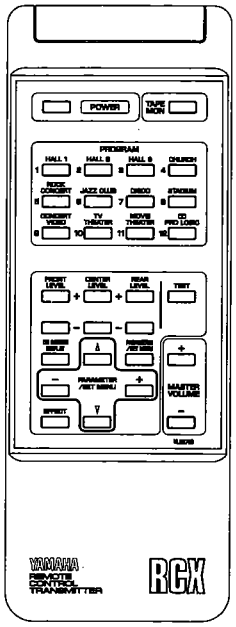
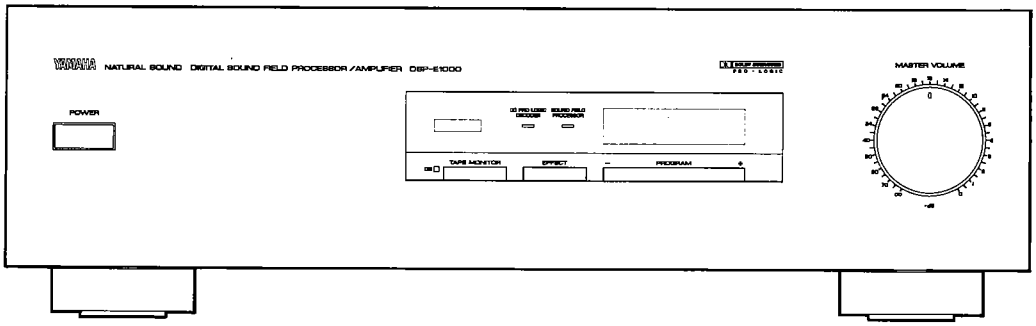
DIGITAL SOUND FIELD PROCESSING AMPLIFIER

DSP-E1000

SERVICE MANUAL





IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherant to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that all service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The reserch, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

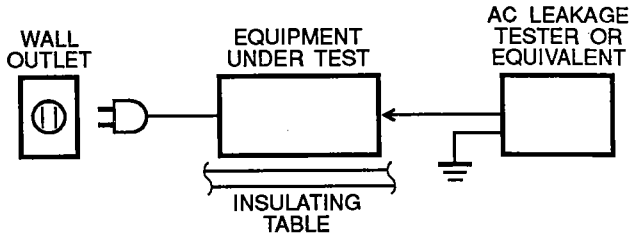
100412

YAMAHA

■ TO SERVICE PERSONNEL

1. Critical Components Information.
   Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only).
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15µF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



- **POLARIZATION (U, C models)**
  This amplifier product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

"CAUTION"
"FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 8.0A, 250V FUSE"

CAUTION: REPLACE WITH SAME TYPE 8.0A, 250V FUSE.

ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 8.0A, 250V.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

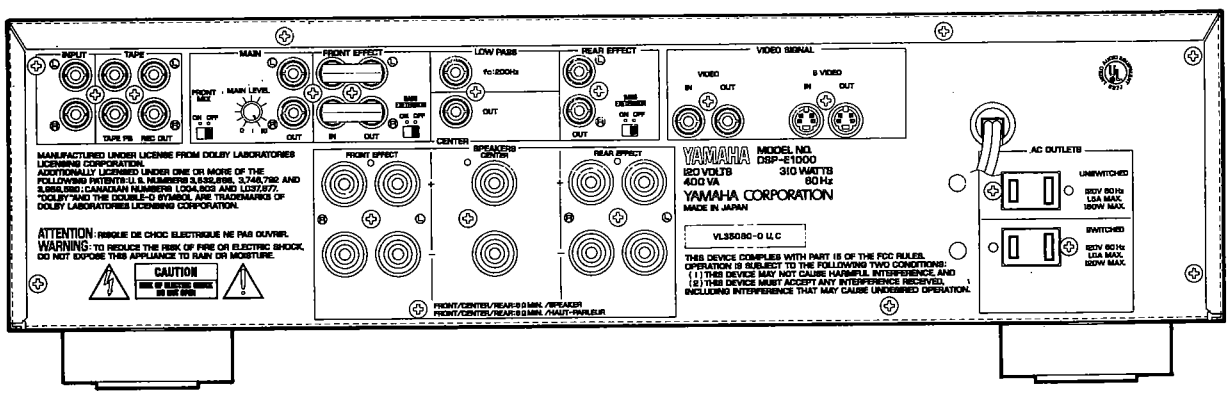
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

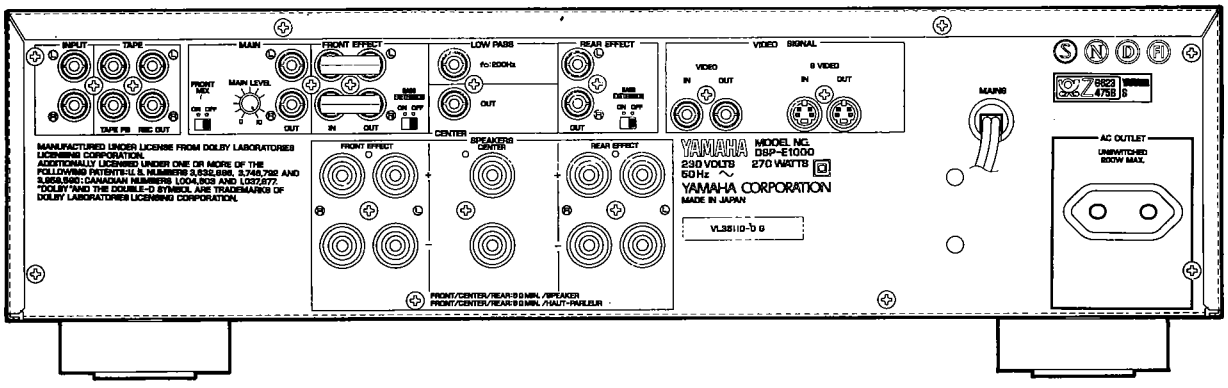
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REAR PANELS

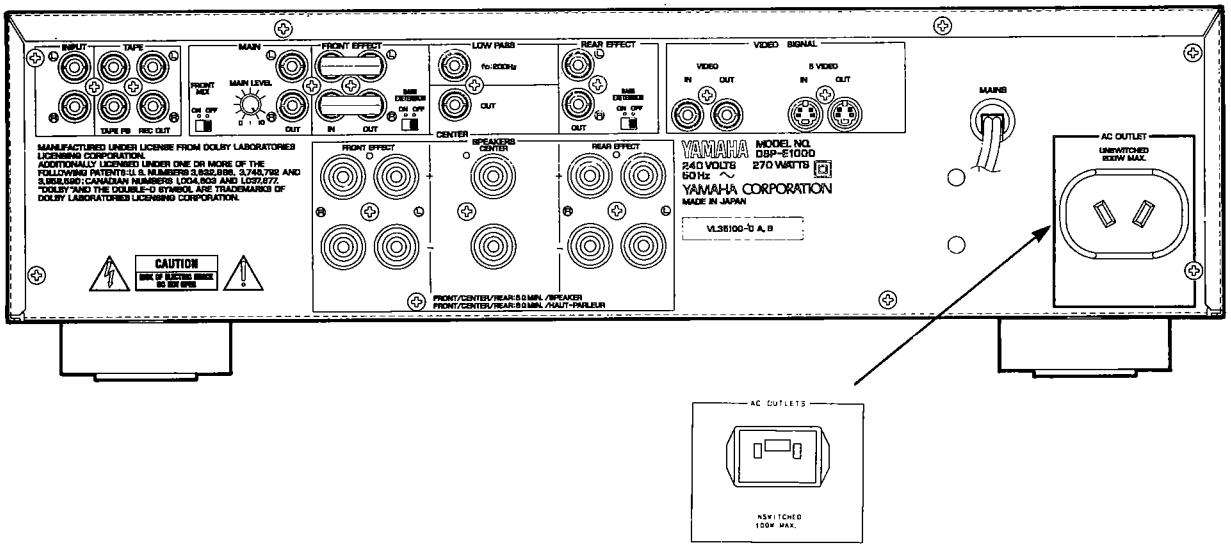
▼ USA & Canadian models



▼ European model

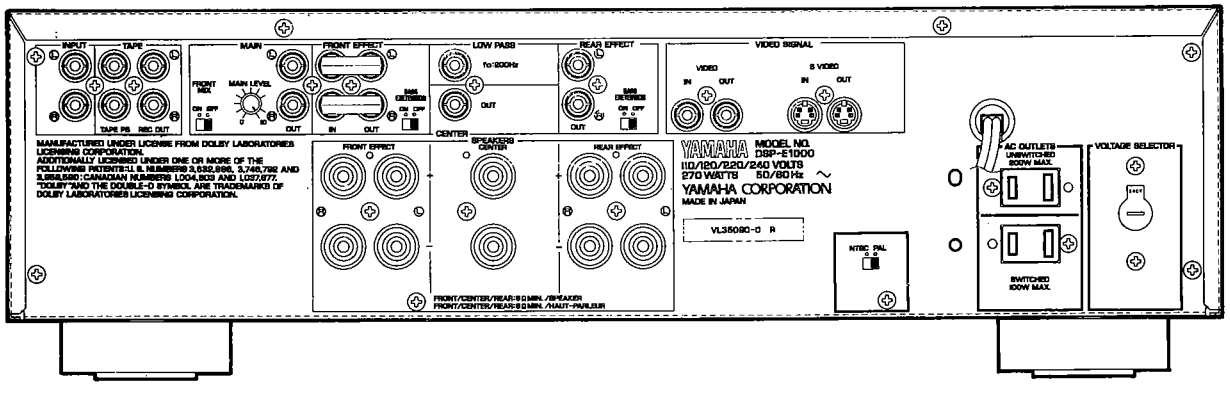


▼ Australian & British models



British model only

▼ General model



■ SPECIFICATIONS

Minimum RMS Output Power Per Channel	
Center (20Hz—20kHz 0.015% THD 8Ω)	80W
Front, Rear Effect (20Hz—20kHz 0.05% THD 8Ω)	25W
Dynamic Power Per Channel	
(by IHF Dynamic Headroom Measuring Method)	
(U, C, R models) Center (8Ω)	125W
DIN Standard Output Power Per Channel (G model)	
Center (1kHz 0.7% THD 4Ω)	130W
Dynamic Headroom (U, C, R models)	
Center (8Ω)	1.9dB
IEC Power (G model)	
Center (1kHz 0.015% THD 8Ω)	85W
Damping Factor	
Center (1kHz 8Ω)	130
Input Sensitivity/Impedance	
INPUT/TAPE PB	150mV/47kΩ
FRONT IN	500mV/33kΩ
Output Level/Impedance	
REC OUT	150mV/1kΩ
PRE OUT (MAIN L, R, CENTER)	1V/1.2kΩ
PRE OUT (FRONT L, R, REAR L, R)	1V/1.2kΩ
PRE OUT (LOW PASS)	0.8V/1.2kΩ
Maximum Voltage Output (20Hz—20kHz 0.005% THD)	
PRE OUT (MAIN L, R)	3V
Frequency Response (20Hz—20kHz)	
INPUT/TAPE PB	0±1.0dB
FRONT IN	0±1.0dB
Total Harmonic Distortion (20Hz—20kHz)	
INPUT/TAPE PB to	
PRE OUT (MAIN L, R), 3V	0.005%
CENTER POWER AMP	
40W/8Ω	0.005%
Signal-to-Noise Ratio (IHF-A Network)	
INPUT/TAPE PB (EFFECT OFF)	More than 96dB
Residual Noise (IHF-A Network)	150μV
Channel Separation (Vol –30dB)	
INPUT, TAPE PB (Input 5.1kΩ terminated)	
1kHz/10kHz	More than 60dB/45dB
Tone Control Characteristics	
Center Channel GEQ	±6dB
Frequency	100Hz, 300Hz, 1kHz, 3kHz, 10kHz
BASS EXTENSION	+6dB (80Hz)
Video	
Video Signal Type	
(U, C models)	NTSC
(A, B, G models)	PAL
(R model)	NTSC/PAL
Video Signal Level	1Vp-p75Ω
S-Video Signal Level	
Y	1Vp-p75Ω
C	0.286Vp-p75Ω
Maximum Input Level	More than 1.5Vp-p
Frequency response	5—10MHz, –3dB
Power Supply	
U, C models	AC120V 60Hz
A, B models	AC240V 50Hz
G model	AC230V 50Hz
R model	AC110/120/220/240V 60/50Hz
Power Consumption	
U model	310W
C model	310W, 400VA
A, B, G, R models	270W
AC Outlets	
1 Switched Outlets	
(U, C models)	120W max. total
(R model)	100W max. total
1 Unswitched Outlets	
(U, C models)	180W max. total
(A, B, G, R models)	200W max. total
Dimensions (W x H x D)	435 x 131 x 385.5mm (17-1/8" x 5-3/16" x 15-3/16")
Weight	12.5kg (27 lbs. 9 oz)

**Specifications are subject to change without notice.*

U*.....*U. S. A. model
C*.....*Canadian model
B*.....*British model
A*.....*Australian model
G*.....*European model
R*.....*General model

DOLBY SURROUND PRO · LOGIC

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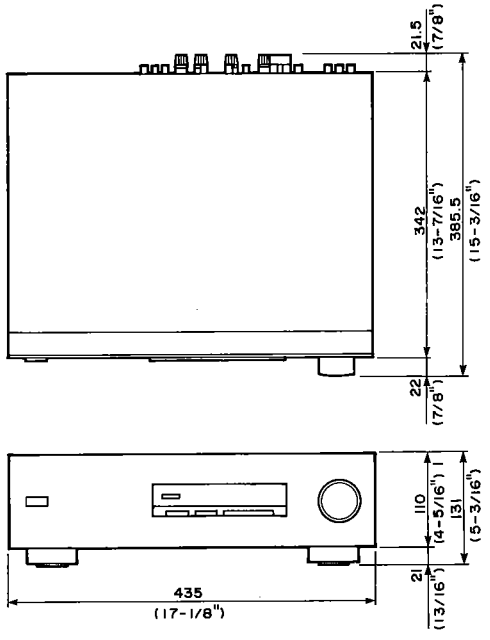
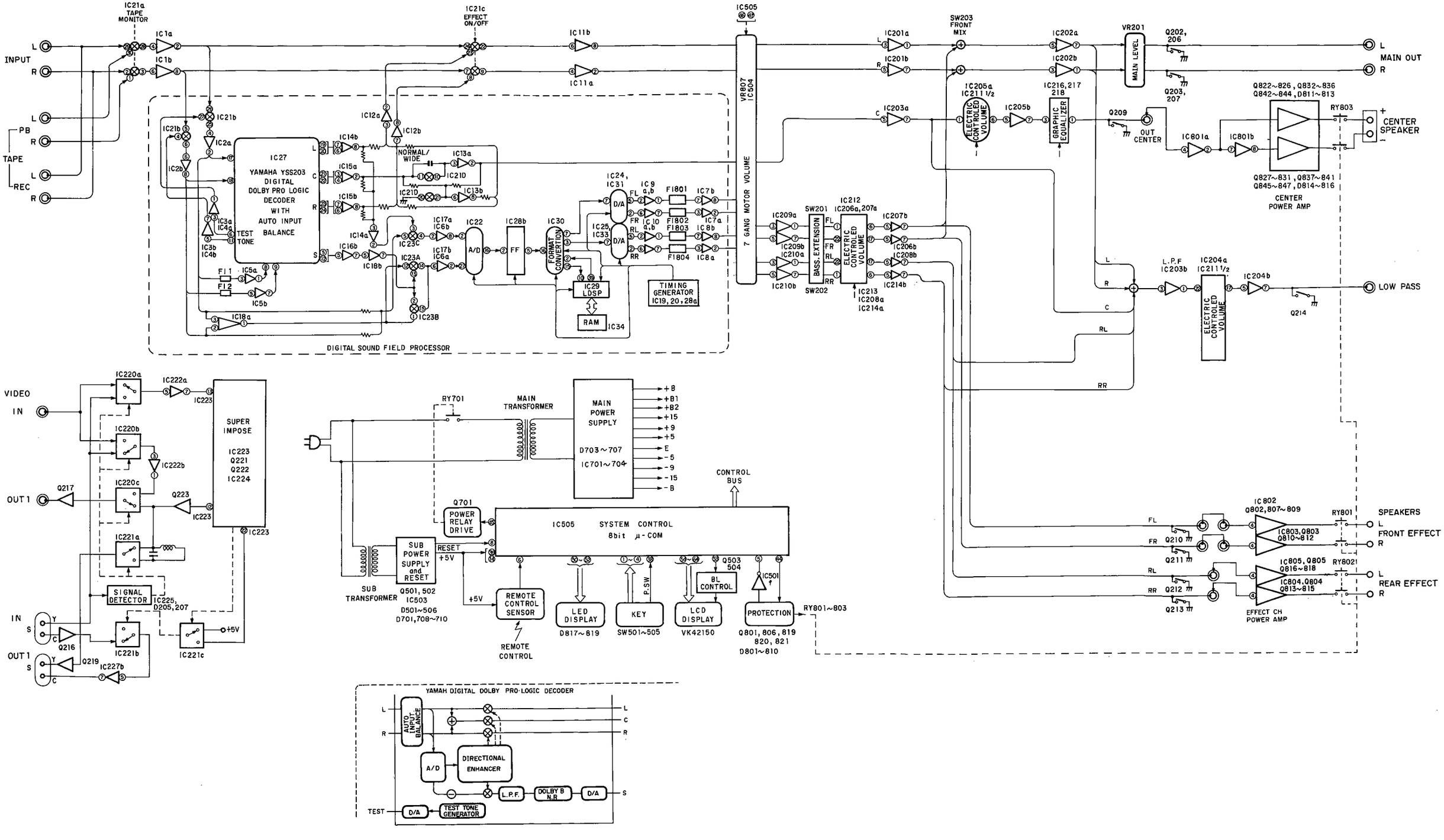
● DIMENSIONS

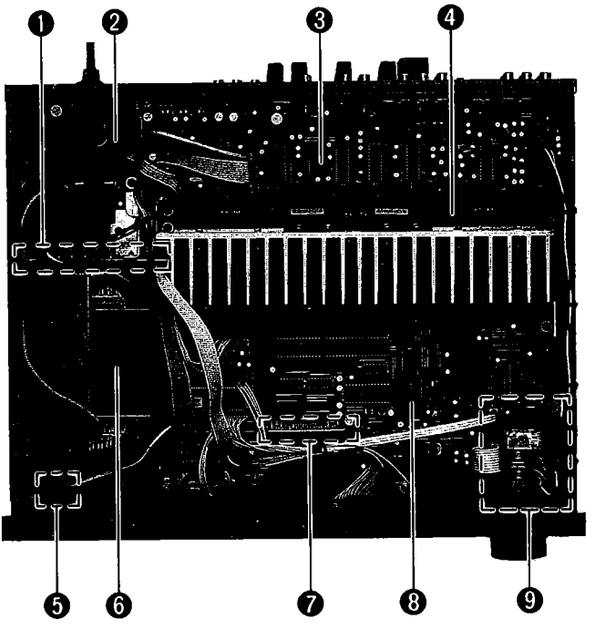


Unit : mm (inch)

■ BLOCK DIAGRAM



I INTERNAL VIEW



❶ POWER CIRCUIT BOARD (1)
❷ POWER CIRCUIT BOARD (3)
❸ DSP CIRCUIT BOARD (2)
❹ MAIN CIRCUIT BOARD (1)
❺ DSP CIRCUIT BOARD (4)
❻ POWER TRANSFORMER
❼ MAIN CIRCUIT BOARD (4)
❽ DSP CIRCUIT BOARD (1)
❾ MAIN CIRCUIT BOARD (2)

■ DISASSEMBLY PROCEDURES

Remove parts in disassembly order as numbered.)

. Removal of Top Cover
. Remove 4 screws (①) and 2 screws (②), and then remove the Top Cover in Fig. 1.

. Removal of Bottom Cover
. Remove 10 screws (③) and 2 screws (④), and then remove the Bottom Cover in Fig. 1.

. Removal of Front Panel
. Remove VOLUME knobs in Fig. 1.
. Remove 6 screws (⑤) and then the remove the Front Panel in Fig. 1. For this removal, also remove connectors (#20) as necessary.

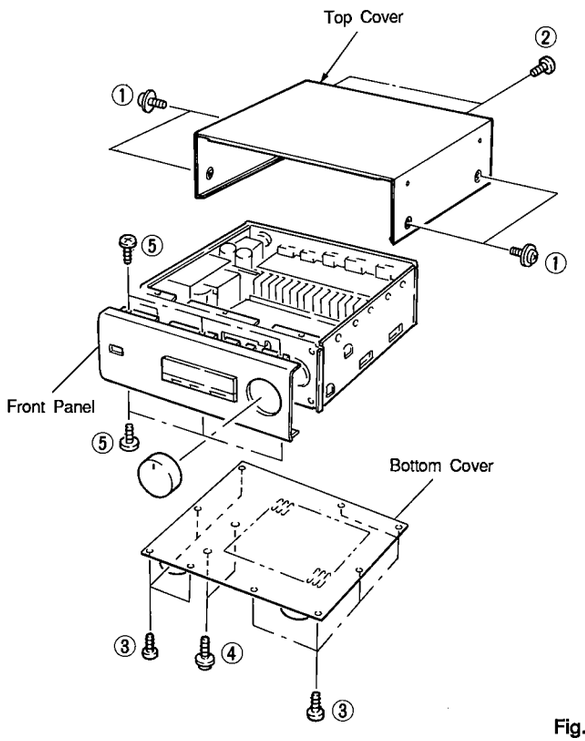


Fig. 1

■ PROTECTION FUNCTION

The protection function is activated and the power turns OFF when :

1. **DC occurs in the output the power amplifier**
2. **An abnormal current flows to the power amplifier due to such reason as short circuit in the speaker**
3. **±15V is abnormal**
4. **±5V is abnormal**
5. **±B is abnormal**

Also , there are cases when the power is turned OFF due to an error in detecting the above conditions or abnormality in the protection circuit itself.

