OPERATION MANUAL

TSC

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CAUTIONS

1. P.C. Boards should not be exposed direct to the sun. Direct sunshine is very harmful to LSI (memory elements).

2. P.C. Boards to be stored or transported should be wrapped by a conductive pouch or aluminum foil, because LSI and IC used in the machine are semiconductor integrated circuits of which basic element is MOS-FET.

3. When images on the Video Monitor screen are disturbed by powerful noise or other electrical causes, turn the main power off once and then on again.

1. SPECIFICATIONS

(1) Power Supply	:	120, 220, 240V + 10%
(2) Power Consumption	:	73W
(3) Size	:	860(W) x 560(D) x 580(H) mm. Height : Adjustable 580, 610, 640 mm.
(4) Weight	:	54 Kgs.
(5) Coinage	:	1 or 2 coins per play, 1 coin for 1 player, 2 coins for 2 players
(6) Number of Player	:	1 or 2 person(s)
(7) Number of Space Battleship	:	3 or 5 Space Battleships(Adjustable)
(8) Accessories	:	Operation Manual : 1 copy Key for table lock : 3 pcs. Fuse : 3 pcs. 4A : 2 pcs. 0.3A : 1 pc.

NOTE : Specifications are subject to change for improvement without notice.

2. INSTALLATION OF THE MACHINE

2-1 Cautions on installation

(1) The power cord of the machine should not be connected to a wall outlet together with large load unit(s) such as motor, cooler, etc.

(2) Turn the power off before setting and removing the P.C. Board and connectors. Carefully handle them.

(3) Do not touch IC, LSI and other electronic parts on P.C. Boards. Do not use a tester or the like on them. (They may be damaged by the inner voltage of the instruments.)

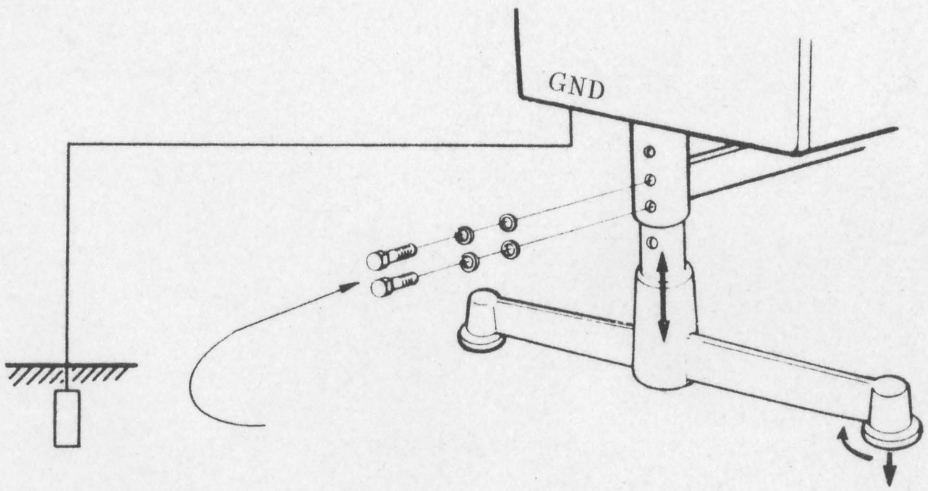
(4) When exchanging a fuse, use a new one of the prescribed capacity.

(5) The machine should be installed where it is not hot, keeping away from a heating appliance and direct sunshine.

(6) The machine should be installed where it is not wet and dusty.

(7) Do not touch the inside of the video monitor which has high tension units. Inform service station, if necessary.

2-2 Adjustment of table height



2-3 Earthing of machine

(1) When the machine is installed in a wet place, it should be grounded to avoid accident by an electric shock.

a) Connect an earthing wire to the earthing terminal of the machine.

b) The opposite end of the earthing wire should be connected to an earthing bar which is firmly inserted into the ground.

(2) Cautions

a) Do not connect the earthing wire to a water pipe, because polyvinyl-choloride pipes are sometimes used in the water lines and, if so, the electronic continuity is cut at the points.

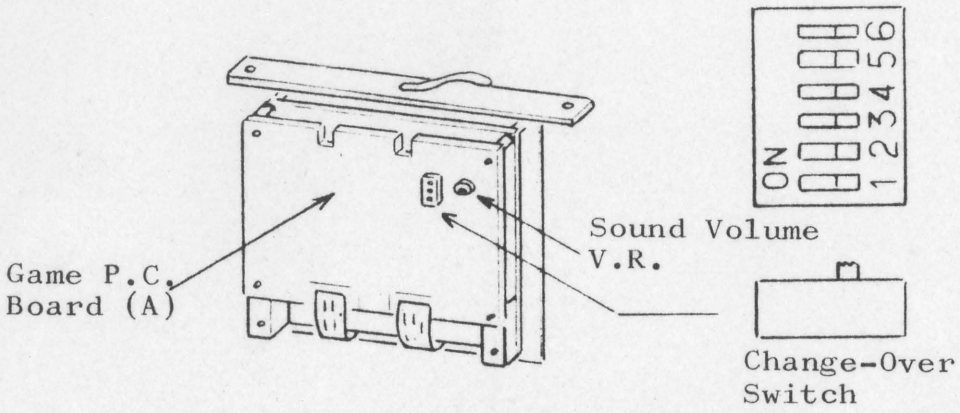
b) Do not connect the earthing wire to the gas pipe absolutely. That is very dangerous.

3. POINTS AND METHODS OF ADJUSTMENT

3-1 Game P.C. Board A

(A) Number of space battleship, number of coin and score level for extra space battleship can be adjusted by the change-over switch on Game P.C. Board A according to the diagram below.

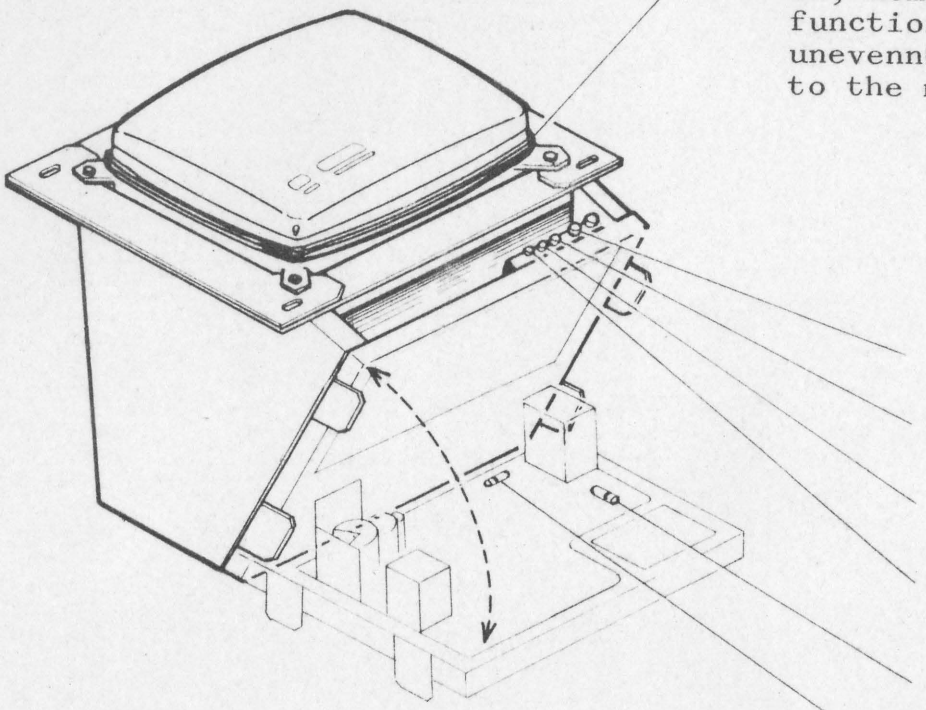
Operate change-over switch after discontinuing power.



