ORDER NO. IMD9504003C2

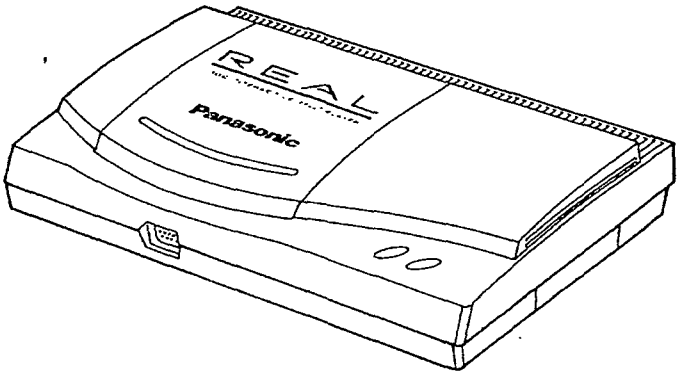
Service Manual

3DO Interactive Multiplayer

FZ-10

This is the Service Manual for the following area.

E ...for U.K.



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

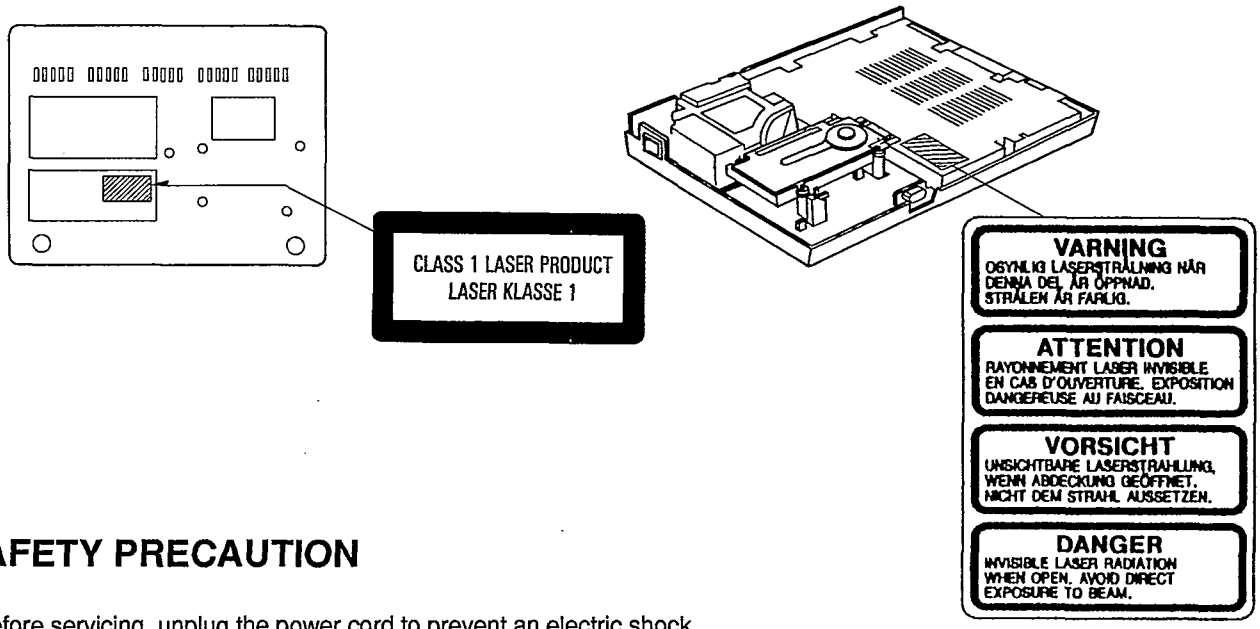
Panasonic®

WARNING

■PRECAUTION OF LASER DIODE

CAUTION: This unit utilizes a laser.
Invisible laser radiation is emitted from the optical pickup lens when the unit is turned on:

1. Do not look directly into the pickup lens.
2. Do not use optical instruments to look at the pickup lens.
3. Do not adjust the preset variable resistor on the optical pickup.
4. Do not disassemble the optical pickup unit.
5. If the optical pickup is replaced, use the manufactures specified replacement pickup only.
6. Use of control or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



(Inside of product)

■SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

LITHIUM BATTERY ⚠

- **CAUTION**

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacture.
Dispose of used batteries according to the manufacture's instruction.

FUSE REPLACEMENT ⚠

- **CAUTION**

For continued protection against risk of fire, replace only with same slow operating type 2A, 250V fuse.

Warning

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 3 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.
If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

Important

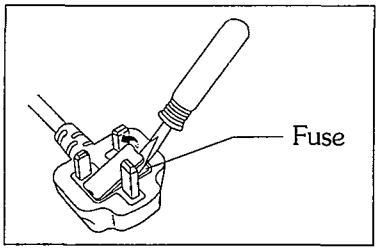
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral
Brown: Live
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚ .

■ How to replace the fuse

Open the fuse compartment with a screwdriver and replace the fuse.



This equipment is produced to BS800/1983.

The unit is in the standby condition when the AC power supply cord is connected.
The primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

Contents

1. System Overview

1-1. General Description

The FZ-10 is the same function as FZ-1.
The FZ-10 is adopted Top Loading System and includes a CD-ROM drive circuit into the Main PCB.

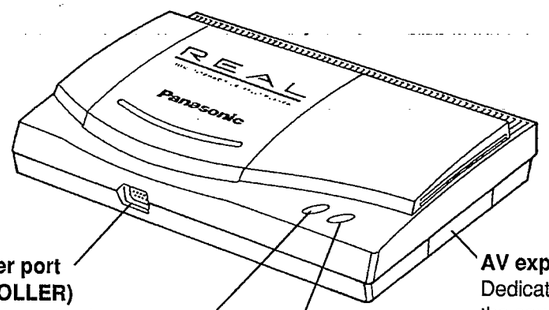
1-2. Specifications

CPU		32-bit RISC processor ARM60 (12.5 MHz)
Memory	RAM/VRAM	3 MB (Total) 2 MB: Main-RAM 1 MB: VRAM
	SRAM	32 KB (Battery back up)
	ROM	1 MB
DSP (Digital Signal Processor)		Original 16-bit digital signal processor
Video/Audio	Video output	Composite video, PAL S-Video, PAL RF Video, PAL, Channel 21
	Resolution	768 (H) × 576 (V) dots (Inside 384 × 288 dots)
	Colors	Max. 16.7 Million / Std. 32K
	Audio	Stereo 16-bit PCM (Sampling: 44.1 kHz)
Storage	CD-ROM drive	Size: 12 and 8 cm (CD single) Double Speed CD-ROM Drive (Read Buffer: 32 KB)
	Extension memory	(via Expansion Port)
I/O Port	Control port	Low speed I/O: Dsub 9-pin × 1 Daisy-chain system
	Expansion port	High speed I/O: 30-pin × 1
	AV Expansion port	High speed AV-I/O (Video CD Adaptor): 68-pin × 1
System	System dimensions (W × D × H)	310 × 236 × 68 mm (12.2 × 9.3 × 2.7 inch)
	Weight	1.7 kg (3.8 lb)
	Power requirement	230 – 240 V AC 50 Hz
	Power consumption	30 W
Indicator	Power indicator	Red-LED × 1
	CD-access indicator	Green-LED × 1
Temperature	Operating	10°C to 35°C (50°F to 95°F)
	Storage	–20°C to 60°C (–4°F to 140°F) (When packed for shipment)

FMV: Full Motion Video

1-3. Location of Control and Components

• **Front View**



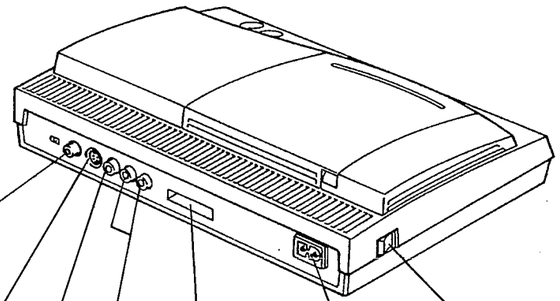
Controller port (CONTROLLER)
Dedicated port for the provided controller.

Ready indicator (READY)
Lights up when power is on.

CD access indicator (ACCESS)
Lights up when CD is being accessed.

AV expansion slot (AV-EXPANSION)
Dedicated slot, visible upon opening the cover, used with separately sold FMV cartridges.

• **Rear View**



RF output socket (RF OUT)
When connecting with a television which does not have an audio/video socket, the provided RF cable is used.

S-video output socket (S-VIDEO OUT)
When using a television which supports S-video, connecting a separately sold S-video cable results in a sharper picture.

Video output socket (VIDEO OUT)

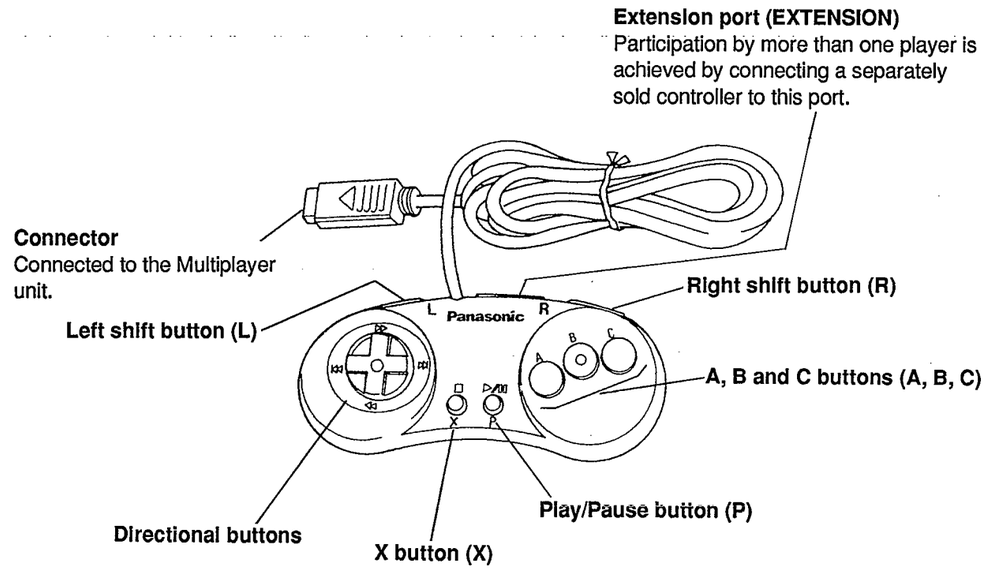
Right/Left audio output socket (AUDIO OUT R/L)

Expansion Port (EXPANSION)
Slot for peripheral devices which utilize high speed data transfer.

Power terminal

Power switch (POWER)

• **Controller**



Extension port (EXTENSION)
Participation by more than one player is achieved by connecting a separately sold controller to this port.

Connector
Connected to the Multiplayer unit.

Left shift button (L)

Right shift button (R)

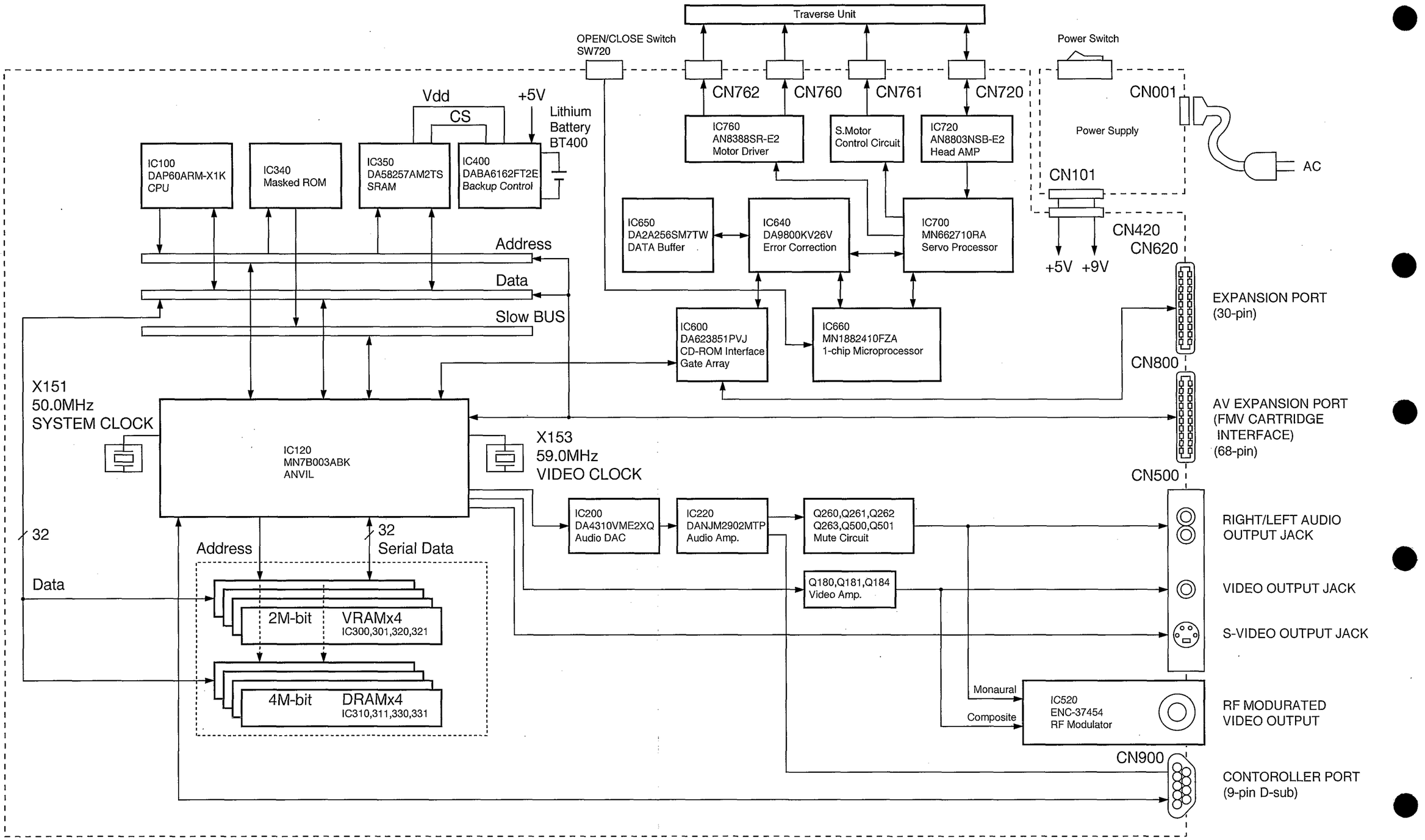
A, B and C buttons (A, B, C)

Directional buttons

X button (X)

Play/Pause button (P)

1-4. Block Diagram



1-5. Block Explanation

CPU

CPU is ARM60. This RISC type micro processor has 32-bit address and 32-bit data path.
MADAM supplies CPU with 12.5 MHz clock.

ROM

1 MB ROM stores the system management program. The ROM is connected to Slow bus and its data is read by MADAM and MADAM arranges 8-bit data into 32-bit word and send it to CPU.

SRAM

32 KB SRAM is connected to Slow bus. Since Lithium battery backs up SRAM while power is down, SRAM can retain data. It may be used to back up game data, for example.

DRAM / VRAM

DRAM and VRAM is used as main memory.
VRAM is dual-port memory. This means one port is used as normal DRAM and the other one is used to read and write data simultaneously with the former port. Therefore, it is used as Frame Buffer which is required fast access.