The protection circuit consists of a microcomputer (IC505), Q806, 819 and a peripheral diode.

The function of each element is as follows.

a) **Q806, 819 :** Detecting abnormality and sending that signal to the microcomputer (IC505)

b) **PRT (5) terminal of microcomputer (IC505) :** Input terminal of the signal from Q806, 819

c) **P.PLY (45) terminal of microcomputer (IC505) :** Output terminal for the signal to the power ON/OFF relay

d) **SRY (44) terminal of interface (IC505) :** Output terminal for the ON/OFF signal to the speaker protection relay

The microcomputer does not detect abnormality for 3 or 4 seconds after the power is turned ON. During this time, abnormality can be located by checking the above listed conditions 1 to 5. Before this check, however, make sure to check that is no danger or fuming.

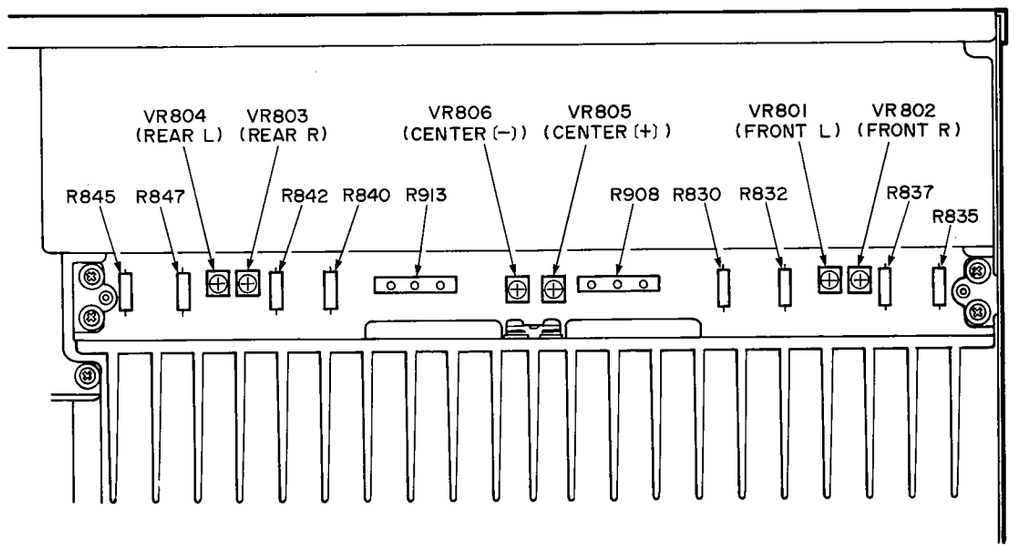
■ ADJUSTMENTS

● IDLING CURRENT ADJUSTMENT

Before this adjustment, wait for 2 minutes with no signal applied after the power is turned ON.

Item	Test Point	Adjustment point	Rating (DC)
CENTER (+)	Between terminals of R908, at the center and one end	VR805	5mV~7.5mV
CENTER (–)	Between terminals of R913, at the center and one end	VR806	
FRONT L	Between terminals of R830 or R832, at both ends	VR801	5mV~7.5mV
FRONT R	Between terminals of R835 or R837, at both ends	VR802	
REAR L	Between terminals of R845 or R847, at both ends	VR804	5mV~7.5mV
REAR R	Between terminals of R840 or R842, at both ends	VR803	

● Test Point



■ TEST SIGNAL PROGRAM

The DSP-E1000 has a test signal program incorporated to facilitate inspection and measurement.

* Starting the test signal program will initialize all the back-up data automatically.

1. Starting Test Signal Program

While pressing the TAPE MONITOR, EFFECT and PROGRAM(–) keys, press the POWER switch and turn ON the power, and the program starts and enters the diagnostics mode, which is indicated by the LCD as follows.

```
*DIAGNOSTICS*
2. DSP RAM THR
```

Unless otherwise specified, the conditions during the test signal program is being executed are as follows.

* FRONT LEVEL	+10dB
* REAR LEVEL	+10dB
* CENTER LEVEL	+10dB
SUB WOOFER LEVEL	0dB
CENTER GEQ	FLAT (0dB 5 Band All)
CENTER MODE	WIDE

* Adjustable through a remote control unit.

2. Content of Test Signal Program

There are 18 sub-programs in the test signal program. They can be operated through the remote control unit.

● Functions of Test Signal Program

Step	Key Name	Function
1	HALL 2	RAM THROUGH check
2	HALL 3	Signal system check
3	CHURCH	LED and LCD check
4	ROCK CONCERT	GEQ 100Hz +6/–6dB
5	JAZZ CLUB	GEQ 300Hz +6/–6dB
6	DISCO	GEQ 1kHz +6/–6dB
7	STADIUM	GEQ 3kHz +6/–6dB
8	CONCERT VIDEO	GEQ 10kHz +6/–6dB
9	TV THEATER	Rated output measurement
10	MOVIE THEATER	DOLBY test noise check
11	□□PRO LOGIC	DSP test noise check
12	TAPE MON	Tape monitor check
13	PARAMETER △	DOLBY normal
14	PARAMETER ▽	DOLBY effect off
15	PARAMETER "–"	DOLBY wide
16	PARAMETER "+"	DOLBY phantom
17	TEST	OUTPUT LEVEL check
18	HALL 1	Test signal program cancellation

2-1 Cancellation of test signal program (HALL 1 key)

The test signal program returns to the normal mode and the entire back-up data are initialized automatically. (Even when the power is turned OFF by using the POWER switch, the test signal program can be cancelled.)

● Memory initialization

The conditions when the memory has been initialized are as follows.

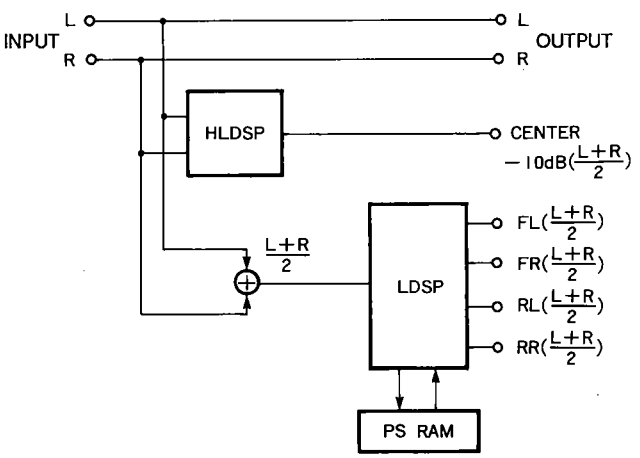
PROGRAM	1.CONCERT HALL 1
Each parameter	Initial value
Center mode	NRML
Center GEQ	All bands flat
Sub Woofer	0dB
Color No.	1
TAPE MONITOR	OFF
FRONT LEVEL	0dB
CENTER LEVEL	0dB
REAR LEVEL	0dB
EFFECT	ON

2-2 RAM THROUGH (HALL 2 key)

The LCD appears as shown below.

```
*DIAGNOSTICS*
2. DSP RAM THR
```

Shown below is the input/output diagram of the DSP.



*) The HLDSP outputs –10dB•($\frac{L+R}{2}$) from the CENTER by turning the STEERING OFF and setting to the manual mix.

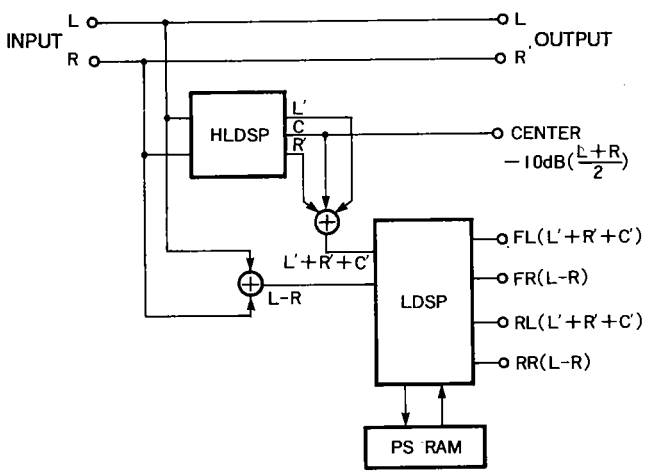
*) The $\frac{L+R}{2}$ from the A/D is inputted to the LDSP and output as it is to FL, FR, RL and RR.

2-3 Confirmation of signal system channel (HALL 3 key)

The LCD appears as shown below.

```
*DIAGNOSTICS*
3. SIGNAL LINE
```

Shown below is the input/output diagram of the DSP.



*) The HLDSP turns the STEERING OFF and outputs signals at L, R and C respectively as follows.

Output at L : $L' = -20dB \cdot (\frac{L+R}{2})$

Output at R : $R' = -20dB \cdot (\frac{L+R}{2})$

Output at C : $C' = -10dB \cdot (\frac{L+R}{2})$, $C' = \frac{2}{3} \cdot C$

$L' + R' + C' = (\frac{L+R}{2})$

*) The three outputs from the HLDSP are put together in the LDSP and outputted at FL and RL. Also, L-R from the A/D enters the LDSP and is outputted at FR and RR.

2-4 LED & LCD check (CHURCH key)

The LCD appears as shown below.

```
*DIAGNOSTICS*
4. LED LCD CHECK
```

The signal is processed in the same way as with 2-2 RAM THROUGH.

When this sub-program is started, the LCD appears as shown above and after 0.5 seconds, the LED check is initiated.

● **LED check procedure**

1	All lights OFF (including LCD back light)
2	STANDBY (G model only)
3	Tape monitor
4	PRO LOGIC indicator
5	DSP indicator
6	LCD back light

Upon completion of the LED check, the LCD check is initiated.

- **LCD check = All dots light for 2 seconds.**

Upon completion of the LCD check, the same display as the initial one appears.

(The LED of the VOLUME control remains ON all the time.)

2-5 GEQ100Hz +6/–6dB (ROCK CONCERT key)

```
*DIAGNOSTICS*
5. GEQ 100HZ +6dB
```

The basic operation, signal processing and level setting are the same as Diag. No.2 RAM THROUGH.

① Only one 100Hz band of the CENTER GEQ becomes +6dB and others 0dB.

② When the ROCK CONCERT key is pressed again, only one 100Hz band of the CENTER GEQ becomes –6dB and others 0dB.

Then the LCD appears as shown below.

```
*DIAGNOSTICS*
5. GEQ 100HZ –6dB
```

Above ① and ② are repeated at every pressing of the ROCK CONCERT key.

2-6 GEQ 300Hz +6/–6dB (JAZZ CLUB key)
2-7 GEQ 1kHz +6/–6dB (DISCO key)
2-8 GEQ 3kHz +6/–6dB (STADIUM key)
2-9 GEQ 10kHz +6/–6dB (CONCERT VIDEO key)

With the above four sub-programs, the operation is the same as that of 2-5 GEQ 100Hz +6/–6dB. Only the frequency band to be operated is different in each case.

2-10 Rated output measurement (TV THEATER key)

The LCD appears as shown below.

```
*DIAGNOSTICS*
10. POWER CHECK
```

The basic operation is the same as that of the Diag. No.2 RAM THROUGH.

● **Level setting**

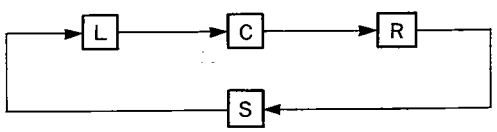
FRONT LEVEL	–5dB
REAR LEVEL	–5dB
CENTER LEVEL	+10dB
S.W. LEVEL	0dB

2-11 DOLBY test noise check (MOVIE THEATER key)

```
*DIAGNOSTICS*
11. TEST DOLBY(L)
```

Channel indicator

The DOLBY test noise is generated at intervals of 2 seconds.



The channel where noise is output shifts in the order as shown above. The channel indicator in the LCD varies accordingly.

● **Level setting**

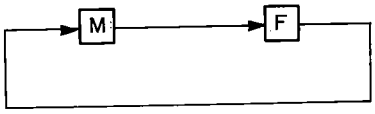
FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-12 DSP test noise check (PRO LOGIC key)

```
*DIAGNOSTICS*
12. TEST DSP (M)
```

Channel indicator

The DSP test noise is generated at intervals of 2 seconds.



The channel where noise is output shifts in the order as shown above. The channel indicator in the LCD varies accordingly.

● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-13 TAPE MONITOR check (TAPE MON key)

```
*DIAGNOSTICS*
13. TAPE MONITOR
```

The basic operation is the same as Diag. No.2 RAM THROUGH. The signal input terminal is selected for TAPE PB.

2-14 DOLBY normal (parameter △)

```
*DIAGNOSTICS*
14. DOLBY normal
```

The operation is the DOLBY pro logic operation. It is normally the same as that of Program No. 12 DOLBY PRO LOGIC. The normal mode is selected for the center mode.

● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-15 DOLBY effect off (parameter ▽)

```
*DIAGNOSTICS*
15. DOLBY ef.off
```

The operation is the DOLBY pro logic operation. It is normally the same as that of Program No. 12 DOLBY PRO LOGIC. The normal mode is selected for the center mode.

● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-16 DOLBY wide (parameter "–")

```
*DIAGNOSTICS*
16. DOLBY wide
```

Normally the same internal operation as that of the Program No. 12 DOLBY PRO LOGIC takes place. The wide mode is selected for the center mode.

● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-17 DOLBY phantom (parameter "+")

```
*DIAGNOSTICS*
17. DOLBY phntm
```

Normally the same operation as that of the Program No. 12 DOLBY PRO LOGIC takes place. The phantom mode is selected for the center mode.

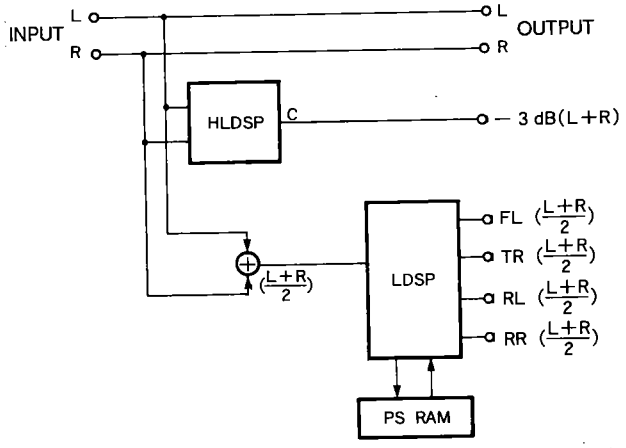
● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	0dB
S.W. LEVEL	0dB

2-18. OUTPUT LEVEL check (TEST key)

```
*DIAGNOSTICS*
18. OUTPUT CHECK
```

The input/output diagram is as shown below.



*) The HLDSP turns the STEERING OFF, processes the signal into –3dB•(L+R) through the manual mix processing and outputs it at the CENTER.

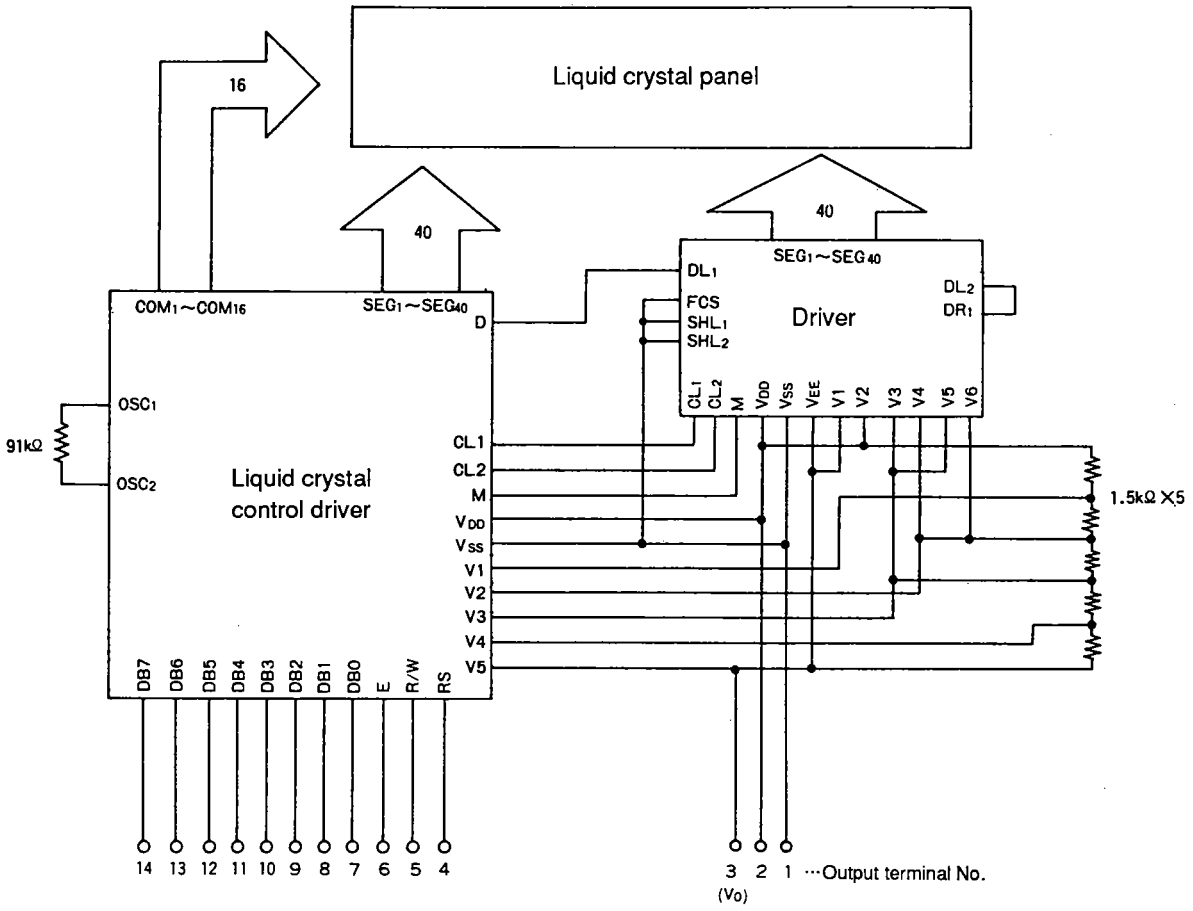
*) The signal from the A/D, $\frac{L+R}{2}$, is inputted to the LDSP and output as it is at FL, FR, RL and RR.

● **Level setting**

FRONT LEVEL	0dB
REAR LEVEL	0dB
CENTER LEVEL	–3dB
S.W. LEVEL	–9dB

*) Applying a signal of the same phase and same level to the input L and R will make L, R and C of the Pre-Out and every L and R of FL, FR, RL, RR and S.W. the same level.
The MONO output of S.W. is +6dB to the above level.

■ LCD UNIT DATA (VK421500)



Pin No.	Pin Name	Function
1	VSS	(–) side power supply terminal, 0V
2	VDD	(+) side power supply terminal, +5V
3	VO	LCD drive voltage application terminal
4	RS	Input terminal , HI = Data, LOW = Instruction
5	R/W	Input terminal , HI = Read, LOW = Write
6	E	Input terminal , enable signal
7	DB0	Data bus line
8	DB1	
9	DB2	
10	DB3	
11	DB4	
12	DB5	
13	DB6	
14	DB7	

* The IC's used for the LCD unit are as follows.