	1	2	3	4	5	6
Coinage						
free play	ON	ON				
1 coin /2 plays	OFF	ON				
2 coins/1 play	ON	OFF				
1 coin /1 play	OFF	OFF				
Score level for extra space battleship						
no extra			OFF	OFF		
4000			ON	OFF		
5000			OFF	ON		
7000			ON	ON		
Number of space battleship						
3					OFF	
5					ON	

(B) Sound volume can be adjusted by the variable resistor on the Game P.C. Board A. Turning the VR in the clockwise direction increases sound volume.

3-2 Video Monitor



Demagnetizing Coil

When the power switch is on, demagnetizing coil functions to eliminate unevenness of color, due to the magnetic field.

Brightness

Horizontal Synchronization

Vertical Synchronization

Vertical Size

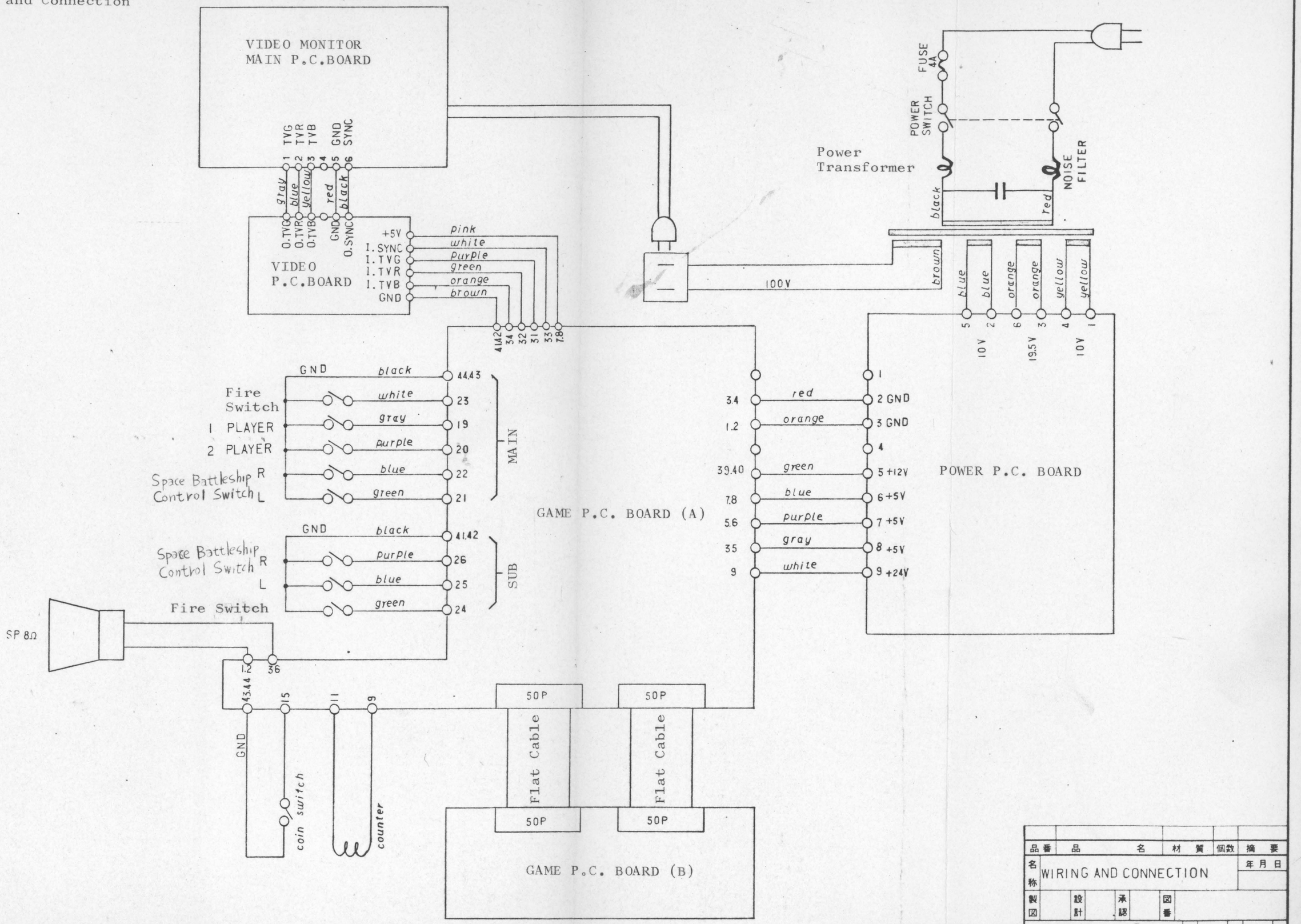
Fuse 4A

Fuse 0.3A

NOTE : Do not touch the inside of the video monitor in which many parts are supplied with high tension.

Fix harness wire when opening and closing the table.