ANVIL

This system IC includes MADAM, CLIO (the system IC's for FZ-1) and a digital color encoder. ANVIL has the following functions.
CPU control: ANVIL drives control signals for the CPU.
Memory management: ANVIL controls access to DRAM's and VRAM's.
Cell engin: ANVIL manages cells (objects on TV screen).
DSP: ANVIL includes a digital signal processor, which deals with sound.
Video signal output: ANVIL outputs video signals (composit, Y and C).

Audio DAC

16-bit Audio DAC converts digital audio data from CLIO into analog audio data.
CLIO sends DAC data with serial communication manner.

CD-ROM interface

CD-ROM interface Gate Array is the interface between CLIO and both internal CD-ROM drive and External drives which are connected through Expansion Port.

Error Correction

This is a block for error correction, and transferring data and commands. A command data which comes from Main unit goes to 1-chip microprocessor via the interface for CD-ROM. The data stored on a disk go through a data servo processor serially. Once the data will be stored in the data buffer and it will be checked and corrected if it is identified as a false data. Then it go out to the CD-ROM interface.

Data Buffer

32K SRAM memory is used to store data from CD-ROM temporarily.

1-chip Microprocessor

1-chip microprocessor is for processing commands from the main system.

Digital Servo Processor

Digital Servo Processor have some functions as optical servo(focus, tracking and traverse servo) process, digital process (EFM modulation, error correction) and digital servo process for S.Motor. The optical servo will not require adjustment for its gain, offset, and balance manually because it does all automatically. The Digital processing block provides digital signal based on RF signal, and send to the error correction IC.

Motor Driver

As the analog control signal from digital servo processor, Motor Driver supply a traverse motor, focus actuator of pick up unit and tracking actuator with electrical power.

S.Motor Control

As the control signal from digital servo processor ,S.Motor control circuit generates a signal to control the speed of the S.Motor.

2. Checking Information

2-1. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

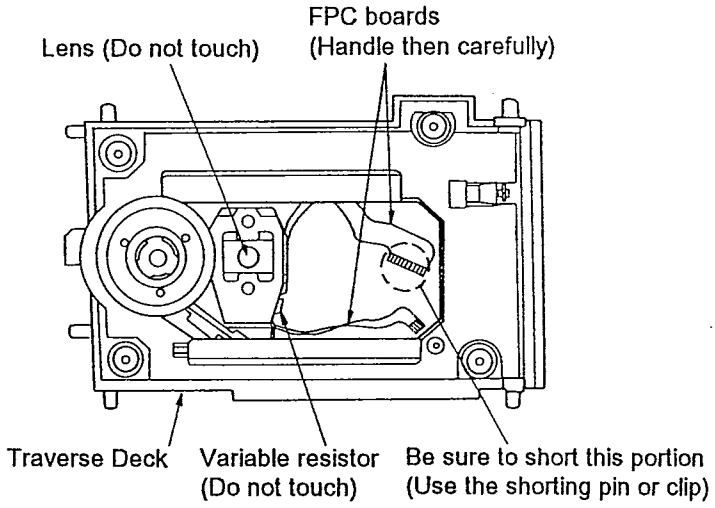
• Handling of traverse deck (optical pickup)

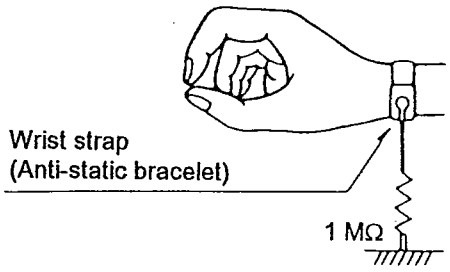
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.

2. To prevent the breakdown of the laser diode, an antistatic shorting pin is inserted into the flexible board (FPC board).
   When removing or connecting the short pin, finish the job in as short time as possible.

3. Take care not to apply excessive stress to the flexible board (FPC board).

4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.



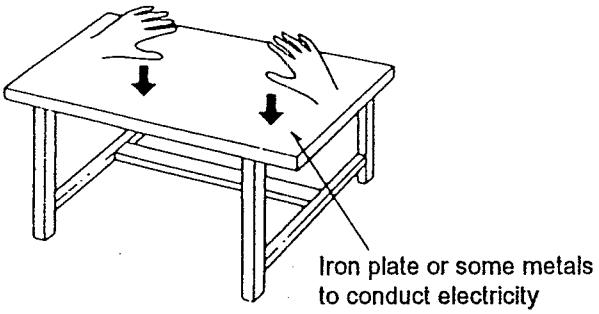


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.

2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



2-2. Disassembly / Reassembly

Note: Before disassembling, be sure to perform the following procedures first.

1. Remove the CD-ROM disk if it is inserted in the CD-ROM drive.
2. Turn the power switch off.
3. Disconnect the AC power cord.
4. Remove the optional units.

Caution: Please follow directions carefully. Do not interchange screws in any part of the system.

• Reassemble in the reverse order

Top Case

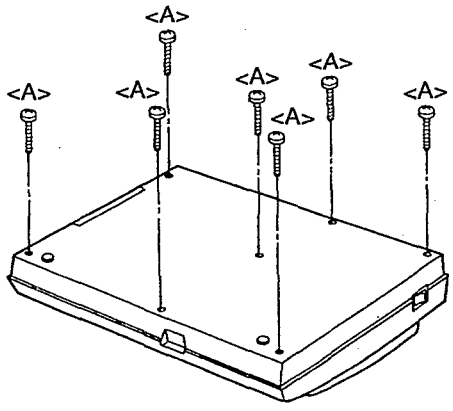


Figure 1

(1) Turn this unit (FZ-10) upside down and place it.

(2) Remove seven screws <A> as shown in figure 1.

(3) Turn it over again and gradually raise the top case.

Traverse Unit

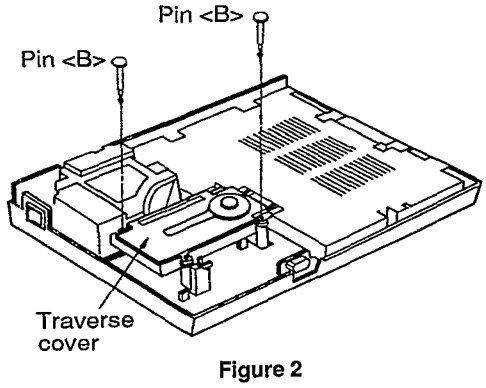


Figure 2

(1) After removing the top case, remove the two pins <B> as shown in figure 2.
(Push from the bottom side.)

(2) Remove the traverse cover.

(3) Gradually raise the traverse unit and then disconnect the five connectors as shown in figure 3.

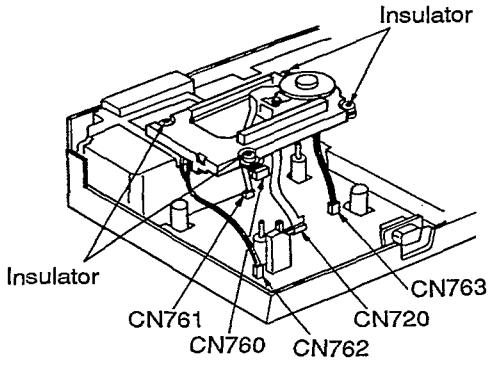


Figure 3

(4) Remove the traverse unit.

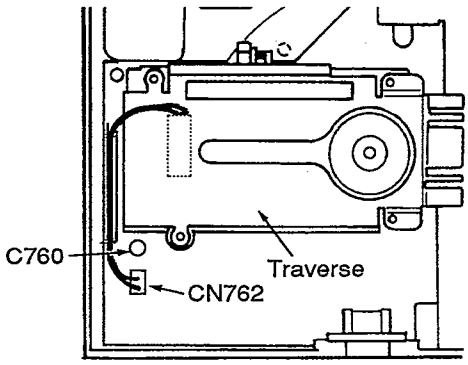


Figure 4

Caution: Reassembling, be sure to arrange the lead wire for CN762 in figure 4.

Power PCB

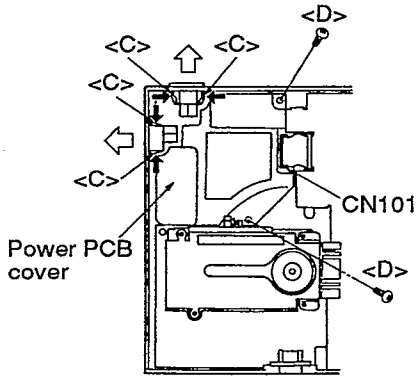


Figure 5

(1) After removing the top case, remove the Power PCB cover.

(2) Unlock the four hooks <C> and remove the AC inlet terminal and remove power switch as shown in figure 5.

(3) Remove the two screws <D>.

(4) Disconnect the connector (CN101) and remove the Power PCB.

Main PCB

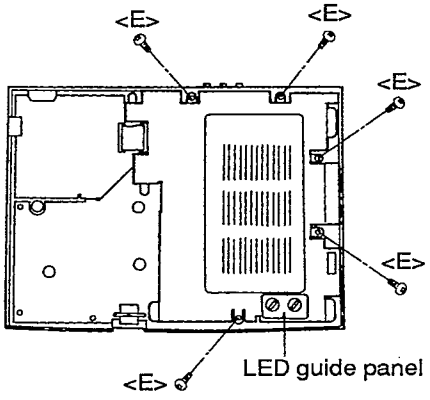


Figure 6

(1) After removing the top case and traverse unit, remove the LED guide panel.

(2) Remove five screws <E> and then remove the upper shield plate as shown in figure 6.

(3) Remove the FMV cover at right side.

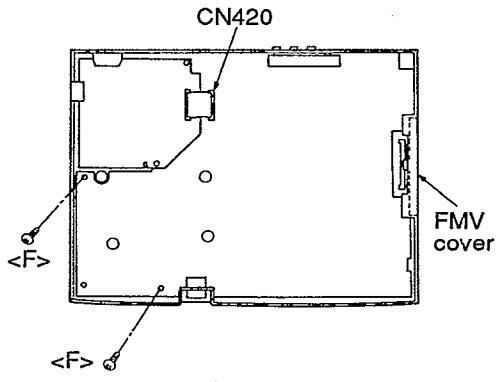


Figure 7

(4) Remove the two screws <F> as shown in figure 7.

(5) Disconnect the connector (CN420) and then remove the Main PCB.

CD Panel

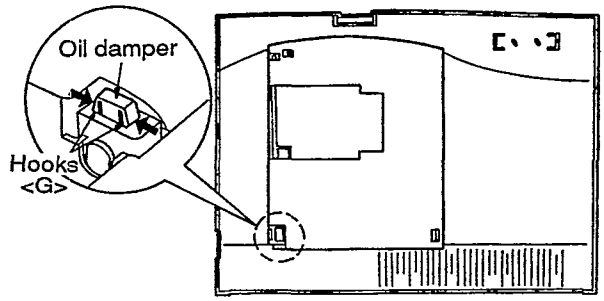


Figure 8

(1) After removing the top case, unlock two hooks <G> as shown in Figure 8.

(2) Remove the CD Panel unit.

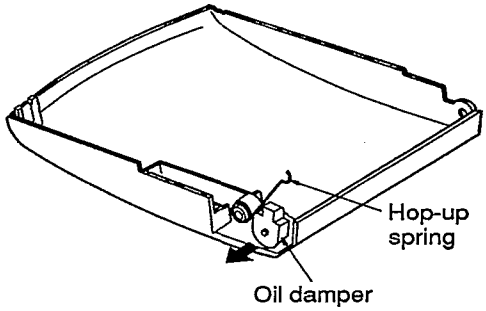


Figure 9

(3) Remove the hop-up spring and oil dumper as shown in figure 9.

(4) remove the CD Panel.

DC Latch

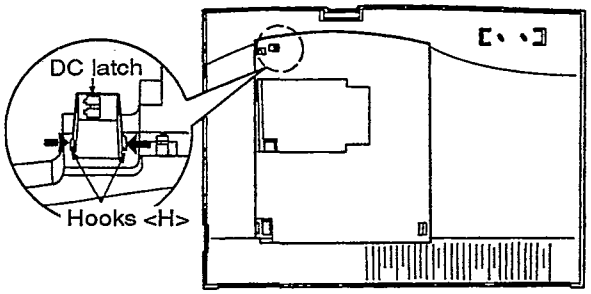


Figure 10

(1) After removing the top case, unlock two hooks <H> at reverse side of the top case as shown in figure 10.

(2) Remove the DC Latch.

2-3. Troubleshooting Table

Picture, Sound

Symptom	Cause
No picture and no sound	Resistor array which is connected to DRAM is soldered not enough. IC310 and IC330 are abnormal. IC300, IC301, IC320 and IC322 are abnormal. One of IC120 and IC100 is abnormal. Circuit pattern around IC120 and IC100 is cut. Circuit pattern around DRAM is cut.
No sound	MUTE circuit(Q500, Q501, Q263, Q262, Q261 and Q260) is abnormal. If base voltage of Q500 is set high, MUTE circuit is abnormal.
Loud noise appear or sound disappear at random, and they are repeatable.	IC120 (ANVIL)
Sound is stopped accidentally.	Traverse Unit
Color is abnormal.	Each signal [S0–S31: between ANVIL and DRAM] is abnormal. IC120 (ANVIL) is abnormal.
Object (such as a meteorite in the demo-screen) is abnormal.	IC120 (ANVIL)
Although the image had be cleared already, it have remained on the screen.	VRAM (IC300, IC301, IC320, IC321) is abnormal.