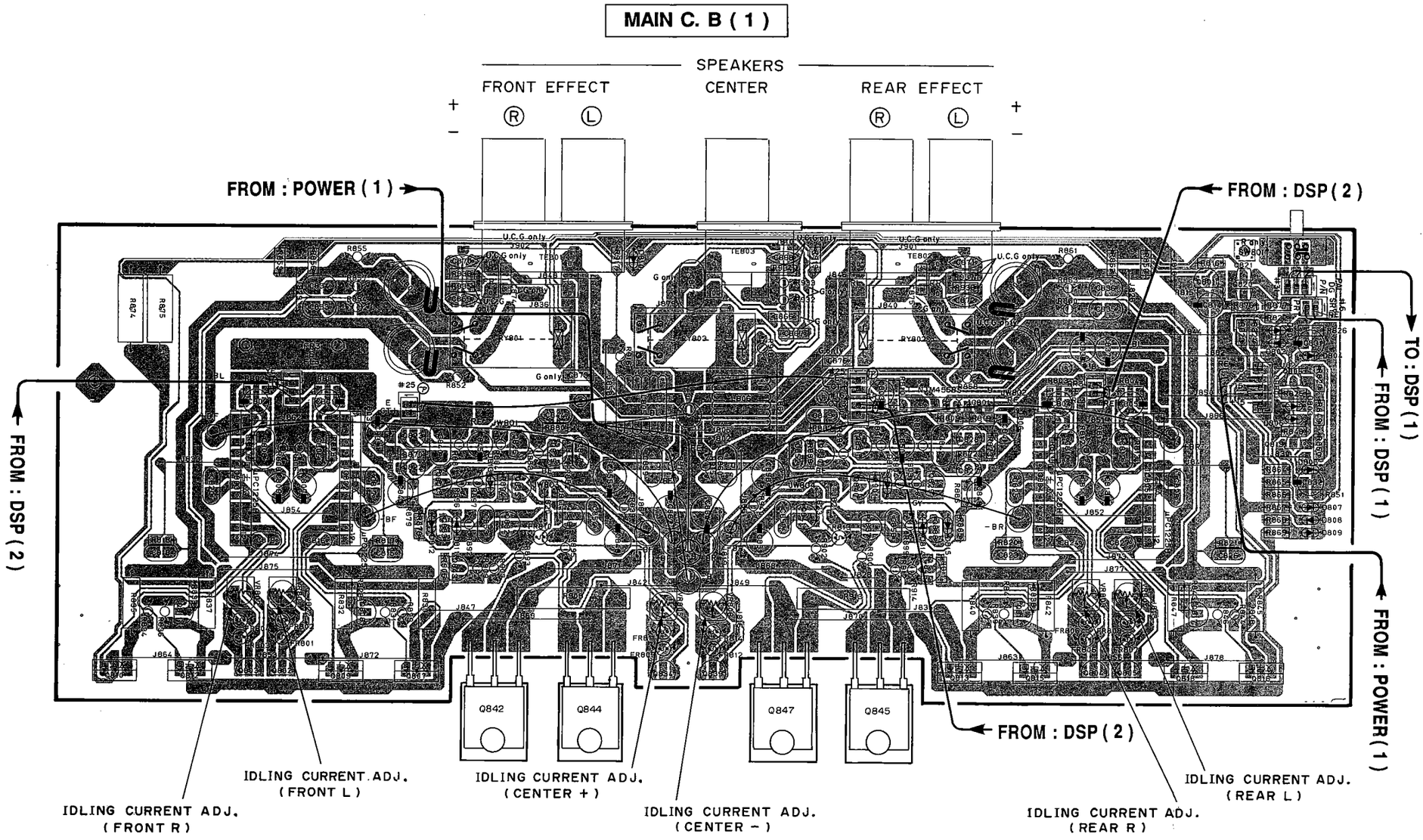
iX607280(LC7930)

iX607290 (HD44780A00)

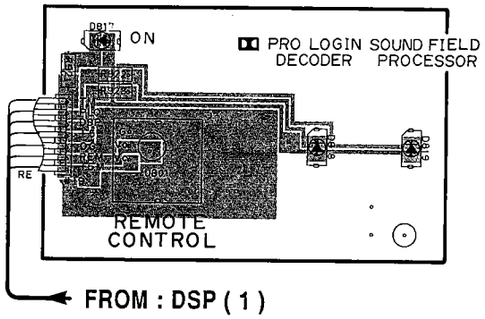
Any part other than IC can't be replaced individually. If replacement becomes necessary, be sure to replace as a whole unit.

■ PRINTED CIRCUIT BOARD (Foil side)

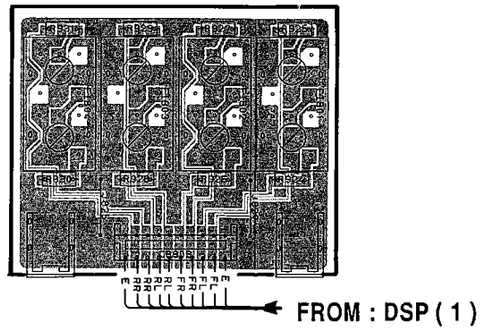
MAIN C. B (1)



MAIN C. B (3)



MAIN C. B (4)

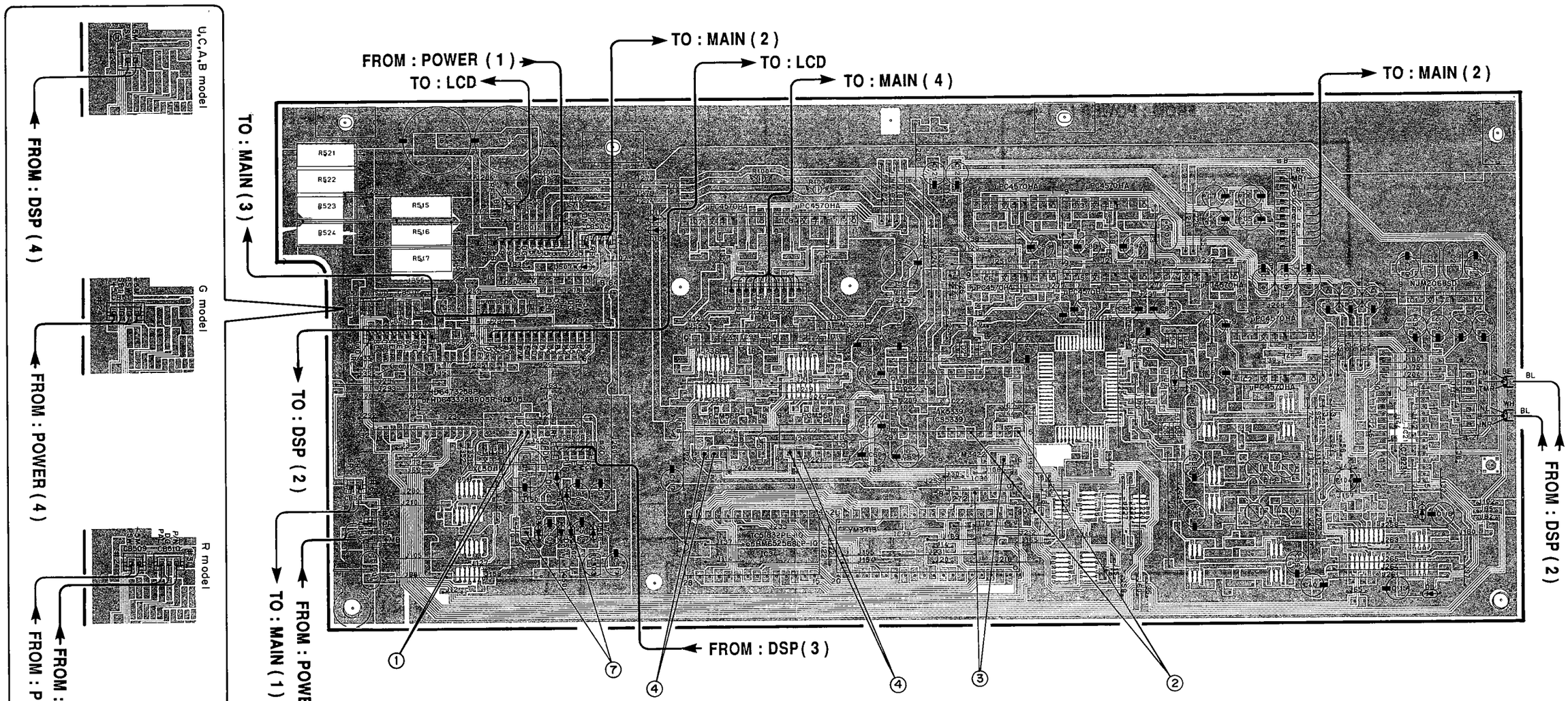


PRINTED CIRCUIT BOARD (Foil side)

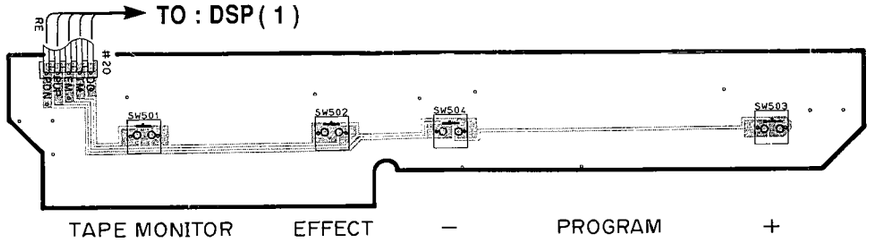
~ ④, ⑦ : WAVEFORM OF TEST POINT (See page 29)

For the chip parts of the DSP circuit board (1), refer to pages 18 and 19.

DSP C. B (1)

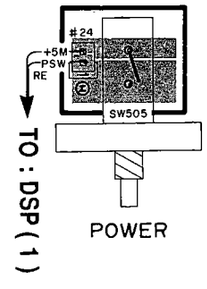


DSP C. B (3)



DSP C. B (4)

● U, C, A, B models



■ PRINTED CIRCUIT BOARD (Foil side)

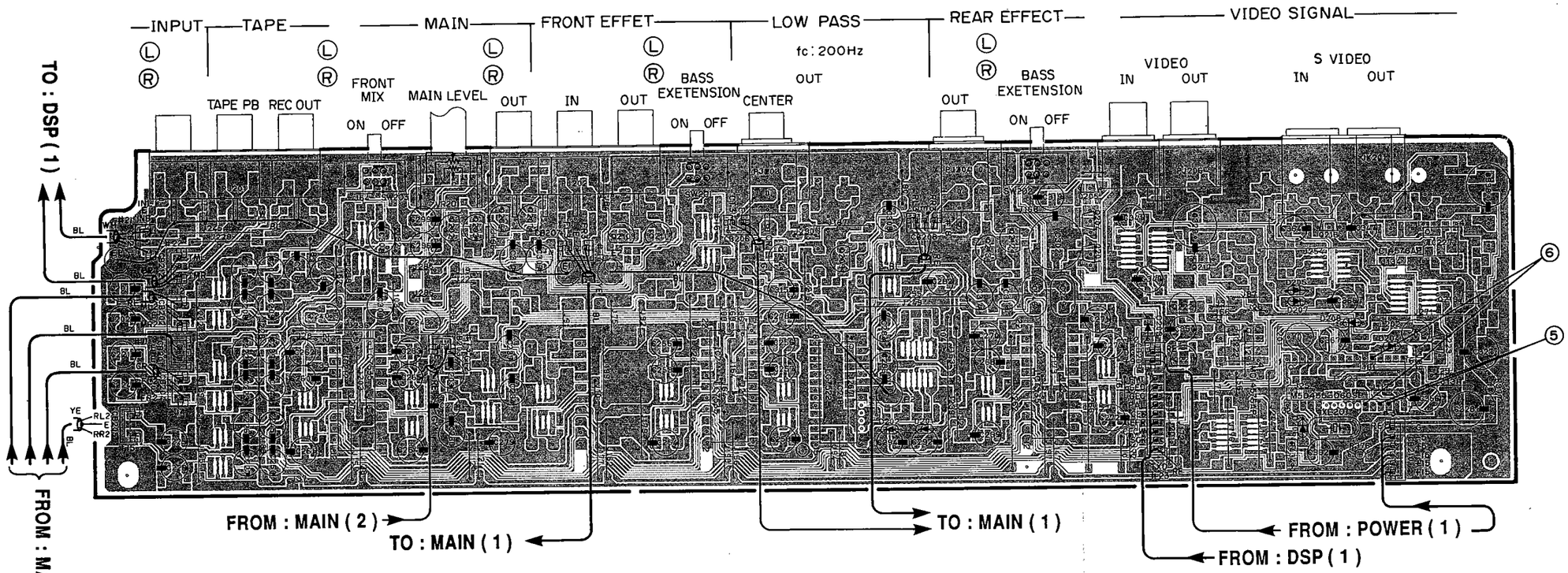
⑤, ⑥ : WAVEFORM OF TEST POINT (See page 29)

Note 1) As removal of the DSP circuit board (2) will make the ground loose, connect it to the chassis by using a lead wire or the like.

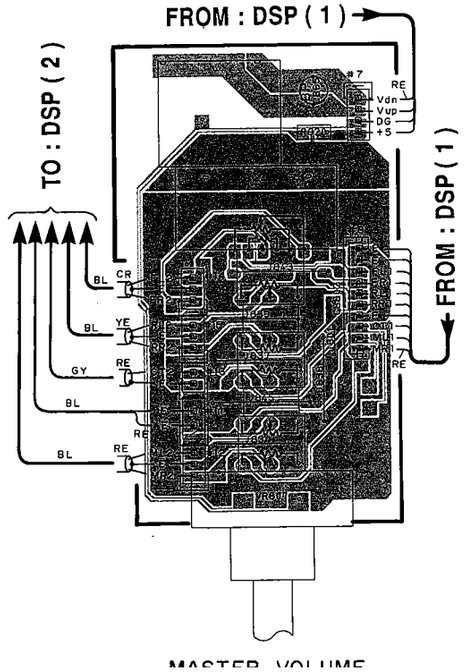
Note 2) Use care when pulling off connectors of the signal wire and power source. The ground of the signal system or power supply may get loose, possibly resulting in an abnormal condition such as power failure (causing the protection circuit to operate).

For the chip parts of the DSP circuit board (2), refer to pages 18 and 19.

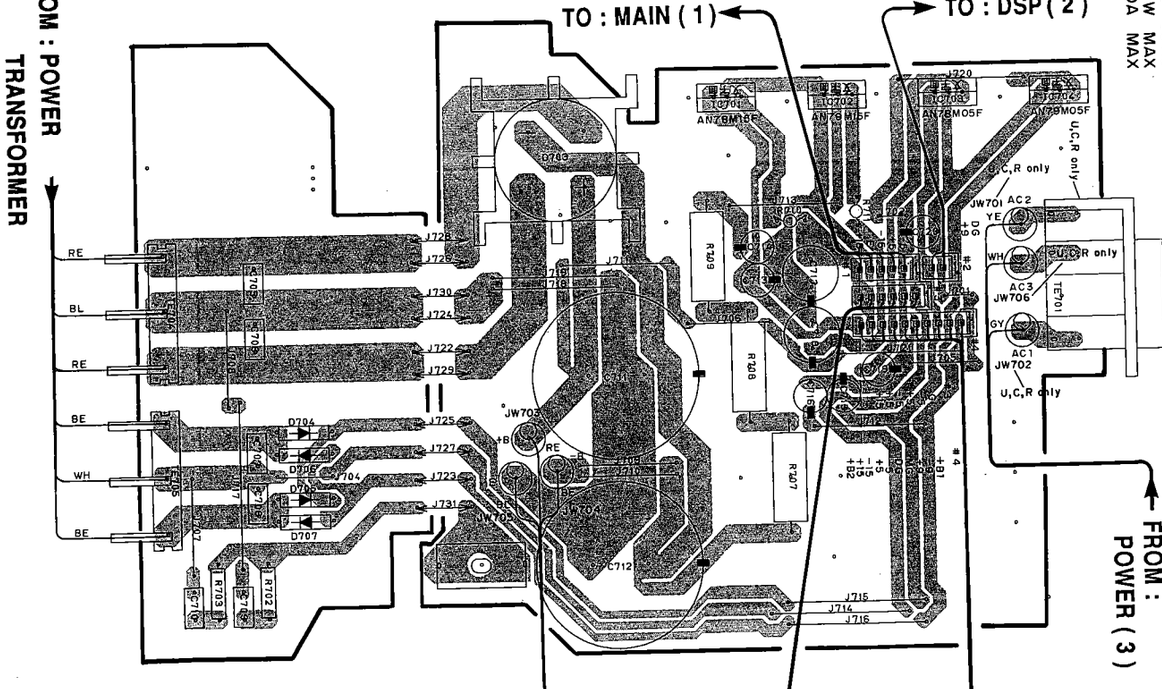
DSP C. B (2)



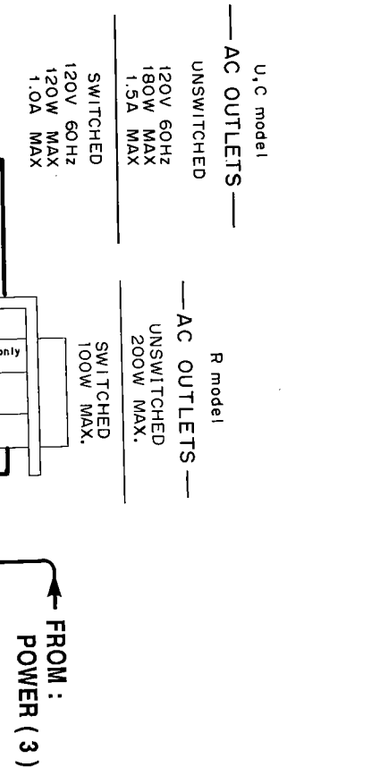
MAIN C. B (2)



POWER C. B (2)

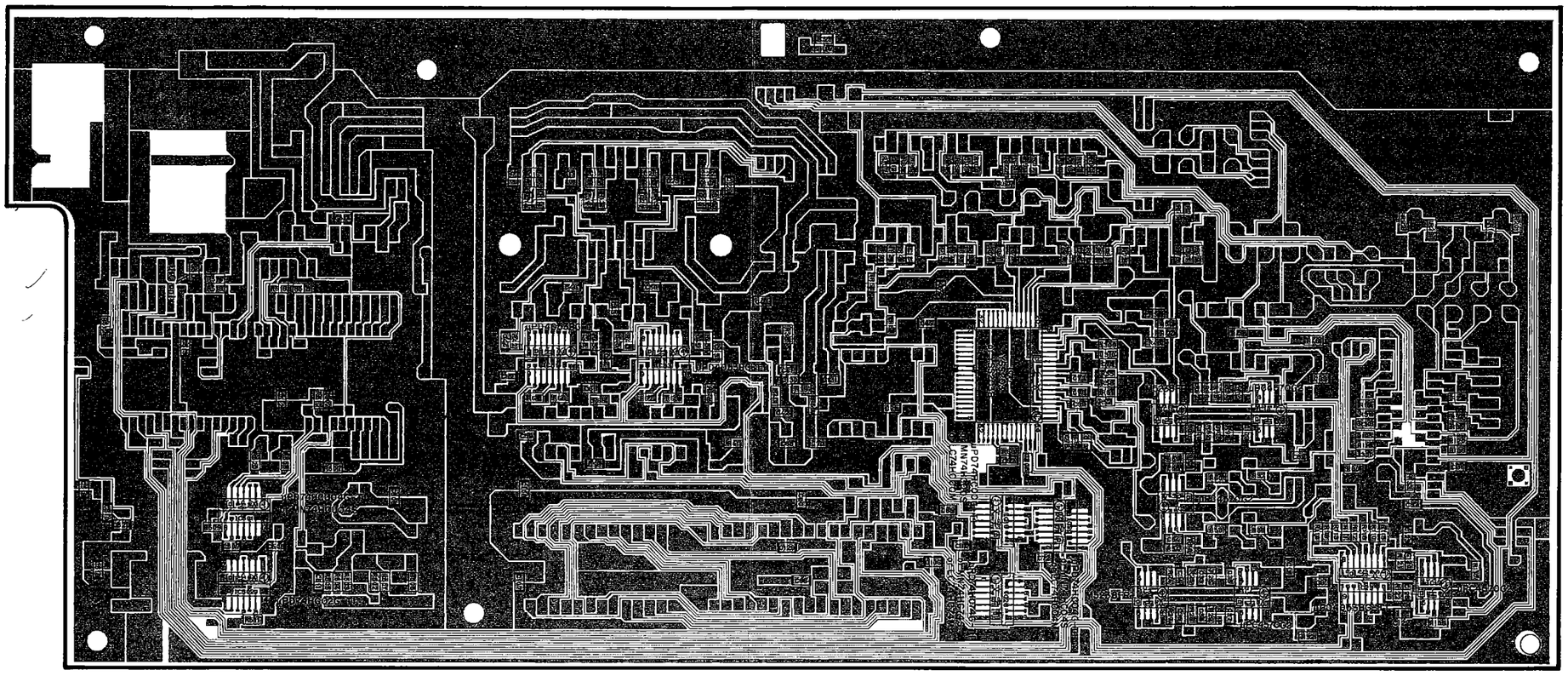


POWER C. B (1)

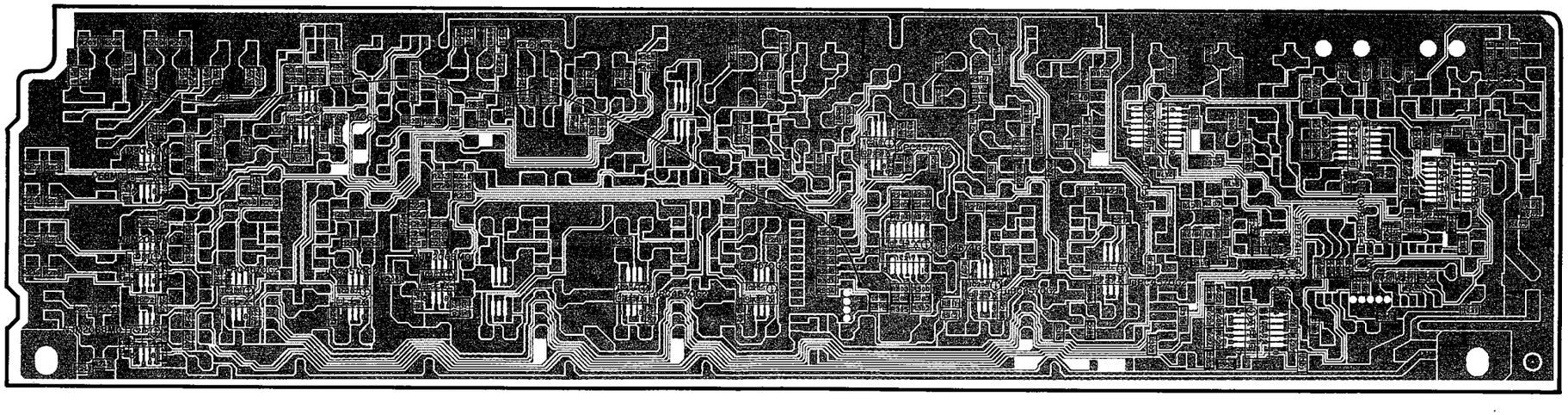


I PRINTED CIRCUIT BOARD (Foil side)

DSP C. B (1)