4. Wiring and Connection



品番	品名	材質	個数	摘要
名称	WIRING AND CONNECTION			年月日
製図	設計	承認	図番	

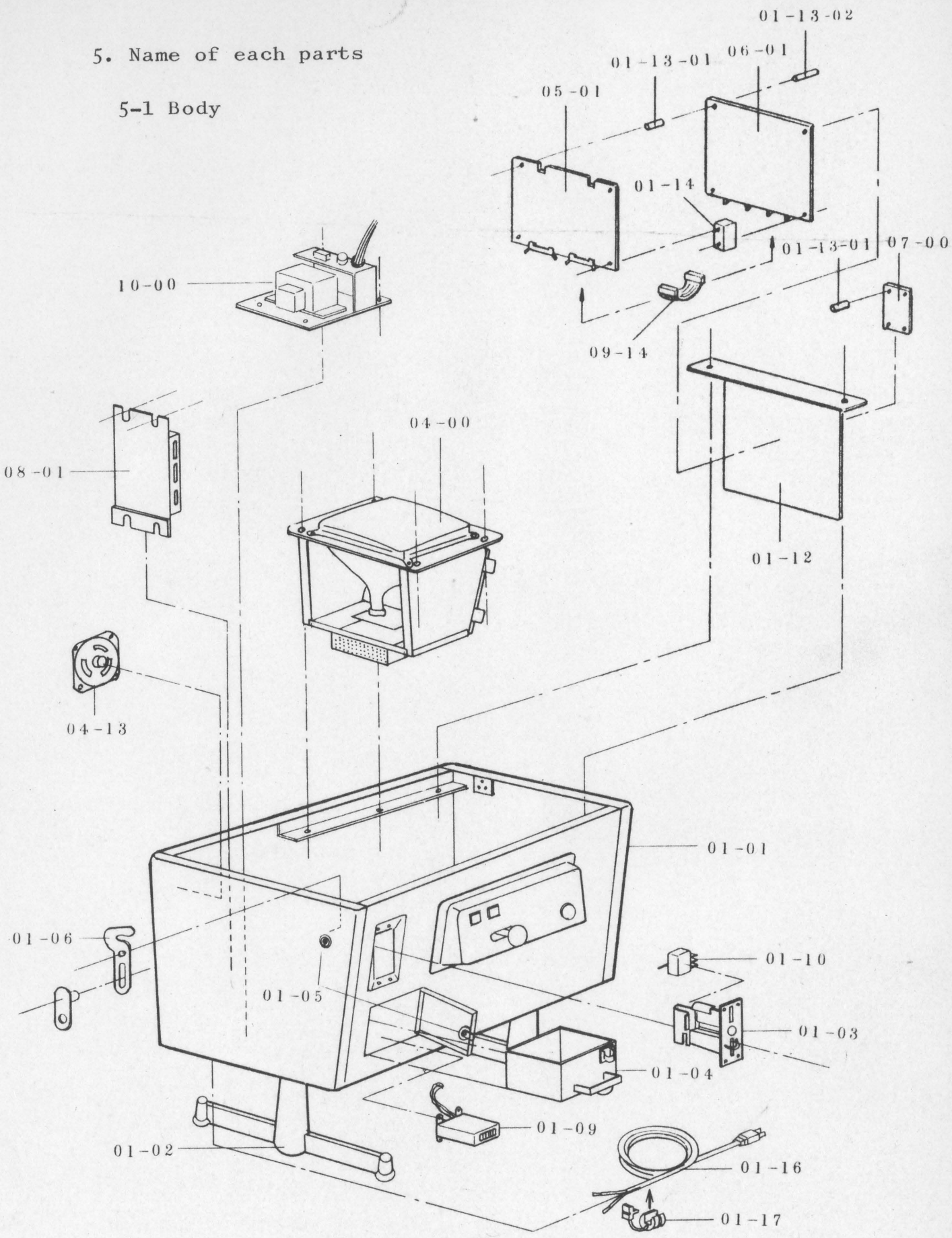
Nintendo 任天堂株式会社

縮尺 寸法 三角法

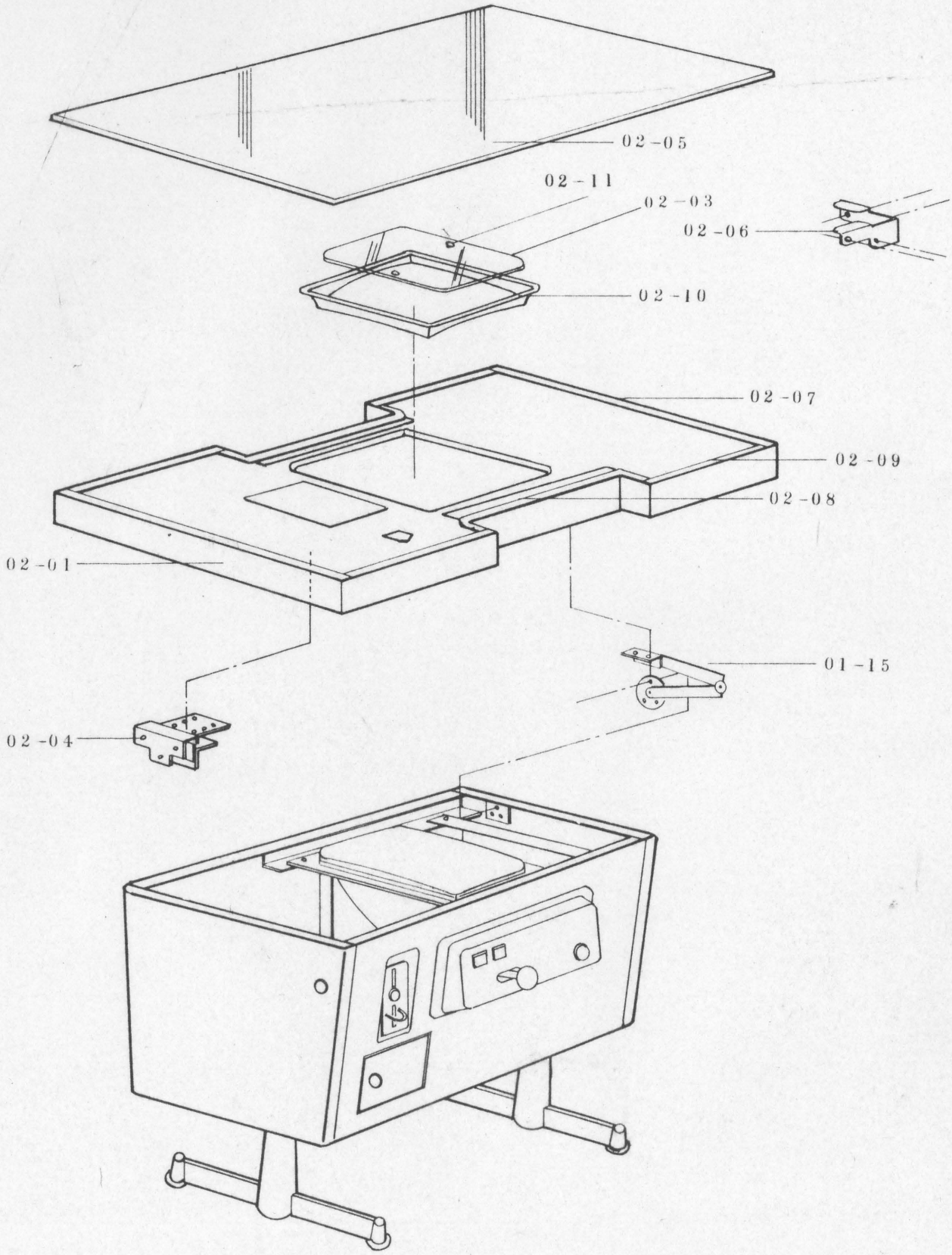
記号	年月日	変更内容	印

5. Name of each parts

5-1 Body



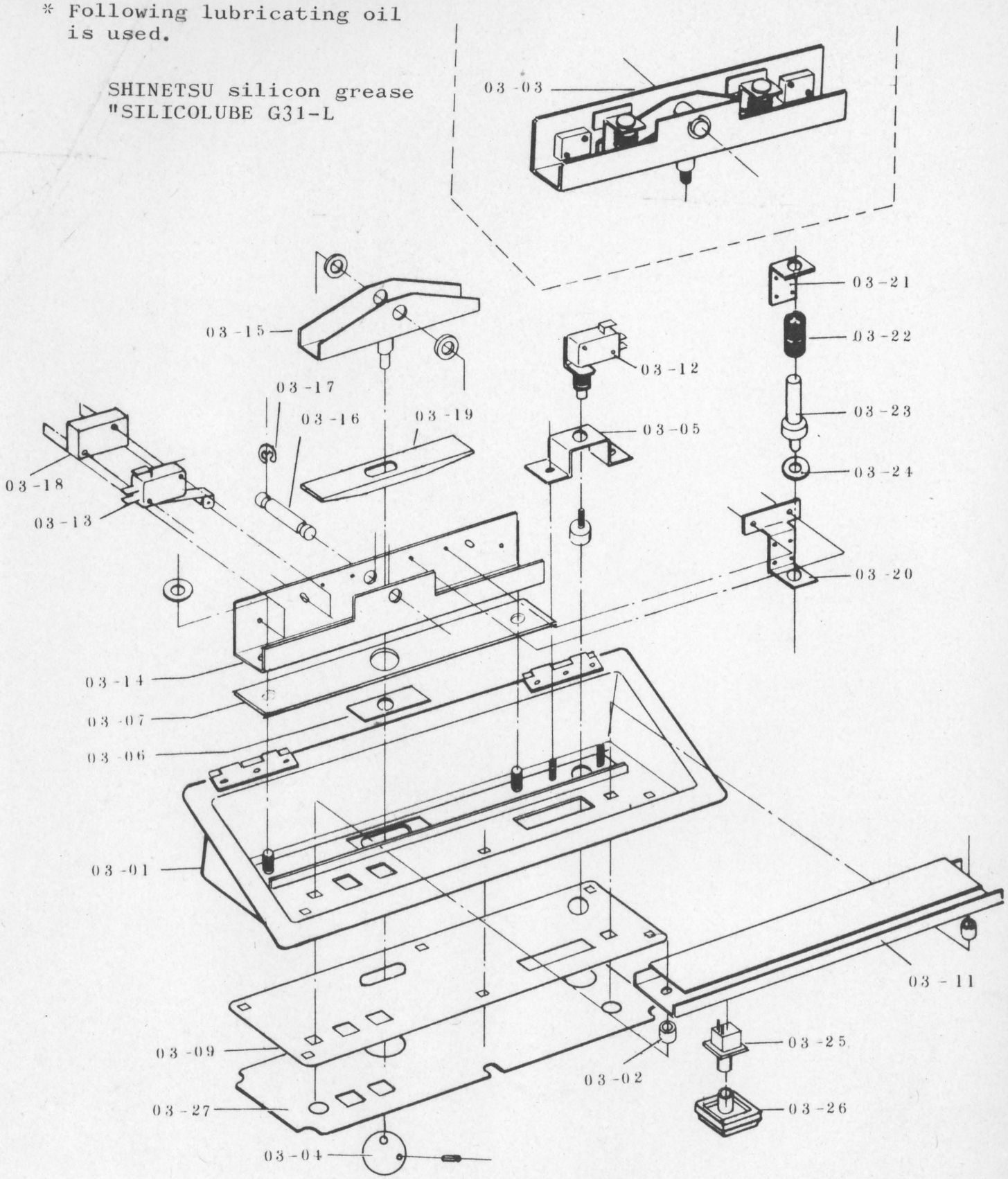
5-2 Table



5-3. Control Box Assembly (03-A)

* Following lubricating oil is used.

SHINETSU silicon grease
"SILICOLUBE G31-L



NOTE : The above figure shows the main side. Main keyboard Switch Unit 03-11 is not used on the sub side. Sub Operation Panel 03-10 and Sub Operation Sheet 03-28 are used in place of Main Operation Panel 03-09 and Main Operation Sheet 03-27.

6. PARTS LIST

1. Body

No.	Name of Parts	Req.	Remarks	FOB Japan per pc.
01-01	Cabinet	1		
01-02	Leg	1		
01-03	Coin Selector	1		
01-04	Cash Box	1		
01-05	Lock	2		
01-06	Lock Fitting (Lower)	2		
01-09	Game Counter	1		
01-10	Coin Switch	1		
01-12	Game P.C.Board Mounting Bracket	1		
01-13-01	Spacer (Small)	6		
01-13-02	Spacer (Large)	4		
01-14	Jointing Block	2		
01-15	Table Stay	1		
01-16	Power Cord	1		
01-17	Strain Relief Bushing	1		
02-01	Table	1		
02-04	Lock Fitting (Upper)	2		
02-05	Table Glass	1		
02-06	Table Glass Retainer	4		
02-07	Water Tight Packing 600	2		
02-08	" " " 400	2		
02-09	" " " 300	4		
02-03	Video Monitor Filter	1		
02-10	Screen Frame	1		
02-11	Rainbow Pattern Prevention Disc	2		
03-A	Main Control Box Assembly	1		
03-B	Sub Control Box Assembly	1		