Operation

Symptom	Cause
Particularly program is not executed.	IC120 (ANVIL) Traverse Unit
Program is stopped during the execution and it is repeatable.	IC120 (ANVIL)
Program is stopped accidentally.	Traverse Unit
Picture becomes stop-motion playing.	VRAM (IC300, IC301, IC320, IC321)
Program is stopped at random and it is repeatable.	IC120 (ANVIL)

2-4. Terminal Function of IC's

IC100

CPU (P/N: DA86C0602XV)

Pin No.	I/O	Pin Name	Comment
1	I/O, TTL	D27	Data Bus 27
2	I/O, TTL	D28	Data Bus 28
3	I/O, TTL	D29	Data Bus 29
4	I/O, TTL	D30	Data Bus 30
5	I/O, TTL	D31	Data Bus 31
6	Input, TTL	CPA	CO processor Absent
7		Vss	Ground
8		Vdd	Power supply
9	Out	LOCK	Locked operation
10	Input, TTL	BIGEND	Big Endian configuration
11	Out	CPI-	CO processor Instruction
12	Input, TTL	DBE	Data Bus Enable
13	Out	WORD	Byte- / Word
14	Input, TTL	MCLK	Memory Clock input
15	Input, TTL	WAIT-	Wait signal input
16	Input, TTL	LATEABT	Late Abort input
17	Input, TTL	PROG32	32-bit Program configuration
18	Input, TTL	DATA32	32-bit Data configuration
19	Out	WRITE	Read- / Write
20	Out	OPC-	Ope-code fetch
21	Out	MREQ-	Memory Request
22	Out	SEQ	Sequential address
23	Input, TTL	ABORT	Memory Abort input
24	Input, TTL	IRQ-	Interrupt Request input
25	Input, TTL	FIRQ-	Fast Interrupt Request input
26	Input, TTL	RESET-	Reset signal input
27	I/O, TTL	ALE	Address Latch Enable
28	I/O, TTL	CPB	CO processor Busy
29	I/O, TTL	TRANS-	Memory Translation
30	Out	A31	Address 31
31	Out	A30	Address 30
32	Out	A29	Address 29
33	Out	A28	Address 28
34	Out	A27	Address 27
35	Out	A26	Address 26
36	Out	A25	Address 25
37	Out	A24	Address 24
38	Out	A23	Address 23
39	Out	A22	Address 22
40	Out	A21	Address 21
41	Out	A20	Address 20
42	Out	A19	Address 19
43	Out	A18	Address 18
44	Out	A17	Address 17
45	Out	A16	Address 16
46	Out	A15	Address 15
47	Out	A14	Address 14
48	Out	A13	Address 13
49	Out	A12	Address 12
50	Out	A11	Address 13
51		Vdd	Power supply
52		Vss	Ground
53	Out	A10	Address 10
54	Out	A9	Address 9
55	Out	A8	Address 8
56	Out	A7	Address 7
57	Out	A6	Address 6
58	Out	A5	Address 5
59	Out	A4	Address 4

Continued (IC100)

Pin No.	I/O	Pin Name	Comment
60	Out	A3	Address 3
61	Out	A2	Address 2
62	Out	A1	Address 1
63	Out	A0	Address 0
64		Vss	Ground
65		Vdd	Power supply
66	Input, TTL	ABE	Address Bus Enable
67	Input, TTL, w/ pull-up	TCK	Test Clock
68	Input, TTL, w/ pull-up	TMS	Test Mode Select
69	Input, TTL, w/ pull-up	TRST-	Test Mode Reset
70	Input, TTL, w/ pull-up	TDI	Test Data Input
71	Out	TDO	Test Data Output
72	I/O, TTL	D0	Data Bus 0
73	I/O, TTL	D1	Data Bus 1
74	I/O, TTL	D2	Data Bus 2
75	I/O, TTL	D3	Data Bus 3
76	I/O, TTL	D4	Data Bus 4
77	I/O, TTL	D5	Data Bus 5
78	I/O, TTL	D6	Data Bus 6
79	I/O, TTL	D7	Data Bus 7
80		Vss	Ground
81		Vdd	Power supply
82	I/O, TTL	D8	Data Bus 8
83	I/O, TTL	D9	Data Bus 9
84	I/O, TTL	D10	Data Bus 10
85	I/O, TTL	D11	Data Bus 11
86	I/O, TTL	D12	Data Bus 12
87	I/O, TTL	D13	Data Bus 13
88	I/O, TTL	D14	Data Bus 14
89	I/O, TTL	D15	Data Bus 15
90	I/O, TTL	D16	Data Bus 16
91	I/O, TTL	D17	Data Bus 17
92	I/O, TTL	D18	Data Bus 18
93	I/O, TTL	D19	Data Bus 19
94	I/O, TTL	D20	Data Bus 20
95	I/O, TTL	D21	Data Bus 21
96	I/O, TTL	D22	Data Bus 22
97	I/O, TTL	D23	Data Bus 23
98	I/O, TTL	D24	Data Bus 24
99	I/O, TTL	D25	Data Bus 25
100	I/O, TTL	D26	Data Bus 26

IC120

System IC ANVIL (P/N: MN7B003ABK)

Pin No.	I/O	Pin Name	Comment
1		AGND	Analog ground
2	O	COMPOUT	Inverted composite video signal
3		AGND	Analog ground
4	O	YOUT	Luminance video signal
5		VDD	Power supply
6		GND	Ground
7		VDD	Power supply
8		GND	Ground
9	O	AUDOUT	Digital audio data
10	O	RESET*	Master system reset

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
11	I	TSMODE0	Factory test signal 0
12	I	TSMODE1	Factory test signal 1
13	I	PBDIN	Data input from 3DO controllers
14		VDD	Power supply
15	O	PBCLK	Control port clock
16	O	PBDOUT	Data output to 3DO controllers
17	O	UNCACKW	Video DMA acknowledge signal
18		GND	Ground
19	I	XACLK	Master audio clock from audio DAC
20		VDD	Power supply
21	O	UNCACKR	Video DMA acknowledge signal
22	O	EXTACKW	Audio DMA write acknowledge signal
23	O	EXTACKR	Audio DMA read acknowledge signal
24		GNP	Ground
25	I	XVIN	Crystal input for video clock
26	O	XVOUT	Crystal output for video clock
27		GNP	Ground
28	O	CLC0	CLC0, 1, 2 indicate the type of transaction
29	O	CLC1	CLC0, 1, 2 indicate the type of transaction
30	O	CLC2	CLC0, 1, 2 indicate the type of transaction
31		GND	Ground
32	O	LRAS3*	Row address strobe for left DRAM (data bits [31:16])
33	O	LRAS2*	Row address strobe for left DRAM (data bits [31:16])
34	O	LRAS1*	Row address strobe for left VRAM (data bits [31:16])
35		VDD	Power supply
36	I	XV25IN	Video clock input from the on-board clock network
37	O	XV25OUT	Video clock output to the on-board clock network
38		GND	Ground
39	I	X25IN	System clock input
40	O	X25OUT	System clock output
41		VDD	Power supply
42	O	LRAS0*	Row address strobe for left VRAM (data bits [31:16])
43	O	LSC	Serial VRAM clock for the left VRAM (data bits [31:16])
44	O	LSOE0*	VRAM serial port control output enable
45		GND	Ground
46	O	LSOE1*	VRAM serial port control output enable
47	O	LDTOE*	Indicator of internal transfer of VRAM (data bits [31:16])
48	O	LDSF	Indicator of special function of VRAM (data bits [31:16])
49		VDD	Power supply
50	O	LCAS*	Column address strobe for left DRAM and VRAM (data bits [31:16])
51	O	LWEL*	Lower byte write enable for the left DRAM
52	O	LWEU*	Upper byte write enable for the left DRAM
53		GND	Ground

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
54	I	LQSF	Split register active side indicator for VRAM and DRAM (data bits [31:16])
55	O	LA10	Address 10 for the left DRAM and VRAM (data bits [31:16])
56	O	LA9	Address 9 for the left DRAM and VRAM (data bits [31:16])
57	O	LA8	Address 8 for the left DRAM and VRAM (data bits [31:16])
58		VDD	Power supply
59	O	LA0	Address 0 for the left DRAM and VRAM (data bits [31:16])
60	O	LA7	Address 7 for the left DRAM and VRAM (data bits [31:16])
61	O	LA1	Address 1 for the left DRAM and VRAM (data bits [31:16])
62		GND	Ground
63	O	LA6	Address 6 for the left DRAM and VRAM (data bits [31:16])
64	O	LA2	Address 2 for the left DRAM and VRAM (data bits [31:16])
65	O	LA5	Address 5 for the left DRAM and VRAM (data bits [31:16])
66		VDD	Power supply
67	O	LA3	Address 3 for the left DRAM and VRAM (data bits [31:16])
68	O	LA4	Address 4 for the left DRAM and VRAM (data bits [31:16])
69	O	RRAS3*	Row address strobe for right DRAM (data bits [15:0])
70		GND	Ground
71	O	RRAS2*	Row address strobe for right DRAM (data bits [15:0])
72	O	RRAS1*	Row address strobe for right VRAM (data bits [15:0])
73	O	RRAS0*	Row address strobe for right VRAM (data bits [15:0])
74		VDD	Power supply
75	O	RSC	Serial VRAM clock for the right VRAM (data bits [15:0])
76	O	RSOE0*	VRAM serial port control output enable
77		GND	Ground
78	O	RSOE1*	VRAM serial port control output enable
79	O	RDTOE*	Indicator of internal transfer of VRAM (data bits [15:0])
80	O	RDSF	Indicator of special function of VRAM (data bits [15:0])
81		VDD	Power supply
82	O	RCAS*	Column address strobe for the right DRAM and VRAM (data bits [15:0])
83	O	RWEL*	Lower byte write enable for the right DRAM
84	O	RWEU*	Upper byte write enable for the right DRAM
85	I	RQSF	Split register active side indicator for VRAM and DRAM (data bits [15:0])
86		GND	Ground
87	O	RA10	Address 10 for the right DRAM and VRAM (data bits [15:0])

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
88	O	RA9	Address 9 for the right DRAM and VRAM (data bits [15:0])
89	O	RA8	Address 8 for the right DRAM and VRAM (data bits [15:0])
90		VDD	Power supply
91	O	RA0	Address 0 for the right DRAM and VRAM (data bits [15:0])
92	O	RA7	Address 7 for the right DRAM and VRAM (data bits [15:0])
93	O	RA1	Address 1 for the right DRAM and VRAM (data bits [15:0])
94		GND	Ground
95	O	RA6	Address 6 for the right DRAM and VRAM (data bits [15:0])
96	O	RA2	Address 2 for the right DRAM and VRAM (data bits [15:0])
97	O	RA5	Address 5 for the right DRAM and VRAM (data bits [15:0])
98		VDD	Power supply
99	O	RA3	Address 3 for the right DRAM and VRAM (data bits [15:0])
100	O	RA4	Address 4 for the right DRAM and VRAM (data bits [15:0])
101		GND	Ground
102	O	ROMCS1*	ROM chip select signal 1
103	O	ROMCS0*	ROM chip select signal 0
104	O	PDCS0*	Slow bus chip select signal 0
105		VDD	Power supply
106	O	PDCS2*	Slow bus chip select signal 1
107	O	PDCS3*	Slow bus chip select signal 2
108	O	SRAMW*	SRAM write enable
109		GND	Ground
110	O	SRAMR*	SRAM output enable
111	O	PDWR*	Slow bus read enable. When accessing the ROM, ANVIL uses this signal as address 1
112	O	PDRD*	Slow bus read enable. When accessing the ROM, ANVIL uses this signal as address 0
113		VDD	Power supply
114	I	REF5V	Reference voltage that allows ANVIL to accept 5 volts signal inputs while operating internally 3.3 volts.
115	I	S17	VRAM 31-bit serial bus data 17
116	I	S16	VRAM 31-bit serial bus data 16
117	I	S19	VRAM 31-bit serial bus data 19
118	I	S18	VRAM 31-bit serial bus data 18
119	I	S1	VRAM 31-bit serial bus data 1
120	I	S0	VRAM 31-bit serial bus data 0
121	I	S3	VRAM 31-bit serial bus data 3
122	I	S2	VRAM 31-bit serial bus data 2
123	I	S21	VRAM 31-bit serial bus data 21
124	I	S20	VRAM 31-bit serial bus data 20
125		GND	Ground
126	I	S23	VRAM 31-bit serial bus data 23
127	I	S22	VRAM 31-bit serial bus data 22
128	I	S5	VRAM 31-bit serial bus data 5
129	I	S4	VRAM 31-bit serial bus data 4
130	I	S7	VRAM 31-bit serial bus data 7
131	I	S6	VRAM 31-bit serial bus data 6
132	I	S25	VRAM 31-bit serial bus data 25

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
133	I	S24	VRAM 31-bit serial bus data 24
134	I	S27	VRAM 31-bit serial bus data 27
135	I	S26	VRAM 31-bit serial bus data 26
136	I	S9	VRAM 31-bit serial bus data 9
137		VDD	Power supply
138	I	S8	VRAM 31-bit serial bus data 8
139	I	S11	VRAM 31-bit serial bus data 11
140	I	S10	VRAM 31-bit serial bus data 10
141	I	S29	VRAM 31-bit serial bus data 29
142	I	S28	VRAM 31-bit serial bus data 28
143	I	S31	VRAM 31-bit serial bus data 31
144	I	S30	VRAM 31-bit serial bus data 30
145	I	S13	VRAM 31-bit serial bus data 13
146	I	S12	VRAM 31-bit serial bus data 12
147	I	S15	VRAM 31-bit serial bus data 15
148	I	S14	VRAM 31-bit serial bus data 14
149		GND	Ground
150		GND	Ground
151	I/O	D0	Data bus 0
152	I/O	D1	Data bus 1
153	I/O	D2	Data bus 2
154	I/O	D3	Data bus 3
155		VDD	Power supply
156	I/O	D4	Data bus 4
157	I/O	D5	Data bus 5
158	I/O	D6	Data bus 6
159	I/O	D7	Data bus 7
160		GND	Ground
161	I/O	D8	Data bus 8
162	I/O	D9	Data bus 9
163	I/O	D10	Data bus 10
164	I/O	D11	Data bus 11
165		VDD	Power supply
166	I/O	D12	Data bus 12
167	I/O	D13	Data bus 13
168	I/O	D14	Data bus 14
169	I/O	D15	Data bus 15
170		GND	Ground
171	I/O	D16	Data bus 16
172	I/O	D17	Data bus 17
173	I/O	D18	Data bus 18
174	I/O	D19	Data bus 19
175		VDD	Power supply
176	I/O	D20	Data bus 20
177	I/O	D21	Data bus 21
178	I/O	D22	Data bus 22
179	I/O	D23	Data bus 23
180		GND	Ground
181	I/O	D24	Data bus 24
182	I/O	D25	Data bus 25
183	I/O	D26	Data bus 26
184	I/O	D27	Data bus 27
185		VDD	Power supply
186	I/O	D28	Data bus 28
187	I/O	D29	Data bus 29
188	I/O	D30	Data bus 30
189	I/O	D31	Data bus 31
190		GND	Ground
191	I/O	ADBIO0	General-purpose I/O bus 0
192	I/O	ADBIO1	General-purpose I/O bus 1

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
193	I/O	ADBIO2	General-purpose I/O bus 2
194	I/O	ADBIO3	General-purpose I/O bus 3
195	O	AUDBCK	Audio bit clock
196	I/O	AUDWS	Audio channel selection
197		VDD	Power supply
198	I/O	PD0	Bi-directional data bus for the slow bus 0
199	I/O	PD1	Bi-directional data bus for the slow bus 1
200	I/O	PD2	Bi-directional data bus for the slow bus 2
201	I/O	PD3	Bi-directional data bus for the slow bus 3
202		GND	Ground
203	I/O	PD4	Bi-directional data bus for the slow bus 4
204	I/O	PD5	Bi-directional data bus for the slow bus 5
205	I/O	PD6	Bi-directional data bus for the slow bus 6
206	I/O	PD7	Bi-directional data bus for the slow bus 7
207		VDD	Power supply
208	I/O	ED0	Bi-directional address annd data bus for the expansion bus 0
209	I/O	ED1	Bi-directional address annd data bus for the expansion bus 1
210	I/O	ED2	Bi-directional address annd data bus for the expansion bus 2
211	I/O	ED3	Bi-directional address annd data bus for the expansion bus 3
212		GND	Ground
213	I/O	ED4	Bi-directional address annd data bus for the expansion bus 4
214	I/O	ED5	Bi-directional address annd data bus for the expansion bus 5
215	I/O	ED6	Bi-directional address annd data bus for the expansion bus 6
216	I/O	ED7	Bi-directional address annd data bus for the expansion bus 7
217	I/O	CREADY*	Device control hand shake signal
218	I/O	RTC	
219	I/O	HS*	Horizontal sync
220	I/O	VS*	Vertical sync
221		VDD	Power supply
222	I	AUDIN	Input data from A/D converter
223	I	PDINT*	Slow bus level-sensitive interrupt
224	I	EXTREQR	Audio DMA read request signal
225	I	EXTREQW	Audio DMA write request signal
226	I	UNCREQR	Video DMA read request signal
227	I	UNCREQW	Video DMA write request signal
228		GND	Ground
229	I	A0	ADDRESS 0
230	I	A1	ADDRESS 1
231	I	A2	ADDRESS 2
232	I	A3	ADDRESS 3
233	I	A4	ADDRESS 4
234	I	A5	ADDRESS 5
235		VDD	Power supply
236	I	A6	ADDRESS 6
237	I	A7	ADDRESS 7
238	I	A8	ADDRESS 8

