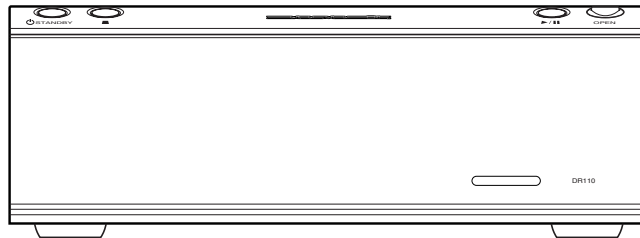


# Service Manual

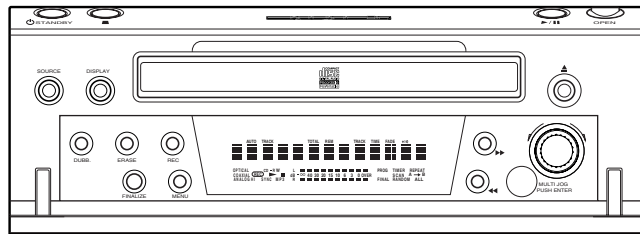
DR110 /F1S/N1S

## Compact Disc Recorder



COMPACT  
disc  
DIGITAL AUDIO

COMPACT  
disc  
DIGITAL AUDIO  
Recordable  
ReWritable



### TABLE OF CONTENTS

SECTION	PAGE
1. TECHNICAL SPECIFICATIONS .....	1
2. SERVICE PROCEDURE .....	2
3. WIRING DIAGRAM .....	3
4. BLOCK DIAGRAM .....	5
5. SCHEMATIC DIAGRAM .....	7
6. PARTS LOCATION (Pattern Side) .....	9
7. IC DATA .....	13
8. EXPLODED VIEW AND PARTS LIST .....	19
9. ELECTRICAL PARTS LIST .....	22

Please use this service manual with referring to the user guide ( D.F.U. ) without fail.

修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

# marantz®

## DR110

326W855020 MIT  
3120 785 22740  
First Issue 2002.02

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Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

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Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
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4. Model number for which part is required
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**MARANTZ AMERICA, INC**  
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FAX : 630 - 741 - 0301

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BALMAIN, NSW 2041,  
AUSTRALIA  
PHONE : 61 - 2 - 9810 - 5300  
FAX : 61 - 2 - 9810 - 5355

#### CANADA

**LENBROOK INDUSTRIES LIMITED**  
633 GRANITE COURT,  
PICKERING, ONTARIO L1W 3K1  
CANADA  
PHONE : 905 - 831 - 6333  
FAX : 905 - 831 - 6936

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FAX : +886 - 2 - 25630415

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SUITE 8.1, LEVEL 8, MENARA GENESIS,  
NO. 33, JALAN SULTAN ISMAIL,  
50250 KUALA LUMPUR, MALAYSIA  
PHONE : +60 3 - 21457677  
FAX : +60 3 - 21458180

#### JAPAN *Technical*

**MARANTZ JAPAN, INC.**  
35- 1, 7- CHOME, SAGAMIONO  
SAGAMIHARA - SHI, KANAGAWA  
JAPAN 228-8505  
PHONE : +81 42 748 1013  
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営業本部 〒150-0022  
東京都渋谷区恵比寿南1-11-9

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3GA, HANGANG-RO, YONGSAN-KU, SEOUL  
KOREA  
PHONE : +822 - 3232 - 155  
FAX : +822 - 3232 - 154

### SHOCK, FIRE HAZARD SERVICE TEST :

**CAUTION :** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins ( with unit NOT connected to AC mains and its Power switch ON ), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

# 1. TECHNICAL SPECIFICATIONS

## GENERAL

System .....	Compact disc digital audio
Number of channels .....	2 (stereo)
Applicable discs .....	CD, CD-R (digital audio), CD-RW (digital audio)
Power Requirement .....	AC 100V 50 / 60Hz (F version) AC 230 V 50 Hz (N version)
Power Consumption .....	16W
Operating Temperature .....	5 - 35 °C

## DIMENSION (MAX)

Width .....	210 mm
Height .....	71.5 mm
Depth .....	310 mm
Weight .....	3.8 Kg

## AUDIO

Frequency Response .....	20 Hz - 20 kHz
Playback S/N .....	90 dB
Playback Dynamic Range .....	85 dB
Playback Total Harmonic Distortion .....	0.04 %
Recording S/N .....	90 dB
Recording Dynamic Range .....	85 dB
Recording Total Harmonic Distortion .....	0.04 %
Line Output Voltage .....	2 Vrms

## RECORDING VALUES FOR LINE INPUT

Digital Coaxial Input (automatic sample rate conversion) .....	32 - 48 kHz
Digital Optical Input (automatic sample rate conversion) .....	32 - 48 kHz
Analog Input .....	250 mVrms/ 50 kW

## ACCESSORIES

Remote Control Unit (RC110DRMD) .....	1
Dimensions (W x H x D) .....	50.5 x 54.5 x 25 mm
Weight .....	60 g
AA Type Batteries .....	2
Stereo Audio Cable .....	1 pair
Coaxial Cable .....	1
Remote Cable .....	1

Specifications subject to change without prior notice.

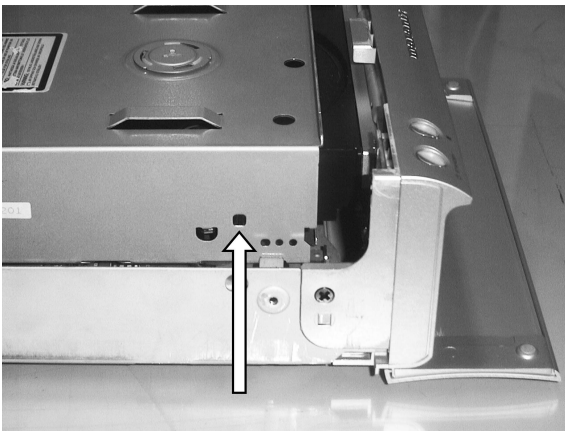
## 2. SERVICE PROCEDURE

### Service Mode

1. While Mains cord is disconnected, press **STOP** button on the unit and plug in the Mains cord.
2. Version number of the front micom software is displayed.
3. Turn **JOG** dial clockwise then Display Segment test begins.
4. First all the segments will light and then a segment turns off one by one.
5. Disconnect Mains cord to quit service mode.

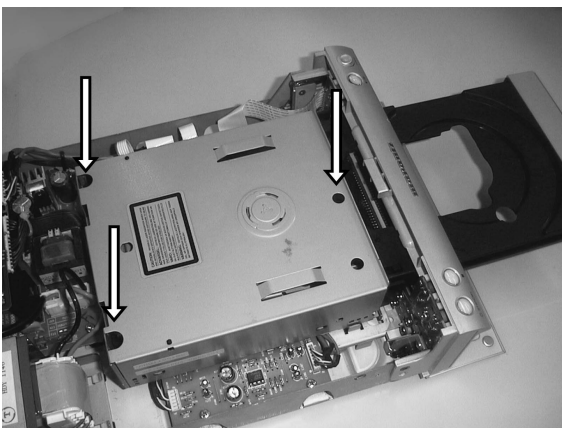
### Emergency Eject

1. To open the tray when it is stuck, insert a pin into the eject pinhole and push.
2. Use a pin  $\phi 4\text{mm}$  or less.