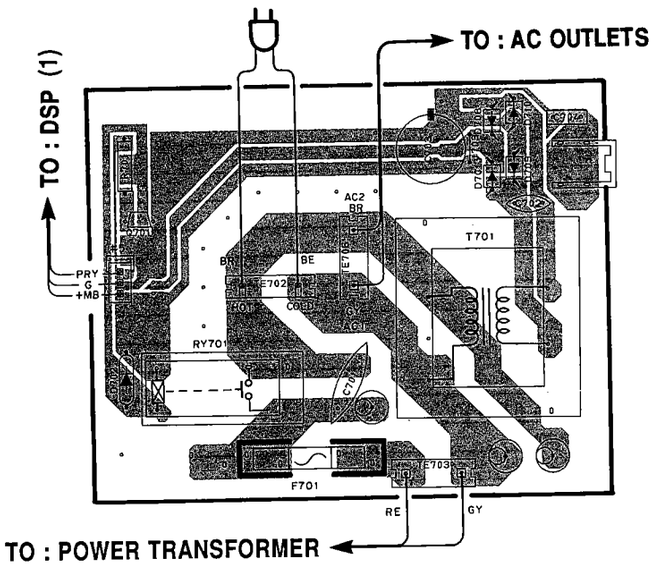
DSP C. B (2)



■ PRINTED CIRCUIT BOARD (Foil side)

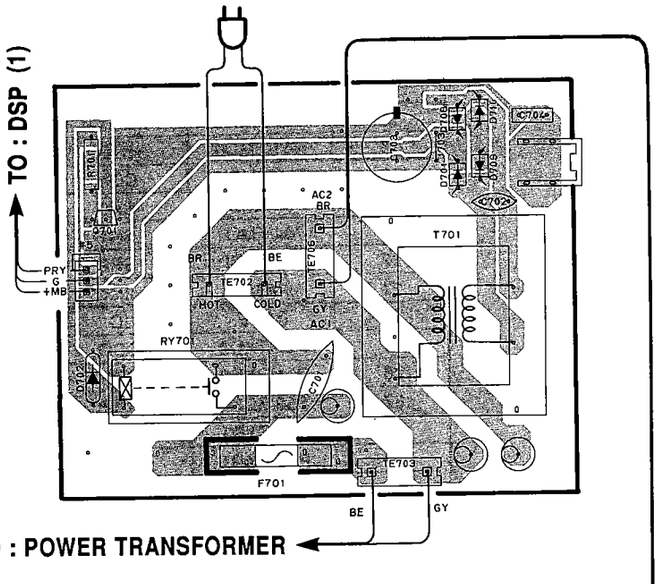
● U, C models

POWER C. B (3)



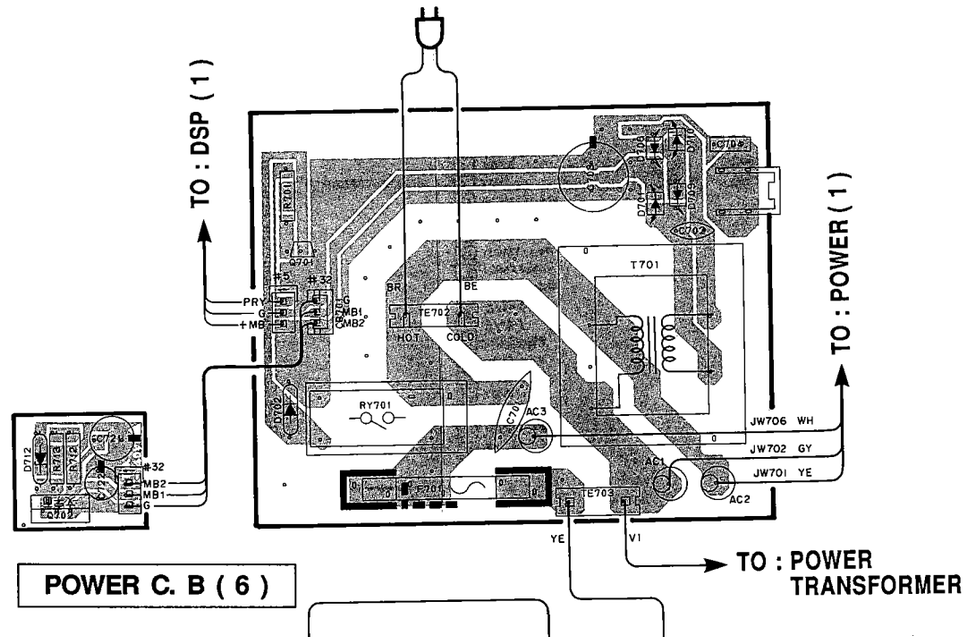
● G model

POWER C. B (3)

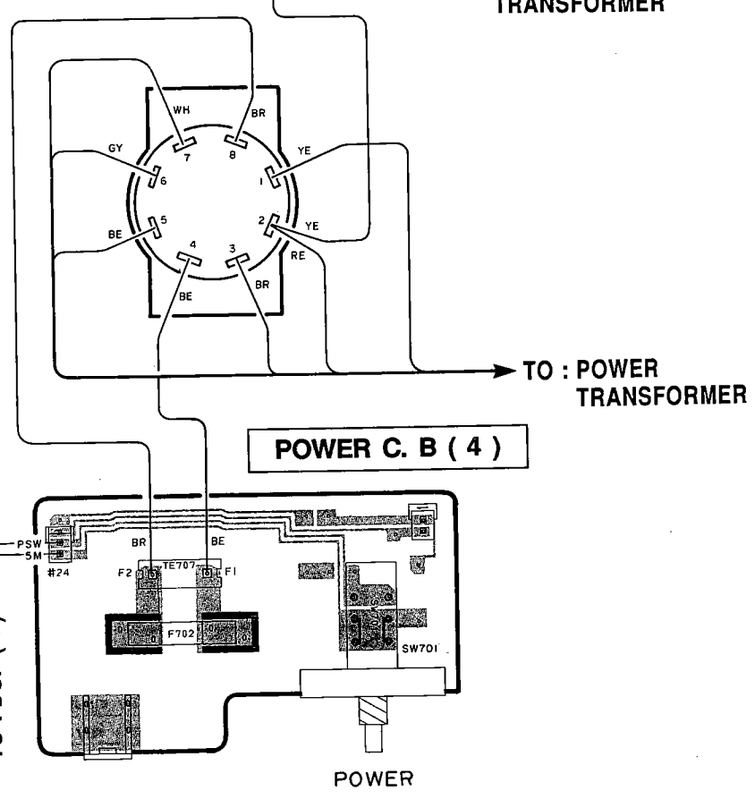


● R model

POWER C. B (3)

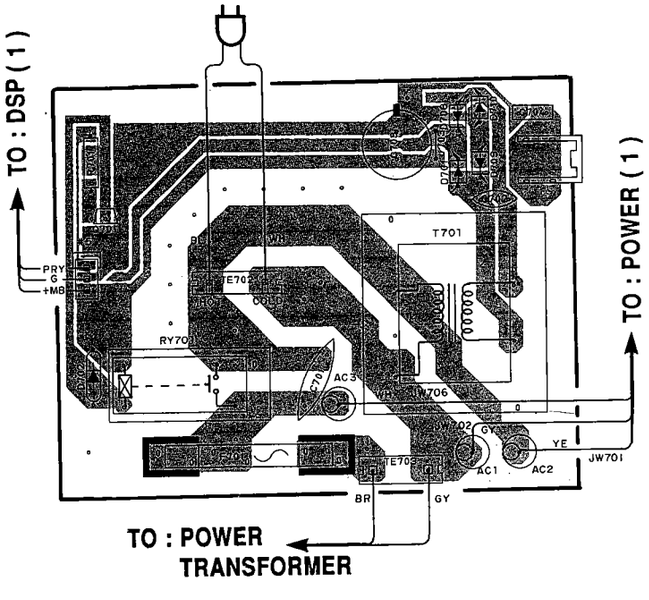


POWER C. B (6)

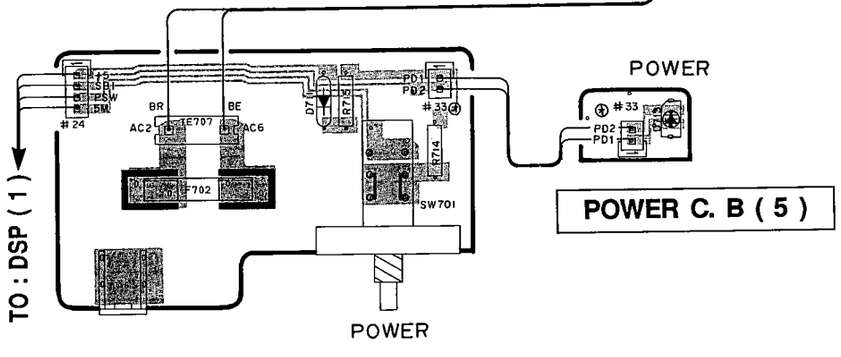


● A, B models

POWER C. B (3)



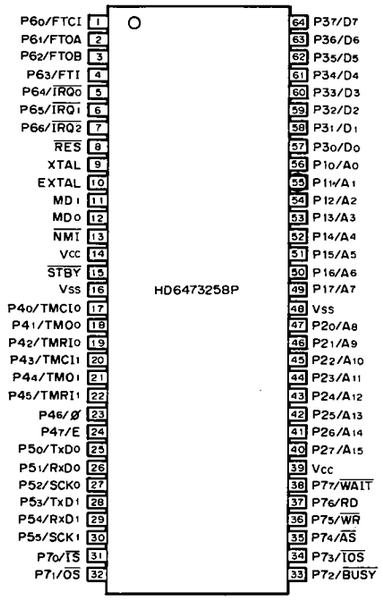
POWER C. B (4)

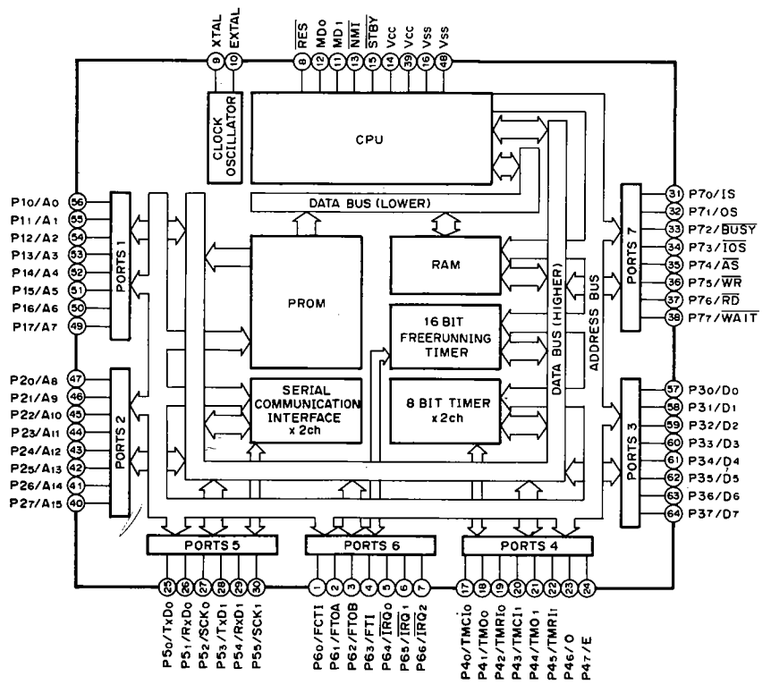


POWER C. B (5)

■ IC DATA

C505 : HD6473258P or HD643324R05P
bit μ-COM

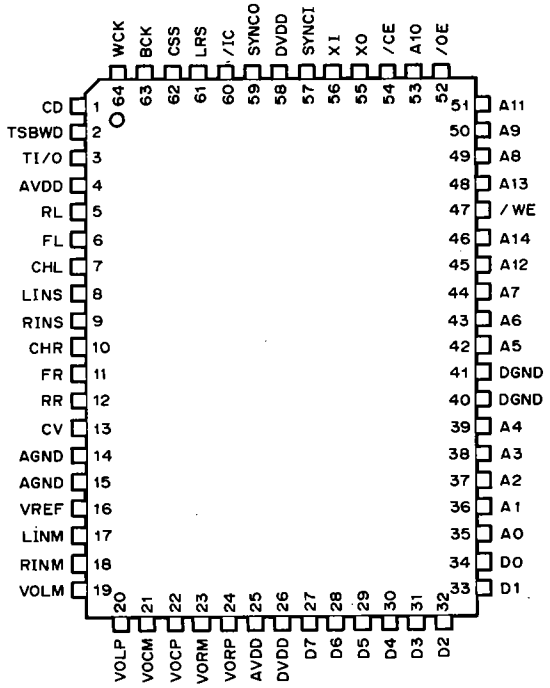


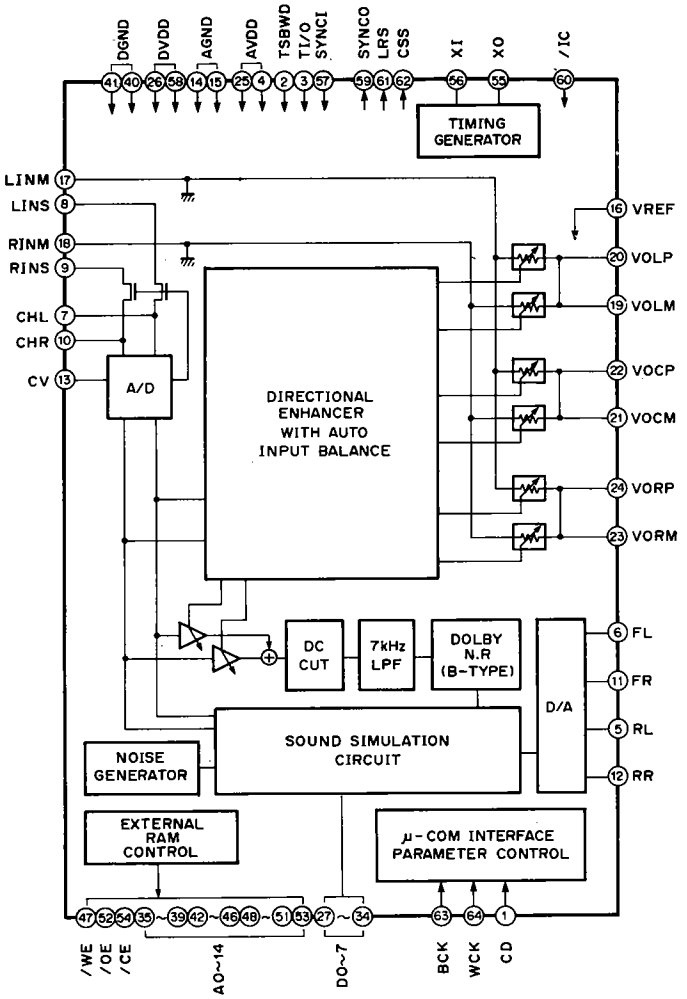


Pin No.	Pin Name	Symbol	I/O	Function
1	P60/FTCI	TM	I	Tape monitor key input
2	P61/FTOA	EM	I	Effect key input
3	P62/FTOB	PUP	I	Program + key input
4	P63/FTI	PDN	I	Program – key input
5	P64/$\overline{IRQ0}$	PRT	I	Protection input (⌐‾¬)
6	P65/$\overline{IRQ1}$	REM	I	Remote control input (‾\ )
7	P66/$\overline{IRQ2}$	PDET	I	Power detect input (¬‾⌐)
8	$\overline{RES}$	$\overline{RES}$	I	Reset

Pin No.	Pin Name	Symbol	I/O	Function
9	XTAL	XTAL	—	X'tal (11.289MHz)
10	EXTAL	EXTAL	—	
11	MD1	"H"	—	Mode select
12	MD0	"H"	—	
13	$\overline{NMI}$	"H"	—	
14	VCC	+5V	—	
15	$\overline{STBY}$	"H"	—	
16	VSS	VSS	—	
17	P40/TMCI0	(J/$\overline{EX}$)	I	Destination detect
18	P41/TMO0	($\overline{STB}$)	I	Whether or not in stand-by mode detect
19	P42/TMRI0	$\overline{CON}$	O	Clock output enable
20	P43/TMCI1	SR0	O	
21	P44/TMO1	SR1	O	
22	P45/TRRI1	SR2	O	
23	P46/O	"open"	I	
24	P47/E	$\overline{IC}$	O	External device initial clear
25	P50/TXD0	CDO	O	Serial data output (LDSP)
26	P51/RXD0	CRS	O	LDSP register select clear
27	P52/SCK0	XCLK	O	Serial data clock (LDSP)
28	P53/TXD1	TXD	O	Serial data output
29	P54/RXD1	WCK	O	HLDSP word clock
30	P55/SCK1	SCK	O	Serial data clock
31	P70/$\overline{IS}$	"L"	I	
32	P71/$\overline{OS}$	CE0	O	Chip enable (for LC7823)
33	P72/$\overline{BUSY}$	CE1	O	Chip enable (for LC7535)
34	P73/$\overline{IOS}$	CE2	O	Chip enable (superimpose)
35	P74/$\overline{AS}$	P/$\overline{N}$	I	PAL/NTSC detect
36	P75/$\overline{WR}$	GEC	O	Center graphic equalizer clock (LC7522)
37	P76/$\overline{RD}$	GED	O	Center graphic equalizer data (LC7522)
38	P77/$\overline{WAIT}$	PSW	I	POWER key input
39	VCC	+5V	—	
40	P27/A15	"open"	O	
41	P26/A14	"open"	O	
42	P25/A13	"open"	O	
43	P24/A12	$\overline{FMT}$	O	Full mute
44	P23/A11	SRY	O	Speaker relay
45	P22/A10	P.RLY	O	Power relay
46	P21/A9	VOL DN	O	Motor volume drive
47	P20/A8	VOL UP	O	
48	VSS	VSS	—	
49	P17/A7	(STBY)	O	Stand-by LED
50	P16/A6	TPM	O	Tape monitor LED
51	P15/A5	PRO	O	Pro logic LED
52	P14/A4	DSP	O	DSP LED
53	P13/A3	BL	O	LCD back light
54	P12/A2	RS	O	LCD control
55	P11/A1	R/W	O	
56	P10/A0	E	O	
57	P30/D0	D0	O	LCD data
58	P31/D1	D1	O	
59	P32/D2	D2	O	
60	P33/D3	D3	O	
61	P34/D4	D4	O	
62	P35/D5	D5	O	
63	P36/D6	D6	O	
64	P37/D7	D7	O	

IC27 : YSS203 or YSS203B
Digital Dolby Pro Logic Decoder with Auto Input Balance





Pin No.	Pin Name	I/O	Function
1	CD	Its	Serial data of parameter data input
2	TSBWD	Ic	LSI test terminal Normally connected to DVDD
3	TI/O	Ic	LSI test terminal Normally connected to /CSS terminal
4	AVDD	A—	+5V power supply (D/A, A/D section)
5	RL	AO	RL channel D/A output
6	FL	AO	FL channel D/A output
7	CHL	A—	LINS input Sample/hold Capacitor external terminal
8	LINS	AI	L channel A/D input
9	RINS	AI	R channel A/D input
10	CHR	A—	RINS input Sample/hold Capacitor external terminal
11	FR	AO	FR channel D/A input
12	RR	AO	RR channel D/A input
13	CV	AO	A/D, multiplaying DAC center voltage
14	AGND	A—	Ground (D/A, A/D section)
15	AGND	A—	Ground (Multiplaying DAC section)
16	VREF	AI	Multiplaying DAC reference voltage input
17	LINM	AI	L channel Multiplaying DAC input
18	RINM	AI	R channel Multiplaying DAC input
19	VOLM	AO	L channel operation amplifier, connected to (–) terminal
20	VOLP	AO	L channel operation amplifier, connected to (+) terminal

(Continued on page 25)

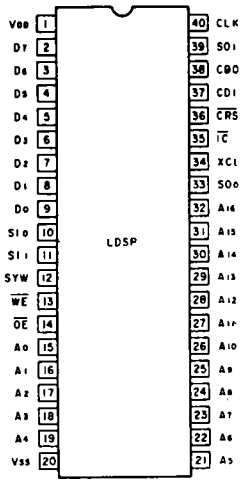
Pin No.	Pin Name	I/O	Function
21	VOCM	AO	C channel operation amplifier, connected to (–) terminal
22	VOCP	AO	C channel operation amplifier, connected to (+) terminal
23	VORM	AO	R channel operation amplifier, connected to (–) terminal
24	VORP	AO	R channel operation amplifier, connected to (+) terminal
25	AVDD	A—	+5V power supply (multiplying DAC section)
26	DVDD	—	+5V power supply (digital section)
27	D7	I/Ot	External delay RAM data terminal
28	D6	I/Ot	External delay RAM data terminal
29	D5	I/Ot	External delay RAM data terminal
30	D4	I/Ot	External delay RAM data terminal
31	D3	I/Ot	External delay RAM data terminal
32	D2	I/Ot	External delay RAM data terminal
33	D1	I/Ot	External delay RAM data terminal
34	D0	I/Ot	External delay RAM data terminal
35	A0	O	External data RAM address terminal
36	A1	O	External data RAM address terminal
37	A2	O	External data RAM address terminal
38	A3	O	External data RAM address terminal
39	A4	O	External data RAM address terminal
40	DGND	—	Ground (digital section)
41	DNND	—	Ground (digital section)
42	A5	O	External data RAM address terminal
43	A6	O	External data RAM address terminal
44	A7	O	External data RAM address terminal
45	A12	O	External data RAM address terminal
46	A14	O	External data RAM address terminal
47	/WE	O	External delay RAM write enable terminal
48	A13	O	External dalay RAM address terminal
49	A8	O	External dalay RAM address terminal
50	A9	O	External dalay RAM address terminal
51	A11	O	External dalay RAM address terminal
52	/OE	O	External dalay RAM output enable terminal
53	A10	O	External dalay RAM address terminal
54	/CE	O	External delay RAM chip enable terminal
55	XO	O	Crystal oscillator connecting terminal
56	XI	I	Crystal oscillator connecting terminal
57	SYNCI	It	Test terminal for system synchronization, normally connected to DVDD
58	DVDD	—	+5V power supply (digital section)
59	SYNCO	O	Test terminal for system synchronization, normally unconnected
60	/IC	Ics	Initial clear terminal (Power ON resetting is necessary)
61	LRS	O	External automatic input balance terminal, normally left open
62	/CSS	O	External automatic input balance terminal, connected to TI/O terminal
63	BCK	Its	Bit clock for parameter data input
64	WCK	Its	Word clock for parameter data input

Note : Alphabets used in the above I/O column represent as follows.