03-01	Control Box Housing	2		
03-02	Keyboard Switch Spacer	2		
03-03	Space Battleship Control Unit	2		
03-04	Space Battleship Shift Knob	2		
03-05	Fire Switch Bracket	2		
03-06	Blind Plate	2		
03-07	Vibration Proof Rubber	2		
03-09	Main Operation Panel	1		
03-10	Sub Operation Panel	1		

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
03-11	Main Keyboard Switch Unit	1		
03-12	Fire Switch	2		
03-13	Space Battleship Control Switch	4		
03-14	Space Battleship Control Unit Frame	2		
03-15	Space Battleship Shift Lever	2		
03-16	Pin	2		
03-17	E Ring	4		
03-18	Switch Spacer	4		
03-19	Stop Rubber	2		
03-20	Bracket	4		
03-21	Angle Bracket	4		
03-22	Compression Spring	4		
03-23	Slide Pin	4		
03-24	Nylon Washer	4		
03-25	Keyswitch	2		
03-26	Button	2		
03-27	Main Operation Sheet	1		
03-28	Sub Operation Sheet	1		
04-00	Video Monitor	1		
04-13	Speaker	1		
05-00	Game P.C. Board (A)	1		
06-00	P-ROM P.C. Board	1		
07-00	Game P.C. Board (B)	1		
08-00	Video P.C. Board	1		
09-00	Power P.C. Board	1		
10-00	Power Transformer Unit	1		
11-01	3P Power Harness Connector	1		
11-02	9P I/O Harness Connector	1		
11-03	2P Speaker Harness Connector	1		
11-04	6P Video Harness Connector	1		
11-05	7P Sub Switch Harness Connector	1		
11-06	12P Main Switch Harness Connector	1		
11-07	2P Counter Harness Connector	1		
11-08	3P Coin Harness Connector	1		
11-09	50P Flat Cable	2		
11-10	KEL Harness Connector Assembly	1		

