PLAYS				ON				
		3 COINS 1 PLAY			ON	OFF				
		3 COINS 2 PLAYS				ON				
		3 COINS 4 PLAYS		ON	OFF	OFF				
		4 COINS 1 PLAY				ON				
		4 COINS 3 PLAYS			ON	OFF				
		5 COINS 3 PLAYS				ON				

◇DIP SW 2

SETTING	POSITION	1	2	3	4	5	6	7	8
CONTINUED PLAY	WITHOUT								OFF
	* WITH								ON
ATTRACT SOUNDS	NO PRODUCED							OFF	
	* PRODUCED							ON	
※GAME DIFFICULTY	VERY EASY		OFF NOT USE	OFF NOT USE		OFF	OFF		
	* EASY						ON		
	DIFFICULT					ON	OFF		
	VERY DIFFICULT						ON		
COIN VALUE	DIFFERENT VALUE				OFF				
	* SAME VALUE				ON				
	* 1 CREDIT 1 PLAY	OFF							
	1 CREDIT PAIRPLAY	ON							

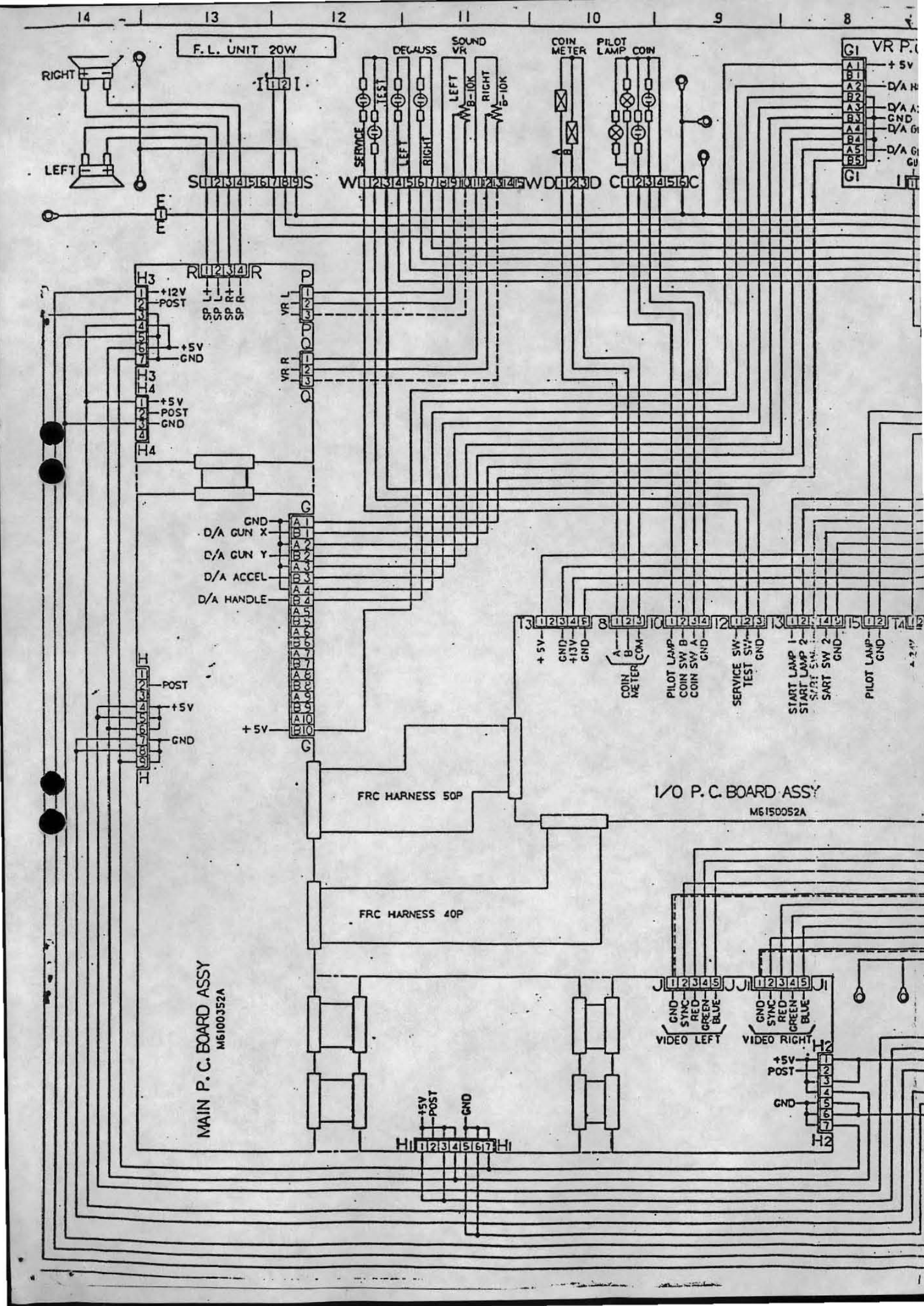
(※) Depending on the settings of the difficulty level, the number of the player's tanks is increased as shown below.