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
239	I	A9	ADDRESS 9
240	I	A10	ADDRESS 10
241	I	A11	ADDRESS 11
242	I	A12	ADDRESS 12
243	I	A13	ADDRESS 13
244	I	A14	ADDRESS 14
245		GND	Ground
246	I	A15	ADDRESS 15
247	I	A16	ADDRESS 16
248	I	A17	ADDRESS 17
249	I	A18	ADDRESS 18
250	I	A19	ADDRESS 19
251	I	A20	ADDRESS 20
252	I	A21	ADDRESS 21
253	I	A22	ADDRESS 22
254	I	A23	ADDRESS 23
255	I	A24	ADDRESS 24
256		VDD	Power supply
257	I	A25	ADDRESS 25
258	I	A26	ADDRESS 26
259	I	TRANS*	Indicator that the CPU is in user mode
260	O	CPURES*	CPU reset signal
261	O	FIRQ*	CPU interrupt
262		GND	Ground
263	O	ABORT	CPU abort signal. This signal become H when a memory access is not possible
264	I	SEQ	Indicator of a sequential memory access
265	O	MCLK	Master CPU clock
266		GND	Ground
267	I	XIN	Crystal input for the system clock
268	O	XOUT	Crystal output for the system clock
269		GND	Ground
270	I	MREQ*	Indicator that the CPU requires memory access
271	I	READ*	Indicator of the CPU Read/Write status
272	I	BYTE*	The CPU tells ANVIL which data type is required, 8 bit (L) or 32 bit (H)
273		VDD	Power supply
274	O	DBE	Data bus enable
275	I	LOCK	Indicator that the CPU is performing a locked memory access and that ANVIL must wait
276	O	EWRT*	Write signal for the expansion bus
277	O	ESTR*	Strobe signal for the expansion bus
278		GND	Ground
279	I	EINT*	Interrupt signal from expansion device
280	O	ERST*	Power-on and software-controlled reset signal to the expansion bus
281	O	ESEL*	Selection signal for the expansion bus
282	O	ECMD*	Command signal for the expansion port
283		VDD	Power supply
284	I	ERDY*	Ready signal from expansion device
285	I	CDDATA	CD interface data

Continued (IC120)

Pin No.	I/O	Pin Name	Comment
286	I	CDCLK	CD interface clock
287	I	CREF	Clock reference input
288	O	LPSC*	Tracking signal of left serial clock
289	O	RPSC*	Tracking signal of right serial clock
290	I	PON	Power-on signal. PON is high and stabe whenerver the system is on
291	O	PCSC*	Output to indicate the beginning of a scan line
292		GND	Ground
293		VDD	Power supply
294		AVDD	Analog power supply
295		AGND	Analog ground
296	I	VREF1	Voltage reference input. Nomally 1.5V
297	O	CGAIN	Chroma full-scale current control
298	O	YGAIN	Luminance full-scale current control
299	I	CCOMP	Chroma compensation
300	I	YCOMP	Luma DAC compensation
301	I	VREF0	Voltage reference input. Nomally 1.75V
302		AGND	Analog ground
303	O	COUT	Chrominance video signal
304	O	BLUE	Blue output when ANVIL video DAC is in the RGB mode

IC200
Audio DAC (P/N: DA4310VME2XQ)

Pin No.	I/O	Pin Name	Comment
1	Input	TST1	Test pin
2		DVDD	Digital 5V
3		DVSS	Digital ground
4	Input	PD-	Power down signal input
5	Input	RST-	Reset pin
6	Input	MCLK	Master clock pin
7	Input	CKS	Clock selection (H: 256fs, L: 384fs)
8	Input	BICK	Serial bit clock
9	Input	SDATA	Serial data input
10	Input	LRCK	L/R chanel clock
11		N/C	Not connected
12		N/C	Not connected
13		N/C	Not connected
14		N/C	Not connected
15	Output	AOUTR	Rch Analog output
16	Output	AOUTL	Lch Analog output
17	Output	VCOM	Common voltage, AVDD/2
18		AVDD	Analog power supply
19		AVSS	Analog ground
20		N/C	Not connected
21		N/C	Not connected
22	Input	VREFH	Reference voltage (High level) VREFH and VREFL determin full scale of D/A output
23	Input	VREFL	Reference voltage (Low level)
24	Output	DZF	Zero detect

IC400
Backup Controller (P/N: DABA6162FT2E)

Pin No.	I/O	Pin Name	Comment
1		N/C	(Not Connected)
2	Out	VREF	Voltage Reference Output
3		N/C	(Not Connected)
4		AVDD	Analog Power supply
5		AVSS	Analog ground
6	Input	TST	Test pin
7	Input	LRCK	L/R Clock input
8	Input	BICK	Serial data clock

IC600
CD-ROM Interface Gate Array (P/N: DA623854PVJ)

Pin No.	I/O	Pin Name	Comment
1	Out	CDEN-	CD drive enable
2		GND	Ground
3	I/O	CDD7	CD drive data bus 7
4	I/O	CDD6	CD drive data bus 6
5	I/O	CDD5	CD drive data bus 5
6	I/O	CDD4	CD drive data bus 4
7	I/O	CDD3	CD drive data bus 3
8	I/O	CDD2	CD drive data bus 2
9	I/O	CDD1	CD drive data bus 1
10	I/O	CDD0	CD drive data bus 0
11	Out	CDRST-	CD drive reset
12		GND	Ground
13	Input	CLK33M	33MHz clock
14	Input	ROMSEL	ROM selection
15	Input	ROMEN	ROM enable
16	Out	ROMA20	ROM address 20
17	Out	ROME0-	ROM output enable 0
18	Out	ROME1-	ROM output enable 1
19	Out	ROMCS-	ROM chip selection
20	Input	CPURES-	CPU reset
21	I/O	ED0	Internal expansion bus 0
22	I/O	ED1	Internal expansion bus 1
23		GND	Ground
24	I/O	ED2	Internal expansion bus 2
25	I/O	ED3	Internal expansion bus 3
26	I/O	ED4	Internal expansion bus 4
27	I/O	ED5	Internal expansion bus 5
28	I/O	ED6	Internal expansion bus 6
29	I/O	ED7	Internal expansion bus 7
30	Input	ESTR-	Internal strobe
31	Input	EWRT-	Internal write
32	Input	ERST-	Internal reset
33		VDD	Power supply
34	Input	ECMD-	Internal command
35	Input	ESEL-	Internal selection
36	Tri-Out	ERDY-	Internal ready
37	Tri-Out	EINT-	Internal interrupt
38	Input	IDIN	ID input from previous device
39	Out	AND	AND output (pins 43 and 44)
40	Out	XACLK	Audio reference clock
41	Out	NAND	NAND output (pins 43 and 44)
42		GND	Ground
43	Input	A	General input A
44	Input	B	General input B
45	Out	XRST-	External bus reset
46	Out	IDOUT	ID output
47	Input	XDIN	ID input
48	Out	XWRT-	External bus write
49	Out	XSEL-	External bus selection

Continued (IC600)

Pin No.	I/O	Pin Name	Comment
50	Out	XCMD-	External bus command
51	Out	XSTR-	External bus strobe
52		GND	Ground
53	Input	XRDY-	External bus ready
54	Input	XINT-	External bus interrupt
55	I/O	XD7	External bus data 7
56	I/O	XD6	External bus data 6
57	I/O	XD5	External bus data 5
58	I/O	XD4	External bus data 4
59	Input	EN15-	Ground
60	Input	EN7-	Ground
61	I/O	XD3	External bus data 3
62	I/O	XD2	External bus data 2
63		GND	Ground
64	I/O	XD1	External bus data 1
65	I/O	XD0	External bus data 0
66	Out	IPFLAG0	Complement flag output
67	Input	S1-	S1
68	Input	S2-	S2
69	Input	IPFLAG1	Complement flag input
70	Input	BYTCLK	Byte clock
71	Input	A15	A15 input
72	Out	A15-	A15 reverse output
73		VDD	Power supply
74	Input	CDMDCHG	CD media change
75	Input	CDSTEN-	CD status enable
76	Input	CDDTEN-	CD data enable
77	Input	CDWAIT-	CD wait
78	Out	CDHRD-	CD drive read
79	Out	CDHWR-	CD drive write
80	Out	CDCMD-	CD command

IC640
Error Correction (P/N:DA98000KV26V)

Pin No.	I/O	Pin Name	Comment
1	Out	RA9	Data buffer address 9
2	Out	RA10	Data buffer address 10
3	Out	RA11	Data buffer address 11
4	Out	RA12	Data buffer address 12
5	Out	RA13	Data buffer address 13
6	Out	RA14	Data buffer address 14
7	Out	RA15	Data buffer address 15
8		VSS	Ground
9	I/O	IO0	Data buffer address 0
10	I/O	IO1	Data buffer address 1
11	I/O	IO2	Data buffer address 2
12	I/O	IO3	Data buffer address 3
13	I/O	IO4	Data buffer address 4
14	I/O	IO5	Data buffer address 5
15	I/O	IO6	Data buffer address 6
16	I/O	IO7	Data buffer address 7
17		VDD	Power supply
18		VSS	Ground
19	I/O	HD0	Host data 0
20	I/O	HD1	Host data 1
21	I/O	HD2	Host data 2
22	I/O	HD3	Host data 3
23		VSS	Ground
24	I/O	HD4	Host data 4
25	I/O	HD5	Host data 5

Continued (IC640)

Pin No.	I/O	Pin Name	Comment
26	I/O	HD6	Host data 6
27	I/O	HD7	Host data 7
28		VSS	Ground
29		NC	No connection
30	Input	TEC	TEC
31	Input	MRC	MRC
32	Out	DIR	DIR
33	Out	TCK	TCK
34	Out	OTCF	OTCF
35	Out	OTCR	OTCR
36	Input	IOCTL	IOCTL
37	Input	ENABLE-	Chip selection from Host
38	Input	CMD-	Command/Data selection from Host
39	Input	RAMSL	DRAM/SRAM selection
40		VSS	Ground
41		VDD	Power supply
42	Input	HWR-	Write from Host
43	Input	HRD-	Read from Host
44	Out	WAIT-	Wait to host
45	Out	DTEN-	Data enable
46	Out	STEN-	Status enable
47	Out	EOP-	End of process
48	Out	STPH-	STPH
49	Out	MDACHG	Media change signal
50	Input	SELDRQ	Data access mode selection with Host type
51	Input	RD-	Read from Microprocessor
52	Input	WR-	Write from Microprocessor
53	Input	CS-	Chip selection from Microprocessor
54	Input	RS	Register selection
55		VDD	Power supply
56		VSS	Ground
57	I/O	D0	Microprocessor data 0
58	I/O	D1	Microprocessor data 1
59	I/O	D2	Microprocessor data 2
60	I/O	D3	Microprocessor data 3
61	I/O	D4	Microprocessor data 4
62	I/O	D5	Microprocessor data 5
63	I/O	D6	Microprocessor data 6
64	I/O	D7	Microprocessor data 7
65		VSS	Ground
66	Out	INT-	Interrupt to Microprocessor
67	Out	SWAIT-	Wait signal to SUB CPU
68	Input	TEST0	Test pin
69	Input	TEST1	Test pin
70	Input	TEST2	Test pin
71	Input	TEST3	Test pin
72	Out	EXCK	Sub code
73	Input	WFCK	Sub code
74	Input	SBSO	Sub code
75	Input	SCOR	Sub code
76		VDD	Power supply
77	Input	SDATA	Serial data
78	Input	BCK	Serial data input terminal
79	Input	LRCK	44.1kHz strobe signal
80	Input	C2PO	C2 Pointer
81		VSS	Ground
82	Input	XTALCK	Crystal Oscillator Input
83	Out	XTAL	Crystal Oscillator Output
84	Out	MCK	XTALCK 1/2 Output
85	Input	RESET-	RESET

Continued (IC600)

Pin No.	I/O	Pin Name	Comment
86	Out	RCS	RAM Chip selection
87	Out	RWE-	RAM Data Write enable signal
88	Out	ROE-	RAM Data Read enable signal
89		VDD	Power supply
90		VSS	Ground
91	Out	RA0	Data buffer address 0
92	Out	RA1	Data buffer address 1
93	Out	RA2	Data buffer address 2
94	Out	RA3	Data buffer address 3
95	Out	RA4	Data buffer address 4
96	Out	RA5	Data buffer address 5
97	Out	RA6	Data buffer address 6
98	Out	RA7	Data buffer address 7
99		VSS	Ground
100	Out	RA8	Data buffer address 8

IC660
1-chip Microprocessor (P/N: MN1882410FZA)

Pin No.	I/O	Pin Name	Comment
1	Out	CA13	ROM Address 13
2	Out	CA12	ROM Address 12
3	Out	CA11	ROM Address 11
4	Out	CA10	ROM Address 10
5	Out	CA9	ROM Address 9
6	Out	CA8	ROM Address 8
7	Out	CA7	ROM Address 7
8	Out	CA6	ROM Address 6
9	Out	CA5	ROM Address 5
10	Out	CA4	ROM Address 4
11	Out	CA3	ROM Address 3
12	Out	CA2	ROM Address 2
13	Out	CA1	ROM Address 1
14	Out	CA0	ROM Address 0
15	Input	EXI	External bus selection
16	Input	RST-	Reset
17	Out	RE-	Read enable
18	Out	WE-	Write enable
19		TERM-	No connection
20		R/W-	No connection
21		S3-	No connection
22	Out	S2-	Timing signal generation
23	Out	S1-	Timing signal generation
24	Out	S0-	ROM chip selection
25	Input	P26	DIR (IC640 PIN-32)
26	Input	P25	Sub-code block clock
27	Input	P24	Interrupt request from IC640
28	Input	P22	Timing signal
29	Out	P21	Traverse Unit control
30	Input	P20	Complement flag
31	Out	OSC2	Oscillator output
32	Input	OSC1	Oscillator input
33		VSS	Ground
34	Input	X1	Oscillator input (Low speed)
35	Out	X0	Oscillator output (Low speed)
36	Input	P17	Door open/close
37	Input	P16	Reset of pick-up location
38		P15	No connection
39	Input	P14	DSP status signal
40	Input	P13	Q code input
41	Input	P12	Tracking servo control
42	Input	P11	Focus servo control
43	Out	P10	S.Motor control

Continued (IC660)

Pin No.	I/O	Pin Name	Comment
44	Out	P33	Traverse motor control
45	Out	P32	Reset to IC700
46	Out	P31	Reset to stop the operation of the circuit where MASH circuit after.
47	Out	P30	Command load
48	Out	P02	Command clock
49	Input	P01	Sense input
50	Out	P00	Command data
51		NC	No connection
52		P97	No connection
53		P96	No connection
54		P95	No connection
55	Out	P94	Access LED control
56		P93	No connection
57		P92	No connection
58	Out	P91	Clock for Q code
59	Out	P90	Play control
60		AVSS	Analog ground
61		SH	No connection
62		VREF-	Reference voltage for ADC
63	Input	AD7	AD converter input 7
64	Input	AD6	AD converter input 6
65	Input	AD5	AD converter input 5
66	Input	AD4	AD converter input 4
67	Input	AD3	AD converter input 3
68	Input	AD2	AD converter input 2
69	Input	AD1	AD converter input 1
70	Input	AD0	AD converter input 0
71		VREF+	Reference voltage for ADC
72		AVDD	Analog power supply
73		VDD	Power supply
74		D7	External data bus 7
75		D6	External data bus 6
76		D5	External data bus 5
77		D4	External data bus 4
78		D3	External data bus 3
79		D2	External data bus 2
80		D1	External data bus 1
81		D0	External data bus 0
82		VSS	Ground
83		A15	External address bus 15
84		A14	External address bus 14