2. Game P.C. Board (A)

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
05-00	Game P.C. Board (A)	1	Complete Set	
05-01	IC LH0080	1	CPU Chip	
05-02	" PD2114	2	4096 Bit Static RAM	
05-03	" LM324	1	Low Power Quad Operational Amplifiers	
05-04	" CD4066	1	Synchronous Up/Down Decade Counters	
05-05	" LS138	3	3-to-8 Line Decoders/ Demultiplexers	
05-06	" LS00	1	Quadruple 2-Input Positive Nand Gates	
05-07	" LS161	2	Synchronous 4-Bit Counters with Direct Clear	
05-08	" LS259	3	8-Bit Parallel-Out Strage Register	
05-09	" LS273	1	Octal D-Type Flip-Flop with Clear	
05-10	" LS367	3	Hex Bus Drivers 4-Line and 2-Line Enable Inputs 3-State Outputs	
05-11	" LS139	1	2-to-4 Line Decoders/ Demultiplexers	
05-12	" LS368	4	Hex Bus Drivers 4-Line and 2-Line Inputs 3-State Outputs	
05-13	" P8216 (MB425)	2	4-Bit Parallel Bi-Directional Bus Driver	
05-14	" MB3712	1	Power Amp. 5W	
05-15	" NE 555P	5	Precision Timers	
05-16	Resistor	4	100 ohm $\frac{1}{4}$W ± 5%	
05-17	"	15	220 ohm " "	
05-18	"	2	470 ohm " "	
05-19	"	2	820 ohm " "	
05-20	"	8	1K ohm " "	
05-21	"	3	2.2 K ohm " "	
05-22	"	7	10 K ohm " "	
05-23	"	4	15 K ohm " "	
05-24	"	6	22 K ohm " "	
05-25	"	2	33 K ohm " "	
05-26	"	2	47 K ohm " "	
05-27	"	6	100 K ohm " "	
05-28	"	2	220 K ohm " "	
05-29	"	2	330 K ohm " "	
05-30	"	3	470 K ohm " "	
05-31	"	1	1 M ohm " "	

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
05-32	Resistor Array	3	1 K ohm 1/8W, 8 elements	
05-33	Variable Resistor	1	1 K ohm	
05-34	Electrolytic Capacitor	1	2200 μF, 25V	
05-35	" "	2	470 μF, 25V	
05-36	" "	3	47 μF, 16V	
05-37	" "	1	10 μF, 16V	
05-38	Ceramic Capacitor	26	0.1 μF, 25V	
05-39	" "	6	0.01 μF, 25V	
05-40	" "	1	0.001μF, 25V	
05-41	Polyester Film Capacitor	2	0.01 μF, 50V	
05-42	Tantalum Capacitor	2	1 μF, 25V	
05-43	" "	1	2.2 μF, 16V	
05-44	Diode	3	1S1588	
05-45	"	1	10D1	
05-46	Transistor	2	A1015	
05-47	"	1	C1627	
05-48	Dip Switch	1	DST06	

3. ROM P.C. Board (This P.C. Board is mounted on Game P.C.Board A)

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
06-00	ROM P.C. Board	1	Complete Set	
06-01	IC M3758	10	EP-ROM	
06-02	" LS138	2	3-to-8 Line Decoders/ Demultiplexers	
06-03	Ceramic Capacitor	10	0.1 μF, 25V	

4. Game P.C. Board (B)

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
07-00	Game P.C. Board (B)	1	Complete Set	
07-01	IC 74LS174	1	Hex D-Type Flip Flops	
07-02	" 74LS86	7	Quadruple 2-Input Exclusive OR Gates	
07-03	" 74LS163	2	Fully Synchronous 4-Bit Counters	
07-04	" 74LS393	1	Dual 4-Bit Decade and Binary Counters	
07-05	" 74LS00	2	Quadruple 2-Input Positive NAND Gates	
07-06	" 74LS32	1	Quadruple 2-Input Positive OR Gates	
07-07	" 74LS161	7	Synchronous 4-Bit Counters with Direct Clear	
07-08	" 74LS08	3	Quadruple 2-Input Positive AND Gates	
07-09	" 74LS02	3	Quadruple 2-Input Positive NOR Gates	
07-10	" 74LS10	3	3-Input Positive NAND Gates	
07-11	" 74LS157	10	2-Line-to-1-Line DATA Selectors/Multiplexers	
07-12	" 74LS20	3	Dual 4-Input Positive NAND Gates	
07-13	" 74LS377	1	8 Flip-Flop Respectively with Singlerail Outputs	
07-14	" 74LS283	2	4-Bit Binary Fulladders with Fast Carry	
07-15	" 74LS273	3	Octal D-Type Flip-Flop with Clear	
07-16	" 74LS30	2	8-Input Positive-NAND Gates	
07-17	" 74LS367	3	Hex Bus Drivers 4-Line and 2-Line Enable Input 3-State Outputs	
07-18	" 74LS194	4	4-Bit Bidirectional Universal Shift Resisters	
07-19	" 74LS368	1	Hex Bus Drivers 4-Line and 2-Line Inputs 3-State output	
07-20	" 74LS107	1	Dual J-K Flip Flops with Clear	
07-21	" 74LS139	2	2-to-4 Line Decorders/Demultiplexers	
07-22	" 74LS164	2	8-Bit Parallel-Out Serial Shift Registers	
07-23	" 74S201	5	256 Bit Random Access Memories	

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
07-24	IC 74LS366	1	Hex Bus Drivers Gated Enable Inputs 3-State Outputs	
07-25	" MPD 2114	2	4096 Bit Static RAM	
07-26	" 74S288(6331-1J)	1	32X8 Bipolar ROM	
07-27	" SN7474	8	Flip Flops with Preset and Clear	
07-28	" MB425	2	4 Bit Parallel Bi-Directional Bus Driver	
07-29	" SN7404	1	Hex Inverters	
07-30	" P2101A	2	256X4 Static RAM	
07-31	" MB8516	2	EP ROM	
07-32	Ceramic Capacitor	18	0.1 μF, 25V	
07-33	" "	2	0.001μF, 25V	
07-34	" "	1	470 μF, 25V	
07-35	Electrolytic Capacitor	1	10/16V	
07-36	Resistor	14	1K ohm, $\frac{1}{4}$W $\pm$ 5%	
07-37	"	3	470 ohm, " "	
07-38	"	3	220 ohm, " "	
07-39	"	2	330 ohm, " "	
07-40	"	3	100 ohm, " "	
07-41	"	3	150 ohm, " "	
07-42	Crystal Oscillator	1	18.432 MHz	