I : Input terminal **O** : Output terminal **t** : TTL level

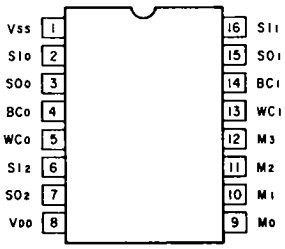
C : CMOS level **S** : Schmidt input **A** : Analog terminal

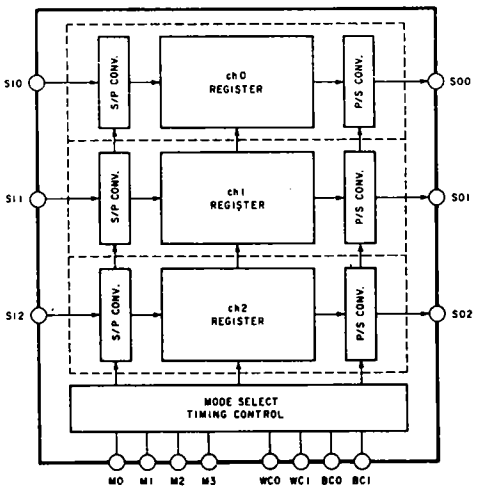
IC29 : YM3413
LDSP



Pin No.	Pin Name	I/O	Function	Pin No.	Pin Name	I/O	Function
1	VDD	—	+5V voltage supply	40	CLK	I	Master clock input
2	D7	I/O	I/O pins connected to memory data bus (8bit)	39	SO1	O	Serial data output
3	D6	I/O		38	CDO	O	CD data output
4	D5	I/O		37	CDI	I	CD data input
5	D4	I/O		36	CRS	I	CD data sync signal input
6	D3	I/O		35	IC	I	LDSP initial clear signal input
7	D2	I/O		34	XCLK	I	ACIA clock input
8	D1	I/O		33	SDO	O	Serial data output
9	D0	I/O		32	A16	O	Outputs connected to memory address bus
10	SI0	I	Serial data input	31	A15	O	
11	SI1	I		30	A14	O	
12	SYW	I	System sync signal input	29	A13	O	
13	WE	O	Read/write signal to memory input	28	A12	O	
14	OE	O	Pin connected to memory OE term	27	A11	O	
15	A0	O	Outputs connected to memorys address bus	26	A10	O	
16	A1	O		25	A9	O	
17	A2	O		24	A8	O	
18	A3	O		23	A7	O	
19	A4	O		22	A6	O	
20	VSS	O	GND 0V	21	A5	O	

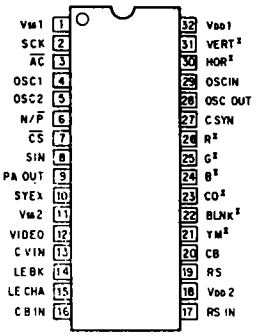
IC30 : YM3422
Digital Signal Format Converter

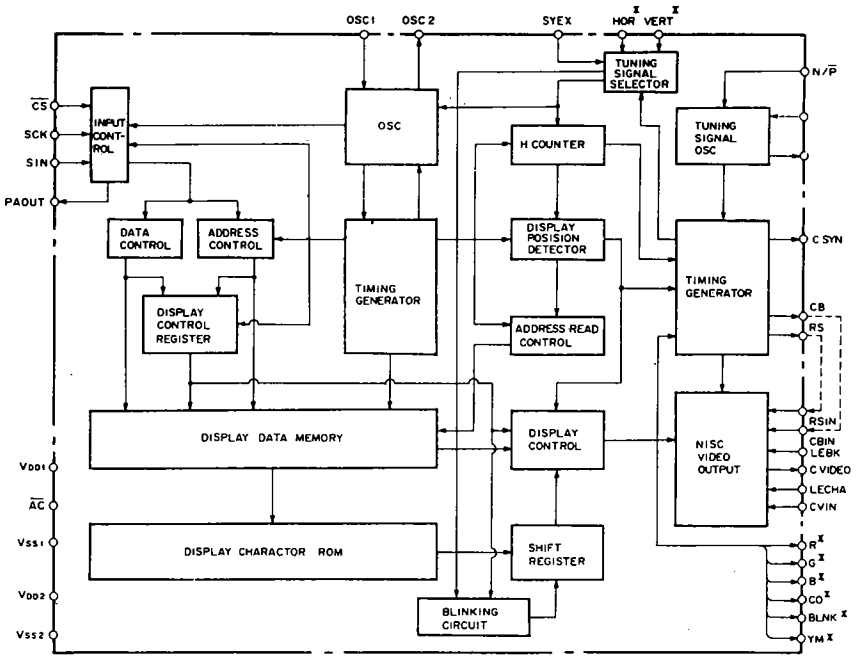




Pin No.	Pin Name	I/O	Function
1	VSS	—	GND terminal
2	SI0	IN	Serial data input (ch 0)
3	SO0	OUT	Serial data output (ch 0)
4	BC0	IN	Bit clock input
5	WC0	IN	System synchronized signal input
6	SI2	IN	Serial data input (ch 0)
7	SO2	OUT	Serial data output (ch 0)
8	VDD	—	Voltage supply (+5V)
9	MO	IN	Mode select signal
10	M1	IN	
11	M2	IN	
12	M3	IN	
13	WC1	IN	System synchronized signal input (Word clock)
14	BC1	IN	Bit clock input
15	SC1	IN	Serial data output (ch 1)
16	SI1	OUT	Serial data input (ch 1)

IC223 : M50455-060SP
Supper Impose



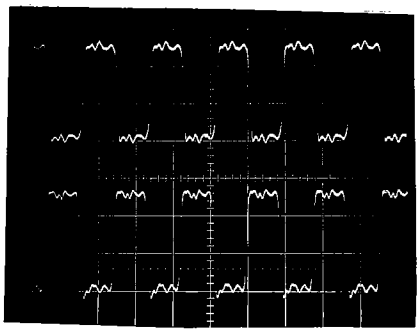


Pin No.	Pin Name	Pin Description	Function
1	VSS 1	Earth terminal	Connect with GND by digital system earth terminal
2	SCX	Serial clock input	When it is SC terminal "L", serial data of SIN is taken in with the start-up of SCK. Hysteresis input.
3	AC	Automatic clear input	Reset IC internal circuit with "L" status. Pull-up resistance has been contained. Hysteresis input.
4	OSC 1	Oscillation circuit external terminal	External terminal for oscillation circuit for indication use. The standard oscillation frequency is about 7MHz
5	OSC 2		Display position toward horizontal direction of TV picture and letter width are determined by the oscillation frequency.
6	N/P	NISC/PAL switching input	It is NTSC or PAL system synchronized signal generation switching terminal.
7	CS	Chip selection input	Chip selection terminal. When serial data transfer is conducted, the chip selection terminal shall be "L" status.
8	SIN	Serial data input	Data and address of memory for use in the display resistor and display data are input by serial.
9	PAOUT	Parity output	It is odd number parity output, and it will detect 1 bit mistake in a word of SIN.
10	SYEX	Synchronized signal changeover input	Externally synchronized or internally synchronized signal switching terminal. Under "H" status, it becomes externally synchronized signal mode, and with "L" status, it becomes internally synchronized signal mode. SYEX composes "or" of priority of internal synchronization and EX resistor of address 243 in the display control resistor. Pull-up resistance is contained.

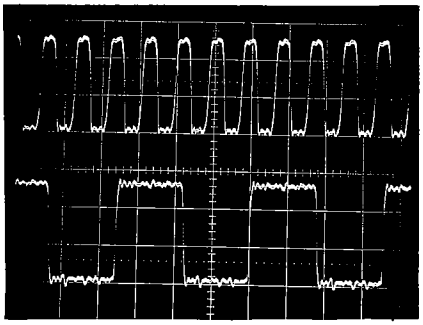
Pin No	Pin Name	Pin Description	Function
11	VSS 1	Earth terminal	Connect with GND by analog earth terminal.
12	VIDEO	Composite video output	It is composite video signal output terminal Composite video signal of 2Vp-p is output. When it is supper imposition, it will output increasing the volume of letter output to CVIN signal.
13	CVIN	Composite video input	It is composite video signal input terminal When it is supper impose, letter output etc. Will be increases for the composite video signal.
14	LEBK	Blanking level	It is input terminal to determine blanking level of video signal.
15	LECHA	Character level input	It is input terminal to determine the letter output level in the video signal. Color of letter is white.
16	CBIN	Color burst input	It will input transforming CB output to color burst level by external circuit.
17	RSIN	Lettering background carrier color signal input	Input is done transforming RS output to carrier color signal level of video signal by external circuit.
18	VDD 2	Power source terminal	Connect with +5V by analog system power source terminal.
19	RS	Lettering background carrier color signal output	It is carrier color signal output for the coloring of lettering background. It will output signal having phase analog for color burst signal CB. Amplitude : 5V.
20	CB	Color burst output	When it is NTSC system, it will output color burst of 3.58MHz and 4.43MHz when it is PAL system. Amplitude : 5V.
21	YM*	Brightness signal output	It is brightness sihnal output. Polarity selection can be done when lettering type ROM is determined.
22	BLNK*	Lettering background output	It will output lettering background signal. Polarity selection can be done when lettering type ROM is decided.
23	CO*	Lettering type output	Lettering type signal is output. Polarity selection can be done when lettering type is determined.
24	B*	Blue output	It is Blue output terminal. Polarity selection can be done when lettering type is determined.
25	H*	Green output	It is Green output terminal. Polarity selection can be done when lettering type is determined.
26	R*	Red output	It is Red output terminal. Polarity selection can be done when lettering type is determined.
27	CSYN	Composite burst output	NTSC or PAL system composite burst is output. Polarity is negative polarity, and amplitude is 4V.
28	OSCOUT	Oscillation circuit for burst generation	It is external terminal of oscillation circuit for the generation of burst. when it is NTSC system, it is 14.32MHz.
29	OSCIN		When it is PAL system, oscillation frequency of 17.73MHz is used.
30	HOR*	Horizontal burst	Horizontal selection burst is output. Hysteresis input. Polarity selection can be done when lettering type ROM is determined.
31	VERT*	Vertical burst	Vertical burst is input . Hysteresis input. Polarity selection can be done when lettering type ROM is determined.
32	VDD 2	Power source terminal	Connect with +5V by digital power source terminal.

■ WAVEFORM OF TEST POINT

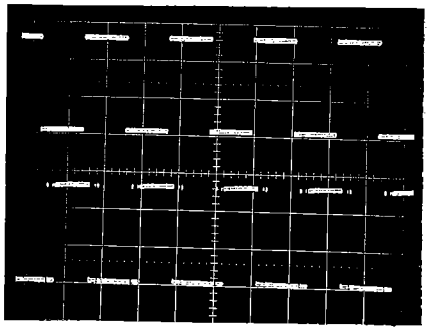
Point ① : XTAL, EXTAL
(CH1 : Pin9 of IC505 CH2 : Pin10 of IC505)
V : 0.2V/div H : 50nsec/div
DC coupling 10 : 1 probe (Trigger CH1)



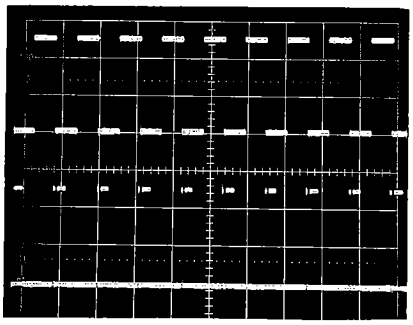
Point ② : CLK, SCLK
(CH1 : Pin20 of IC22 CH2 : Pin15 of IC22)
V : 0.2V/div H : 0.1µsec/div
DC coupling 10 : 1 probe (Trigger CH1)



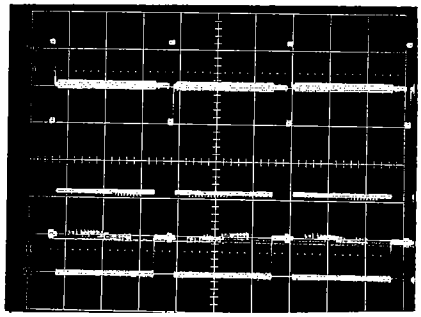
Point ③ : WCO, SO1
(CH1 : Pin5 of IC30 CH2 : Pin15 of IC30)
V : 0.2V/div H : 10µsec/div
DC coupling 10 : 1 probe (Trigger CH1)



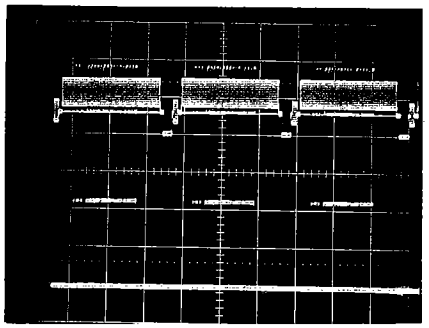
Point ④ : LE, DATA
(CH1 : Pin6 of IC24 or Pin 6 of IC25
CH2 : Pin7 of IC24 or Pin 7 of IC25)
V : 0.2V/div H : 10µsec/div
DC coupling 10 : 1 probe (Trigger CH1)



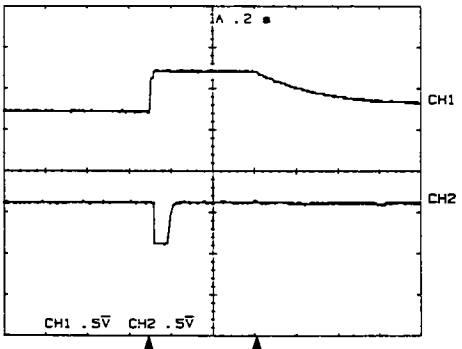
Point ⑤
(CH1 : Pin20 of IC223 CH2 : Pin19 of IC223)
V : 0.2V/div H : 20µsec/div
DC coupling 10 : 1 probe (Trigger CH1)



Point ⑥
(CH1 : Pin12 of IC223 CH2 : Pin22 of IC223)
CH1 . . . . . V : 0.1V/div (Trigger CH1)
CH2 . . . . . V : 0.2V/div
H : 20µsec/div DC coupling 10 : 1 probe



Point ⑦
(CH1 : Anode of D504 CH2 : Collector of Q502)
V : 0.5V/div H : 0.2sec/div
DC coupling 10 : 1 probe



When the power cord is connected to AC outlet.

When the power cord is disconnected from AC outlet.

Note: When the power switch ON/OFF will produce the above wavefrom.

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to P. 47.

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
※	VL368300	DSP CIRCUIT BOARD		DSPシート		UC	
※	VL368400	DSP CIRCUIT BOARD		DSPシート		R	
※	VL368500	DSP CIRCUIT BOARD		DSPシート		AB	
※	VL368600	DSP CIRCUIT BOARD		DSPシート		G	
	FA155150	MYLAR FILM CAP	0.15uF 50V	マイラーコン	C101		
	FA155180	MYLAR FILM CAP	0.18uF 50V	マイラーコン	C240,243,246,249		
	UT452100	POLYPROPYLENE FILM CAP	100pF 100V	PPコン	C28,29,134		
	Vi224400	CHIP MULTILAYER CERAMIC CAP	10pF 50V (SL)	チップ積層セラコン	C205,207,210,232,233,		
					235,241,242,247,248,		
	Vi224400	CHIP MULTILAYER CERAMIC CAP	10pF 50V (SL)	チップ積層セラコン	,351		
	Vi225200	CHIP MULTILAYER CERAMIC CAP	22pF 50V (SL)	チップ積層セラコン	C359,360		
	Vi225400	CHIP MULTILAYER CERAMIC CAP	27pF 50V (SL)	チップ積層セラコン	C365,366		
	Vi225600	CHIP MULTILAYER CERAMIC CAP	33pF 50V (SL)	チップ積層セラコン	C9,10,291		
	Vi226800	CHIP MULTILAYER CERAMIC CAP	100pF 50V (SL)	チップ積層セラコン	C16,17,21,22,54,55,99,		
					102,120,125,330,333,		
	Vi226800	CHIP MULTILAYER CERAMIC CAP	100pF 50V (SL)	チップ積層セラコン	334,348		
	Vi227000	CHIP MULTILAYER CERAMIC CAP	120pF 50V (SL)	チップ積層セラコン	C354,369		
	Vi227400	CHIP MULTILAYER CERAMIC CAP	180pF 50V (SL)	チップ積層セラコン	C35,37,103,289		
	Vi227600	CHIP MULTILAYER CERAMIC CAP	220pF 50V (SL)	チップ積層セラコン	C44,45,48,49,363		
	Vi227800	CHIP MULTILAYER CERAMIC CAP	270pF 50V (SL)	チップ積層セラコン	C97,109,112,113		
	Vi228000	CHIP MULTILAYER CERAMIC CAP	330pF 50V (SL)	チップ積層セラコン	C90,91,96		
	Vi228400	CHIP MULTILAYER CERAMIC CAP	470pF 50V	チップ積層セラコン	C212-217,304,306,308,		
					309,312,313,320-326,		
	Vi228400	CHIP MULTILAYER CERAMIC CAP	470pF 50V	チップ積層セラコン	352		
	Vi229000	CHIP MULTILAYER CERAMIC CAP	820pF 50V	チップ積層セラコン	C287		
	Vi229300	CHIP MULTILAYER CERAMIC CAP	1000pF 50V	チップ積層セラコン	C349,355,357		
	Vi229500	CHIP MULTILAYER CERAMIC CAP	1200pF 50V	チップ積層セラコン	C34,36,100		
	Vi230300	CHIP MULTILAYER CERAMIC CAP	2700pF 50V	チップ積層セラコン	C14,19,20,24,285		
	Vi230500	CHIP MULTILAYER CERAMIC CAP	3300pF 50V	チップ積層セラコン	C12,13,33,38,77,79,105		
	Vi231100	CHIP MULTILAYER CERAMIC CAP	5600pF 50V	チップ積層セラコン	C238		
	Vi231700	CHIP MULTILAYER CERAMIC CAP	0.01uF 50V	チップ積層セラコン	C41,42,67,283,290,344,		
					345		
※	VL378600	CHIP MULTILAYER CERAMIC CAP	0.018uF 16V	チップ積層セラコン	C236		
	VL378900	CHIP MULTILAYER CERAMIC CAP	0.033uF 16V	チップ積層セラコン	C220		
	VL378900	CHIP MULTILAYER CERAMIC CAP	0.033uF 16V	チップ積層セラコン	C281,288		
	VD499400	CHIP MULTILAYER CERAMIC CAP	0.1uF 25V	チップ積層セラコン	C2,8,11,15,18,23,43,46		
					47,50,58,59,61-65,68,		
	VD499400	CHIP MULTILAYER CERAMIC CAP	0.1uF 25V	チップ積層セラコン	70-72,74,75,78,80-87,		
					106-108,122,123,259,		
	VD499400	CHIP MULTILAYER CERAMIC CAP	0.1uF 25V	チップ積層セラコン	128-131,266,267,274,		
					295,337,342,343,353,		
	VD499400	CHIP MULTILAYER CERAMIC CAP	0.1uF 25V	チップ積層セラコン	358,361,502,507-514		
	VD499400	CHIP MULTILAYER CERAMIC CAP	0.1uF 25V	チップ積層セラコン	C518,519,520		
	VH619500	ELECTROLYTIC CAP	47uF 10V	ケミコン	C39,40,300,301,356,362		
					368,505,506		
	VH619600	ELECTROLYTIC CAP	100uF 10V	ケミコン	C57,60		
	VH619700	ELECTROLYTIC CAP	220uF 10V	ケミコン	C327,328		
	VH620500	ELECTROLYTIC CAP	10uF 25V	ケミコン	C69,218,219,237,255,		
					279,280,292,294,315,		
	VH620500	ELECTROLYTIC CAP	10uF 25V	ケミコン	341,364		