IC700
Digital Servo Processor (P/N MN662720RB)

Pin No.	I/O	Pin Name	Comment
1	Out	BCLK	Bit clock output for SDATA
2	Out	LRCK	L/R selection
3	Out	SRDATA	Serial data
4	Input	DVDD1	Digital power supply
5	Input	DVSS1	Digital ground
6	Out	TX	Digital audio interface
7	Input	MCLK	Command clock
8	Input	MDATA	Command data
9	Input	MLD	Command load
10	Out	SENSE	Sense output
11	Out	FLOCK-	Focus servo control
12	Out	TLOCK-	Tracking servo control
13	Out	BLKCK	Sub code block clock
14	Input	SQCK	Clock for Q register
15	Out	SUBQ	Q code output
16	Input	DMUTE	Muting

Continued (IC700)

Pin No.	I/O	Pin Name	Comment
17	Out	STAT	Status
18	Input	RST-	Reset
19	Out	SMCK	Clock
20	Out	PMCK	88.2kHz clock
21	Out	TRV	Traverse compulsory drive
22	Out	TVD	Traverse drive
23	Tri-Out	PC	S.Motor On signal
24	Out	ECM	S.Motor drive (compulsory mode)
25	Out	ECS	S.Motor drive (on servo differential signal)
26	Out	KICK	Kick pulse
27	Out	TRD	Tracking drive control
28	Out	FOD	Focus drive control
29	Input	VREF	Reference voltage for DA
30	Out	FBAL	Focus balance adjustment control
31	Out	TBAL	Tracking balance adjustment control
32	Input	FE	Focus error input
33	Input	TE	Tracking error input
34	Input	RFENV	RF envelope input
35	Input	VDET	Detecting vibration
36	Input	OFT	Off track
37	Input	TRCRS	Track cross
38	Input	RFDET-	Detecting RF
39	Input	BDO	Drop out
40	Out	LDON	Laser ON
41	Out	TES	Tracking error shunt
42	Out	PLAY	Play
43	Out	WVEL	Status signal in double speed mode
44	Input	ARF	RF input
45	Input	IREF	Reference current
46	Input	DRF	Bias terminal for DSL
47	I/O	DSLF	Loop filter terminal for DSL
48	I/O	PLLF	Loop filter terminal for PLL
49	I/O	VCOF	Loop filter terminal for VCO
50	Input	AVDD2	Analog power supply
51	Input	AVSS2	Analog ground
52	Out	EFM	EFM output
53	Out	PCK	PLL Clock
54	Out	PDO	Phase difference between EFM and PCK
55	Out	SUBC	Sub code serial data
56	Input	SBCK	Sub code serial clock
57	Input	VSS	Internal oscillator ground
58	Input	X1	Crystal oscillator input
59	Out	X2	Crystal oscillator output
60	Input	VDD	Internal oscillator power supply
61	Out	BYTCK	Byte clock
62	Out	CLDCK-	Sub code frame clock
63	Out	FCLK	Crystal frame clock
64	Out	IPFLAG	Complement flag
65	Out	FLAG	Flag output
66	Out	CLVS	Status signal of Phase sync of S. servo
67	Out	CRC	Sub code CRC
68	Out	DEMPH	Detecting de-emphasis
69	Out	RESY	Re sync signal of frame sync
70	Input	RST2	Reset to stop the operation of the circuit where MASH circuit after.
71	Input	TEST-	Test pin
72	Input	AVDD1	Analog power supply
73	Out	OUTL	L ch. output
74	Input	AVSS1	Analog ground

Continued (IC700)

Pin No.	I/O	Pin Name	Comment
75	Out	OUTR	R ch. output
76	Input	RSEL	Designation pole of RF
77	Input	CSEL	Designation crystal oscillator frequency
78	Input	PSEL	Test pin
79	Input	MSEL	SMCK terminal (switching terminal for output frequency)
80	Input	SSEL	SUQB terminal (switching terminal for outout mode)

IC720
Head Amplifier (P/N: AN8803NSB-E2)

Pin No.	I/O	Pin Name	Comment
1	Input	PD	Auto power control input
2	Out	LD	Auto power control output
3	Input	LDON	Auto power control On/Off
4		CCRS	CROSS capacitor pin
5		VCC	Power supply
6	Input	RF-	RF reverse input
7	Out	RFOUT	RF AMP output
8	Input	RFIN	AGC input
9		CAGC	Loop filter pin for AGC
10	Out	ARF	AGC output
11		CENV	Capacitor pin for detecting RF
12		CEA	Capacitor pin for HPF Amp.
13		CSBDO	Capacitor pin for detecting envelope of black portion in RF
14	Out	BDO	BDO output
15		CSBRT	Capacitor pin for detecting envelope of blight portion in RF
16	Out	OFTR	OFTR output
17	Out	MRFDE-	REDET output
18		GND	Ground
19	Out	ENV	3TENV outout
20	Out	VREF	VREF output
21		LDOFF	APC Off control
22	Out	VDET	Detecting vibration output
23	Input	TEBPF	Detecting vibration input
24	Out	CROSS	Track cross
25	Out	TEOUT	Tracking error AMP output
26	Input	TE-	Tracking error reverse input
27	Out	FEOUT	Focus error AMP output
28	Input	FE-	Focus error reverse input
29	Input	FBAL	Focus balance control
30	Input	TBAL	Tracking balance control
31		PDFR	Converting resistor of IV AMP control
32		PDER	Converting resistor of IV AMP control
33	Input	PDE	IV AMP E input
34	Input	PDF	IV AMP F input
35	Input	PDBD	IV AMP BD input
36	Input	PDAC	IV AMP AC input

IC760
Motor Driver (P/N: AN8388SR-E2)

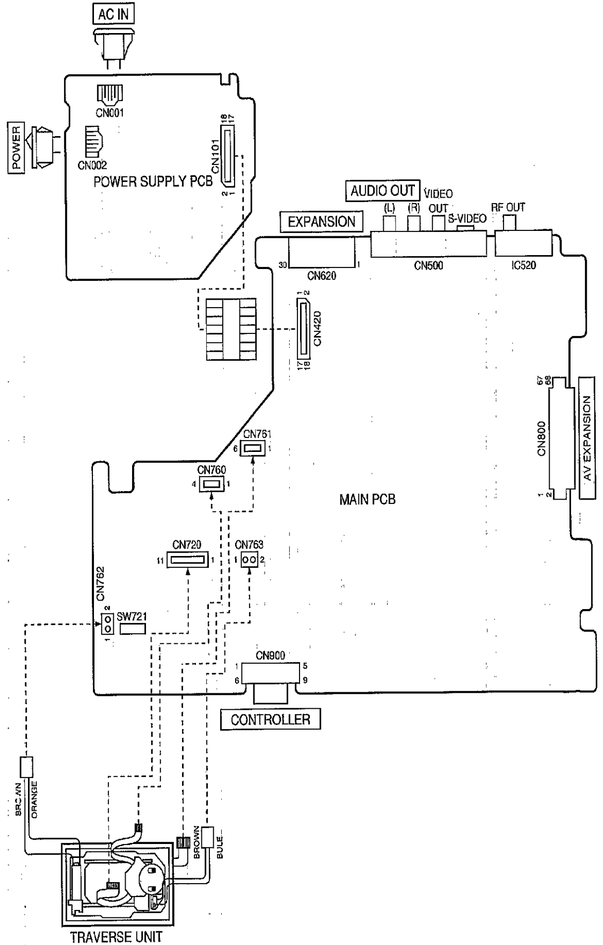
Pin No.	I/O	Pin Name	Comment
1		PVCC1	Power supply for driver 1 and driver 2
2		PGND1	Ground for driver 1 and driver 2
3	Out	M1-	Driver 1 reverse output
4	Out	M1+	Driver 1 output
5	Out	M2-	Driver 2 reverse output
6	Out	M2+	Driver 2 output

Continued (IC760)

Pin No.	I/O	Pin Name	Comment
7	Out	M3-	Driver 3 reverse output
8	Out	M3+	Driver 3 output
9	Out	M4-	Driver 4 reverse output
10	Out	M4+	Driver 4 output
11		PGND2	Power supply for driver 3 and driver 4
12		PVCC2	Ground for driver 3 and driver 4
13		SVCC	Power supply for driver control circuit
14	Input	VREF	Reference voltage
15	Input	MO4	Driver 4 error input
16	Input	MO3	Driver 3 error input
17	Input	OP+	OP-AMP reverse input
18	Input	OP-	OP-AMP input
19	Out	OPO	OP-AMP output
20		GND	Ground
21	Input	MO2	Driver 2 error input
22	Input	PC2	Driver 2 output switch
23	Input	MO1	Driver 1 error input
24	Input	PC1	Driver 1 output switch

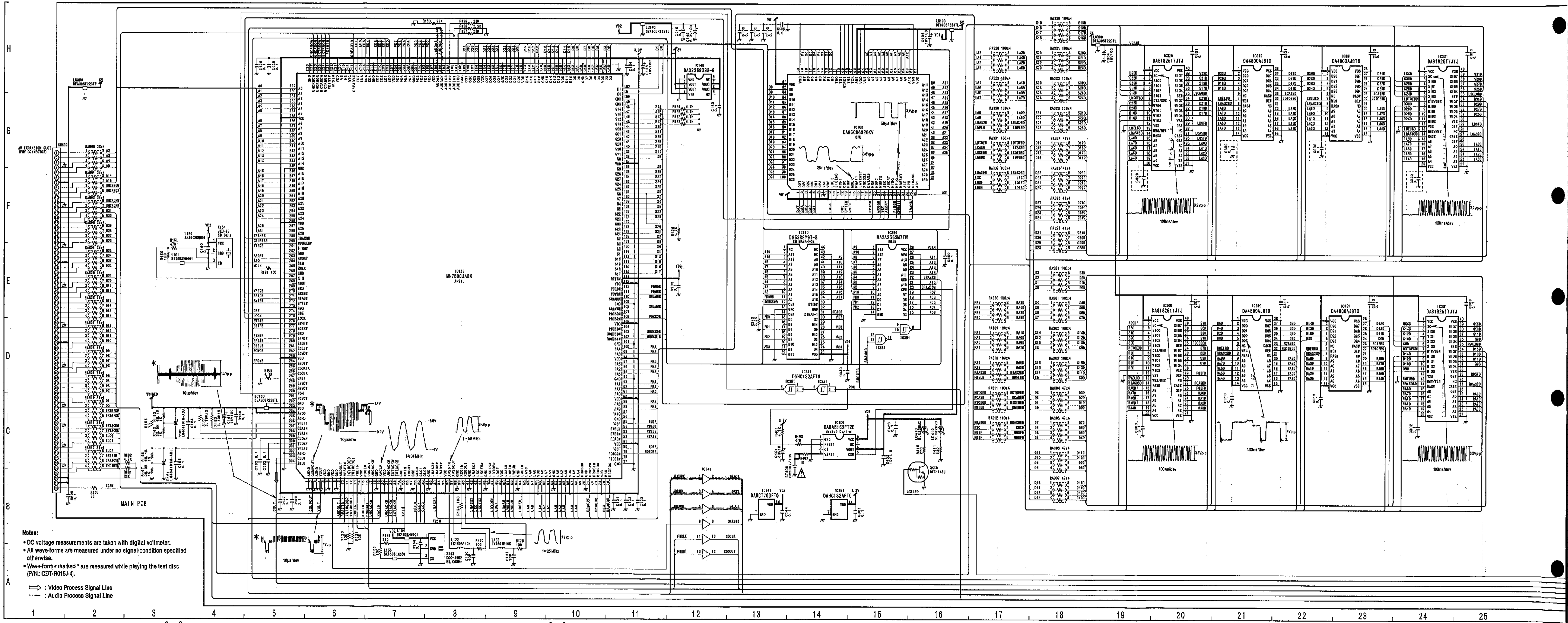
3. Diagrams and Replacement Parts List

3-1. Wiring Connection Diagram



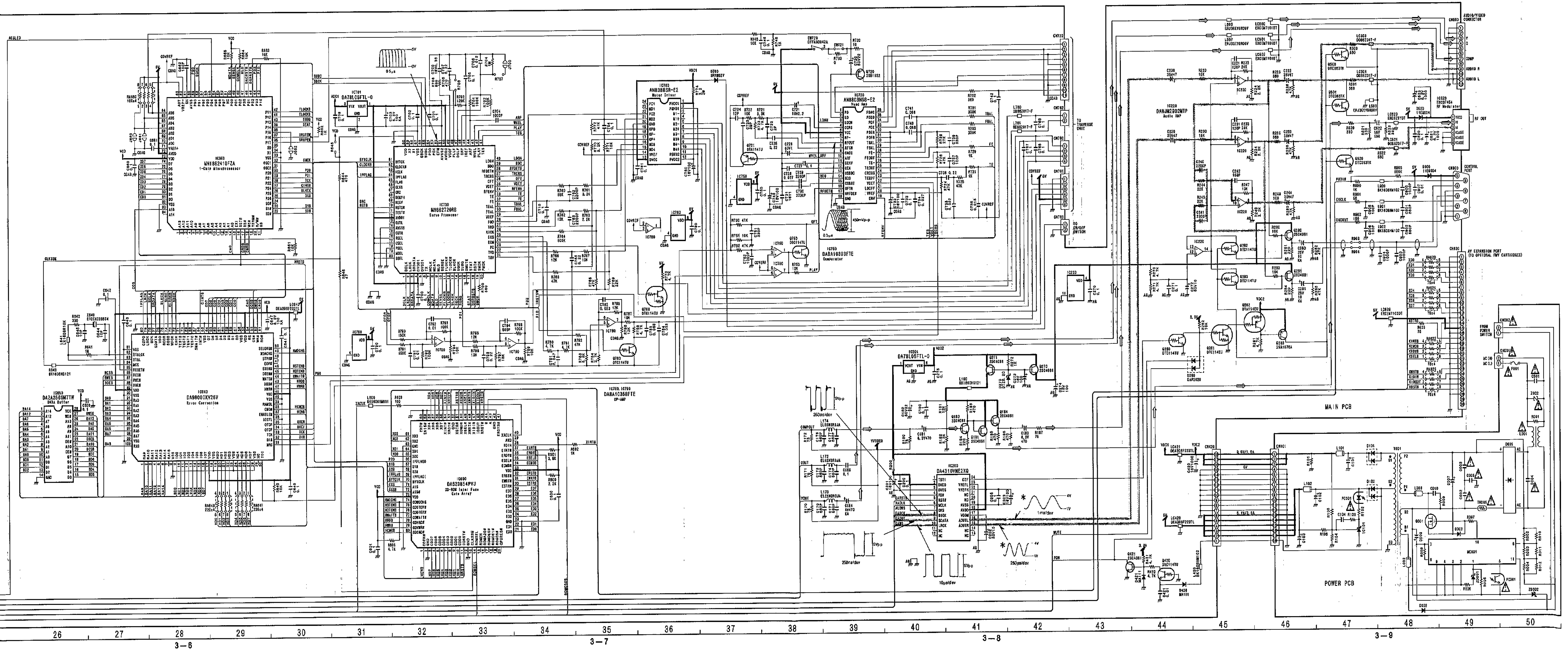
FZ-10 FZ-10

3-2. Schematic Diagrams



Notes:
- DC voltage measurements are taken with digital voltmeter.
- All wave-forms are measured under no signal condition specified otherwise.
- Wave-forms marked * are measured while playing the test disc (P/N: CDT-R015J-4).