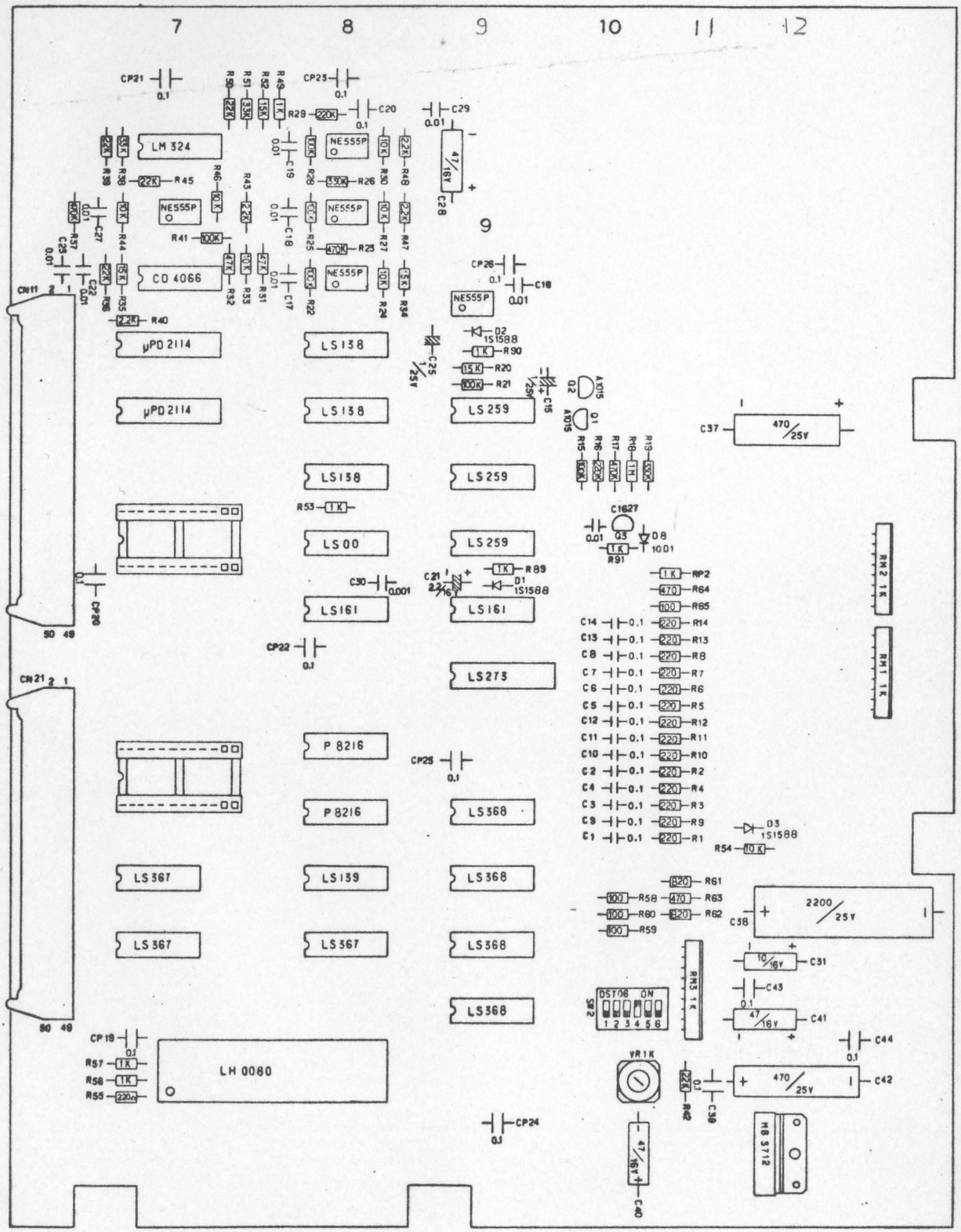
5. Video P.C. Board

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
08-00	Video P.C. Board	1	Complete Set	
08-01	Resistor	3	1 K ohm $\frac{1}{4}$W $\pm$ 5%	
08-02	"	3	100 ohm " "	
08-03	IC 7416	1	Hex Inverter Buffers/ Drivers with Open Collector	