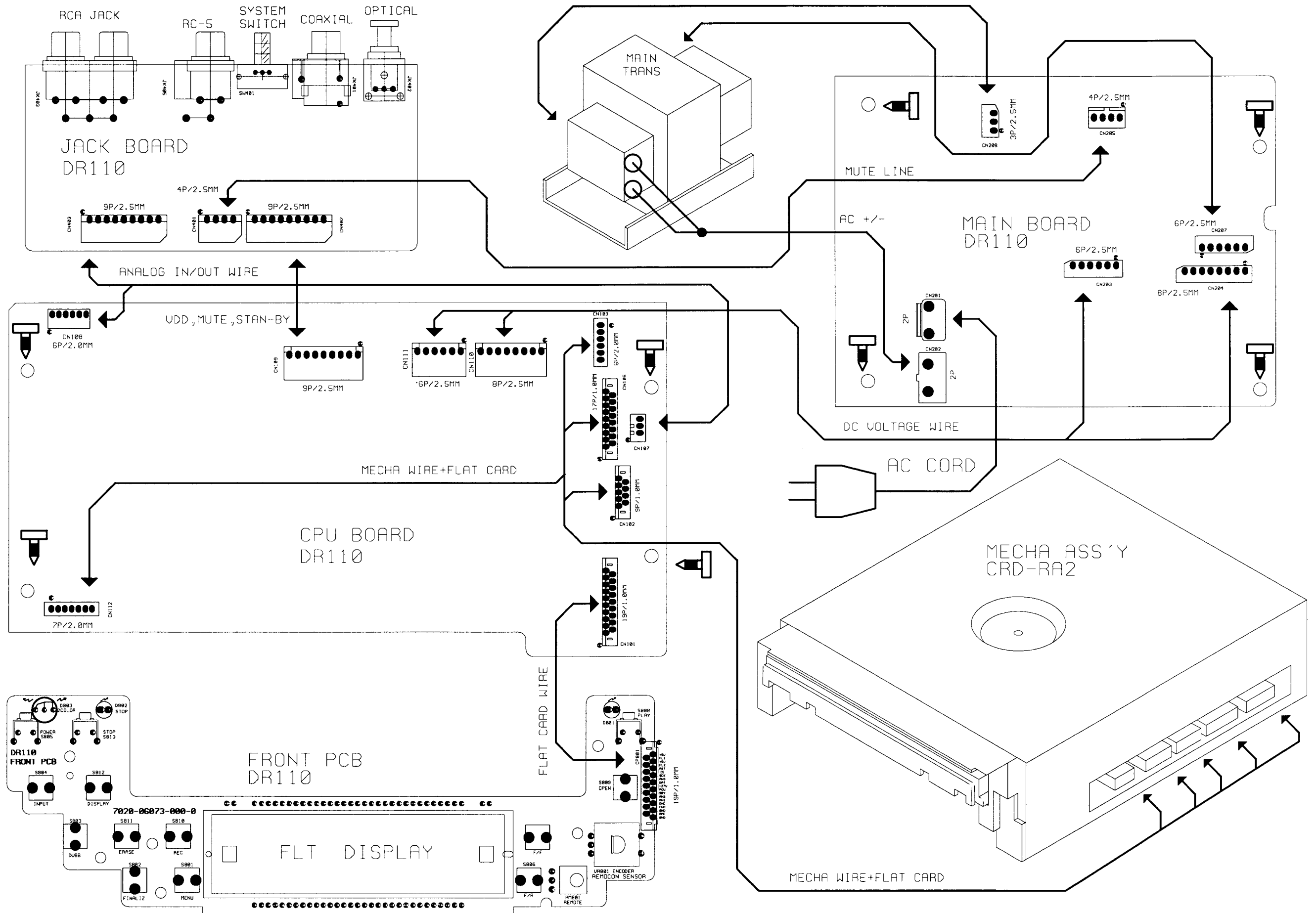


### Replacing the Mechanism Assy

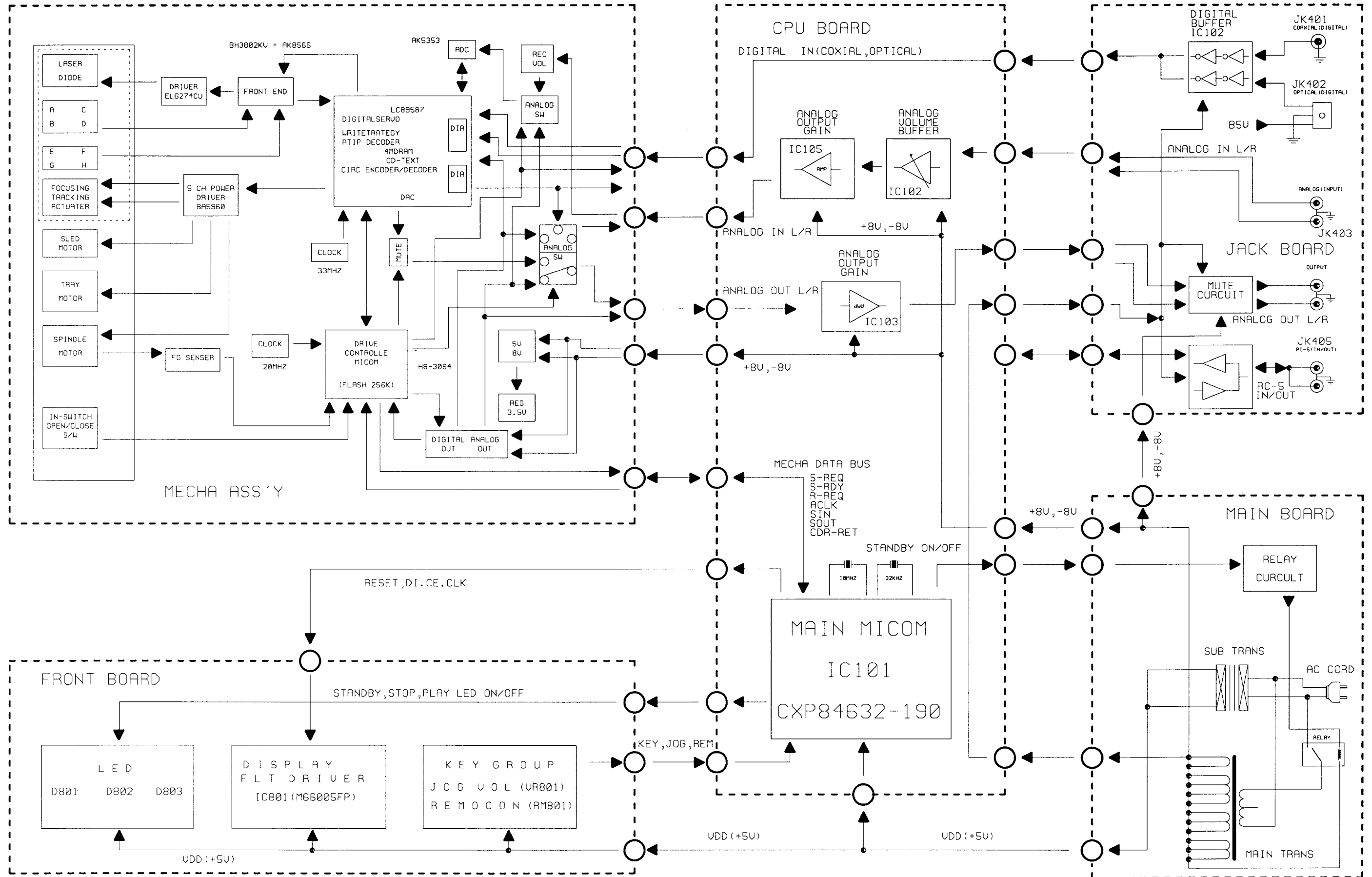
1. Open the tray first.
2. Remove the 3 screws shown in the picture below.
3. Disconnect all the wires at the right side.
4. Replace the MECHANISM ASSY.
5. After replacing the MECHANISM ASSY, insert a CD-R/RW, record something and FINALIZE it. It MUST be done to set its particular R-ID to the new MECHANISM ASSY.