⇨ : Video Process Signal Line
- - - : Audio Process Signal Line


IC660 MN1882410FZA 1-Chip Microprocessor
IC700 MN662720RB Servo Processor
IC701 DA78L05FTL-0
IC760 AN8388SR-E2 Motor Driver
IC720 AN8803NSB-E2 Head Amp
IC750 DABA10393FTE Comparator
IC780, IC790 DABA10358FTE OP-AMP
IC640 DA98000KY26V Error Correction
IC650 DA2A256SM7TW DATA Buffer
IC600 DA823854PVJ CD-ROM Inter Face Gate Array
IC201 DA78L05FTL-0
IC200 DA4310VME2XQ
IC220 DANJM2902MTP Audio AMP
IC520 EHC37454 RF Modulator
AUDIO/VIDEO CONNECTOR
AUDIO R
AUDIO L
RF OUT
CONTROL PORT
AV EXPANSION PORT (TO OPTIONAL FMV CARTRIDGES)
TO TRAVERSE UNIT
TO ON/OFF SWITCH
FROM POWER SWITCH
MAIN PCB
POWER PCB
MC001
9.0V/1.0A
5.1V/2.5A
26
27
28
29
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31
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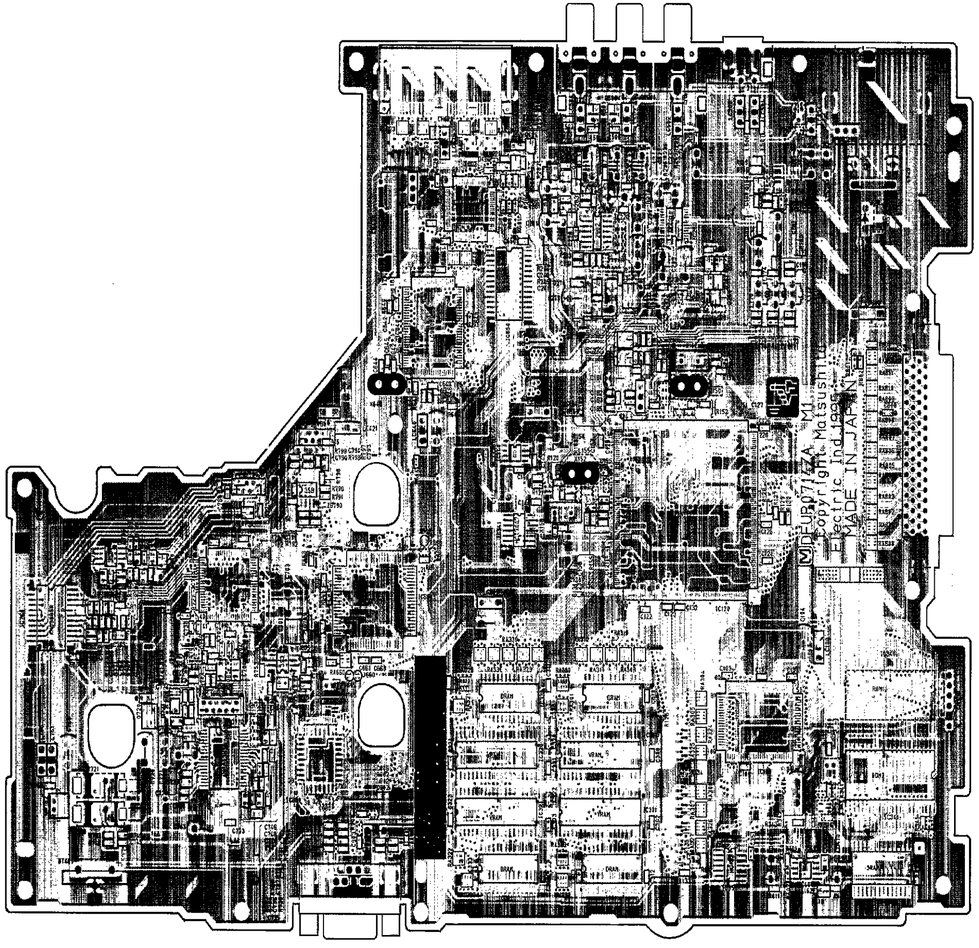
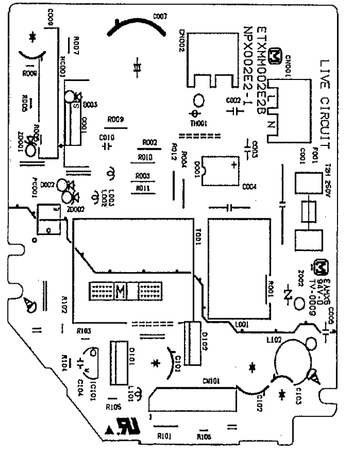
3-3. Printed Circuit Boards

3-3-1. Main PCB

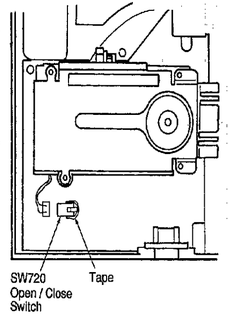


3-3-2. Power PCB



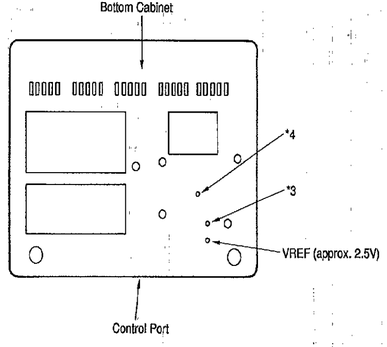
3-4. Service Notes and Precaution

- When servicing the Main PCB, cover the Power PCB with Power PCB Cover for your safety.
- Be careful not to touch metal portion and parts of the power section to prevent high voltage.
- When servicing with playing a CD, tape SW720 to be pressed as shown in figure below:



■ **Precaution for measuring waveform**

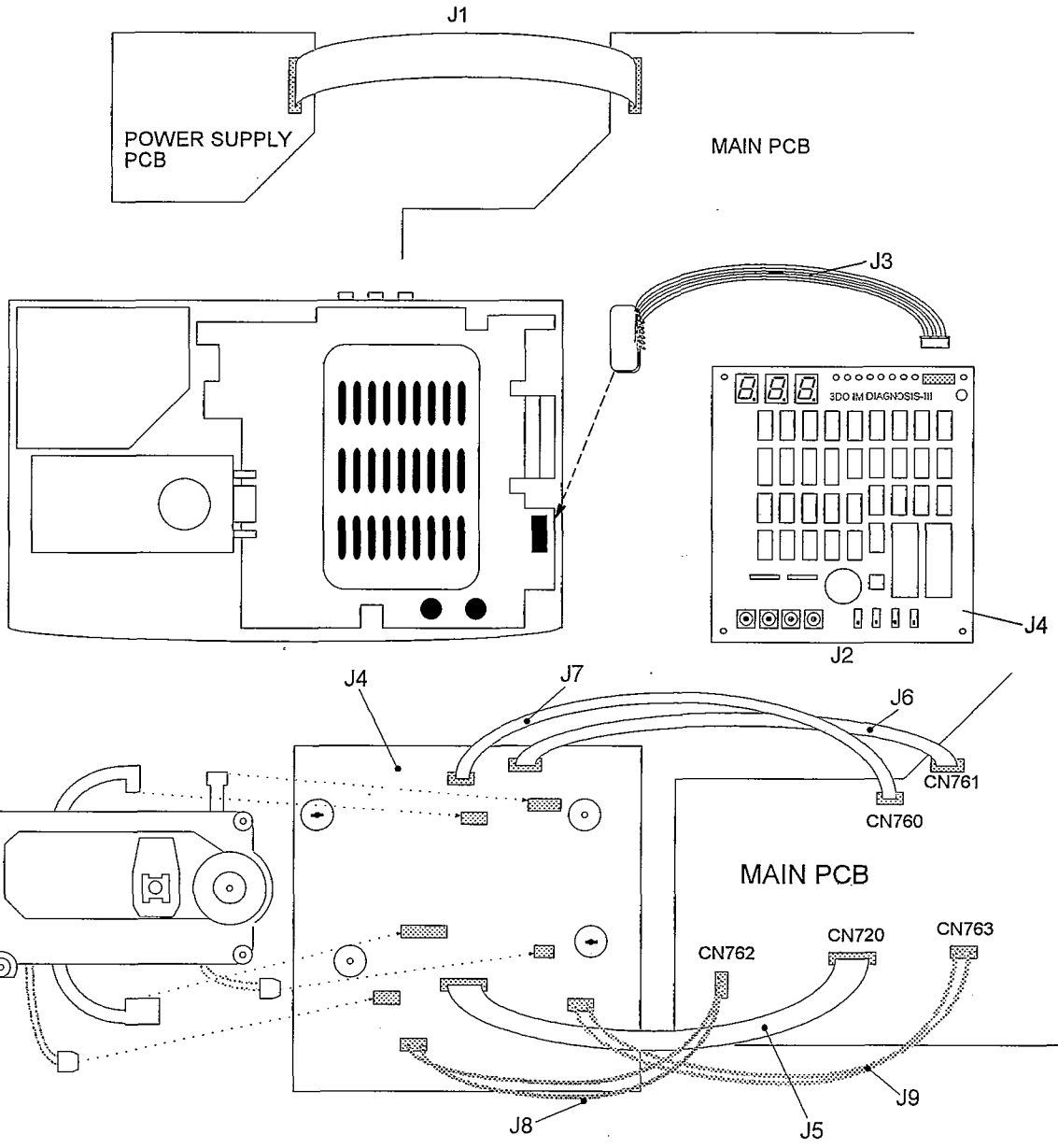
When you observe waveform at points *3 and *4 on the schematic diagram, measure it from bottom side of the built-up unit. (See figure below.)



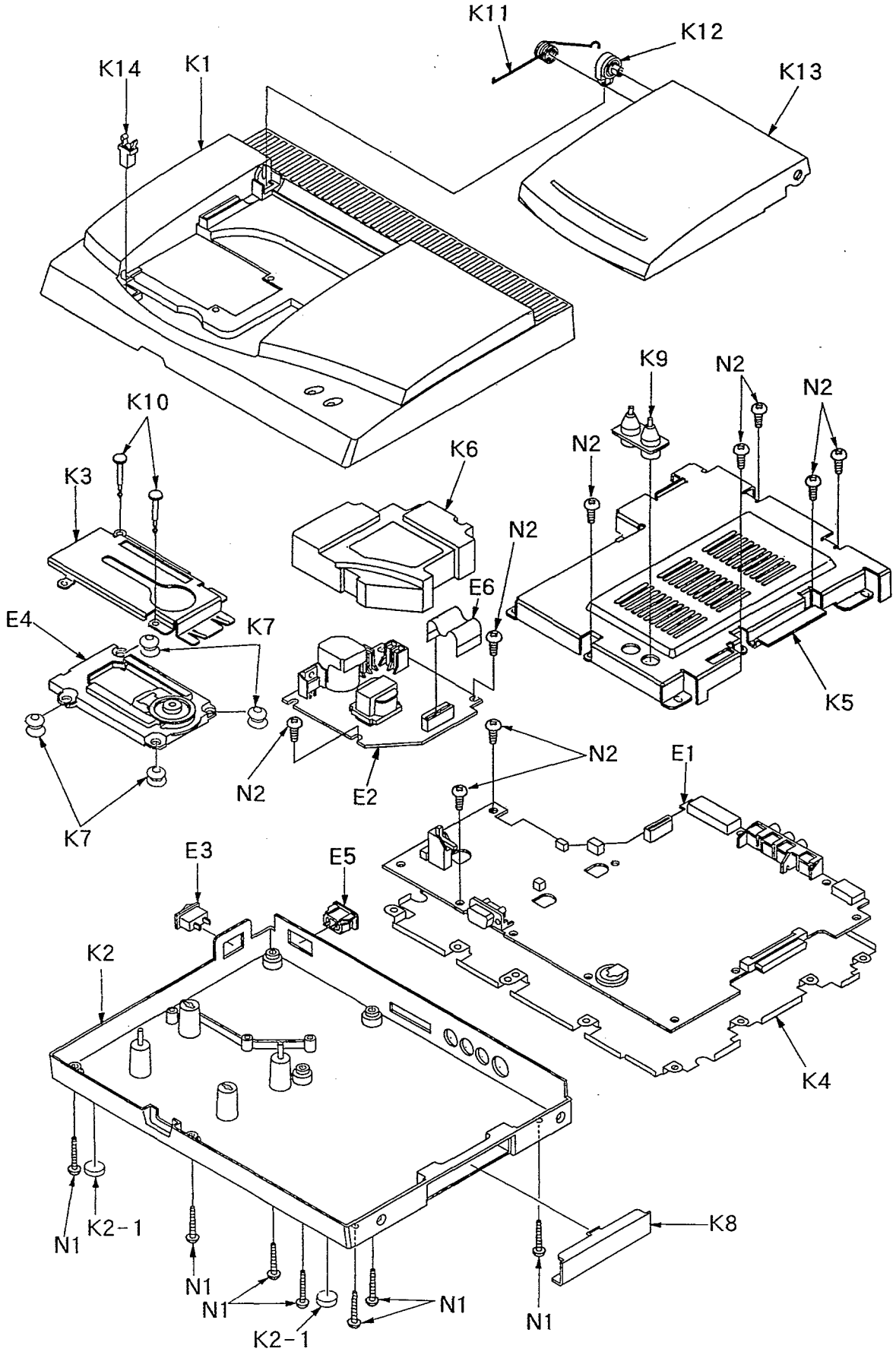
3-5. Service Tools

The following service tools are useful for servicing.