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description			部品名	Remarks	Markets	ランク
	VH621700	ELECTROLYTIC CAP	1uF	50V	ケミコン	C201,202,282,319,340, 347,350,517		
	VH621800	ELECTROLYTIC CAP	2.2uF	50V	ケミコン	C115,116		
	VH622000	ELECTROLYTIC CAP	4.7uF	50V	ケミコン	C25,32,367		
	Vi841400	ELECTROLYTIC CAP	1000uF	6.3V	ケミコン	C329,338		
	Vi841700	ELECTROLYTIC CAP	47uF	10V	ケミコン	C88,89,92-95,104,121, 124,204,206,208,209,		
	Vi841700	ELECTROLYTIC CAP	47uF	10V	ケミコン	211,222,223,226,227		
	Vi841800	ELECTROLYTIC CAP	100uF	10V	ケミコン	C73,126,127		
	Vi842600	ELECTROLYTIC CAP	100uF	16V	ケミコン	C117		
	Vi843100	ELECTROLYTIC CAP	10uF	25V	ケミコン	C114,118,119,234		
	Vi844500	ELECTROLYTIC CAP	0.1uF	50V	ケミコン	C253,254,257,258,260, 261,264,265,268,269,		
	Vi844500	ELECTROLYTIC CAP	0.1uF	50V	ケミコン	272,273,286		
	Vi844700	ELECTROLYTIC CAP	0.33uF	50V	ケミコン	C284		
	Vi844800	ELECTROLYTIC CAP	0.47uF	50V	ケミコン	C501,503		
	Vi844900	ELECTROLYTIC CAP	1uF	50V	ケミコン	C203,221,224,225,228		
	Vi845000	ELECTROLYTIC CAP	2.2uF	50V	ケミコン	C53,56		
	Vi845200	ELECTROLYTIC CAP	4.7uF	50V	ケミコン	C27,30		
	VK180500	ELECTROLYTIC CAP	2200uF	16V	ケミコン	C302		
	VK512800	ELECTROLYTIC CAP	470uF	16V	ケミコン	C1,3		
	FZ005410	ELECTROLYTIC CAP	100uF	6.3V	ケミコン	C66		
	VL920000	ELECTROLYTIC CAP	10000uF	16V	ケミコン	C515,516		
	VE632800	ELECTROLYTIC CAP	0.047uF	5.5V	ゴールドキャパシタ	C504		
	VE017100	ELECTROLYTIC CAP	47uF	10V	ケミコン	C26,31,51,52,76,98,110 111,296,299		
	VE018300	ELECTROLYTIC CAP	10uF	25V	ケミコン	C4-7,239,244,245,250, 256,262,263,270,271,		
	VE018300	ELECTROLYTIC CAP	10uF	25V	ケミコン	278,305,307,310,311, 314		
	VB109600	COIL	220uH	EL0606RA	固定コイル	L1		
	VB115600	COIL	15uH	EL0606RA	固定コイル	L201,202		
	RD253220	CHIP RESISTOR	2.2Ω	1/10W	チップ抵抗	R1,431		
	RD258110	CHIP RESISTOR	110KΩ	1/10W	チップ抵抗	R303		
	RD258180	CHIP RESISTOR	180KΩ	1/10W	チップ抵抗	R202,204,206,232,236, 238,242		
	RD258220	CHIP RESISTOR	220KΩ	1/10W	チップ抵抗	R408,426,437		
	RD258220	CHIP RESISTOR	220KΩ	1/10W	チップ抵抗	R228		
	RD258470	CHIP RESISTOR	470KΩ	1/10W	チップ抵抗	R91,201,203,205,231, 235,237,241,435		
	RD258560	CHIP RESISTOR	560KΩ	1/10W	チップ抵抗	R65,67		
	RD258820	CHIP RESISTOR	820KΩ	1/10W	チップ抵抗	R230,444		
	RD259100	CHIP RESISTOR	1MΩ	1/10W	チップ抵抗	R19,21,48,119,120,255, 49,68,261,263,264,266,		
	RD259100	CHIP RESISTOR	1MΩ	1/10W	チップ抵抗	271,273,274,276,292, 280-288,295,298,301,		
	RD259100	CHIP RESISTOR	1MΩ	1/10W	チップ抵抗	304,372,373,506		
	Vi190100	CHIP METAL FILM RESISTOR	10Ω	1/16W	チップ金被抵抗	R39,41,69		
	Vi191700	CHIP METAL FILM RESISTOR	47Ω	1/16W	チップ金被抵抗	R5,6,38,40		
	Vi192100	CHIP METAL FILM RESISTOR	68Ω	1/16W	チップ金被抵抗	R391-393,401-403		

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description			部品名	Remarks	Markets	ランク
	Vi192200	CHIP METAL FILM RESISTOR	75Ω	1/16W	チップ金被抵抗	R378,381,382,385,390, 413		
	Vi192500	CHIP METAL FILM RESISTOR	100Ω	1/16W	チップ金被抵抗	R46,51,52,61,313,350, 417		
	Vi193300	CHIP METAL FILM RESISTOR	220Ω	1/16W	チップ金被抵抗	R318,352,355,356,358,		
	Vi193300	CHIP METAL FILM RESISTOR	220Ω	1/16W	チップ金被抵抗	360,363,364,367,416, 520		
	Vi193700	CHIP METAL FILM RESISTOR	330Ω	1/16W	チップ金被抵抗	R314,317,335,336,421		
	Vi193900	CHIP METAL FILM RESISTOR	390Ω	1/16W	チップ金被抵抗	R441		
	Vi194100	CHIP METAL FILM RESISTOR	470Ω	1/16W	チップ金被抵抗	R216-222,227,233,234,		
	Vi194100	CHIP METAL FILM RESISTOR	470Ω	1/16W	チップ金被抵抗	239,240,321,328,374, 375,507,511,519		
	Vi194300	CHIP METAL FILM RESISTOR	560Ω	1/16W	チップ金被抵抗	R322,327		
	Vi194700	CHIP METAL FILM RESISTOR	820Ω	1/16W	チップ金被抵抗	R212,213,256		
	Vi194900	CHIP METAL FILM RESISTOR	1KΩ	1/16W	チップ金被抵抗	R293,296,299,302,305,		
	Vi194900	CHIP METAL FILM RESISTOR	1KΩ	1/16W	チップ金被抵抗	331,333,338,339,342, 343,383,440,503,509		
	Vi195300	CHIP METAL FILM RESISTOR	1.5KΩ	1/16W	チップ金被抵抗	R513		
	Vi195700	CHIP METAL FILM RESISTOR	2.2KΩ	1/16W	チップ金被抵抗	R311,312		
	Vi195900	CHIP METAL FILM RESISTOR	2.7KΩ	1/16W	チップ金被抵抗	R30,35,289,306,504,508		
	Vi196000	CHIP METAL FILM RESISTOR	3KΩ	1/16W	チップ金被抵抗	R249,250		
	Vi196100	CHIP METAL FILM RESISTOR	3.3KΩ	1/16W	チップ金被抵抗	R109,117,223,226,432		
	Vi196400	CHIP METAL FILM RESISTOR	3.9KΩ	1/16W	チップ金被抵抗	R430		
	Vi196600	CHIP METAL FILM RESISTOR	4.7KΩ	1/16W	チップ金被抵抗	R4,7,36,37,53,60,84,86 87,211,214,251-254,257		
	Vi196600	CHIP METAL FILM RESISTOR	4.7KΩ	1/16W	チップ金被抵抗	,348,349,400,429,505, 514,518		
	Vi196800	CHIP METAL FILM RESISTOR	5.6KΩ	1/16W	チップ金被抵抗	R501,502		
	Vi197200	CHIP METAL FILM RESISTOR	8.2KΩ	1/16W	チップ金被抵抗	R11,12,15,16,433		
	Vi197400	CHIP METAL FILM RESISTOR	10KΩ	1/16W	チップ金被抵抗	R2,3,8-10,13,14,17,20,		
	Vi197400	CHIP METAL FILM RESISTOR	10KΩ	1/16W	チップ金被抵抗	22,31,34,47,50,54-59, 62-64,66,70-77,79,83, 85,88,89,92,94-97,110,		
	Vi197400	CHIP METAL FILM RESISTOR	10KΩ	1/16W	チップ金被抵抗	215,262,265,272,275, 319,323,326,353,354,		
	Vi197400	CHIP METAL FILM RESISTOR	10KΩ	1/16W	チップ金被抵抗	359,361,362,365,366, 369,379,384,386,410,		
	Vi197400	CHIP METAL FILM RESISTOR	10KΩ	1/16W	チップ金被抵抗	420,439,442,		
	Vi197500	CHIP METAL FILM RESISTOR	11KΩ	1/16W	チップ金被抵抗	R24-29,81,82,99		
	Vi197600	CHIP METAL FILM RESISTOR	12KΩ	1/16W	チップ金被抵抗	R42-45		
	Vi197700	CHIP METAL FILM RESISTOR	13KΩ	1/16W	チップ金被抵抗	R90,93,104,107,108,121 122		
	Vi197800	CHIP METAL FILM RESISTOR	15KΩ	1/16W	チップ金被抵抗	R78,259,260,267-270, 277,278,407,414,418,		
	Vi197800	CHIP METAL FILM RESISTOR	15KΩ	1/16W	チップ金被抵抗	436		
	Vi197900	CHIP METAL FILM RESISTOR	16KΩ	1/16W	チップ金被抵抗	R114		
	Vi198000	CHIP METAL FILM RESISTOR	18KΩ	1/16W	チップ金被抵抗	R422		
	Vi198100	CHIP METAL FILM RESISTOR	20KΩ	1/16W	チップ金被抵抗	R111,112		
	Vi198200	CHIP METAL FILM RESISTOR	22KΩ	1/16W	チップ金被抵抗	R332,334,337,340,341, 344		

※New Parts (新規部品)　　ランク：Japan only

Ref. NO.	PART NO.	Description			部品名	Remarks	Markets	ランク
	Vi198400	CHIP METAL FILM RESISTOR	27KΩ	1/16W	チップ金被抵抗	R113,115,116		
	Vi198600	CHIP METAL FILM RESISTOR	33KΩ	1/16W	チップ金被抵抗	R258,423-425,438		
	Vi199000	CHIP METAL FILM RESISTOR	47KΩ	1/16W	チップ金被抵抗	R18,23,207-210,315,316 320,419		
	Vi199400	CHIP METAL FILM RESISTOR	68KΩ	1/16W	チップ金被抵抗	R415		
	Vi199500	CHIP METAL FILM RESISTOR	75KΩ	1/16W	チップ金被抵抗	R229,291,294,297,443		
	Vi199900	CHIP METAL FILM RESISTOR	91KΩ	1/16W	チップ金被抵抗	R300		
	Vi200000	CHIP METAL FILM RESISTOR	100KΩ	1/16W	チップ金被抵抗	R32,33,80,98,105,106, 224,225,290,347,351,		
	Vi200000	CHIP METAL FILM RESISTOR	100KΩ	1/16W	チップ金被抵抗	398,399,409,411,427, 428,510,512		
	HL325120	METAL OXIDE RESISTOR	120Ω	2W	酸化金属被膜抵抗	R515-517,521-524		
	HV453100	FLAME PROOF CARBON RESISTOR	1Ω	1/4W	不燃化カーボン抵抗	R100,101,118		
	HV453330	FLAME PROOF CARBON RESISTOR	3.3Ω	1/4W	不燃化カーボン抵抗	R102,103,376,377		
	XB247301	IC	uPC4570HA		IC	IC2,6-8,11-15		
	XB248A00	IC	M5238L		IC	IC9,10		
	XB496A00	IC	M5238FP		IC	IC3,16		
	XE322001	IC	NJM2068S-D		IC	IC1		
	XE518A00	IC	UPC4574G2		IC	IC217		
	XF291A00	IC	uPC4570G2		IC	IC4,5,17,18,204-208, 202,214,216		
	XF494A00	IC	LB1641		IC	IC504		
	Xi109A00	IC	MC14576A		IC	IC222,227		
	XJ553A00	IC	NJM2068MD		IC	IC201,203,209,210		
	XJ757A00	IC	NJM78L05A-T3		IC	IC503		
	XA507A00	IC	AN78N05		IC	IC26		
	XG758A00	IC	LC7823N		IC	IC21		
	XB736A00	IC	uPD4053BG		IC	IC23,31,33,220,221		
	XE520A00	IC	uPD74HC00G-T1		IC	IC19		
	XE819A00	IC	uPD74HC04G-T1		IC	IC20,224		
	XE821A00	IC	uPD74HC74G		IC	IC28		
	XG552A00	IC	UPD4069UBG		IC	IC225		
	XG535A00	IC	uPD74HCU04G		IC	IC501		
	Xi068A00	IC	UPD74HC02G-T1		IC	IC502		
	XJ521B00	IC	HD6433248R05P		IC	IC505		
	XG874A00	IC	HM65256BLP-10		IC	IC34		
	XB637A00	IC	PCM56P		IC	IC24,25		
	XD132001	IC	M50455-060SP		IC	IC223		
	XE536001	IC	LC7535		IC	IC211-213		
	Xi112A00	IC	AK5339		IC	IC22		
	Xi113A00	IC	LC7522		IC	IC218		
	XE449A00	IC	YM3413		IC	IC29		
	XE862001	IC	YM3422		IC	IC30		
	Xi022A00	IC	YSS203(HLDSP)		IC	IC27		
	VJ787100	SLIDE SWITCH	SSSF12175A		スライドSW	SW201-203		
	VG392900	TACT SWITCH	SKHVAA		タクトSW	SW501-504		
	KA804550	PUSH SWITCH			プッシュSW	SW505	J,U,C,A,B	
	Vi439700	PIN JACK	2P		ピンジャック	PJ204		
	VH734000	PIN JACK	2P		ピンジャック	PJ203		
	VG828000	PIN JACK	2P		ピンジャック	PJ206		

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
※	VM851800	PIN JACK	6P	ピンジャック	PJ201,202		
	Vi234500	S-VIDEO CONNECTOR	2P	Sコネクター	JK201		
	LB918020	CONNECTOR	XH i-TYPE 2P TE	ベース付ポスト	CB201		
	Vi378000	CONNECTOR	MQ 10P TE	ベースピン	CB101		
	VD004500	CONNECTOR	PH i-TYPE 2P TE	ベースピン	CB203,206,209,503,507		
	VD004600	CONNECTOR	PH i-TYPE 3P TE	ベースピン	CB202,204,205,207,208, 211,212,502		
	VD004700	CONNECTOR	PH i-TYPE 4P TE	ベースピン	CB504		
	VD004800	CONNECTOR	PH i-TYPE 5P TE	ベースピン	CB506		
	VD004900	CONNECTOR	PH i-TYPE 6P TE	ベースピン	CB210		
	VD005000	CONNECTOR	PH i-TYPE 7P TE	ベースピン	CB505		
	VD005300	CONNECTOR	PH i-TYPE 10P TE	ベースピン	CB501		
	VD005200	CONNECTOR	PH i-TYPE 9P TE	ベースピン	CB508		
	VD004600	CONNECTOR	3P	ベースピン	CB510	R	
	VD004500	CONNECTOR	2P	ベースピン	CB509	R	
	VD004700	CONNECTOR	4P	ベースピン	CB511	G	
※	VN080600	NOISE FILTER		ノイズフィルター	FI501		
	VK175000	FILTER	TFB-2D 18KHz	LCフィルター	FI1,2		
	VD980900	CRYSTAL RESONATOR	14.3181MHz	水晶振動子	XL201	J,U,C,R	
	VF066800	CRYSTAL RESONATOR	17.7MHz	水晶振動子	XL201	A,B,G	
	VK175200	CERAMIC RESONATOR	11.28MHz	セラミック振動子	XL501		
	VJ784500	POTENTIOMETER	B10KΩ	ロータリーVR	VR201		
	iA093320	TRANSISTOR	2SA933S Q,R	トランジスタ	Q204,205,501		
	iC053540	TRANSISTOR	2SC535 A,B,C	トランジスタ	Q221,222		
	iC260320	TRANSISTOR	2SC2603 E,F	トランジスタ	Q201,216,217,219,223		
	VK432900	TRANSISTOR	2SD1915(F) S,T	トランジスタ	Q202,203,206,209-214, 207		
	iD040040	TRANSISTOR	2SD400 E,F	トランジスタ	Q504		
	VH964100	DIGITAL TRANSISTOR	DTA143ES	デジタルトランジスタ	Q503		
	VG722000	DIGITAL TRANSISTOR	DTC144ES	デジタルトランジスタ	Q502		
	iF004600	DIODE	1SS133	ダイオード	D7,10,11,204-208,501, 503-506		
	VH801600	DIODE	1SR139-100	ダイオード	D203		
	VD450400	DIODE ARRAY	1SS233	ダイオードアレイ	D1,3,5		
	VD450500	DIODE ARRAY	1SS235	ダイオードアレイ	D2,4,6		
	VG436700	ZENER DIODE	MTZJ4.3A	ツェナーダイオード	D507		
	VG437400	ZENER DIODE	MTZJ5.1B	ツェナーダイオード	D8,9		
	VG438400	ZENER DIODE	MTZJ6.8C	ツェナーダイオード	D201,202,502		
	RD250000	CHIP JUMPER	0Ω 1/10W	チップジャンパー	J300-310		
	RD250000	CHIP JUMPER	0Ω 1/10W	チップジャンパー	J311	J,U,C	
	RD250000	CHIP JUMPER	0Ω 1/10W	チップジャンパー	J371	A,B,C	
	BB069510	GROUND METAL		ランド金具			
	BB066290	WASHER,EARTH		アースワッシャー			
	VB966900	PIN	IMSA-6024	スタイルピン			
※	VL367800	MAIN CIRCUIT BOARD		メインシート		U,C	
※	VL367900	MAIN CIRCUIT BOARD		メインシート		R	
※	VL368000	MAIN CIRCUIT BOARD		メインシート		A,B	

※New Parts (新規部品)

ランク : Japan only

Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク	
*	VL368100	MAIN CIRCUIT BOARD		メインシート		G		
	FA153150	MYLAR FILM CAP	1500pF 50V	マイラーコン	C847,852			
	FA154330	MYLAR FILM CAP	0.033uF 50V	マイラーコン	C816,819,824,827			
	FA154470	MYLAR FILM CAP	0.047uF 50V	マイラーコン	C833-836			
	UT452100	POLYPROPYLENE FILM CAP	100pF 100V	ＰＰコン	C806,808,810,812,840, 842			
	UT454100	POLYPROPYLENE FILM CAP	0.01uF 100V	ＰＰコン	C877	G		
	UT464470	POLYPROPYLENE FILM CAP	0.047uF 100V	ＰＰコン	C859,860			
	Vi503200	POLYPROPYLENE FILM CAP	0.01uF 100V	ＰＰコン	C866,867,873-876	G		
	Fi554100	CERAMIC CAP	0.01uF 50V	セラコン	C868-872	U,C,G		
	VH619500	ELECTROLYTIC CAP	47uF 10V	ケミコン	C807,809,811,813			
	VH619600	ELECTROLYTIC CAP	100uF 10V	ケミコン	C831,832			
	VH620500	ELECTROLYTIC CAP	10uF 25V	ケミコン	C837,838			
	VH621700	ELECTROLYTIC CAP	1uF 50V	ケミコン	C814			
	Vi841700	ELECTROLYTIC CAP	47uF 10V	ケミコン	C845,850			
	Vi843100	ELECTROLYTIC CAP	10uF 25V	ケミコン	C843,848			
*	VF627400	ELECTROLYTIC CAP	2.2uF 50V	ケミコン	C801,802,804,805			
	Vi845300	ELECTROLYTIC CAP	10uF 50V	ケミコン	C803,839,841			
	Vi845600	ELECTROLYTIC CAP	47uF 50V	ケミコン	C846,851,855,858,862, 864			
	FH116100	ELECTROLYTIC CAP	1uF 50V	ＢＰケミコン	C865			
	FU451150	MICA CAP	15pF 500V	マイカコン	C844,849			
	FU451180	MICA CAP	18pF 500V	マイカコン	C815,818,823,826			
	FU451470	MICA CAP	47pF 500V	マイカコン	C817,820,825,828			
	FU352100	MICA CAP	100pF 500V	マイカコン	C853,854,856,857			
	VC401100	OUTPUT COIL	1.5uH	空芯コイル	L801-804			
	VC664100	COIL	0.95uH	空芯コイル	L805,806			
	HV753100	FLAME PROOF CARBON RESISTOR	1Ω 1/4W	不燃化カーボン抵抗	R939,940			⚠
*	HV753220	FLAME PROOF CARBON RESISTOR	2.2Ω 1/4W	不燃化カーボン抵抗	R932,933	G		⚠
	HV453470	FLAME PROOF CARBON RESISTOR	4.7Ω 1/4W	不燃化カーボン抵抗	R852,854,855,857,858, 860,861,863,893,895,			⚠
	HV453470	FLAME PROOF CARBON RESISTOR	4.7Ω 1/4W	不燃化カーボン抵抗	900,902,910,915,916, 918			⚠ ⚠ ⚠
	HV455100	FLAME PROOF CARBON RESISTOR	100Ω 1/4W	不燃化カーボン抵抗	R896,903			⚠
	HV455150	FLAME PROOF CARBON RESISTOR	150Ω 1/4W	不燃化カーボン抵抗	R892,899			⚠
	HV455220	FLAME PROOF CARBON RESISTOR	220Ω 1/4W	不燃化カーボン抵抗	R883,884,890,891			⚠
	HV455680	FLAME PROOF CARBON RESISTOR	680Ω 1/4W	不燃化カーボン抵抗	R897,904			⚠
	HV456100	FLAME PROOF CARBON RESISTOR	1KΩ 1/4W	不燃化カーボン抵抗	R831,836,841,846,909, 914			⚠ ⚠
	HV456270	FLAME PROOF CARBON RESISTOR	2.7KΩ 1/4W	不燃化カーボン抵抗	R829,834,839,844			
	HV456470	FLAME PROOF CARBON RESISTOR	4.7KΩ 1/4W	不燃化カーボン抵抗	R907,912			⚠
	Vi507000	METAL FILM RESISTOR	100Ω 1/4W	金属被膜抵抗	R801-804			
	Vi507800	METAL FILM RESISTOR	220Ω 1/4W	金属被膜抵抗	R870,872			
	Vi511000	METAL FILM RESISTOR	4.7KΩ 1/4W	金属被膜抵抗	R924-931			
	Vi511800	METAL FILM RESISTOR	10KΩ 1/4W	金属被膜抵抗	R809,819			
	Vi512700	METAL FILM RESISTOR	22KΩ 1/4W	金属被膜抵抗	R894,901			
	Vi513100	METAL FILM RESISTOR	33KΩ 1/4W	金属被膜抵抗	R817,818,820,821,880, 887			
	HL312220	MATAL OXIDE FILM RESISTOR	0.22Ω 1W	酸金抵抗	R830,832,835,837,840, 842,845,847			⚠ ⚠