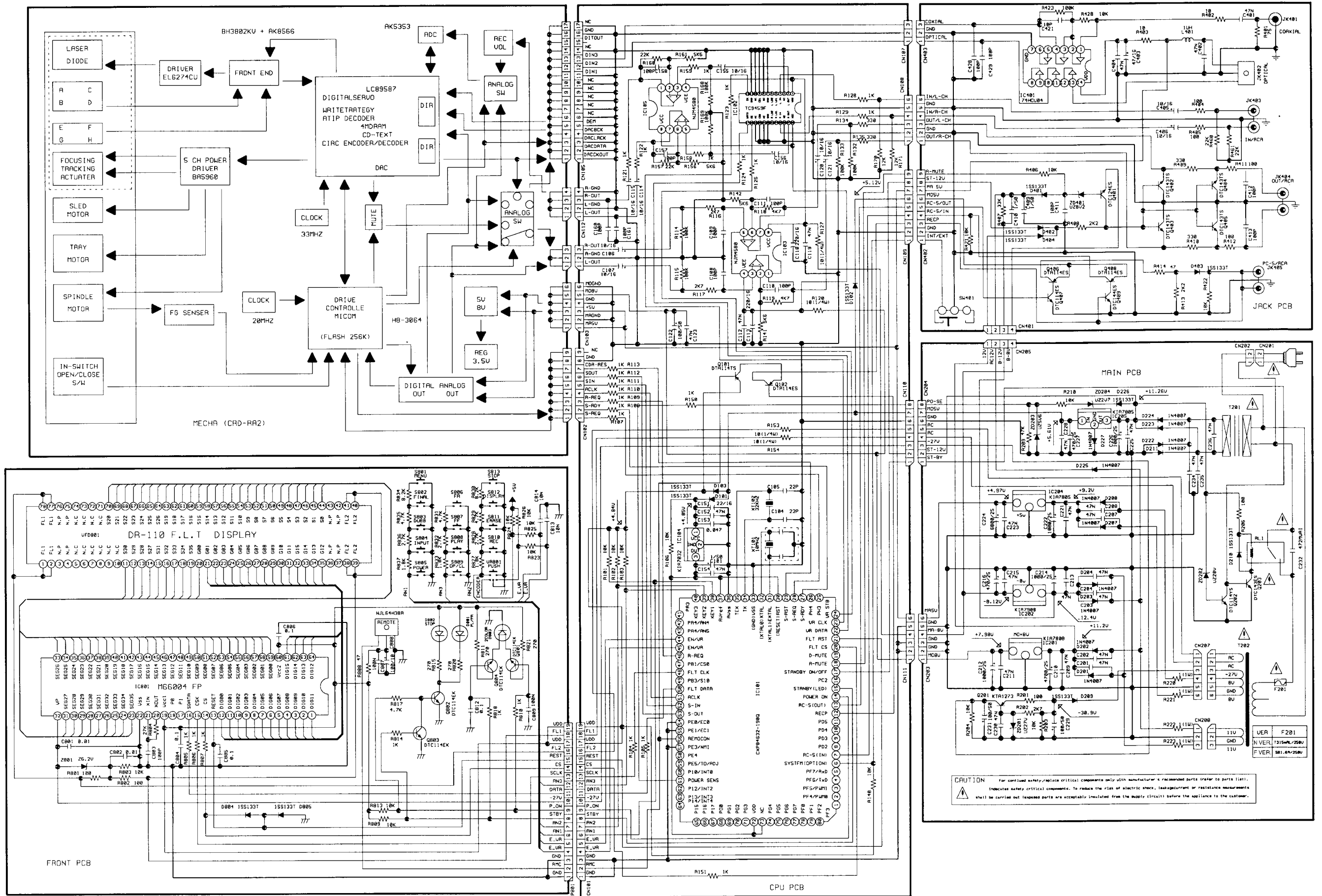
### 3. WIRING DIAGRAM



#### 4. BLOCK DIAGRAM

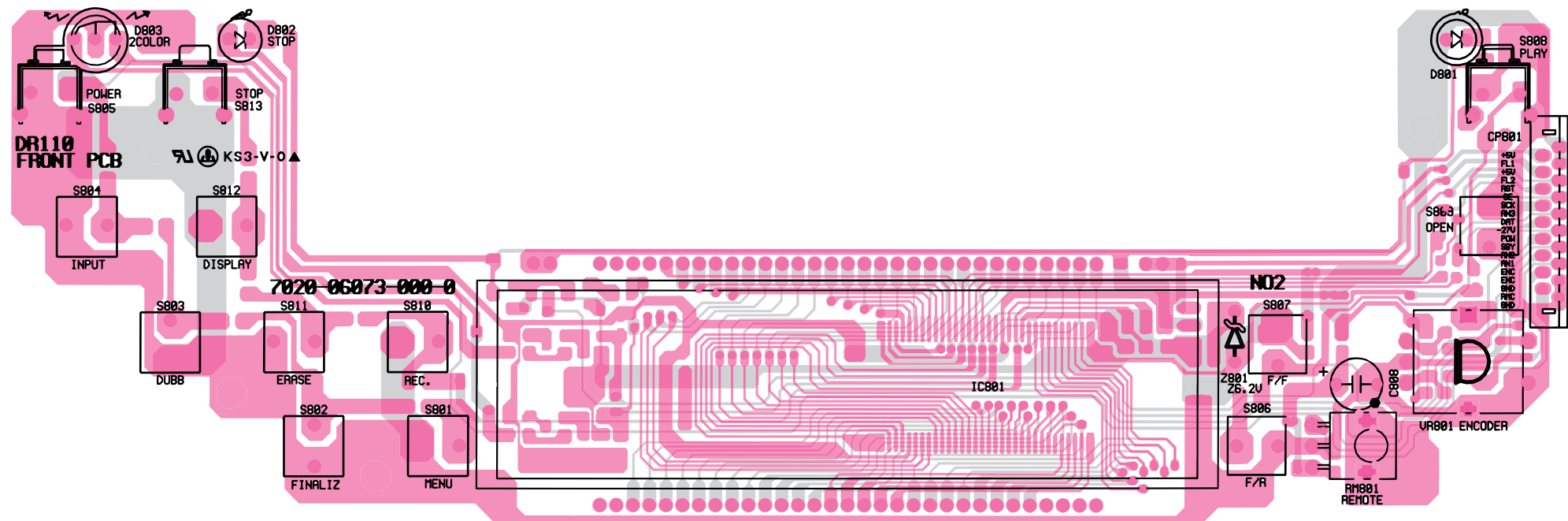
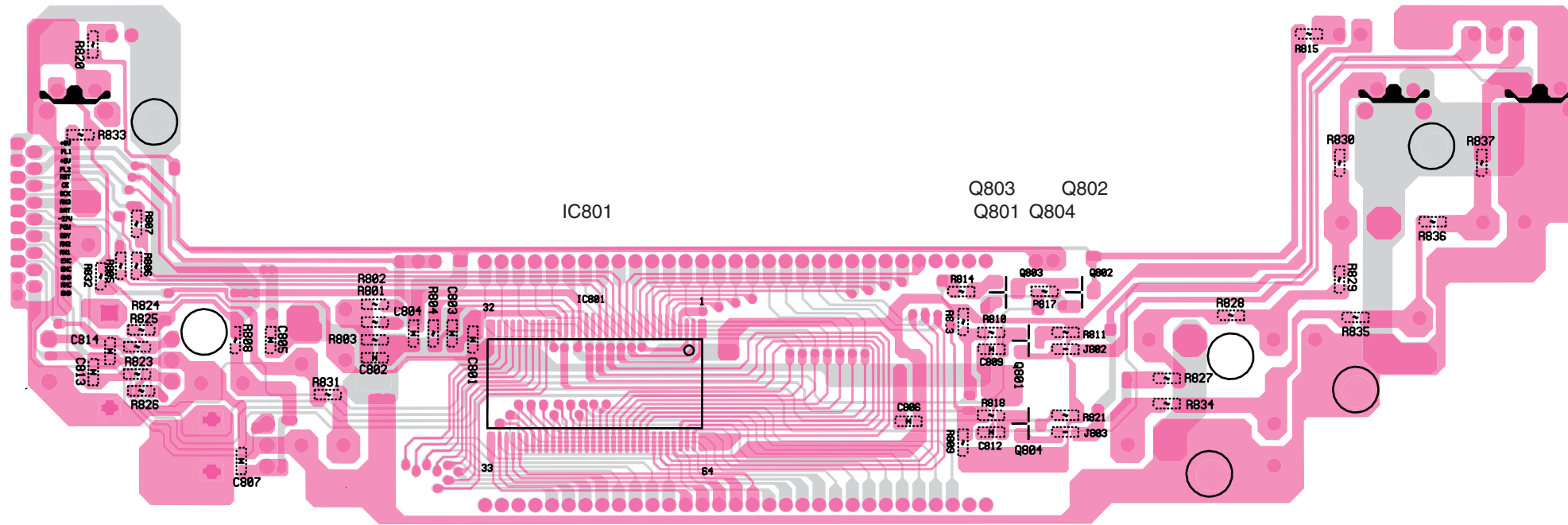