REF. No.	PART No.	DESCRIPTION	Q'TY
J1	DFWV95C0103	EXTENSION FLAT CABLE FOR POWER SUPPLY	1
J2	DFWV95C0104	FZ-10 CHECKER WITH MANUAL	1
J3	DFWV95C0105	CABLE FOR FZ-10 CHECKER Cable with the device that connects the cable with FZ-10.	1
J4	DFWV95C0106	TRAVERSE PLATFORM WITH MANUAL In order to check circuit under the traverse, you can place it on the platform.	1
J5	DFWV95C0107	FLAT CABLE (11 PIN)	1
J6	DFWV95C0108	FLAT CABLE (6 PIN)	1
J7	DFWV95C0109	FLAT CABLE (4 PIN)	1
J8	DFWV95C0110	CABLE	1
J9	DFWV95C0111	CABLE	1



3-6. Exploded Views and Replacement Parts List



3-7. Replacement Parts List
(Mechanical, Accessories Packing and Electrical)

Note: Important safety notice.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

REF. No.		PART No.	DESCRIPTION	Q'TY
Main Block Units				
E 1		DL3U10714GAA	Ass'y MAIN LOGIC PCB RTL RTL	1
E 2	⚠	ETXMM002E2B	PC BOARD, POWER RTL	1
E 3	⚠	DFST1A10YBH	SWITCH	1
E 4		LMAE0101	Ass'y TARAVERSE BASE	1
E 5	⚠	DFJJA2Z03ZB	JACK, AC INLET	1
E 6		DFJE18A050AV	FLAT CABLE(18-Pin)	1
Mechanical Parts				
K 1		DFWV80A0178	TOP CABINET	1
K 2	⚠	DFWV80C0343	BOTTOM CABINET	1
K 2-1		DFHG337ZA	FOOT	2
K 3		DFMD9038ZA	COVER, TRAVERSE	1
K 4		DFMC0342ZA	SHIELD PLATE (LOWER)	1
K 5		DFMC0343ZA	SHIELD PLATE (UPPER)	1
K 6		DFMX0364ZA	SHIELD PLATE (POWER SOURCE)	1
K 7		DFHG413ZA	INSULATOR	4
K 8		DFKE0299ZA-0	LID, FMV CONNECTOR	1
K 9		DFGL0040ZA	LIGHT LEADING PANEL	1
K 10		DFHR5330ZB	PIN, TRAVERS	2
K 11		DFUN0020ZA	SPRING	1
K 12		DFBH3011ZA	OIL DAMPER	1
K 13		DFGP0161ZA-0	PANEL, CD	1
K 14		DFBM0002ZA	LATCH, DC	1
N 1		XTB3+16GFZ	SCREW	7
N 2		DFHE5036ZA	SCREW	9
Accessories				
A 1		DFJL0009ZA-0	CONTROLLER	1
A 2		DFSE9005ZA	RF CABLE	1
A 3	⚠	DFJA0042ZAKK	AC CORD	1
A 4		DFJP014ZA	AV CABLE	1
A 5		DFQS1014ZA	CUSTOM REGISTRATION CARD	1
A 6		DFQS1015ZA	3DO REGISTRATION CARD	1
A 7		DFQS3024ZA	MANUAL, OPERATING	1
Packing Materials				
P 1		DFPK0761ZA	PACKING CASE	1
P 2		DFPP0095ZA	BAG, UNIT PROGTECTION	1
P 3		DFPN0578ZA	CUSHION (LEFT)	1
P 4		DFPN0579ZA	CUSHION (RIGHT)	1

REF. No.	PART No.	DESCRIPTION	Q'TY
Main Logic PCB			
BT 400 ⚠	CR2032/1GV	LITHIUM BATTERY, 3V	1
C 100–103	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	4
C 104	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 120–127	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	8
C 128	ECA1EFQ221B	CAPACITOR, ELECTROLYTIC, 25 V, 220 µF	1
C 130, 131	ECUV1H100DCV	CAPACITOR, CERAMIC, CHIP, 50 V, 10 pF, ±0.5pF	2
C 132	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 140	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 142	ECEA0JKA101B	CAPACITOR, ELECTROLYTIC, 6.3 V, 100 µF	1
C 143, 144	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 150	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 154	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 160	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 161	ECA1AM331B	CAPACITOR, ELECTROLYTIC, 10 V, 330 µF	1
C 162-165	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	4
C 170, 171	ECUV1H561JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 560 pF, ±5%	2
C 173, 174	ECUV1H561JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 560 pF, ±5%	2
C 176, 177	ECUV1H561JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 560 pF, ±5%	2
C 180	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 181	ECA0JM471B	CAPACITOR, ELECTROLYTIC, 6.3 V, 470 µF	1
C 182	ECA1HM220B	CAPACITOR, ELECTROLYTIC, 50 V, 22 µF	1
C 183	ECA0JM471B	CAPACITOR, ELECTROLYTIC, 6.3 V, 470 µF	1
C 184	ECEA0GKA471Q	CAPACITOR, ELECTROLYTIC, 4 V, 470 µF	1
C 185	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 200	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 201	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 202	ECA1HM100B	CAPACITOR, ELECTROLYTIC, 50 V, 1 µF	1
C 203	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 205	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 220	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 221	ECUV1H121JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 120 pF, ±10%	1
C 223	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 230	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 231	ECUV1H121JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 120 pF, ±10%	1
C 233	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 240, 241	ECUV1H222KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 2200 pF, ±10%	2
C 242	ECUV1H151KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 150 pF, ±10%	1
C 244	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 270, 271	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 272	ECA1HM100B	CAPACITOR, ELECTROLYTIC, 50 V, 1 µF	1
C 273	ECA1AM471B	CAPACITOR, ELECTROLYTIC, 10 V, 330 µF	1
C 274	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 275	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 280, 281	ECEA1EKA100B	CAPACITOR, ELECTROLYTIC, 25 V, 10 µF	2
C 300-303	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	4
C 304	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 310-313	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	4
C 321	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1

REF. No.	PART No.	DESCRIPTION	Q'TY
C 323	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 331	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 333	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 340	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 350, 351	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 400	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 401	ECA1VM470B	CAPACITOR, ELECTROLYTIC, 35 V, 47 µF	1
C 402	DCUA1C105ZFY	CAPACITOR, CERAMIC, CHIP, 16 V, 1 µF	1
C 420	ECA1AM102B	CAPACITOR, ELECTROLYTIC, 10 V, 1000 µF	1
C 421	DCUG1E104ZFR	CAPACITOR, CERAMIC, CHIP, 25 V, 0.1 µF	1
C 520	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 521	ECA1AM102B	CAPACITOR, ELECTROLYTIC, 10 V, 1000 µF	1
C 522	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 523	ECA1AM102B	CAPACITOR, ELECTROLYTIC, 10 V, 1000 µF	1
C 600, 601	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 640-643	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	4
C 644, 645	ECUV1H100DCV	CAPACITOR, CERAMIC, CHIP, 50 V, 10 pF, ±0.5pF	2
C 647	ECEA0JKA101B	CAPACITOR, ELECTROLYTIC, 6.3 V, 100 µF	1
C 650	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 660, 661	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 662	ECUV1H151KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 150 pF, ±10%	1
C 700-702	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	3
C 703	ECEA0JKA101B	CAPACITOR, ELECTROLYTIC, 6.3 V, 100 µF	1
C 704	ECUV1H102KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 1000 pF, ±10%	1
C 705	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 706	ECUV1H123KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 12000 pF, ±10%	1
C 707	DCUC1E224KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 220000 pF, ±10%	1
C 708	DCUC1C334KBY	CAPACITOR, CERAMIC, CHIP, 16 V, 330000 pF, ±10%	1
C 709, 710	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	2
C 720	ECA1HM220B	CAPACITOR, ELECTROLYTIC, 50 V, 22 µF	1
C 721	ECA1HM2R2B	CAPACITOR, ELECTROLYTIC, 50 V, 2.2 µF	1
C 722	ECUV1H020CCV	CAPACITOR, CERAMIC, CHIP, 50 V, 2 pF, ±0.25pF	1
C 723	ECUV1H390JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 39 pF, ±5%	1
C 724	ECUV1H120JCV	CAPACITOR, CERAMIC, CHIP, 50 V, 12 pF, ±10%	1
C 725	DCUA1C224KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 22000 pF, ±10%	1
C 726	ECA1HM010B	CAPACITOR, ELECTROLYTIC, 50 V, 1 µF	1
C 727	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 728	ECUV1E273KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 27000 pF, ±10%	1
C 729, 730	ECUV1H222KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 2200 pF, ±10%	2
C 731	DCUA1C105ZFY	CAPACITOR, CERAMIC, CHIP, 16 V, 1 µF	1
C 732	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 733	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 734	ECUV1E273KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 27000 pF, ±10%	1
C 735	ECUV1E223KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 22000 pF, ±10%	1
C 736	DCUA1C224KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 22000 pF, ±10%	1
C 737	ECUV1H101KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 100 pF, ±10%	1
C 738	ECUV1H153KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 15000 pF, ±10%	1
C 739	ECUV1H331KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 330 pF, ±10%	1
C 740	DCUA1E683KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 68000 pF, ±10%	1
C 741	DCUA1E683KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 68000 pF, ±10%	1

REF. No.	PART No.	DESCRIPTION	Q'TY
C 742	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 743	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 745	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 750	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 751	ECUV1H331KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 330 pF, ±10%	1
C 752	ECUV1H102KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 1000 pF, ±10%	1
C 760	ECA1CM101B	CAPACITOR, ELECTROLYTIC, 16 V, 100 µF	1
C 761	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 762, 763	ECUV1H222KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 2200 pF, ±10%	2
C 764	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 765	DCUA1C224KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 22000 pF, ±10%	1
C 766-768	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	3
C 780	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 781	ECUV1E473KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 47000 pF, ±10%	1
C 782	ECUV1E333KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 33000 pF, ±10%	1
C 783	DCUA1E683KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 68000 pF, ±10%	1
C 784	ECUV1E333KBX	CAPACITOR, CERAMIC, CHIP, 25 V, 33000 pF, ±10%	1
C 790	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 791, 792	ECUV1H103KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 10000 pF, ±10%	2
C 793	DCUA1C224KBY	CAPACITOR, CERAMIC, CHIP, 25 V, 22000 pF, ±10%	1
C 794	ECUV1H561KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 560 pF, ±5%	1
C 800	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
C 900	ECUV1H102KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 1000 pF, ±10%	1
C 901, 902	ECUV1H561KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 560 pF, ±5%	2
C 903, 904	ECUV1H102KBV	CAPACITOR, CERAMIC, CHIP, 50 V, 1000 pF, ±10%	2
C 905, 906	ECUV1H101KCV	CAPACITOR, CERAMIC, CHIP, 50 V, 100 pF, ±10%	2
C 907	ECUV1C104ZFV	CAPACITOR, CERAMIC, CHIP, 16 V, 0.1 µF	1
CN 420	DFJS18N12YAJ	CONNECTOR, 18-Pin, PC BOARD, POWER	1
CN 500	DFJF0A003ZAH	CONNECTOR, 12-Pin AUDIO/VIDEO	1
CN 620	DFJP30C95ZAH	CONNECTOR, 30-Pin, EXPANSION PORT	1
CN 720	DFJS11N39WA	CONNECTOR, 11-Pin, CD-ROM DRIVE	1
CN 760	DFJS090ZA004	CONNECTOR, 4-Pin, CD-ROM DRIVE	1
CN 761	DFJS090ZA006	CONNECTOR, 6-Pin, CD-ROM DRIVE	1
CN 762	DFJP02C88ZAJ	CONNECTOR, 2-Pin, CD-ROM DRIVE	1
CN 763	DFJP02C30WAB	CONNECTOR, 2-Pin, CD-ROM DRIVE	1
CN 800	DFJS68D61YBF	CONNECTOR, 68-Pin, AV EXPANSION PORT	1
CN 900	DFJP09E22ZAM	CONNECTOR, 9-Pin, CONTROLLER PORT	1
D 160, 161	DAM4041MTAJN	DIODE	2
D 260	DEDAP202UT7	DIODE	1
D 420, 421	MA111TX	DIODE	2
D 520	DED11EQS04T5	DIODE	1
D 760	DEDSFPM52V	DIODE	1
D 900	DED11EQS04T5	DIODE	1
IC 100	DA86C06020XV	IC, CPU	1
IC 120	MN7B003ABK	IC, SYSTEM IC, ANVIL	1
IC 140	DA33269D33-Q	IC, REGULATOR	1
IC 141	DAHCT7007FT0	IC, LOGIC	1
IC 200	DA4310VME2XQ	IC, AUDIO DAC	1
IC 201	DA78L05FTL-0	IC, REGULATOR	1

REF. No.	PART No.	DESCRIPTION	Q'TY
IC 220	DANJM2902MTP	IC, OP AMP	1
IC 300, 301	DA8182517JTJ	IC, 2M VRAM	2
IC 310, 311	DA4800AJ8T0	IC, 4M DRAM	2
IC 320, 321	DA8182517JTJ	IC, 2M VRAM	2
IC 330, 331	DA4800AJ8T0	IC, 4M DRAM	2
IC 340	DA5388Y9T-S	IC, 8M MASK ROM	1
IC 350	DA2A256SM7TW	IC, SRAM	1
IC 351	DAHC132AFT0	IC, LOGIC	1
IC 400	DABA6162FT2E	IC, RESET	1
IC 520	ENC37454	IC, RF MODULATOR	1
IC 600	DA623854PVJ	IC, CD-ROM I/F	1
IC 640	DA98000KV26V	IC, ECC	1
IC 650	DA2A256SM7TW	IC, SRAM	1
IC 660	MN1882410FZA	IC, CPU CD-ROM DRIVE	1
IC 700	MN662720RB	IC, CD DSP	1
IC 701	DA78L05FTL-0	IC, REGULATOR	1
IC 720	AN8803NSB-E2	IC, HEAD AMP	1
IC 750	DABA10393FTE	IC, LENEAR	1
IC 760	AN8388SR-E2	IC, MOTOR DRIVER	1
IC 780	DABA10358FTE	IC, OP AMP	1
IC 790	DABA10358FTE	IC, OP AMP	1
L 122, 123	DDAZSR10KT-Y	FERRITE BEAD	2
L 150, 151	DDB5Z021D-Y	FERRITE BEAD	2
L 154, 155	DDB5Z021D-Y	FERRITE BEAD	2
L 170	ELESN3R3JA	INDUCTOR 3.3uH	1
L 172	ELESN3R3JA	INDUCTOR 3.3uH	1
L 174	ELESN3R3JA	INDUCTOR 3.3uH	1
L 180	DDB5Z021A-Y	FERRITE BEAD	1
L 420	DDB5Z021E-Y	FERRITE BEAD	1
L 503	ERJ3GEY0R00V	CHIP JUMPER	1
L 506, 507	ERJ3GEY0R00V	CHIP JUMPER	2
L 600	DDB5Z021D-Y	FERRITE BEAD	1
L 641	DDAZSR10KT-Y	FERRITE BEAD	1
L 643	DDB5Z021A-Y	FERRITE BEAD	1
L 760, 761	DDB6Z017-F	FERRITE BEAD	2
L 900-902	DDB5Z021E-Y	FERRITE BEAD	3
LC 100	DEA306F223TL	FILTER	1
LC 140	DEA306F223TL	FILTER	1
LC 160	DEA306F223TL	FILTER	1
LC 300	DEA306F223TL	FILTER	1
LC 420	DEA306F223TL	FILTER	1
LC 421	DEA306F223TL	FILTER	1
LC 500-502	EXCEMT101BT	FILTER	3
LC 503, 504	DDB6Z017-F	FERRITE BEAD	2
LC 520	ERDS2TY0T	JUMPER	1
LC 521	DDB6Z017-F	FERRITE BEAD	1
LC 629	EXCEMT103DT	FILTER	1
LC 640	DEA306F223TL	FILTER	1
LC 800	DEA306F223TL	FILTER	1