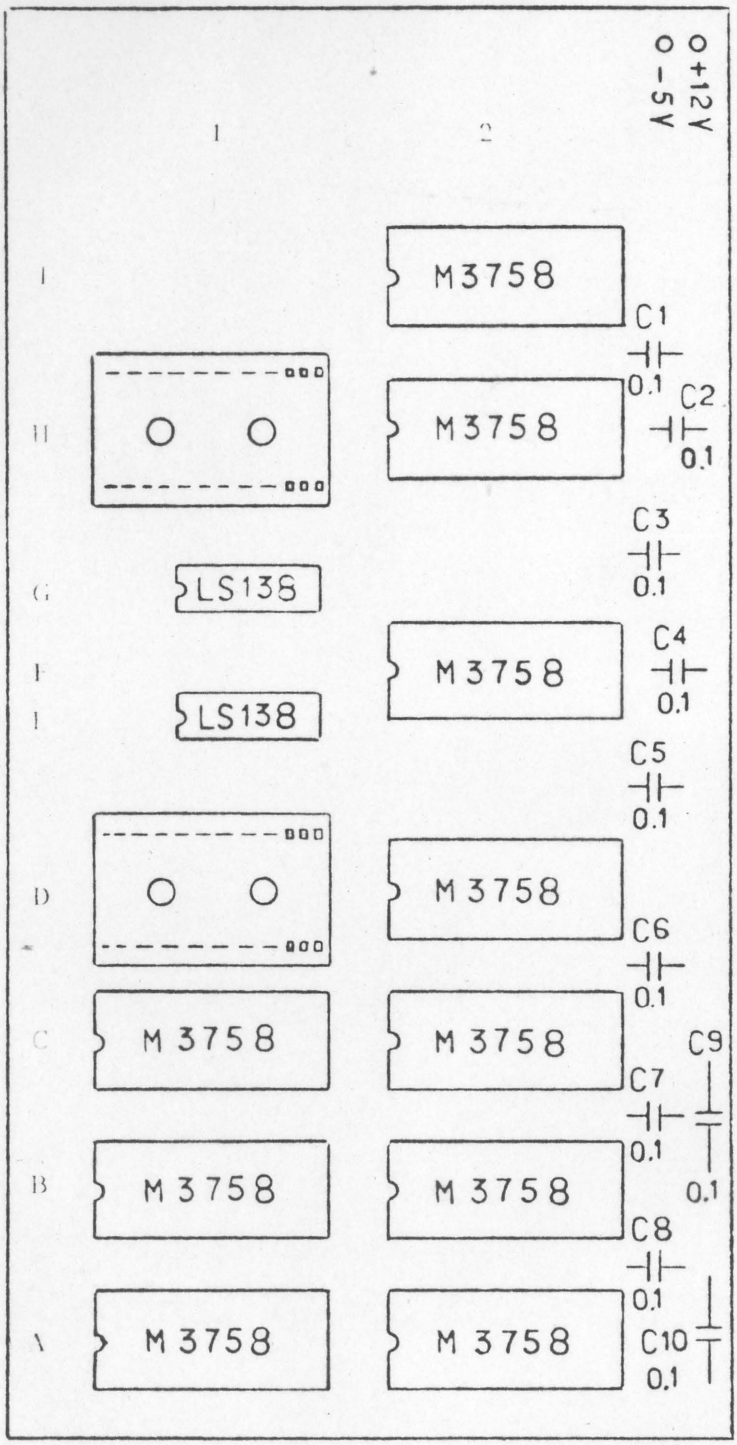
6. Power P.C. Board

No.	Name of parts	Req.	Remarks	FOB Japan per pc.
09-00	Power P.C. Board	1	Complete Set	
09-01	IC 3D-0050	3	Switching Regulator IC	
09-02	" 78M24	1	24V Regulator IC	
09-03	Resistor	1	0.03 ohm, 2W ± 5%	
09-04	"	2	0.1 ohm, " "	
09-05	"	1	100 ohm, " "	
09-06	"	1	330 ohm, $\frac{1}{2}$W "	
09-07	"	3	100 ohm, $\frac{1}{4}$W "	
09-08	"	5	1K ohm, " "	
09-09	"	1	5.1K ohm, " "	
09-10	"	1	15K ohm, " "	
09-11	"	1	510 ohm, 1W "	
09-12	Electrolytic Capacitor	3	2200μF, 16V	
09-13	" "	1	1000μF, 35V	
09-14	" "	1	470 μF, 25V	
09-15	" "	2	1000μF, 16V	
09-16	" "	1	47 μF, 25V	
09-17	" "	2	10 μF, 16V	
09-18	" "	1	220 μF, 10V	
09-19	Transistor	3	2SA1012	
09-20	"	1	2SA817	
09-21	Diode	1	CTB24 Shot Key Diode	
09-22	"	2	1S1834 Fast Recovery Diode	
09-23	Variable Resistor	3	RGP102, 50 Kohm	
09-24	" "	3	" , 2 Kohm	
09-25	Choke Coil	1	3A 200μH	
09-26	" "	2	0.5A 400μH	
09-27	Silicon Rectifier Diode	1	4B4B41, 4A Bridge	
09-28	" " "	2	1B4B41, 1A "	

05-00 Game P.C. Board (A) Parts Location



06-00 ROM P.C. BOARD Parts Location



品番	品名	材質	個数	摘要

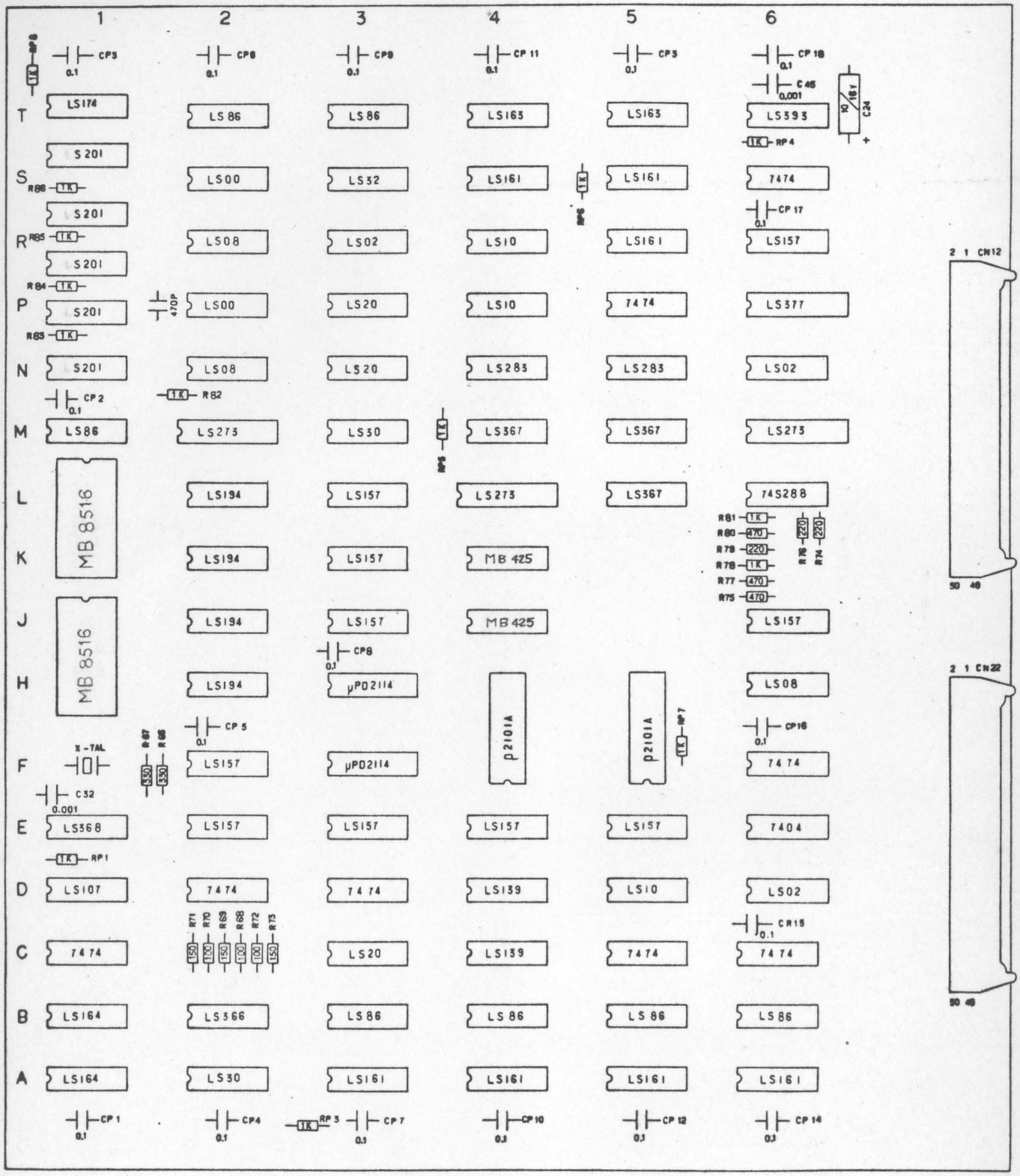
名称	P-ROM P.C.BOARD PARTS LOCATIONS					年月日	
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記号	年月日	変更内容	印

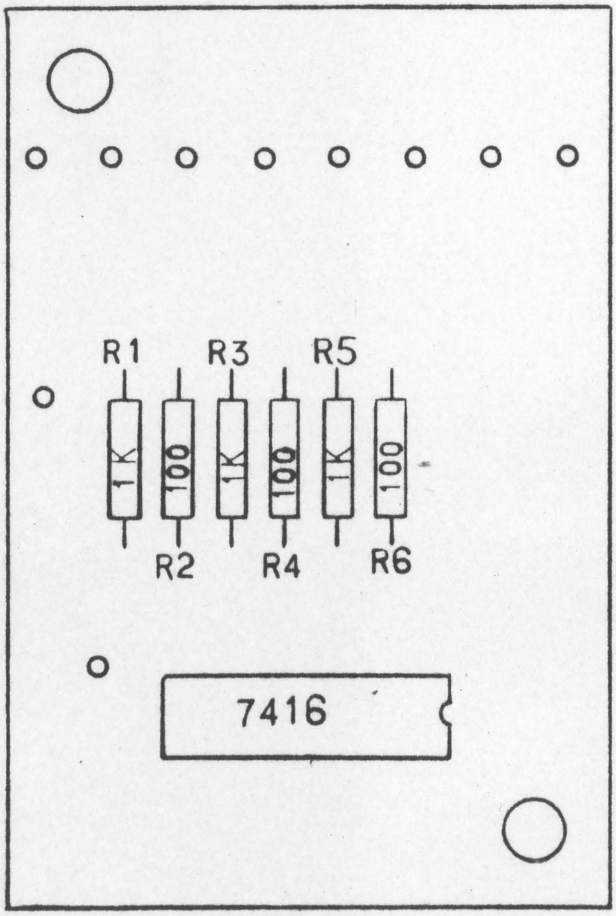
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07-00 Game P.C. Board (B) Parts Location