# 5. SCHEMATIC DIAGRAM



6. PARTS LOCATION (Pattern Side)

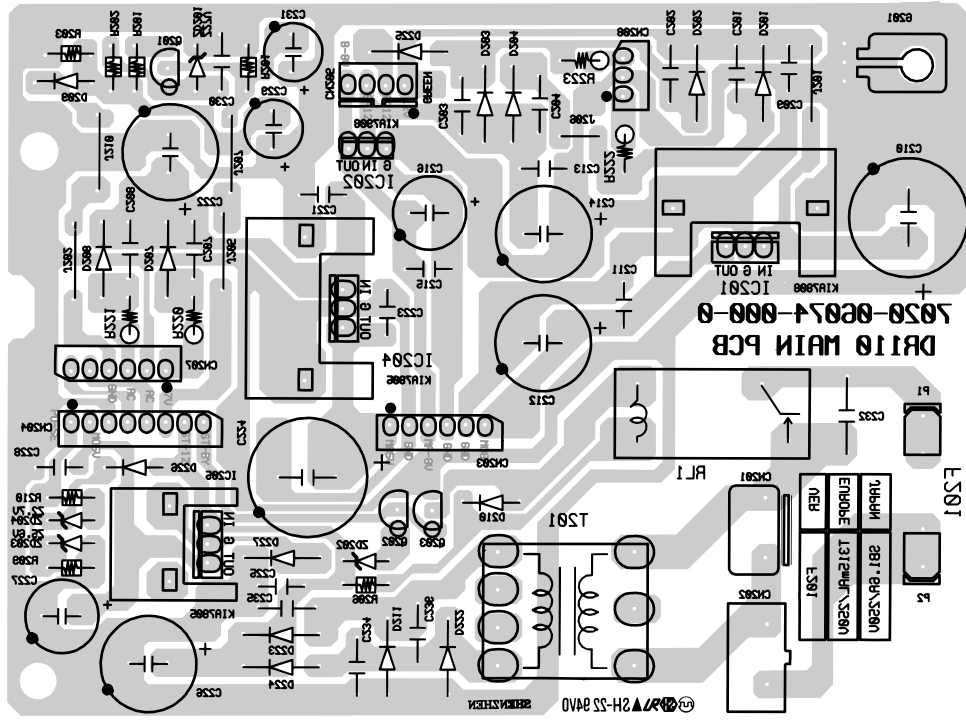
FRONT BOARD





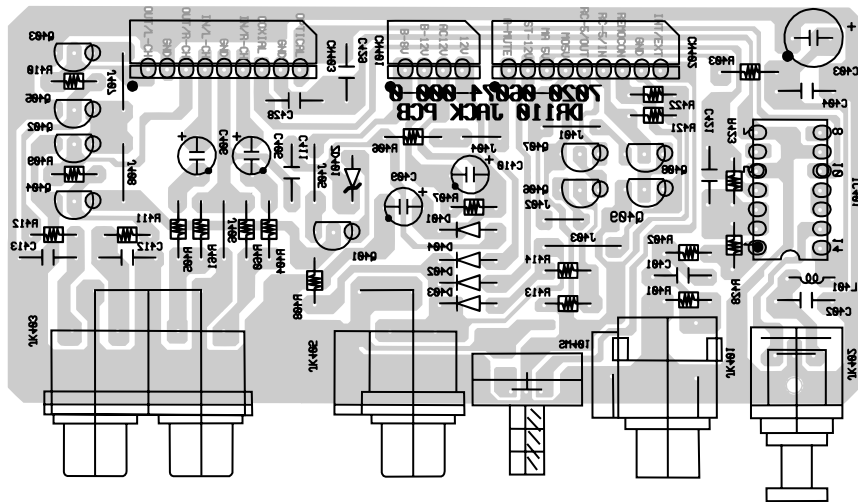
**MAIN BOARD**

Q201 IC202 IC204  
 IC205 Q202 Q204 IC201



**JACK BOARD**

Q403 Q405 Q407 Q408  
 Q402 Q404 Q401 Q406 Q409 IC401



CPU BOARD

IC102

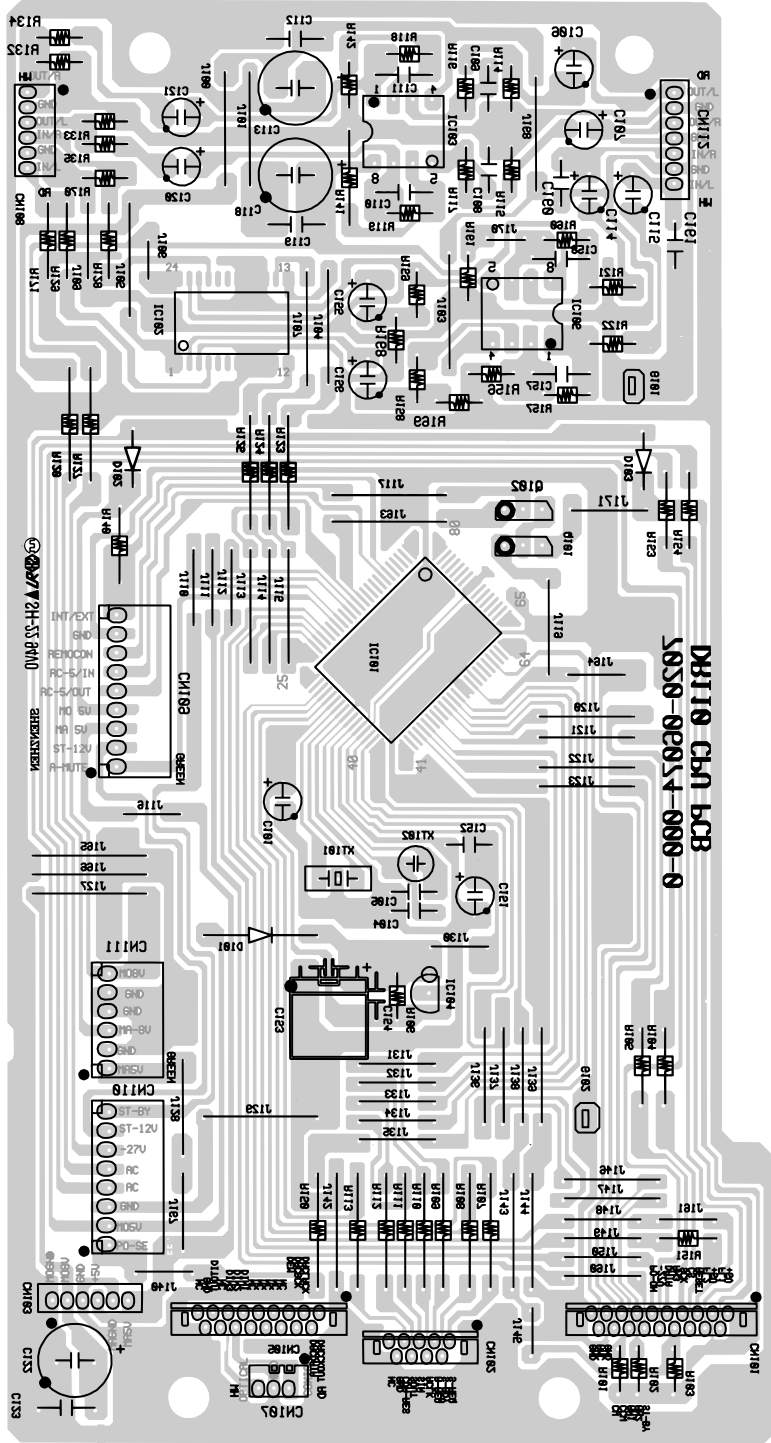
IC103

IC101

Q102 IC105

IC104

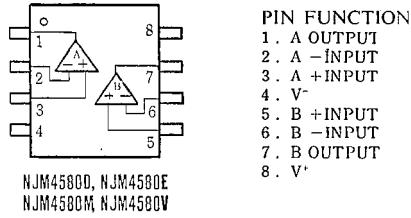
Q101



# 7. IC DATA

IC103/105:NJM4580

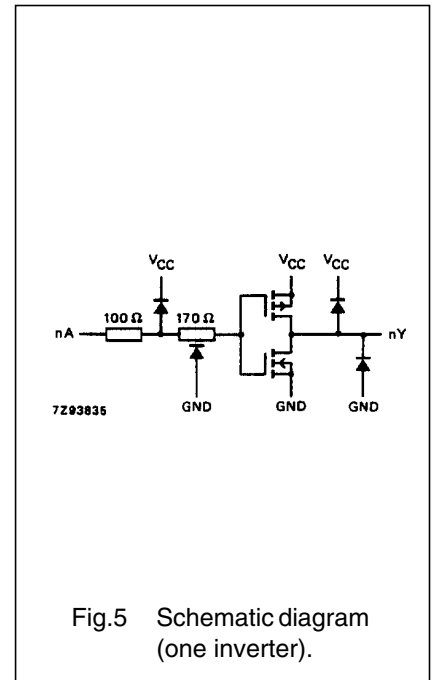
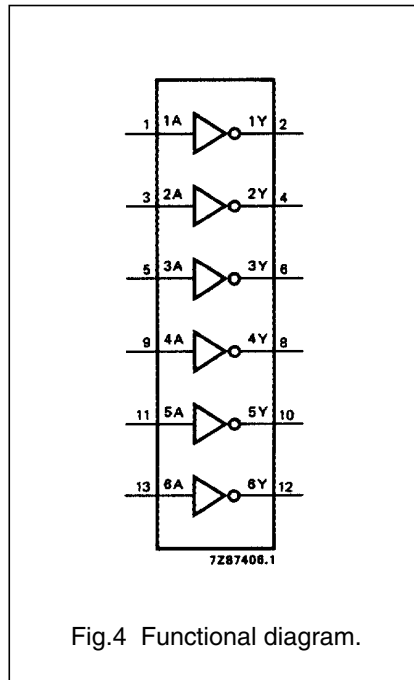
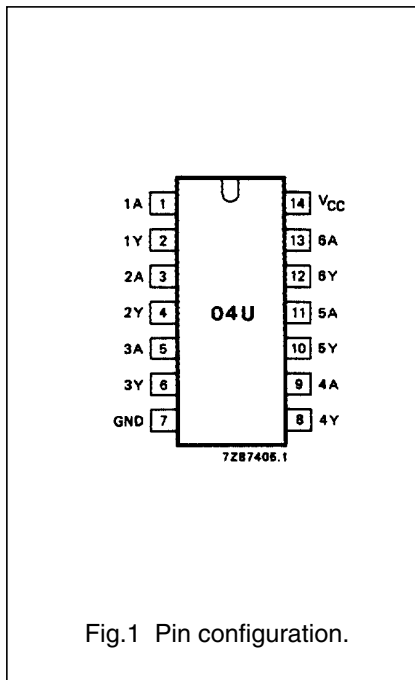
## PIN CONFIGURATION



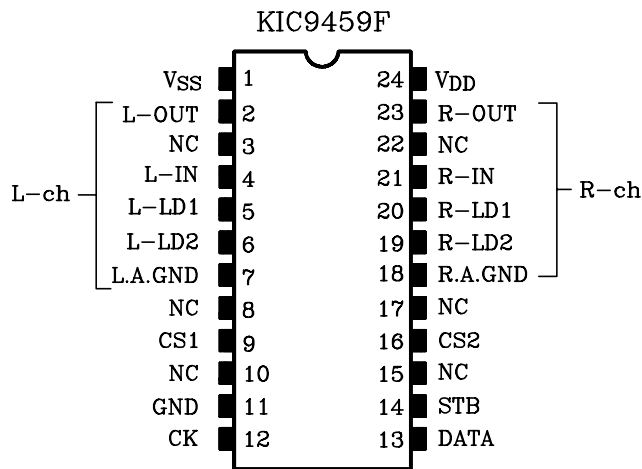
IC401:74HCU04

## PIN DESCRIPTION

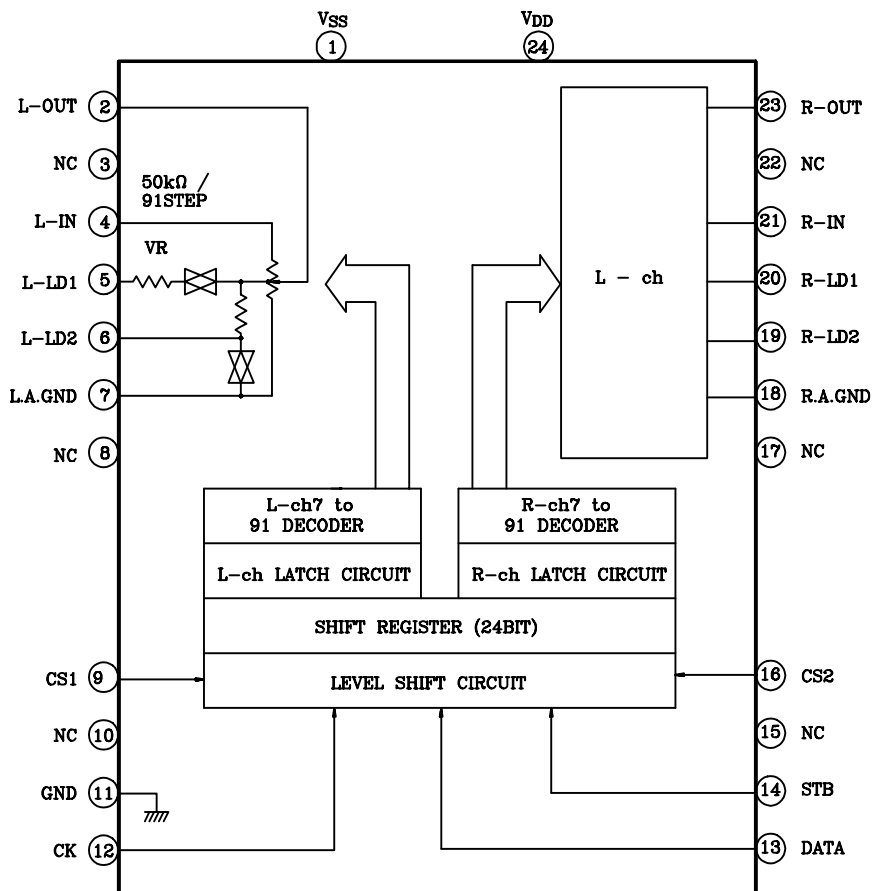
PIN NO.	SYMBOL	NAME AND FUNCTION
1, 3, 5, 9, 11, 13	1A to 6A	data inputs
2, 4, 6, 8, 10, 12	1Y to 6Y	data outputs
7	GND	ground (0 V)
14	V <sub>CC</sub>	positive supply voltage