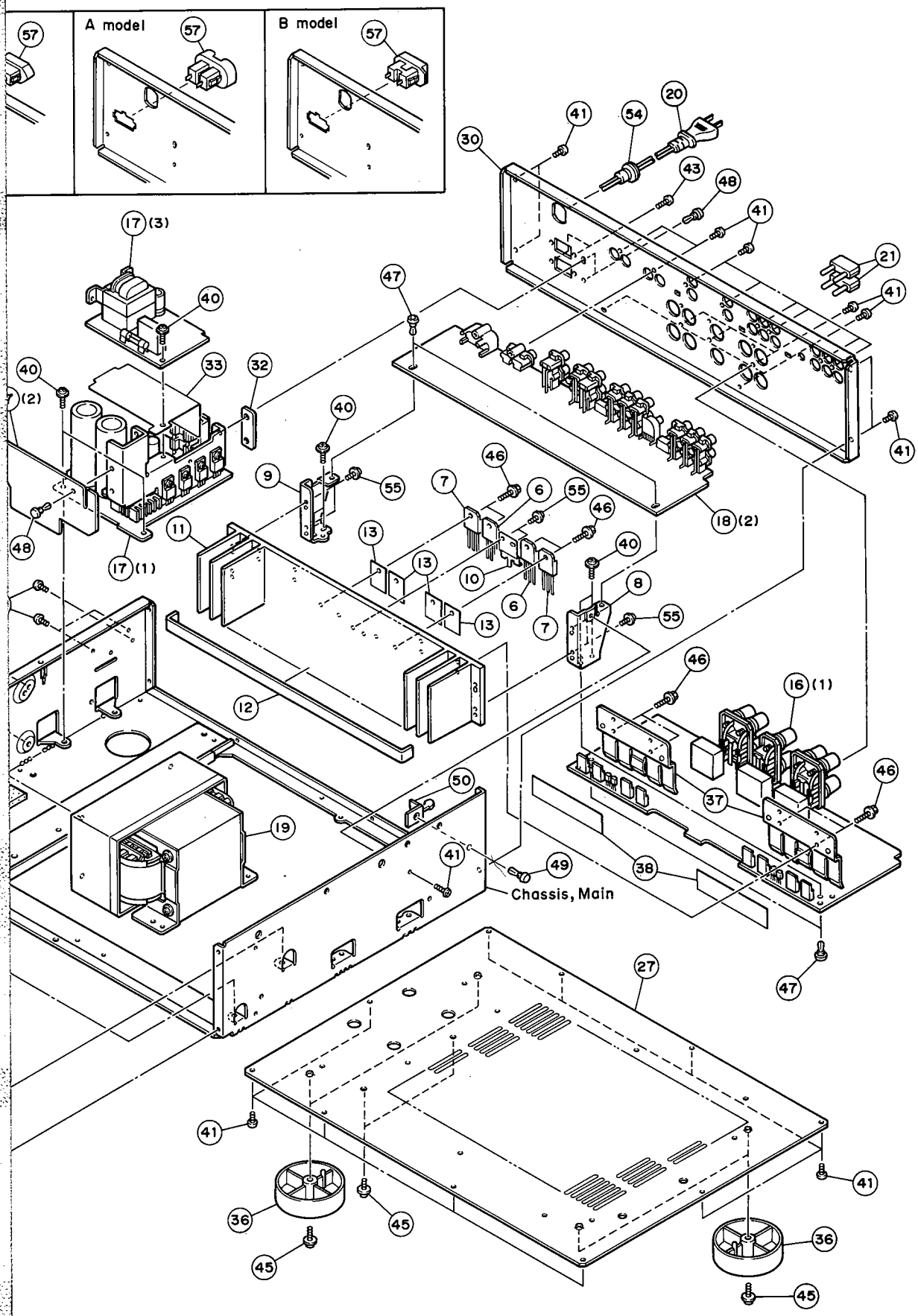
※New Parts（新規部品）

ランク：Japan only

Ref. NO.	PART NO.	Description		部品名		Remarks	Markets	ランク	
	HL325150	METAL OXIDE RESISTOR	150Ω 2W	酸化金属	ズドポリコン	C704			
	HL325330	METAL OXIDE RESISTOR	330Ω 2W	酸化金属	レンコン	C705-710			
	VJ787600	METAL PLATE RESISTOR	MPC725 0.22+0.22	金属板		C702			
	VK188000	FUSABLE RESISTOR	150Ω 1/4W	ヒュー	キラーコン	C701			⚠
	VK188400	FUSABLE RESISTOR	330Ω 1/4W	ヒュー		C717,718			
	VK189100	FUSABLE RESISTOR	1.2KΩ 1/4W	ヒュー		C713-716			
	VE009800	FUSABLE RESISTOR	1.5KΩ 1/4W	ヒュー		C719,720			
	VK189400	FUSABLE RESISTOR	2.7KΩ 1/4W	ヒュー		C703			
	iG067100	IC	uPC1225H	IC	ケミコン	C711,712			
	iG076800	IC	NJM4558S	IC	ンス	T701	U,C		⚠
	VF926500	LIGHT DETECTING MODULE	GP1U501X	リモコ	ンス	T701	R		⚠
	VJ787100	SLIDE SWITCH		スライ	ンス	T701	A,B		⚠
	VK438300	RELAY	DH24D2-0T(M)-II	リレー	ンス	T701	G		⚠
	VC278600	RELAY	G5R-2232P DC24V	リレー	ーボン抵抗	R710,711			⚠
	VF018400	SPEAKER TERMINAL	4P	スピー	被膜抵抗	R708,709,707			
	VF824000	SPEAKER TERMINAL	4P	スピー		IC701			⚠
※	VM782400	SPEAKER TERMINAL	2P	スピー		IC702			⚠
※	VM782300	SPEAKER TERMINAL	2P	スピー		IC703			⚠
	VD004800	CONNECTOR	PH i-TYPE 5P TE	ベース		IC704			⚠
	VD005300	CONNECTOR	PH i-TYPE 10P TE	ベース	スイッチ	SW701	R,G		
	Vi378800	CONNECTOR	MQ 10P	コネク		F701	J,R		⚠
	VJ692800	PRE-SET POTENTIOMETER	B470Ω	半固定		F701	U,C		⚠
	VJ693000	PRE-SET POTENTIOMETER	B1KΩ	半固定		F701	A,B,G		⚠
	VL314200	POTENTIOMETER WITH MOTOR	100KΩx7	7連モ		F702	R		⚠
	VK175100	FILTER	PFB-2	LCフ		F702	G		⚠
	iA097000	TRANSISTOR	2SA970 GR,BL	トラン		RY701	J,U,C,R		⚠
						RY701	A,B,G		⚠
	iB056020	TRANSISTOR	2SB560 E,F	トラン	グ端子	TE703			
	iC174020	TRANSISTOR	2SC1740S R,S	トラン	グ端子	TE707	R,G		
	iC174020	TRANSISTOR	2SC1740S R,S	トラン	グ端子	TE706	A,B,G		
	iC181511	TRANSISTOR	2SC1815 Y	トラン	グ端子	TE704,705			
	iC224000	TRANSISTOR	2SC2240 GR,BL	トラン	グ端子	TE702			
	iC224030	TRANSISTOR	2SC2240 GR,BL	トラン	トレット	TE701	J,U,C,R		⚠
					ン	CB701	R		
	iD043820	TRANSISTOR	2SD438 E,F	トラン	スタ	Q701			
	iX619590	TRANSISTOR	2SA1726 O,P,Y	トラン	スタ	Q702			
	iX619600	TRANSISTOR	2SC4512 O,P,Y	トラン	ド	D702			
	iF004600	DIODE	1SS133	ダイオ	ド	D704-707			⚠
	VF402500	LED	SLR-34DC3H3 (ORA)	LED	ド	D701,708-710			⚠
	BB071360	SCREW TERMINAL	8.3x13	ネジ端	ダイオード	D712	R		
	VB966900	PIN	IMSA-6024	スタイ	ドスタック	D703			⚠
	VL852700	RADIATOR		ラジエ		D713	G		
	EP600130	BIND HEAD TAPPING SCREW-B	3x6 ZMC2-Y	バイン	ホルダーピン				
					ピン				
					具				
※	VM811000	POWER CIRCUIT BOARD		電源シ	Bタイトネジ				
※	VM811100	POWER CIRCUIT BOARD		電源シ					
※	VM811200	POWER CIRCUIT BOARD		電源シ					
※	VM811300	POWER CIRCUIT BOARD		電源シ					

※New Parts (新規部品)

ランク : Japan only


A model
B model
Chassis, Main

■ MECHANICAL PARTS Note) Ø : Diameter

	Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
*	1	VM846400	PANEL ASS'y		パネルASS'Y	BL	UCRAB	
*	1	VM846500	PANEL ASS'y		パネルASS'Y	BL	G	
*	1	VM846600	PANEL ASS'y		パネルASS'Y	T	UCRAB	
*	1	VM846700	PANEL ASS'y		パネルASS'Y	T	G	
	2	VK421500	LCD		LCD表示器			
	3	VL370000	PAD	LED L	パッド			
	4	VL370100	PAD	LED S	パッド			
	5	VC298900	BIND HEAD B-TITE SCREW	2.6x6 FCRM3-BL	バインドBタイトネジ			
	6	iX603560	TRANSISTOR	2SA1264 O,R	トランジスタ	Q844,847		⚠
	7	iX603570	TRANSISTOR	2SC3181 O,R	トランジスタ	Q842,845		⚠
	8	VL351500	SUPPORT	RADIATOR L	サポート			
	9	VL351600	SUPPORT	RADIATOR R	サポート			
	10	VL473400	TR. PUSHER		TRプッシャー			
*	11	VM763800	RADIATOR		ラジエータ			
	12	VL351300	DAMPER	F/N	ダンパー			
	13	VK195900	SHEET	19x24	シート			
*	16	VL367800	MAIN CIRCUIT BOARD		メインシート		UC	
*	16	VL367900	MAIN CIRCUIT BOARD		メインシート		R	
*	16	VL368000	MAIN CIRCUIT BOARD		メインシート		AB	
*	16	VL368100	MAIN CIRCUIT BOARD		メインシート		G	
*	17	VM811000	POWER CIRCUIT BOARD		電源シート		UC	
*	17	VM811100	POWER CIRCUIT BOARD		電源シート		R	
*	17	VM811200	POWER CIRCUIT BOARD		電源シート		AB	
*	17	VM811300	POWER CIRCUIT BOARD		電源シート		G	
*	18	VL368300	DSP CIRCUIT BOARD		DSPシート		UC	
*	18	VL368400	DSP CIRCUIT BOARD		DSPシート		R	
*	18	VL368500	DSP CIRCUIT BOARD		DSPシート		AB	
*	18	VL368600	DSP CIRCUIT BOARD		DSPシート		G	
*	19	XK349A00	POWER TRANSFORMER		電源トランス		U	⚠
*	19	XK350A00	POWER TRANSFORMER		電源トランス		C	⚠
*	19	XK352A00	POWER TRANSFORMER		電源トランス		AB	⚠
*	19	XK353A00	POWER TRANSFORMER		電源トランス		G	⚠
*	19	XK351A00	POWER TRANSFORMER		電源トランス		R	⚠
	20	MG002220	POWER CORD	10A 125V	電源コード		UC	⚠
	20	MG001630	POWER CORD	7A 250V	電源コード		R	⚠
	20	MG002310	POWER CORD	7.5A 250V	電源コード		A	⚠
*	20	VK815400	POWER CORD	6A 250V	電源コード		B	⚠
	20	MG002320	POWER CORD	2.5A 250V	電源コード		G	⚠
	21	LB101890	SHORT PLUG		ショートプラグ			
	22	VA819100	BIND HEAD P-TYTE SCREW	3x6 FCM3-BL	バインドPタイトネジ			
	23	VL350000	TOP COVER		トップカバー	BL		
	23	VL350100	TOP COVER		トップカバー	T		
	24	VK863200	DAMPER	6/55	ダンパー			
	25	VK706800	DAMPER	TOP	ダンパー			
	26	VL852800	DAMPER		ダンパー/サイド			
	27	VL349900	BOTTOM COVER		ボトムカバー			
*	30	VL350800	REAR PANEL		リヤパネル		UC	
*	30	VL350900	REAR PANEL		リヤパネル		R	
*	30	VL351000	REAR PANEL		リヤパネル		AB	
*	30	VL351100	REAR PANEL		リヤパネル		G	

※New Parts (新規部品)

ランク : Japan only

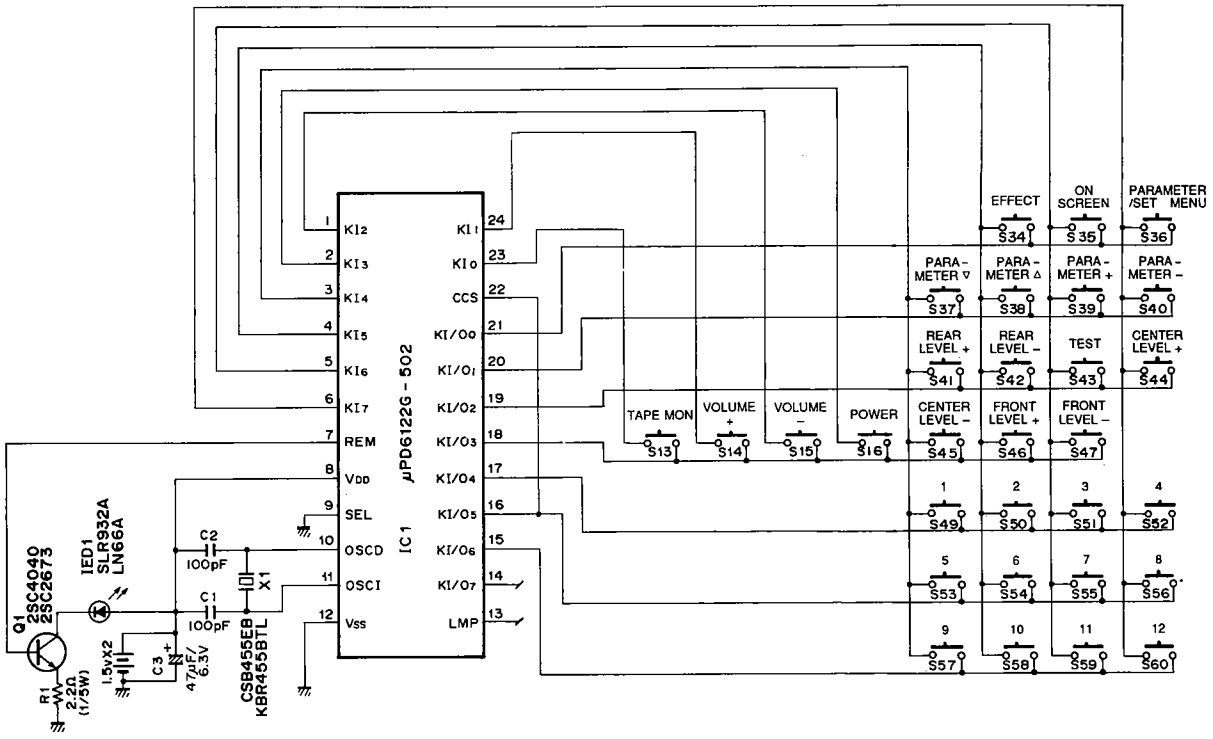
Ref. NO.	PART NO.	Description		部品名	Remarks	Markets	ランク
31	VL905600	SUPPORT		サポート／DSP			
32	VL550100	SHEET		シート			
33	VL550000	SHIELD PLATE		シールドプレート		JUCR	
33	VN415800	SHIELD PLATE		シールドプレート		ABG	
34	VK015100	KNOB		ノブ	BL		
34	VL864400	KNOB		ノブD45 LED	T		
35	VH841900	BUTTON	POWER	ボタン	BL		
35	VH842000	BUTTON	POWER	ボタン	T		
36	Vi615200	LEG		レッグ			
37	VL473300	SUPPORT	TR	サポート TR			
38	VK065100	SHEET	20x86	シート			
40	EK365080	BW HEAD TAPPING SCREW	3x8 ZMC2-BL	BWヘッドタッピングネジ			
41	EN301010	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	ボンディングBタイトネジ			
42	EG340090	BIND HEAD SCREW	4x8 FCM3-BL	バインド小ネジ			
43	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	バインドBタイトネジ			
44	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	バインド小ネジ			
45	EX600250	CUP B-TITE SCREW	3x10 FCRM3-BL	カップネジBタイト			
46	VK173200	SCREW, TRANSISTOR		スクリューTR			
47	CB605620	PLASTIC RIVET	No.1057	プラスチックリベット			
48	CB603240	PLASTIC RIVET	No.590	プラリスチックベット			
49	CB068880	PLASTIC RIVET	No.1027	プラスチックリベット			
50	CB091290	P.C.B SUPPORT	No.1645	基板サポート			
51	VM657200	CUSHION		クッション			
52	VH381800	CUSHION		クッション			
53	Vi449800	VOLTAGE SELECTOR		電圧切換器		R	⚠
54	CB620200	CORD STOPPER	CM-22C	コードストッパー		UC	
54	CB620190	CORD STOPPER	CM-22B	コードストッパー		RABG	
55	EX600090	CUP B-TITE SCREW	3x8 FCRM3-BL	カップネジBタイト			
56	EL300470	BW HEAD SCREW-S	4x8-10 FCM3-BL	BWヘッドSタイト	BL		
56	VH313200	BW HEAD SCREW-S	4x8-10 FNM3-BL	BWヘッドSタイト	T		
		ACCESSORIES		付属品			
	VL327600	REMOTE CONTROL TRANSMITTER	SBAK00320A J	リモコントランスミッター			
	CX617450	LID		電池蓋			
		DRY CELL	SUM-3,AA	マンガン電池			
	VB308200	PIN-PLUG CORD	1P 2.0m	ピンプラグコード			
	VG718700	PIN-PLUG CORD	2P 1.0m	ピンプラグコード			

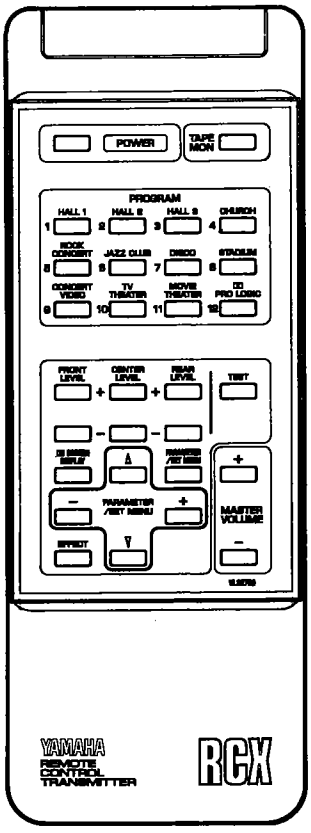
※New Parts（新規部品）

ランク：Japan only

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM

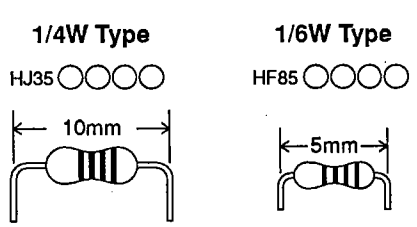




KEY No.	FUNCTION	DATA CODE								HEX CODE	
		D0	D1	D2	D3	D4	D5	D6	D7		
S13	TAPE MON	0	0	1	1	0	0	0	1	8	C
S14	VOLUME +	1	0	1	1	0	0	0	1	8	D
S15	VOLUME −	0	1	1	1	0	0	0	1	8	E
S16	POWER	1	1	1	1	0	0	0	1	8	F
S34	EFFECT	1	0	0	0	0	0	1	1	C	1
S35	ON SCREEN	0	1	0	0	0	0	1	1	C	2
S36	PARAMETER/SET MENU	1	1	0	0	0	0	1	1	C	3
S37	PARAMETER ▽	0	0	1	0	0	0	1	1	C	4
S38	PARAMETER △	1	0	1	0	0	0	1	1	C	5
S39	PARAMETER +	0	1	1	0	0	0	1	1	C	6
S40	PARAMETER −	1	1	1	0	0	0	1	1	C	7
S41	REAR LEVEL +	0	0	0	1	0	0	1	1	C	8
S42	REAR LEVEL −	1	0	0	1	0	0	1	1	C	9
S43	TEST	0	1	0	1	0	0	1	1	C	A
S44	CENTER LEVEL +	1	1	0	1	0	0	1	1	C	B
S45	CENTER LEVEL −	0	0	1	1	0	0	1	1	C	C
S46	FRONT LEVEL +	1	0	1	1	0	0	1	1	C	D
S47	FRONT LEVEL −	0	1	1	1	0	0	1	1	C	E
S49	1	0	0	0	0	1	0	1	1	D	0
S50	2	1	0	0	0	1	0	1	1	D	1
S51	3	0	1	0	0	1	0	1	1	D	2
S52	4	1	1	0	0	1	0	1	1	D	3
S53	5	0	0	1	0	1	0	1	1	D	4
S54	6	1	0	1	0	1	0	1	1	D	5
S55	7	0	1	1	0	1	0	1	1	D	6
S56	8	1	1	1	0	1	0	1	1	D	7
S57	9	0	0	0	1	1	0	1	1	D	8
S58	10	1	0	0	1	1	0	1	1	D	9
S59	11	0	1	0	1	1	0	1	1	D	A
S60	12	1	1	0	1	1	0	1	1	D	B
CUSTOM CODE C0 ~ C7		1	0	1	1	1	1	1	0	7	D