08-00 Video P.C. Board Parts Location

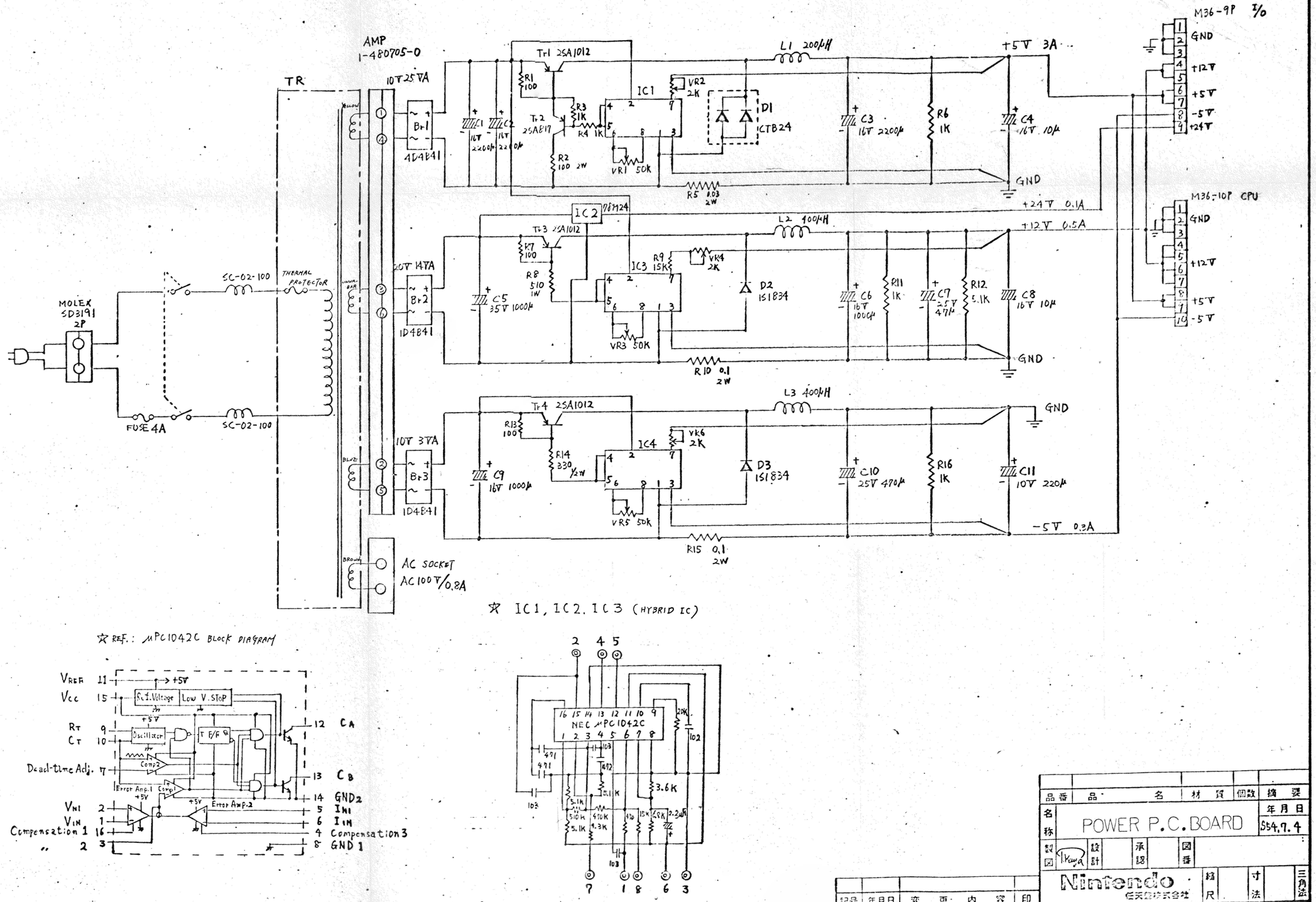


品番	品名	材質	個数	摘要
名称	VIDEO P.C BOARD PARTS LOCATIONS			年月日
製図	設計	承認	図番	

記号	年月日	変更内容	印

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☆ IC1, IC2, IC3 (HYBRID IC)

☆ REF.: μPC1042C BLOCK DIAGRAM

品番	品名	材質	個数	摘要
名称	POWER P.C.BOARD			年月日 S54.7.4
製図	設計	承認	図番	
Nintendo 任天堂株式会社	縮尺 R	寸法		三角法

記号	年月日	変更内容	印

VIDEO SYNC INPUT

CJ4 (SYNC 6, GND 5, GRN 4, GRN 1, RED 2, BLU 3)

IC401 LA1464

IC 601 LA5110

TP91 110V LINE

V OUT TRANSISTOR
Tr902 2SD396AY(D,E,F) or 2SD401A(F,L)
Tr903 2SD396AY(C,D,E) or 2SD401A(F,L,M)

H-DRIVE Tr451 2SC2271M or 2SC2271N or 2SC2482

14 OUT TRANSISTOR (with DAMPER DIODE) Tr401 2SD870

CRT SOCKET E3124

370 DJB 22 14 INCH COLOR BRAUN TUBE

AUDIO UNIT (U825009)

CRT UNIT (U885194)

CJ1 CP1 AMP MATE-N-LOK 2P

TSF-CL-09-09 CL2P SPEAKER HARNESS (CARTE)

DEFLECTION COIL D0620XTA

DEGAUSS COIL L901 L7671BG0

PS601 (PTH 451C05) E1728P

T451 E5019

T402 A0281 A0281C

L452 L7133,L7133B

L451 7.8μH

L601 Z2503

VR902 R5009XS FOCUS

TP451

REMARKS)

*Condensers are ceramic or electrolytic unless otherwise specified.

*Resistors are ¼W coated carbon film resistors, unless otherwise specified.

*Withstand voltage of condensers is 50V, unless otherwise specified.

*Symbols on resistors and condensers and their meanings;

(W) : Coated wire wound resistor
(N) : Coated metal film resistor
(R) : Metal oxidized film resistor
(Y) : Insulated wire wound resistor
(C) : Carbon composition resistor
(F) : Polyethylene Telephthalate film condenser
(N) : Polypropylene film condenser
NP : Non-polar electrolytic condenser

*Part No. of a 180-ohm resistor connected to the 7th pin of IC401 is not decided yet as of June 1, 1979.

品番	品名	材質	個数	摘要
名称	COLOR VIDEO MONITOR		作成年月日	54. 6. 1
設計	製図 沢野	検図 椎越	承認	図番
任天堂株式会社 Nintendo Co.,Ltd.			尺度	単位 mm / 三角法

改定