PIN CONNECTION



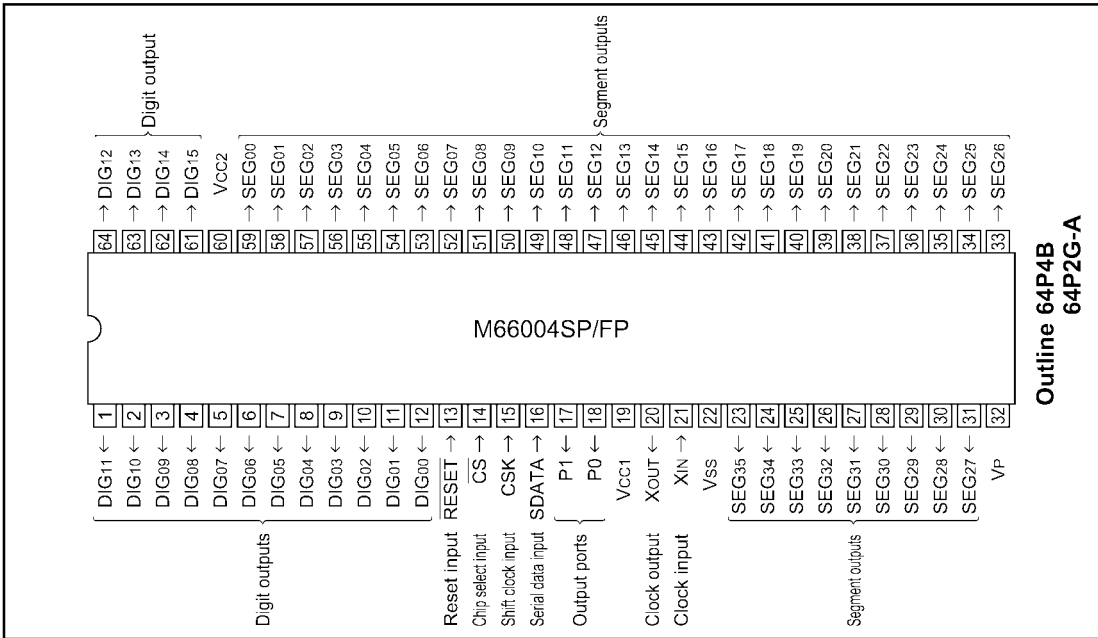
BLOCK DIAGRAM



PIN DESCRIPTION

Numeral in ( ) means the pin No. of KIC9459F

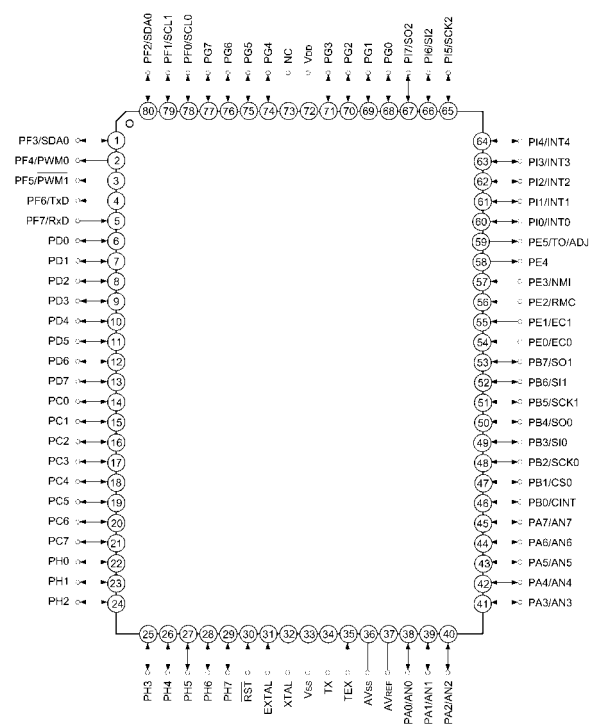
Pin No.	SYMBOL	PIN NAME	FUNCTION	REMARK										
1 (1)	V <sub>SS</sub>	Negative power supply pin	When using dual power supplies { VDD=6.0~17V GND=0V VSS=-6.0~-17V When using a single power supply { VDD=6.0~18V GND=VSS=0V	-										
13 (11)	GND	Digital GND pin												
28 (24)	V <sub>DD</sub>	Positive power supply pin												
3 (2)	L-OUT	volume output pin		-										
26 (23)	R-OUT													
5 (4)	L-IN	volume input pin												
24 (21)	R-IN													
6 (5)	L-LD1	Loudness tap output pin			<table border="1"> <tr> <td></td> <td>LA1</td> <td>LA2</td> </tr> <tr> <td>Loudness "ON"</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>Loudness "OFF"</td> <td>OFF</td> <td>ON</td> </tr> </table>		LA1	LA2	Loudness "ON"	ON	OFF	Loudness "OFF"	OFF	ON
	LA1					LA2								
Loudness "ON"	ON					OFF								
Loudness "OFF"	OFF					ON								
23 (20)	R-LD1													
7 (6)	L-LD2													
22 (19)	R-LD2													
8 (7)	L-A-GND	Analog GND pin												
21 (18)	R-A-GND													
10 (9)	CS1	Chip select input pin	Up to 4 chips on the same bus can be used by switching over chip select code	-										
19 (16)	CS2													
14 (12)	CK	clock input pin	Data transfer clock input	Low threshold value input pin										
15 (13)	DATA	Data input pin	Volume setup serial data input											
16 (14)	STB	Strobe input pin	Data write strobe input											
2,4,9,11,12,17,18,20,25,27 (3) (8) (10) (15) (17) (22)	NC	No connection		-										



**PIN DESCRIPTIONS**

Symbol	Pin name	Function
$\overline{\text{RESET}}$	Reset input	This pin is used to initialize the internal state of the M66004.
CS	Chip select input	In "L" state, communication with the MCU is possible. In "H" state, any instruction from the MCU is neglected.
SCK	Shift clock input	At the rising edge from "L" to "H", input data is shifted.
SDATA	Serial data input	Character code or command data to display is input from MSB.
XIN, XOUT	Clock input Clock output	This pin is used to connect a resistor and a capacitor externally to set oscillation frequency. (maximum oscillation frequency $f_{osc(max)}=1\text{MHz}$ ) An external clock can be also connected. In this case, an external clock is connected to pin XIN, and pin XOUT is set to be in open state.
DIG00~DIG15	Digit output	These pins are used to connect to digit pins of VFD. Pins from DIG00 to DIG15 correspond to digits of VFD from the first digit to the 16th digit.
SEG00~SEG35	Segment output	These pins are used to connect to segment pins of VFD. Pins from SEG00 to SEG35 correspond to segment pins of VFD as shown in the table below.
P0, P1		Output port (static operation)
VCC1		Positive power supply for internal logic
VCC2		Positive power supply for high-pressure-resistant output port
VSS		GND
VP		Negative power supply for VFD drive

PIN ASSIGNMENT



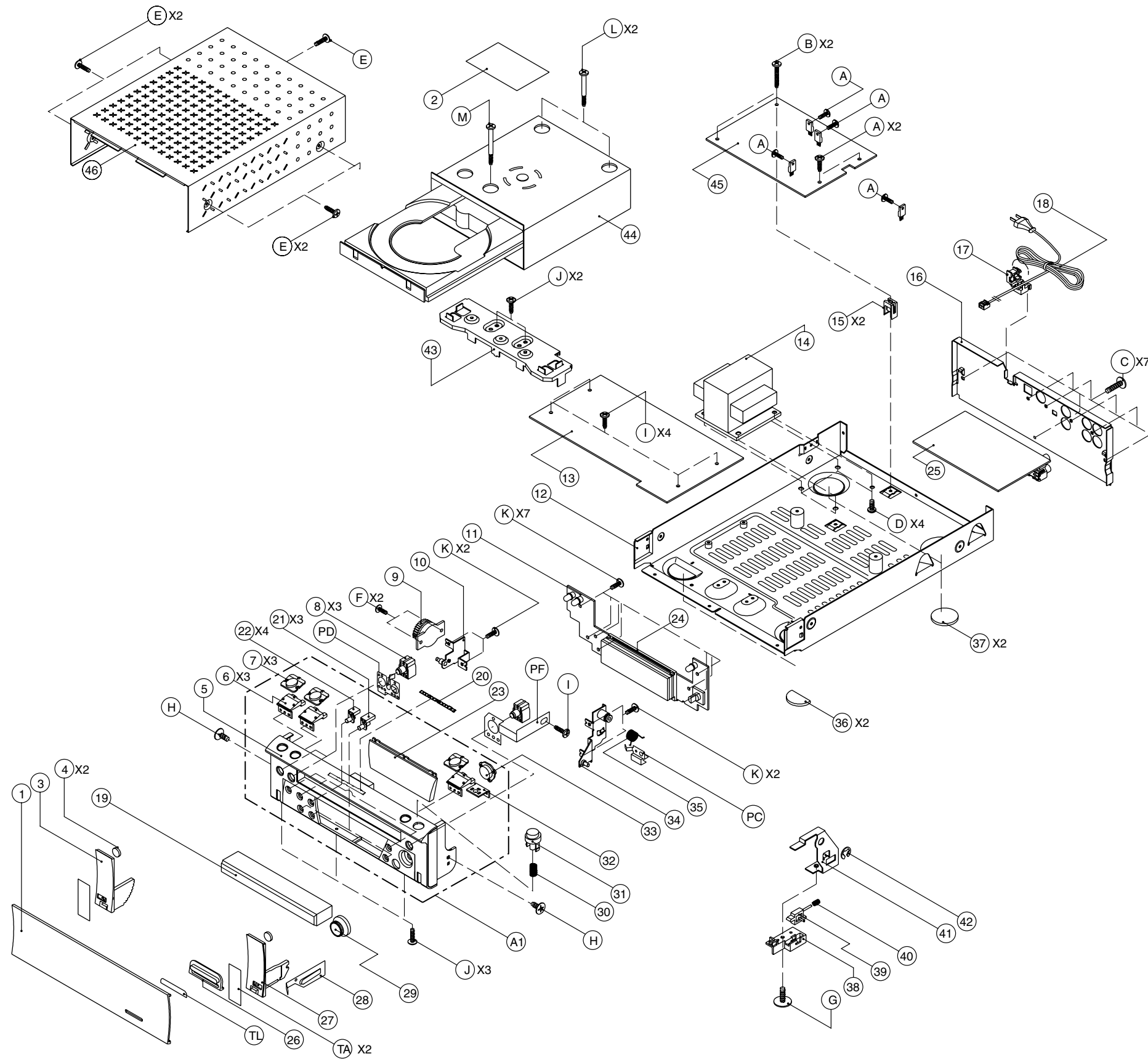
Note) NC (Pin 73) must be connected Vcc.

PIN FUNCTION

PIN NO	PIN NAME	Operation	Description	ASSIGN
1-5	NC			
6	RC-5 INT/EXT	Input for checking system connection	Active high → int mode, Active low → ext mode	I
7	RC-5 IN	Input for controlling RC-5		I
8-11	NC			
12	RC-5 ON/OFF	Output for RC-5 on/off	Active low	O
13	RC-5 OUT	Output for controlling RC-5		O
14	POWER ON LED	Output to drive POWER ON LED(GREEN)	Active high	O
15	ST/BY LED	Output to drive STANBY LED(RED)	Active high	O
16	NC			
17	STANBY ON/OFF	Output for RELAY on	Active high	O
18	MUTE	Output for MUTE	Active low	O
19	NC			
20	FLT CE	Output for CE of M66005 FLT DRIVE IC		O
21	FLT RST	Output for RESET of M66005 FLT DRIVE IC		O
22	VOL DA	Output for DA of TC9459 VOLUME IC		O
23	VOL CLK	Output for CLK of TC9459 VOLUME IC		O
24	VOL STB	Output for STB of TC9459 VOLUME IC		O

PIN NO	PIN NAME	Operation	Description	ASSIGN
25-26	NC			
27	MECHA S-RDY	Output for mecha S-RDY		O
28	MECHA S-REQ	Output for mecha S-REQ		O
29	MECHA S-RST	Output for mecha S-RST		O
30	RST	Input for RESET	Active low	I
31	EXTAL	Input for 10MHz crystal oscillator.		
32	XTAL	Output for 10MHz crystal oscillator.		
33	VSS	Ground		
34	TX	Input for 38.768KHz sub crystal oscillator		
35	TEX	Output for 38.768KHz sub crystal oscillator		
36	AVSS	Ground		
37	AVREF	VDD +5V		
38	KEY1	DATA input key scan	Check port for ad key input	I
39	KEY2	DATA input key scan	"	I
40	KEY3	DATA input key scan	"	I
41-43	NC			
44	ENCODER	Input for encoder DOWN		I
45	ENCODER	Input for encoder UP		I
46	MECHA R-REQ	Input for mecha R-REQ		I
47	NC			
48	FLT CLK	Output for CLK of M66005 FLT DRIVE IC		O
49	NC			
50	FLT DATA	Output for DATA of M66005 FLT DRIVE IC		O
51	MECHA ACLK	Input for mecha ACLK		I
52	MECHA S-IN	Input for mecha S-IN		I
53	MECHA S-OUT	Output for mecha S-OUT		O
54-55	GND	GND		
56	REMOCON	Input for remocon DATA		I
57	GND	GND		
58-60	NC			
61	POWER DOWN	Input for power down		I
62-71	NC			
72	VDD	VDD +5V		
73	VDD	VDD +5V		
74-80	NC			