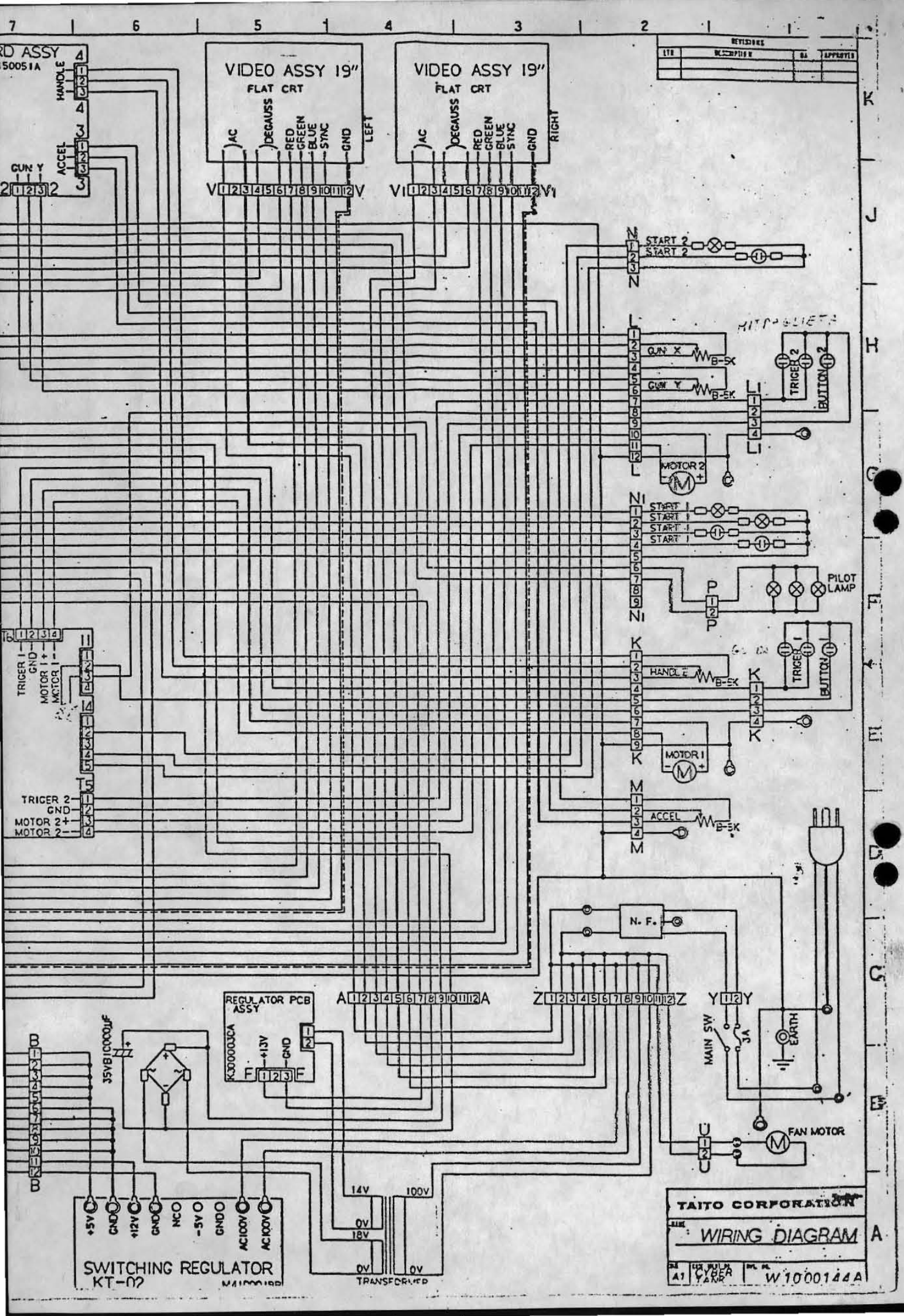
(K≒1,000 points)