REF. No.	PART No.	DESCRIPTION	Q'TY
LD 410	DEDSLR325MC3	LED GREEN	1
LD 412	DEDSLR325VC3	LED RED	1
Q 180, 181	2SC4081RT107	TRANSISTOR	2
Q 184	2SC4081RT107	TRANSISTOR	1
Q 260, 261	DETC114TUT07	TRANSISTOR, RESISTOR BUILT-IN	2
Q 262	DETA114EUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 263	2SA1576RT107	TRANSISTOR	1
Q 270, 271	2SC4081RT107	TRANSISTOR	2
Q 280, 281	2SC4081RT107	TRANSISTOR	2
Q 410	DETC114EUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 420	DETC114TUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 421	2SC4081RT107	TRANSISTOR	1
Q 500	DETC363TKT47	TRANSISTOR, RESISTOR BUILT-IN	1
Q 501	DETC363TKT47	TRANSISTOR, RESISTOR BUILT-IN	1
Q 520	DETC363TKT47	TRANSISTOR, RESISTOR BUILT-IN	1
Q 720	2SB1132QT100	TRANSISTOR	1
Q 721	DETA114TUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 750	DETC114TUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 760	DETC114EUT07	TRANSISTOR, RESISTOR BUILT-IN	1
Q 780	DETC114TUT07	TRANSISTOR, RESISTOR BUILT-IN	1
R 120, 121	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	2
R 122	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 124	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 125	ERJ3GEYJ470V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 Ω, ±5%	1
R 126	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 127	ERJ3GEYJ223V	RESISTOR, THICK FILM, CHIP, 1/16W, 22 kΩ, ±5%	1
R 128	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 129, 130	ERJ3GEYJ223V	RESISTOR, THICK FILM, CHIP, 1/16W, 22 kΩ, ±5%	2
R 131	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 135	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 150	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 151	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 153	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 154	ERJ3GEYJ331V	RESISTOR, THICK FILM, CHIP, 1/16W, 330 Ω, ±5%	1
R 160	ERJ3EKF3481V	RESISTOR, THICK FILM, CHIP, 1/16W, 3.48 kΩ, ±1%	1
R 161	ERJ3EKF5761V	RESISTOR, THICK FILM, CHIP, 1/16W, 5.76 kΩ, ±1%	1
R 162	ERJ3EKF6812V	RESISTOR, THICK FILM, CHIP, 1/16W, 68.1kΩ, ±1%	1
R 163	ERJ3EKF3092V	RESISTOR, THICK FILM, CHIP, 1/16W, 30.9 kΩ, ±1%	1
R 164, 165	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	2
R 166	ERJ3EKF6812V	RESISTOR, THICK FILM, CHIP, 1/16W, 6.81 kΩ, ±1%	1
R 167	ERJ3EKF2802V	RESISTOR, THICK FILM, CHIP, 1/16W, 28 kΩ, ±1%	1
R 168	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 170-172	ERJ3GEYJ750V	RESISTOR, THICK FILM, CHIP, 1/16W, 75 Ω, ±5%	3
R 180	ERJ3GEYJ750V	RESISTOR, THICK FILM, CHIP, 1/16W, 75 Ω, ±5%	1
R 181	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	1
R 182	ERJ3GEYJ332V	RESISTOR, THICK FILM, CHIP, 1/16W, 3.3 kΩ, ±5%	1
R 183	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 184	ERJ3GEYJ221V	RESISTOR, THICK FILM, CHIP, 1/16W, 220 Ω, ±5%	1
R 185, 186	ERJ6GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/10W, 470 Ω, ±5%	2

REF. No.	PART No.	DESCRIPTION	Q'TY
R 187	ERJ3GEYJ750V	RESISTOR, THICK FILM, CHIP, 1/16W, 75 Ω, ±5%	1
R 220	ERJ3GEYJ153V	RESISTOR, THICK FILM, CHIP, 1/16W, 15 kΩ, ±5%	1
R 223	ERJ3GEYJ243V	RESISTOR, THICK FILM, CHIP, 1/16W, 24 kΩ, ±5%	1
R 224	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 224, 245	ERJ3GEYJ223V	RESISTOR, THICK FILM, CHIP, 1/16W, 22 kΩ, ±5%	2
R 225	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 226	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 230	ERJ3GEYJ153V	RESISTOR, THICK FILM, CHIP, 1/16W, 15 kΩ, ±5%	1
R 233	ERJ3GEYJ243V	RESISTOR, THICK FILM, CHIP, 1/16W, 24 kΩ, ±5%	1
R 234	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 235	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 236	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 247	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 248	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 249	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 250	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 261	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 262	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 270, 271	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	2
R 272	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 280	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 281	ERJ6GEYJ221V	RESISTOR, THICK FILM, CHIP, 1/10W, 220 Ω, ±5%	1
R 282	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 283	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 284	ERJ6GEYJ221V	RESISTOR, THICK FILM, CHIP, 1/10W, 220 Ω, ±5%	1
R 285	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 340	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 400	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 401	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 402	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 403	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 410	ERJ3GEYJ271V	RESISTOR, THICK FILM, CHIP, 1/16W, 270 Ω, ±5%	1
R 411	ERJ3GEYJ331V	RESISTOR, THICK FILM, CHIP, 1/16W, 330 Ω, ±5%	1
R 420, 421	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	2
R 500, 501	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	2
R 520, 521	ERJ3GEYJ331V	RESISTOR, THICK FILM, CHIP, 1/16W, 330 Ω, ±5%	2
R 522	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 523	ERJ3GEYJ391V	RESISTOR, THICK FILM, CHIP, 1/16W, 390 Ω, ±5%	1
R 600	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 601	ERJ3GEYJ392V	RESISTOR, THICK FILM, CHIP, 1/16W, 3.9 kΩ, ±5%	1
R 602	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 603	ERJ3GEYJ101V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 Ω, ±5%	1
R 605	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 620	ERJ3GEYJ750V	RESISTOR, THICK FILM, CHIP, 1/16W, 75 Ω, ±5%	1
R 640	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 641	ERJ3GEYJ105V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 MΩ, ±5%	1
R 642	ERJ3GEYJ331V	RESISTOR, THICK FILM, CHIP, 1/16W, 330 Ω, ±5%	1
R 644	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 645	ERJ3GEYJ470V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 Ω, ±5%	1

REF. No.	PART No.	DESCRIPTION	Q'TY
R 661	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 662	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 663-665	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	3
R 700	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 701	ERJ3GEYJ104V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 kΩ, ±5%	1
R 702	ERJ3GEYJ124V	RESISTOR, THICK FILM, CHIP, 1/16W, 120 kΩ, ±5%	1
R 703	ERJ3GEYJ104V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 kΩ, ±5%	1
R 704	ERJ3GEYJ105V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 MΩ, ±5%	1
R 705	ERJ3GEYJ471V	RESISTOR, THICK FILM, CHIP, 1/16W, 470 Ω, ±5%	1
R 706	ERJ3GEYJ681V	RESISTOR, THICK FILM, CHIP, 1/16W, 680 Ω, ±5%	1
R 720	ERJ6GEYJ100V	RESISTOR, THICK FILM, CHIP, 1/10W, 10 Ω, ±5%	1
R 721	ERJ3GEYJ332V	RESISTOR, THICK FILM, CHIP, 1/16W, 3.3 kΩ, ±5%	1
R 722	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 723, 773	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	2
R 724-726	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	3
R 727	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 728	ERJ3GEYJ273V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.7 kΩ, ±5%	1
R 729	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 730, 731	ERJ3GEYJ334V	RESISTOR, THICK FILM, CHIP, 1/16W, 33 kΩ, ±5%	2
R 732	ERJ3GEYJ561V	RESISTOR, THICK FILM, CHIP, 1/16W, 560 Ω, ±5%	1
R 733	ERJ3GEY0R00V	CHIP JUMPER	1
R 745	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 746	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 750	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 751	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 752	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 753	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	1
R 760	ERJ3GEYJ153V	RESISTOR, THICK FILM, CHIP, 1/16W, 15 kΩ, ±5%	1
R 761	ERJ3GEYJ332V	RESISTOR, THICK FILM, CHIP, 1/16W, 3.3 kΩ, ±5%	1
R 762	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	1
R 763	ERJ3GEYJ222V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.2 kΩ, ±5%	1
R 764	ERJ3GEYJ104V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 kΩ, ±5%	1
R 765	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 766	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	1
R 767	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 768	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 769	ERJ3GEYJ223V	RESISTOR, THICK FILM, CHIP, 1/16W, 22 kΩ, ±5%	1
R 770	ERJ3GEYJ822V	RESISTOR, THICK FILM, CHIP, 1/16W, 8.2 kΩ, ±5%	1
R 771	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 772	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 774	ERX2SJ2R2P	RESISTOR, 2W 2.2Ω	1
R 780, 781	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	2
R 782	ERJ3GEYJ473V	RESISTOR, THICK FILM, CHIP, 1/16W, 47 kΩ, ±5%	1
R 783	ERJ3GEYJ682V	RESISTOR, THICK FILM, CHIP, 1/16W, 6.8 kΩ, ±5%	1
R 784	ERJ3GEYJ272V	RESISTOR, THICK FILM, CHIP, 1/16W, 2.7 kΩ, ±5%	1
R 785, 786	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	2
R 787	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 788	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 790, 791	ERJ3GEYJ154V	RESISTOR, THICK FILM, CHIP, 1/16W, 150 kΩ, ±5%	2

REF. No.	PART No.	DESCRIPTION	Q'TY
R 792, 793	ERJ3GEYJ104V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 kΩ, ±5%	2
R 794	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 795	ERJ3GEYJ123V	RESISTOR, THICK FILM, CHIP, 1/16W, 12 kΩ, ±5%	1
R 796	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 797	ERJ3GEYJ183V	RESISTOR, THICK FILM, CHIP, 1/16W, 18 kΩ, ±5%	1
R 798	ERJ3GEYJ104V	RESISTOR, THICK FILM, CHIP, 1/16W, 100 kΩ, ±5%	1
R 799	ERJ3GEYJ103V	RESISTOR, THICK FILM, CHIP, 1/16W, 10 kΩ, ±5%	1
R 800	ERJ3GEYJ330V	RESISTOR, THICK FILM, CHIP, 1/16W, 33 Ω, ±5%	1
R 801	ERJ3GEYJ223V	RESISTOR, THICK FILM, CHIP, 1/16W, 22 kΩ, ±5%	1
R 802	ERJ3GEYJ472V	RESISTOR, THICK FILM, CHIP, 1/16W, 4.7 kΩ, ±5%	1
R 900	ERJ3GEYJ102V	RESISTOR, THICK FILM, CHIP, 1/16W, 1 kΩ, ±5%	1
R 901	ERJ3GEYJ560V	RESISTOR, THICK FILM, CHIP, 1/16W, 56 Ω, ±5%	1
R 902	ERJ3GEYJ151V	RESISTOR, THICK FILM, CHIP, 1/16W, 150 Ω, ±5%	1
R 905	ERJ3GEYJ154V	RESISTOR, THICK FILM, CHIP, 1/16W, 150 kΩ, ±5%	1
RA 300-303	EXBV8V101JV	RESISTOR ARAY, 100 Ω	4
RA 304-307	EXBV8V470JV	RESISTOR ARAY, 47 Ω	4
RA 324-327	EXBV8V470JV	RESISTOR ARAY, 47 Ω	4
RA 308-312	EXBV8V101JV	RESISTOR ARAY, 100 Ω	5
RA 320-323	EXBV8V101JV	RESISTOR ARAY, 100 Ω	4
RA 328-332	EXBV8V101JV	RESISTOR ARAY, 100 Ω	5
RA 620-623	EXBV8V750JV	RESISTOR ARAY, 75 Ω	4
RA 640, 641	EXBV8V221JV	RESISTOR ARAY, 220 Ω	2
RA 660	EXBV8V103JV	RESISTOR ARAY, 100 Ω	1
RA 800-812	EXBV8V330JV	RESISTOR ARAY, 33 Ω	3
SW 720	DFFA0004ZA	SWITCH	1
X 151	DECL50000P2W	OSCILLATOR (50.00MHz)	1
X 153	DECL59000H1W	OSCILLATOR (59.00MHz)	1
X 640	EF0EN3385T4	CRYSTAL 33.8688MHZ	1
PC BOARD POWER			
C 001 ⚠	ECQU2A224MVA	CAPACITOR, PLASTIC, FILM, 50 V, 0.220000 µF, ±5%	1
C 002, 003 ⚠	ECKZRS222ME	CAPACITOR, CERAMIC, 400V, 2200pF	2
C 004 ⚠	ECQU2A104MVA	CAPACITOR, PLASTIC, FILM, 250 V, 0.1 µF, ±5%	1
C 005 ⚠	ECKZRS222ME	CAPACITOR, CERAMIC, 400V, 2200pF	1
C 007	ECEC2GG470D	CAPACITOR, ELECTROLYTIC, 400V, 47µF	1
C 009	ECEA1VFS330B	CAPACITOR, ELECTROLYTIC, 35V, 33µF	1
C 010	ECKR3A221KBP	CAPACITOR, CERAMIC, 1KV, 220pF, ±10%	1
C 101	EEUFA1E561Q	CAPACITOR, ELECTROLYTIC, 25V, 560µF	1
C 102	EEUFA1E102Q	CAPACITOR, ELECTROLYTIC, 25V, 1000µF	1
C 103	EEUFA1E471E	CAPACITOR, ELECTROLYTIC, 25V, 470µF	1
C 104	ECQB1H473KF3	CAPACITOR, PLASTIC, FILM, 50V, 0.047µF	1
CN 001, 002 ⚠	DFWV40D0281	CONNECTOR	2
CN 101	DFWV40D0282	CONECTOR, 18-Pin, MAIN LOGIC PCB	1
D 001	DFWV03C0178	DIODE	1
D 002	DFWV03C0179	DIODE	1
D 003	MA700ATA	DIODE	1
D 101	DFWV03C0180	DIODE	1
D 102	MA10799HDSX	DIODE	1
F 001 ⚠	DFWV38A0037	FUSE, 250V 2A	1

REF. No.	PART No.	DESCRIPTION	Q'TY
IC 101	AN1431T	IC	1
L 001 ⚠	ELF18D290H	FILTER CHOKE	1
L 002, 003	EXCELDR35V	BEAD	2
L 101	DFWV21B0067	CHOKE	1
L 102	DFWV21B0068	CHOKE	1
MC 001	ML30E1-1	MODULE	1
PC 001 ⚠	DFWV03F0034	PHOTO COUPLER	1
Q 001	DFWV03A0021	FET	1
R 001	ERDS1TJ474T	RESISTOR, 1/2W, 470K Ω, ±5%	1
R 002	ERDS1TJ104T	RESISTOR, 1/2W, 100K Ω, ±5%	1
R 003	ERDS1TJ823T	RESISTOR, 1/2W, 82K Ω, ±5%	1
R 004	ERDS1TJ823T	RESISTOR, 1/2W, 82K Ω, ±5%	1
R 005	ER0S2TKF1373	RESISTOR, 1/4W, 137K Ω, ±5%	1
R 006	ERDS2TJ561T	RESISTOR, 1/2W, 560 Ω, ±5%	1
R 007	ERG12SJW180E	RESISTOR, 1/4W, 18 Ω, ±5%	1
R 008	ER0S2TKF4701	RESISTOR, 1/4W, 4.7K Ω, ±5%	1
R 009	ERG2SJW180E	RESISTOR, 2W, 18 Ω, ±5%	1
R 010	ERDS1TJ104T	RESISTOR, 1/2W, 100K Ω, ±5%	1
R 011, 012	ERDS1TJ823T	RESISTOR, 1/2W, 82K Ω, ±5%	2
R 101	ERDS1TJ331T	RESISTOR, 1/2W, 330 Ω, ±5%	1
R 102	ERDS1TJ101T	RESISTOR, 1/2W, 100 Ω, ±5%	1
R 103	ERDS2TJ222T	RESISTOR, 1/2W, 2.2K Ω, ±5%	1
R 104	ER0S2TKF3301	RESISTOR, 1/4W, 3.3K Ω, ±5%	1
R 105	ER0S2TKF8662	RESISTOR, 1/4W, 86.6K Ω, ±5%	1
R 106	ER0S2TKF3921	RESISTOR, 1/4W, 3.92K Ω, ±5%	1
T 001 ⚠	ETB28AE115AC	POWER TRANSFORMER	1
TH 001 ⚠	DFWV19B0014	THERMISTOR	1
Z 002 ⚠	ERZV10D471	VARISTER	1
ZD 001	MA4200NMTA	DIODE, ZENNER	1
ZD 002	MA4240NLTA	DIODE, ZENNER	1

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