## 8. EXPLODED VIEW AND PARTS LIST





POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
1		9965 000 11197	PANEL DOOR	326W162010	C		nsp	SCREW TAP TITE,	nsp
2		nsp	LABEL LASER CAUTION-CD	nsp				+2S 3x10 B-TYPE	
3		9965 000 10697	ARM DOOR L	323W002010	D		nsp	SCREW TAP TITE ASSY,	nsp
4		9965 000 10698	CUSHION DOOR	323W259010				+3S 4x8 P+S-WASHER	
A1		9965 000 11198	FRONT PANEL SUB ASSY	326W248500	E		nsp	SCREW TAP TITE,	nsp
5		nsp	PANEL FRONT	326W248010				+2S 3x8 B-TYPE	
6		nsp	BUTTON POWER B	323W270030	F		nsp	SCREW TAPPING,+2S 2x6	nsp
7		nsp	BUTTON POWER A	323W270010	G		nsp	SCREW,+2S 3x8 PI9.5 B-TYPE	nsp
8		9965 000 11103	BUTTON	325W270040	H		nsp	SCREW TAP TITE,	nsp
			DISPLAY SOURCE OPEN					+2S 3x5 B-TYPE	
9		9965 000 10701	DAMPER GEAR	323W130010	I		nsp	SCREW TAP TITE,+3S 3x5	nsp
10		9965 000 10702	BRACKET DOOR C	323W160060	J		nsp	SCREW TAP TITE,	nsp
11		nsp	P.C.B SUB ASSY FRONT	nsp				+2S 3x6 B-TYPE	
12		nsp	CHASSIS MAIN	326W105010	K		nsp	SCREW TAP TITE,+2PS 3x8	nsp
13	F	nsp	P.C.B ASSY CPU DR-110F1S	nsp	L		nsp	SCREW,3x26 B-TITE	nsp
13	N	nsp	P.C.B ASSY CPU DR-110N1S	nsp	M		nsp	SCREW,3X33	nsp
▲ 14	F	nsp	MAINS TRANSF. FOR F	*TS001320R					
▲ 14	N	9965 000 11199	MAINS TRANSF. FOR N	*TS001310R					
15		nsp	SUPPORTER PCB	nsp	001T	N	9965 000 11196	USER GUIDE DR110N1S	326W851310
16	F	nsp	PANEL REAR FOR F	326W250040	001T	F	nsp	USER GUIDE DR110F1S	326W851110
16	N	9965 000 11200	PANEL REAR FOR N	326W250020	001Z		9965 000 11195	REMOTE CONTROLLER	ZK326W0010
17	F	nsp	CORD HOLDER DACH-2	323W259020				RC110DRMD	
17	N	9965 000 11058	CORD HOLDER DACH-1	323W259030					
▲ 18	F	nsp	MAINS CORD ASSY FOR F	*YC000560R					
▲ 18	N	9965 000 10705	MAINS CORD ASSY FOR N	*YC000570R					
19		9965 000 11201	COVER TRAY DR110	326W053010					
20		9965 000 10708	BADGE MARANTZ	323W251010					
21		9965 000 11109	BUTTON MENU	325W270010					
22		9965 000 11110	BUTTON REC	325W270020					
23		nsp	WINDOW DISPLAY	325W158010					
24		nsp	SUPPORTER FLT	nsp					
25	F	nsp	P.C.B ASSY JACK	nsp					
25	N	nsp	P.C.B ASSY JACK	nsp					
26		9965 000 10709	WINDOW REMOTE B	323W158030					
27		9965 000 10713	ARM DOOR R	323W002020					
28		9965 000 11111	PLATE EARTH A	323W123010					
29		9965 000 11202	KNOB SHUTTLE	325W154010					
30		9965 000 10714	SPRING DOOR C	323W115010					
31		9965 000 10715	KNOB EJECT	323W154020					
32		9965 000 11203	SUPPORTER EJECT	323W101010					
33		nsp	WINDOW REMOTE A	323W158020					
34		9965 000 10716	BRACKET DOOR A	323W160010					
35		9965 000 10717	SPRING DOOR A	323W115020					
36		9965 000 10718	CUSHION FOOT FRONT	323W057010					
37		9965 000 10719	CUSHION FOOT BACK	323W057020					
38		9965 000 10720	HOLDER HINGE B	323W271020					
39		9965 000 10721	HOLDER HINGE A	323W271010					
40		9965 000 10703	SPRING DOOR B	323W115030					
41		9965 000 10722	BRACKET DOOR B	323W160020					
42		9965 000 10723	E-RING PI6	323W353100					
43		nsp	BRACKET	nsp					
44		9965 000 12279	MECHA ASSY / CRD-RA2	ZK416K0020					
44a		9965 000 11204	TRAY FOR CDR MECHA	326W163010					
44b		9965 000 11205	BELT FOR CDR MECHA	326W264010					
45	F	nsp	P.C.B ASSY MAIN DR110F1S	nsp					
45	N	nsp	P.C.B ASSY MAIN DR110N1S	nsp					
46		9965 000 11206	CABINET,COVER TOP	325W257010					
PC		nsp	PLATE EARTH "C"	nsp					
PF		nsp	PLATE EARTH "F"	nsp					
PD		nsp	PLATE EARTH "D"	nsp					
TA		nsp	TAPE ARM	nsp					
TL		nsp	TAPE LENS	nsp					
TP		nsp	TAPE PRPTECTOR	nsp					
A		nsp	SCREW TAP TITE,	nsp	-	N	nsp	NOT STANDARD SPARE	
			+2S 3x8 B-TYPE		-	F	nsp	PARTS	
B		nsp	SCREW TAP TITE,	nsp	-	F	nsp	CARD,Important Card FOR N	nsp
			+2S 3x17 B-TYPE		-	F	nsp	CARD,Post Card FOR F	nsp
					-	F	nsp	CARD,Warranty Card FOR F	nsp
					001S		nsp	BOX GIFT DR110N1S	326W801010
					-		nsp	CUSHION SNOW	323W809010

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

## 9. ELECTRICAL PARTS LIST

### ASSIGNMENT OF COMMON PARTS CODES.

#### RESISTORS

R\*\*\*: 1) GD05 × × × 140, Carbon film fixed resistor, ±5% 1/4W  
 R\*\*\*: 2) GD05 × × × 160, Carbon film fixed resistor, ±5% 1/6W

① — Resistance value

Examples ;

① Resistance value  
 0.1 Ω .... 001    10 Ω .... 100    1 kΩ .... 102    100 kΩ .... 104  
 0.5 Ω .... 005    18 Ω .... 180    2.7 kΩ .... 272    680 kΩ .... 684  
 1 Ω .... 010    100 Ω .... 101    10 kΩ .... 103    1 MΩ .... 105  
 6.8 Ω .... 068    390 Ω .... 391    22 kΩ .... 223    4.7 MΩ .... 475

**Note** : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

#### CAPACITORS

C\*\*\*: CERAMIC CAP.

3) DD1 × × × × 370, Ceramic capacitor  
 Disc type  
 Temp.coeff.P350 ~N1000, 50V  
 ② — Capacity value  
 ③ — Tolerance

Examples ;

② Tolerance (Capacity deviation)  
 ±0.25 pF .... 0  
 ±0.5 pF .... 1  
 ±5% .... 5

\* Tolerance of COMMON PARTS handled here are as follows :

0.5 pF ~ 5 pF .... ±0.25 pF  
 6 pF ~ 10 pF .... ±0.5 pF  
 12 pF ~ 560 pF .... ±5%

③ Capacity value

0.5 pF .... 005    3 pF .... 030    100 pF .... 101  
 1 pF .... 010    10 pF .... 100    220 pF .... 221  
 1.5 pF .... 015    47 pF .... 470    560 pF .... 561

C\*\*\* : CERAMIC CAP.

4) DK16 × × × × 300, High dielectric constant ceramic capacitor  
 Disc type  
 Temp.chara. 2B4, 50V  
 ④ — Capacity value

Examples ;

④ Capacity value  
 100 pF .... 101    1000 pF .... 102    10000 pF .... 103  
 470 pF .... 471    2200 pF .... 222

C\*\*\* : 5) ELECTROLY CAP. (  $\text{⏏}$  ), 6) FILM CAP. (  $\text{⏏}$  )

5) EA × × × × × 10, Electrolytic capacitor  
 One-way lead type, Tolerance ±20%  
 ⑤ — Working voltage  
 ⑥ — Capacity value

Examples ;

⑤ Capacity value  
 0.1 μF .... 104    4.7 μF .... 475    100 μF .... 107  
 0.33 μF .... 334    10 μF .... 106    330 μF .... 337  
 1 μF .... 105    22 μF .... 226    1100 μF .... 118  
 2200 μF .... 228

⑥ Working voltage

6.3V .... 006    25V .... 025  
 10V .... 010    35V .... 035  
 16V .... 016    50V .... 050

6) DF15 × × × 350 — Plastic film capacitor  
 DF15 × × × 310 — One-way type, Mylar ±5% 50V  
 DF16 × × × 310 — Plastic film capacitor  
 One-way type, Mylar ±10% 50V  
 ⑦ — Capacity value

Examples ;

⑦ Capacity value  
 0.001 μF (1000 pF) ..... 102    0.1 μF .... 104  
 0.0018 μF ..... 182    0.56 μF .... 564  
 0.01 μF ..... 103    1 μF .... 105  
 0.015 μF ..... 153

**NOTE** : 1) The above CODES ( R\*\*\*, R\*\*\*, C\*\*\*, C\*\*\* and C\*\*\* ) are omitted on the schematic diagram in some case.