Difficulty Level	Single Play	Pair Play
Very Easy	One tank is increased at every 500K.	One tank is increased at 500K and 1,500K, and thereinafter at every 1,000K.
Easy	One tank is increased at 500K and 1,500K, and thereinafter at every 1,000K.	One tank is increased at 500K and 2,000K, and tereinafter at every 1,000K.
Difficult	One tank is increased at 500K and 2,000K, and thereinafter at every 1,000K.	One tank is increased at 500K and 2,500K, and thereinafter at every 1,000K.
Very Difficult	One tank is increased at 500K and 2,500K, and thereinafter at every 1,000K.	One tank is increased at 500K and 3,000K, and thereinafter at every 1,000K.

Notes) In case that the 2nd player joins in a single play during playing, the points scored by the single player are reset to "0" when the 2nd player joins.

When Changing the settings of DIP SWs, turn off the power switch first.


F. L. UNIT 20W
RIGHT
LEFT
DEGAUSS
SOUND VR
COIN METER
PILOT LAMP
COIN
SERVICE
TEST
LEFT
RIGHT
LEFT B-10K
RIGHT B-10K
VR P.C.
+5V
D/A H
D/A A
GND
D/A G
H3
+12V
POST
+5V
GND
H4
+5V
POST
GND
SP L+
SP L-
SP R+
SP R-
VR L
VR R
GND
D/A GUN X
D/A GUN Y
D/A ACCEL
D/A HANDLE
+5V
POST
+5V
GND
T3
+5V
GND
+13V
GND
COIN METER
PILOT LAMP
COIN SW B
COIN SW A
GND
SERVICE SW
TEST SW
GND
START LAMP 1
START LAMP 2
START SW 2
GND
PILOT LAMP
GND
FRC HARNESS 50P
FRC HARNESS 40P
I/O P.C. BOARD ASSY
M6150052A
MAIN P.C. BOARD ASSY
M6100352A
GND
SYNC
RED
GREEN
BLUE
VIDEO LEFT
VIDEO RIGHT
+5V
POST
GND
H2
H1


VIDEO ASSY 19"
FLAT CRT
LEFT
VIDEO ASSY 19"
FLAT CRT
RIGHT
AC
DEGAUSS
RED
GREEN
BLUE
SYNC
GND
HANDLE
ACCEL
GUN Y
START 2
START 2
GUN X
B-5K
GUN Y
B-5K
TRIGER 2
BUTTON 2
MOTOR 2
START 1
START 1
START 1
START 1
PILOT LAMP
HANDLE
B-5K
TRIGER 1
BUTTON 1
MOTOR 1
ACCEL
B-5K
TRIGER 1
GND
MOTOR 1+
MOTOR 1-
TRIGER 2
GND
MOTOR 2+
MOTOR 2-
N. F.
REGULATOR PCB ASSY
K30000JCA
+13V
GND
35VB10000uF
MAIN SW
EARTH
FAN MOTOR
+5V
GND
+12V
GND
NC
-5V
GND
AC100V
AC100V
SWITCHING REGULATOR
KT-02
14V
100V
0V
18V
0V
0V
TRANSFORMER
TAITO CORPORATION
WIRING DIAGRAM
A1
CYBER TANK
W1000144A