2) On the occasion, be confirmed the common parts on the parts list.

3) Refer to "Common Parts List" for the other common parts (R105, DD4, DK4).

### NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No. (MJI)	Type No. (KOA)	Description
NH05 × × × 140	RF25S × × × × ΩJ	(±5% 1/4W)
NH05 × × × 120	RF50S × × × × ΩJ	(±5% 1/2W)
NH85 × × × 110	RF73B2A × × × × ΩJ	(±5% 1/10W)
NH95 × × × 140	RF73B2E × × × × ΩJ	(±5% 1/4W)

\* Resistance value    \* Resistance value  
 (0.1 Ω – 10 kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No. (MJI)	Type No. (MEC)	Description
NF05 × × × 140	ERD-2FCJ × × ×	(±5% 1/4W)
RF05 × × × 140		
NF02 × × × 140	ERD-2FCG × × ×	(±2% 1/4W)
RF02 × × × 140		

\* Resistance value    \* Resistance value

Examples ;

\* Resistance value  
 0.1 Ω .... 001    10 Ω .... 100    1 kΩ .... 102    100 kΩ .... 104  
 0.5 Ω .... 005    18 Ω .... 180    2.7 kΩ .... 272    680 kΩ .... 684  
 1 Ω .... 010    100 Ω .... 101    10 kΩ .... 103    1 MΩ .... 105  
 6.8 Ω .... 068    390 Ω .... 391    22 kΩ .... 223    4.7 MΩ .... 475

### ABBREVIATION AND MARKS

ANT. : ANTENNA	BATT. : BATTERY
CAP. : CAPACITOR	CER. : CERAMIC
CONN. : CONNECTING	DIG. : DIGITAL
HP : HEADPHONE	MIC. : MICROPHONE
μ-PRO : MICROPROCESSOR	REC. : RECORDING
RES. : RESISTOR	SPK : SPEAKER
SW : SWITCH	TRANSF. : TRANSFORMER
TRIM. : TRIMMING	TRS. : TRANSISTOR
VAR. : VARIABLE	X'TAL : CRYSTAL

### NOTE ON FUSE :

Regarding to all parts of parts code **FS20xxx2xx**, replace only with Wickmann-Werke GmbH, Type 372 non glass type fuse.

### NOTE ON SAFETY :

Symbol  $\blacktriangle$  Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol  $\blacktriangle$ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

### 安全上の注意 :

$\blacktriangle$  がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			<b>CPU CIRCUIT BOARD</b>		R157		nsp	22K-J 1/5W	nsp
			<b>CPU - CAPACITORS</b>		R158		nsp	1K-J 1/5W	nsp
C101		nsp	ELECT,1µF-M/50V	nsp	R159		nsp	1K-J 1/5W	nsp
C104		nsp	CER.,SL22pF-J/50V	nsp	R160		nsp	22K-J 1/5W	nsp
C105		nsp	CER.,SL22pF-J/50V	nsp	R161		nsp	5.6K-J 1/5W	nsp
C106		nsp	ELECT,10µF-M/16V	nsp	R168		nsp	100K-J 1/5W	nsp
C107		nsp	ELECT,10µF-M/16V	nsp	R169		nsp	100K-J 1/5W	nsp
C108									
∫		nsp	CER.,100pF-K/50V	nsp				<b>CPU - SEMICONDUCTORS</b>	
C111					D101		4822 130 32778	DIODE,1SS133T	HD20015210
C112		nsp	CER.,0.047µF-Z/50V	nsp	D102		4822 130 32778	DIODE,1SS133T	HD20015210
C113		nsp	ELECT,220µF-M/16V	nsp	D103		4822 130 32778	DIODE,1SS133T	HD20015210
C114		nsp	ELECT,10µF-M/16V	nsp	IC102		9965 000 01373	IC ELECT VR, KIC9459F SOP24P	HC10449050
C115		nsp	ELECT,10µF-M/16V	nsp	IC103		4822 209 73953	IC LINEAR OP, NJM4580DD DIP8P	HC10112090
C118		nsp	ELECT,220µF-M/16V	nsp	IC104		9965 000 11129	IC LINEAR-RESET,KIA7032P	*HC107390R
C119		nsp	CER.,0.047µF-Z/50V	nsp	IC105		4822 209 73953	IC LINEAR OP, NJM4580DD DIP8P	HC10112090
C120		nsp	ELECT,10µF-M/16V	nsp	Q101		4822 130 63211	TRS.RA,DTA114TS	*BA001340R
C121		nsp	ELECT,10µF-M/16V	nsp					
C122		nsp	ELECT,100µF-M/50V	nsp				<b>CPU - MISCELLANEOUS</b>	
C123		nsp	CER.,0.047µF-Z/50V	nsp	CN101		nsp	CN.FPC 1.0MM, 52806-1910 19P STRAIGHT	nsp
C151		nsp	ELECT,22µF-M/16V	nsp	CN102		nsp	CN.FPC 1.0MM, 52806-0910 09P STRAIGHT	nsp
C152		nsp	CER.,0.047µF-Z/50V	nsp	CN103		nsp	CN.WAFER 2.0MM, 53014-0610 6P	nsp
C153		9965 000 11211	DOUBLE LAYER(70),0.047F 5.5V / VEND ESR45OHM	*EA001100R	CN105		nsp	CN.FPC 1.0MM, 52806-1710 17P STRAIGHT	nsp
C154		nsp	CER.,0.047µF-Z/50V	nsp	CN112		nsp	CN.WAFER 2.0MM, 53014-0710 7P	nsp
C155		nsp	ELECT,10µF-M/16V	nsp	G101		nsp	CLAMP WIRE	nsp
C156		nsp	ELECT,10µF-M/16V	nsp	G102		nsp	CLAMP WIRE	nsp
C157					XT101		9965 000 10739	RESONATOR CERAMIC, CST10.0MTW-TF01	*FQ000350R
∫		nsp	CER.,100pF-K/50V	nsp	XT102		9965 000 11124	CRYSTAL,32.768kHz	*JX000830R
C161								<b>MAIN CIRCUIT BOARD</b>	
								<b>MAIN - CAPACITORS</b>	
			<b>CPU - RESISTORS</b>		C201			CER.,0.047µF-Z/50V	nsp
R101		nsp	10K-J 1/5W	nsp	∫		nsp		
R102		nsp	10K-J 1/5W	nsp	C209				
R103		nsp	10K-J 1/5W	nsp	C210		nsp	ELECT,4700µF-M/25V	nsp
R104		nsp	1K-J 1/5W	nsp	C211		nsp	CER.,0.047µF-Z/50V	nsp
R105		nsp	1K-J 1/5W	nsp	C212		nsp	ELECT,1000µF-M/25V	nsp
R106		nsp	10K-J 1/5W	nsp	C213		nsp	CER.,0.047µF-Z/50V	nsp
R107					C214		nsp	ELECT,1000µF-M/25V	nsp
∫		nsp	1K-J 1/5W	nsp	C215		nsp	CER.,0.047µF-Z/50V	nsp
R113					C216		nsp	ELECT,470µF-M/25V	nsp
R114		nsp	100K-J 1/5W	nsp	C221		nsp	CER.,0.047µF-Z/50V	nsp
R115		nsp	100K-J 1/5W	nsp	C222		nsp	ELECT,1000µF-M/25V	nsp
R116		nsp	2.7K-J 1/5W	nsp	C223		nsp	CER.,0.047µF-Z/50V	nsp
R117		nsp	2.7K-J 1/5W	nsp	C224		nsp	ELECT,6800µF-M/16V	nsp
R118		nsp	4.7K-J 1/5W	nsp	C225		nsp	CER.,0.047µF-Z/50V	nsp
R119		nsp	4.7K-J 1/5W	nsp	C226		nsp	ELECT,1000µF-M/25V	nsp
R120		nsp	10-J 1/4W	nsp	C227		nsp	ELECT,470µF-M/25V	nsp
R121					C228		nsp	CER.,0.047µF-Z/50V	nsp
∫		nsp	1K-J 1/5W	nsp	C229		nsp	ELECT,100µF-M/50V	nsp
R125					C230		nsp	CER.,0.047µF-Z/50V	nsp
R127		nsp	10-J 1/4W	nsp	C231		nsp	ELECT,100µF-M/50V	nsp
R128		nsp	1K-J 1/5W	nsp	▲ C232		9965 000 11120	CER. AC(SAFETY), DE7150-487F	DK17472840
R129		nsp	1K-J 1/5W	nsp	C234		nsp	CER.,0.047µF-Z/50V	nsp
R132		nsp	100K-J 1/5W	nsp	C235		nsp	CER.,0.047µF-Z/50V	nsp
R133		nsp	100K-J 1/5W	nsp	C236		nsp	CER.,0.047µF-Z/50V	nsp
R134		nsp	330-J 1/5W	nsp					
R135		nsp	330-J 1/5W	nsp					
R140		nsp	10K-J 1/5W	nsp					
R141		nsp	5.6K-J 1/5W	nsp					
R142		nsp	5.6K-J 1/5W	nsp					
R150		nsp	1K-J 1/5W	nsp					
R151		nsp	1K-J 1/5W	nsp					
R153		nsp	10-J 1/4W	nsp					
R154		nsp	10-J 1/4W	nsp					
R156		nsp	5.6K-J 1/5W	nsp					

NOTE : \*nsp\* PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			<b>MAIN - RESISTORS</b>						
R201		nsp	100-J 1/5W	nsp	C408		nsp	CER.,100pF-K/50V	nsp
R202		nsp	2.7K-J 1/5W	nsp	C409		nsp	ELECT,1µF-M/50V	nsp
R203		nsp	10K-J 1/5W	nsp	C410		nsp	ELECT,1µF-M/50V	nsp
R204		nsp	10K-J 1/5W	nsp	C411		nsp	CER.,100pF-K/50V	nsp
R206		nsp	100-J 1/5W	nsp	C412		nsp	CER.,100pF-K/50V	nsp
R209		nsp	47K-J 1/5W	nsp	C413		nsp	CER.,100pF-K/50V	nsp
R210		nsp	10K-J 1/5W	nsp	C421		nsp	CER.,10pF-J/50V	nsp
R220					C428		nsp	CER.,100pF-K/50V	nsp
}		nsp	1-J 1W	nsp	C429		nsp	CER.,100pF-K/50V	nsp
R223								<b>JACK - RESISTORS</b>	
			<b>MAIN - SEMICONDUCTORS</b>		R401		nsp	75-J 1/5W	nsp
D201					R402		nsp	10-J 1/5W	nsp
}		9965 000 10728	DIODE,IN4007	*HD201570R	R403		nsp	10-J 1/5W	nsp
D208					R404		nsp	100-J 1/5W	nsp
D209		4822 130 32778	DIODE,1SS133T	HD20015210	R405		nsp	100-J 1/5W	nsp
D210		4822 130 32778	DIODE,1SS133T	HD20015210	R406		nsp	10K-J 1/5W	nsp
D211		9965 000 10728	DIODE,IN4007	*HD201570R	R407		nsp	33K-J 1/5W	nsp
D222					R408		nsp	2.2K-J 1/5W	nsp
}		9965 000 10728	DIODE,IN4007	*HD201570R	R409		nsp	330-J 1/5W	nsp
D225					R410		nsp	330-J 1/5W	nsp
D226		4822 130 32778	DIODE,1SS133T	HD20015210	R411		nsp	100-J 1/5W	nsp
D227		9965 000 10728	DIODE,IN4007	*HD201570R	R412		nsp	100-J 1/5W	nsp
IC201		4822 209 32676	IC LINEAR-REGULATOR, KIA7808P	HC38908090	R413		nsp	2.2K-J 1/5W	nsp
IC202		9965 000 01744	IC LINEAR-REGULATOR, KA7908	HC39908090	R414		nsp	47-J 1/5W	nsp
IC204		4822 209 31631	IC LINEAR-REGULATOR, KIA7805PI	HC3890509F	R421		nsp	10K-J 1/5W	nsp
IC205		4822 209 31631	IC LINEAR-REGULATOR, KIA7805PI	HC3890509F	R422		nsp	10K-J 1/5W	nsp
Q201		9965 000 11123	TRS.2SA,KTA1273Y	*BA001250R	R423		nsp	100K-J 1/5W	nsp
Q202		4822 130 62503	TRS.RC,DTC114YS	*BA001360R	R428		nsp	10K-J 1/5W	nsp
Q203		4822 130 50437	TRS.RC,DTC143ES	*BA001300R				<b>JACK - SEMICONDUCTORS</b>	
ZD201		4822 130 10624	D ZENER,MTZJ27B	*HD301580R	D401			}	
ZD202		9965 000 11210	D ZENER,MTZJ20B	*HD301950R	}	4822 130 32778	DIODE,1SS133T	HD20015210	
ZD203		4822 130 33948	D ZENER,MTZJ5.6B	HD30561000	D404				
ZD204		9965 000 01374	D ZENER,MTZJ2.7B	HD30271000	IC401	5322 209 11323	IC LOGIC,PC74HCU04 DIP14P	HC700405B0	
					Q401	4822 130 42683	TRS.RC,DTC124ES	*BA001370R	
▲ CN201		nsp	<b>MAIN - MISCELLANEOUS</b>		Q402		}		
▲ CN202		nsp	CN.WAFER 3.96MM, 35328-0210	nsp	}	4822 130 63659	TRS.RC,DTC143TS	*BA001380R	
CN203		nsp	CN.WAFER 2.5MM,5267-06A 6P	nsp	Q405				
CN204		nsp	CN.WAFER 2.5MM,5267-08A 8P	nsp	Q406	4822 130 61227	TRS.RA,DTA114ES	*BA001330R	
CN207		nsp	CN.WAFER 2.5MM,5267-06A 6P	nsp	Q407	4822 130 60588	TRS.RC,DTC114ES	*BA001350R	
CN208		nsp	CN.WAFER 2.5MM,5267-03A 3P	nsp	Q408	4822 130 61227	TRS.RA,DTA114ES	*BA001330R	
▲ F200	N	4822 070 33151	FUSE (5.2x20),250V-T315MA	*FS000810R	Q409	4822 130 42594	TRS.RC,DTC144ES	*BA001390R	
▲ F200	F	nsp	FUSE (5.2x20),250V-S1.6A	*FS000820R	ZD401	4822 130 80273	D ZENER,MTZJ8.2B	HD30821000	
F201		nsp	HOLDER FUSE CLIP	nsp			<b>JACK - MISCELLANEOUS</b>		
F202		nsp	HOLDER FUSE CLIP	nsp	CN401		CN.WAFER 2.5MM, 5268-04A 4P ANGLE	nsp	
G201		nsp	TERMINAL,GND PLATE	nsp	CN402		CN.WAFER 2.5MM, 5268-09A 9P ANGLE	nsp	
▲ RL1		9965 000 10737	RELAY,G5PA-1-8 12V 5A	*LY000260R	CN403		CN.WAFER 2.5MM, 5268-09A 9P ANGLE	nsp	
▲ T201	N	9965 000 11027	SUB TRANSF. FOR N	*TS001540R					
▲ T201	F	nsp	SUB TRANSF. FOR F	*TS001370R					
			<b>JACK CIRCUIT BOARD</b>						
			<b>JACK - CAPACITORS</b>						
C401		nsp	CER.,0.047µF-Z/50V	nsp					
C402		nsp	CER.,0.047µF-Z/50V	nsp					
C403		nsp	ELECT,47µF-M/16V	nsp					
C404		nsp	CER.,0.047µF-Z/50V	nsp					
C405		nsp	ELECT,10µF-M/16V	nsp					
C406		nsp	ELECT,10µF-M/16V	nsp					
C407		nsp	CER.,100pF-K/50V	nsp					
								<b>FRONT CIRCUIT BOARD</b>	
								<b>FRONT - CAPACITORS</b>	
					C801		nsp	CER.CHIP,0.01µF-K/50V	nsp
					C802		nsp	CER.CHIP,0.01µF-K/50V	nsp
					C803		nsp	CER.CHIP,100pF-J/50V	nsp

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
C804		nsp	CER.CHIP,0.1µF-K/50V	nsp	S805		9965 000 10760	SW TACT,THVH472GAA	*SP001150R
C807		nsp	CER.CHIP,0.1µF-K/50V	nsp	S806		9965 000 10761	SW TACT,SKHV10920A	*SP001140R
C808		nsp	ELECT,100µF-M/10V	nsp	S807		9965 000 10761	SW TACT,SKHV10920A	*SP001140R
C809		nsp	CER.CHIP,0.1µF-K/50V	nsp	S808		9965 000 10760	SW TACT,THVH472GAA	*SP001150R
C812		nsp	CER.CHIP,0.1µF-K/50V	nsp	S809		9965 000 10761	SW TACT,SKHV10920A	*SP001140R
C813		nsp	CER.CHIP,0.01µF-K/50V	nsp	S812		9965 000 10760	SW TACT,THVH472GAA	*SP001150R
C814		nsp	CER.CHIP,0.01µF-K/50V	nsp	S813		9965 000 10760	SW TACT,THVH472GAA	*SP001150R
			<b>FRONT - RESISTORS</b>		VFD801		9965 000 11208	DISPLAY FLT / ST-16-48GN	*HQ300470R
R801		nsp	CHIP,100-J 1/16W	nsp	VR801		9965 000 11207	SW ROTARY, EC12B24S2033ZZZ	*SR000170R
R802		nsp	CHIP,100-J 1/16W	nsp					
R803		nsp	CHIP,10K-J 1/16W	nsp					
R804		nsp	CHIP,27K-J 1/16W	nsp					
R805		nsp	CHIP,1K-J 1/16W	nsp					
R806		nsp	CHIP,1K-J 1/16W	nsp					
R807		nsp	CHIP,1K-J 1/16W	nsp					
R808		nsp	CHIP,47-J 1/16W	nsp					
R809		nsp	CHIP,10K-J 1/16W	nsp					
R810		nsp	CHIP,1K-J 1/16W	nsp					
R811		nsp	CHIP,270-J 1/16W	nsp					
R813		nsp	CHIP,10K-J 1/16W	nsp					
R814		nsp	CHIP,1K-J 1/16W	nsp					
R815		nsp	CHIP,270-J 1/16W	nsp					
R817		nsp	CHIP,1K-J 1/16W	nsp					
R818		nsp	CHIP,1K-J 1/16W	nsp					
R820		nsp	CHIP,270-J 1/16W	nsp					
R821		nsp	CHIP,270-J 1/16W	nsp					
R823		nsp	CHIP,10K-J 1/16W	nsp					
R826		nsp	CHIP,1.8K-J 1/16W	nsp					
R827		nsp	CHIP,2.7K-J 1/16W	nsp					
R828		nsp	CHIP,4.7K-J 1/16W	nsp					
R829		nsp	CHIP,8.2K-J 1/16W	nsp					
R830		nsp	CHIP,4.7K-J 1/16W	nsp					
R831		nsp	CHIP,2.7K-J 1/16W	nsp					
R832		nsp	CHIP,1.8K-J 1/16W	nsp					
R833		nsp	CHIP,8.2K-J 1/16W	nsp					
R834		nsp	CHIP,4.7K-J 1/16W	nsp					
R835		nsp	CHIP,2.7K-J 1/16W	nsp					
R836		nsp	CHIP,1.8K-J 1/16W	nsp					
R837		nsp	CHIP,1.8K-J 1/16W	nsp					
			<b>FRONT - SEMICONDUCTORS</b>						
D801		9965 000 10757	LED ROUND,HL-50CDG	*HI100970R					
D802		9965 000 10757	LED ROUND,HL-50CDG	*HI100970R					
D803		9965 000 10758	LED ROUND, PI5-RD GR/HLD50RG DUAL	*HI100980R					
IC801		9965 000 10762	IC LINEAR-DRIVER, M66005FP SOP64P	*HC107180R					
Q801		9965 000 11209	CHIP TRS.2SC,DTC114EK	*BA001320R					
Z801		4822 130 83142	D ZENER,MTZJ6.2B	HD30621000					
			<b>FRONT - MISCELLANEOUS</b>						
CP801		nsp	CN.FPC 1.0MM, 52806-1910 19P STRAIGHT	nsp					
G101		nsp	CLAMP,CABLE TIE DACT-100A	nsp					
G102		nsp	CLAMP,CABLE TIE DACT-100A	nsp					
J802		nsp	CHIP,0-J 1/16W	nsp					
J803		nsp	CHIP,0-J 1/16W	nsp					
RM801		9965 000 10754	REMOTE MODULE, NJL64H380A	*HW100520R					
S801		9965 000 10761	SW TACT,SKHV10920A	*SP001140R					
S804									

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.