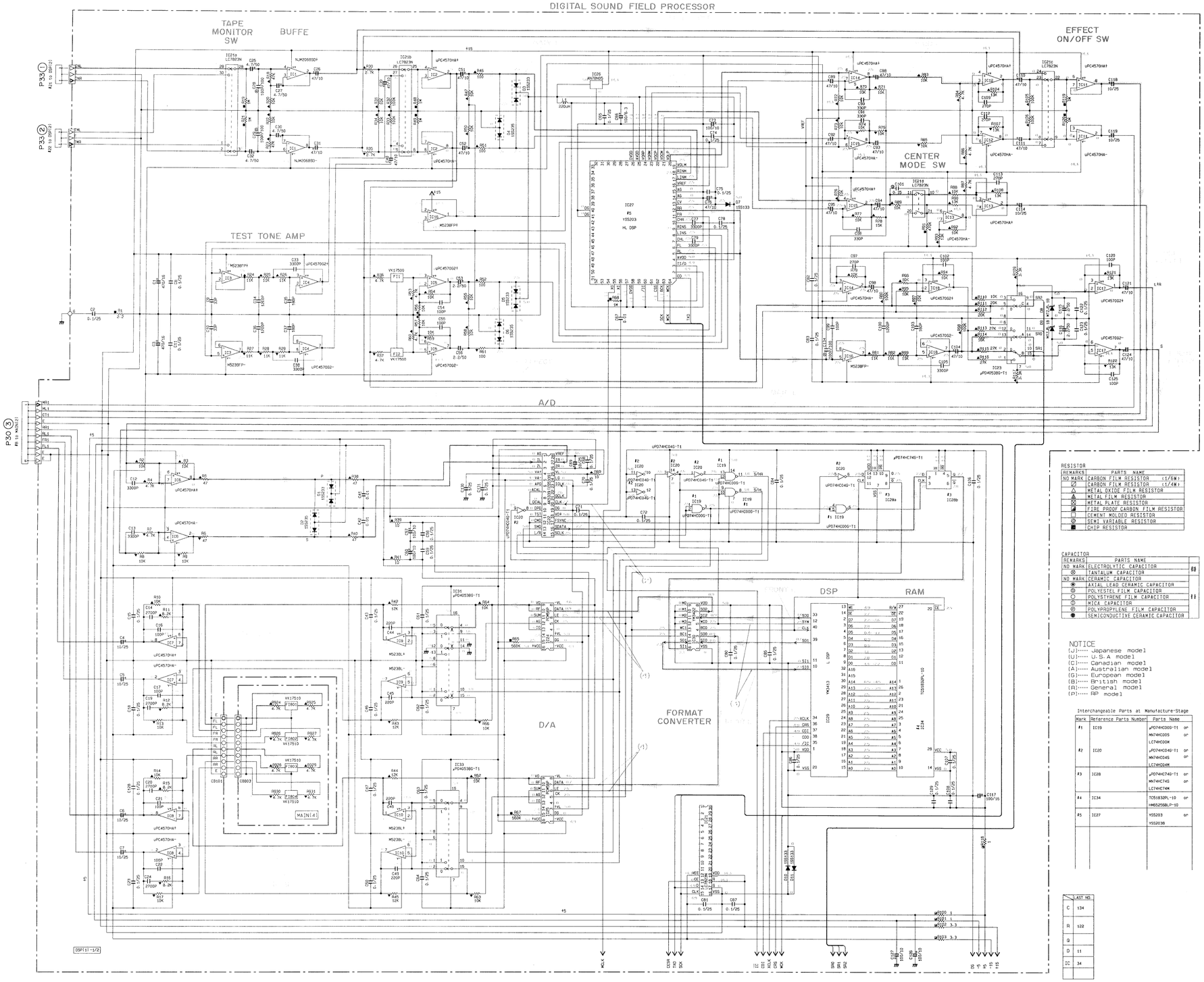
Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	12 KΩ	HJ35 7120	HF85 7120
1.8 Ω	HJ35 3180	*	15 KΩ	HJ35 7150	HF85 7150
2.2 Ω	HJ35 3220	HF85 3220	18 KΩ	HJ35 7180	HF85 7180
3.3 Ω	HJ35 3330	HF85 3330	22 KΩ	HJ35 7220	HF85 7220
4.7 Ω	HJ35 3470	HF85 3470	27 KΩ	HJ35 7270	HF85 7270
5.6 Ω	HJ35 3560	HF85 3560	33 KΩ	HJ35 7330	HF85 7330
10 Ω	HJ35 4100	HF85 4100	39 KΩ	HJ35 7390	HF85 7390
15 Ω	HJ35 4150	HF85 4150	47 KΩ	HJ35 7470	HF85 7470
22 Ω	HJ35 4220	HF85 4220	56 KΩ	HJ35 7560	HF85 7560
27 Ω	HJ35 4270	HF85 4270	68 KΩ	HJ35 7680	HF85 7680
33 Ω	HJ35 4330	HF85 4330	82 KΩ	HJ35 7820	HF85 7820
39 Ω	HJ35 4390	HF85 4390	91 KΩ	HJ35 7910	HF85 7910
47 Ω	HJ35 4470	HF85 4470	100 KΩ	HJ35 8100	HF85 8100
56 Ω	HJ35 4560	HF85 4560	120 KΩ	HJ35 8120	HF85 8120
68 Ω	HJ35 4680	HF85 4680	150 KΩ	HJ35 8150	HF85 8150
82 Ω	HJ35 4820	HF85 4820	180 KΩ	HJ35 8180	HF85 8180
100 Ω	HJ35 5100	HF85 5100	220 KΩ	HJ35 8220	HF85 8220
110 Ω	HJ35 5110	HF85 5110	270 KΩ	HJ35 8270	HF85 8270
120 Ω	HJ35 5120	HF85 5120	330 KΩ	HJ35 8330	HF85 8330
150 Ω	HJ35 5150	HF85 5150	390 KΩ	HJ35 8390	HF85 8390
160 Ω	HJ35 5160	*	470 KΩ	HJ35 8470	HF85 8470
180 Ω	HJ35 5180	HF85 5180	560 KΩ	HJ35 8560	HF85 8560
220 Ω	HJ35 5220	HF85 5220	680 KΩ	HJ35 8680	HF85 8680
270 Ω	HJ35 5270	HF85 5270	820 KΩ	HJ35 8820	HF85 8820
330 Ω	HJ35 5330	HF85 5330	1.0 MΩ	HJ35 9100	HF85 9100
390 Ω	HJ35 5390	HF85 5390	1.2 MΩ	HJ35 9120	*
470 Ω	HJ35 5470	HF85 5470	1.5 MΩ	HJ35 9150	HF85 9150
510 Ω	*	HF85 5510	1.8 MΩ	HJ35 9180	HF85 9180
560 Ω	HJ35 5560	HF85 5560	2.2 MΩ	HJ35 9220	HF85 9220
680 Ω	HJ35 5680	HF85 5680	3.3 MΩ	HJ35 9330	HF85 9330
820 Ω	HJ35 5820	HF85 5820	3.9 MΩ	HJ35 9390	*
910 Ω	HJ35 5910	HF85 5910	4.7 MΩ	HJ35 9470	HF85 9470
1.0 KΩ	HJ35 6100	HF85 6100			
1.2 KΩ	HJ35 6120	HF85 6120			
1.5 KΩ	HJ35 6150	HF85 6150			
1.8 KΩ	HJ35 6180	HF85 6180			
2.0 KΩ	HJ35 6200	HF85 6200			
2.2 KΩ	HJ35 6220	HF85 6220			
2.4 KΩ	HJ35 6240	HF85 6240			
2.7 KΩ	HJ35 6270	HF85 6270			
3.0 KΩ	HJ35 6300	HF85 6300			
3.3 KΩ	HJ35 6330	HF85 6330			
3.6 KΩ	HJ35 6360	HF85 6360			
3.9 KΩ	HJ35 6390	HF85 6390			
4.7 KΩ	HJ35 6470	HF85 6470			
5.1 KΩ	HJ35 6510	HF85 6510			
5.6 KΩ	HJ35 6560	HF85 6560			
6.8 KΩ	HJ35 6680	HF85 6680			
8.2 KΩ	HJ35 6820	HF85 6820			
9.1 KΩ	HJ35 6910	HF85 6910			
10 KΩ	HJ35 7100	HF85 7100			

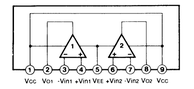


■ SCHEMATIC DIAGRAM (3) ..... DSP (1) 1/2

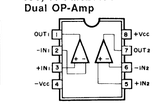
(Signal (3) WAVEFORM OF TEST POINT) (See page 29)



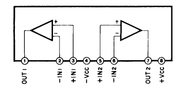
IC1 : NJM2068SD
IC2, 6–8, 11–15 : µPC4570HA
Dual OP-Amp



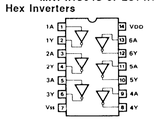
IC4, 5, 17, 18 : µPC4570G2
IC3, 16 : M5238FP
Dual OP-Amp



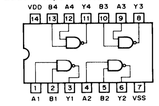
IC9, 10 : M5238L
Dual OP-Amp



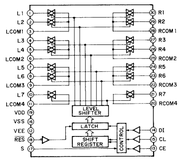
IC20 : µPD74HC04G-T1, MN74HC04S or LC74HC04M
Hex Inverters



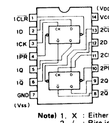
IC19 : µPD74HC00G-T1, MN74HC00S or LC74HC00M
Quad 2-Input NAND



IC21 : LC7823N
Analog Function Switch



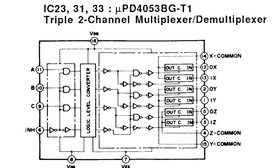
IC28 : µPD74HC74G-T1, MN74HC74S or LC74HC74M
Dual D-FFs with Preset and Clear



INPUTS				OUTPUTS	
PR	CLR	CK	D	Q	Q
L	H	×	×	H	L
H	L	×	×	L	H
L	L	×	×	H*	H*
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	↓	×	Q0	Q0

Note 1. X : Either "H" or "L"
2. ↑ : Rise in positive direction
3. Q0 : Q level before the input conditions in the table are established.
4. Q0 : Q level before the input conditions in the table are established.
5. H* : When the preset and clear are "L", Q and Q are "H" but when the preset and clear are made "H" simultaneously, the level of Q and Q can not be predicted.

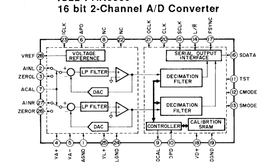
IC23, 31, 33 : µPD4053BG-T1
Triple 2-Channel Multiplexer/Demultiplexer



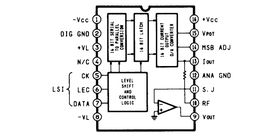
CONTROL INPUTS			"ON" CHANNEL
INHIBIT (Pin 6)	C (Pin 9)	B (Pin 10)	A (Pin 11)	0X (Pin 12), 0Y (Pin 2), 0Z (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NOTE

* : Don't Care

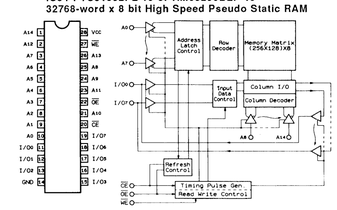
IC22 : AK5339
16 bit 2-Channel A/D Converter



IC24, 25 : PCM56P
D/A Converter



IC34 : TC51832PL-10 or HM65256BLP-10
32768-word x 8 bit High Speed Pseudo Static RAM



RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
☑	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	AXIAL LEAD CERAMIC CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
ⓜ	MICA CAPACITOR
◎	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

NOTICE
(J)····· Japanese model
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model
(P)····· PP model

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
#1	IC19	µPD74HC00G-T1 or MN74HC00S or
#2	IC20	µPD74HC04G-T1 or MN74HC04S or LC74HC04M
#3	IC28	µPD74HC74G-T1 or MN74HC74S or LC74HC74M
#4	IC34	TC51832PL-10 or HM65256BLP-10
#5	IC27	YSS203 or YSS203B

	LAST NO.
C	134
R	122
Q	
D	11
IC	34

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

AN78N05	†SS133 MTZJ5.1B	†SS233	†SS235	M5238L	M5238FP µPC4570G2	µPC4570HA NJM2068SD	µPD74HC00G-T1 MN74HC00S LC74HC00M µPD74HC04G-T1 MN74HC04S LC74HC04M µPD74HC74G-T1 MN74HC74S LC74HC74M	µPD4053BG-T1	PCM56P YM3422	TC51832PL-10 HM65256BLP-10 AK5339	LC7823N	YM3413	YSS203 YSS203B
1: INPUT 2: COMMON 3: OUTPUT	Anode Cathode												

* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

■ SCHEMATIC DIAGRAM (2) ..... DSP (1) 2/2 & POWER

Each voltage in this diagram is a voltage obtained when the test signal program has been started and its memory initialized.

①and⑦: WAVEFORM OF TEST POINT (See page 29)

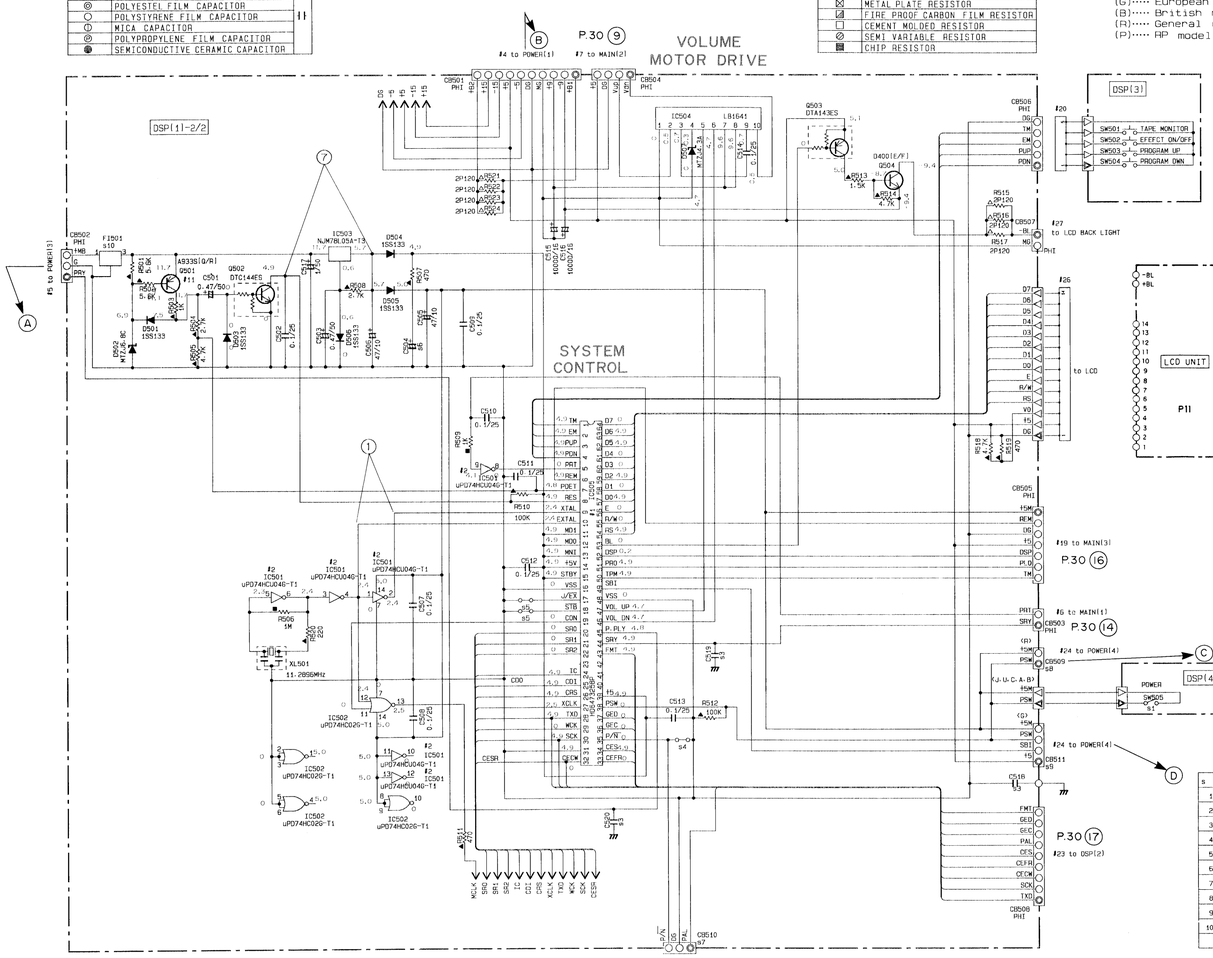
CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⫼
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⫼
◉	AXIAL LEAD CERAMIC CAPACITOR	
◎	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓘ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
◪	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

NOTICE
(J)····· Japanese model
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model
(P)····· RP model

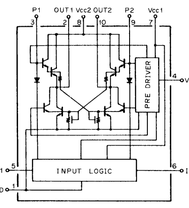


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name	
#1	IC505	HD6473258P HD6433248R05P	or
#2	IC501	µPD74HCU04G-T1 MN74HCU04S	or
#11	Q501	2SA933S(Q,R) 2SA1115(E,F) 2SA1309A(Q,R,S)	or or

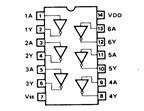
LAST NO.	
C	520
R	525
Q	504
D	507
IC	505

IC504 : LB1641
Motor Drive

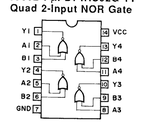


F IN	R IN	Vout1	Vout2
1	1	L	L
0	1	L	H
1	0	H	L
0	0	L	L

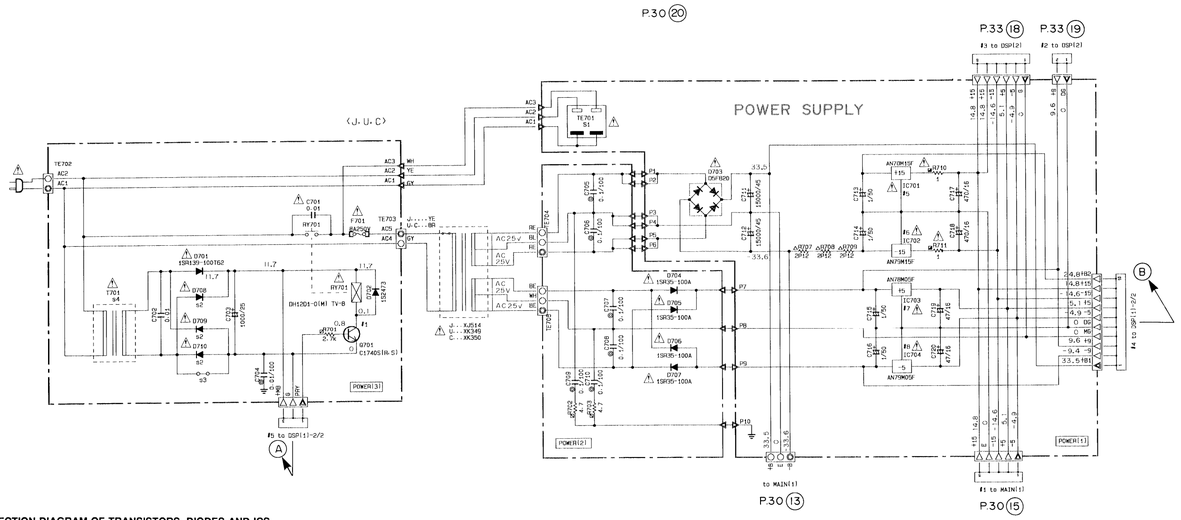
IC501 : µPD74HCU04G-T1 or MN74HCU04S
Hex Inverters



IC502 : µPD74HC02G-T1
Quad 2-Input NOR Gate



S		J	U.C	R	A.B	G
1	SW505	KAB0455	KAB0455	×	KAB0455	×
2						
3	C518-520	×	0.1/25	0.1/25	0.1/25	0.1/25
4		○	○	×	×	×
5		×	×	×	×	○
6	C504	1F/5.5	0.047/5.5	0.047/5.5	0.047/5.5	0.047/5.5
7	CB510	×	×	VD00450	×	×
8	CB509	×	×	VD00450	×	×
9	CB511	×	×	×	×	VD00470
10	F1501	×	VN08060	VN08060	VN08060	VN08060

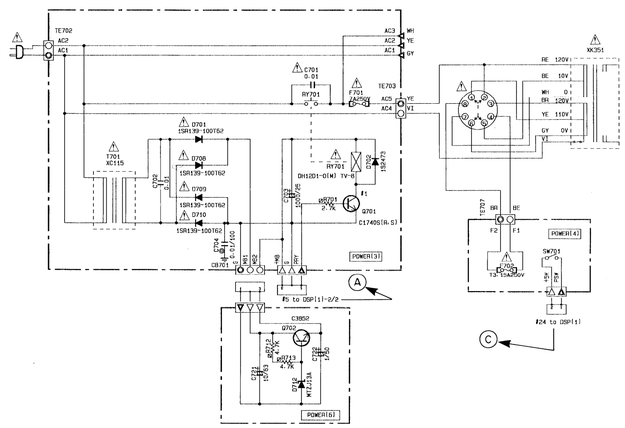


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name	
#1	Q701	2SC1740S(R,S) 2SC2603(E,F) 2SC3311A(Q,R,S)	or or
#5	IC701	AN78M15F NJM79M15FA	or
#6	IC702	AN79M15F NJM79M15FA	or
#7	IC703	AN78M05F NJM78M05FA	or
#8	IC704	AN79M05F NJM79M05FA	or

LAST NO.	
C	722
R	715
Q	702
D	713
IC	704

S		J	U.C	R	A.B	G
1	TE701	VL94840	VL94840	VL94840		
2	D708-710	×	VH00160			
3		○	×			
4	T701	KJ707	KC116			
5						



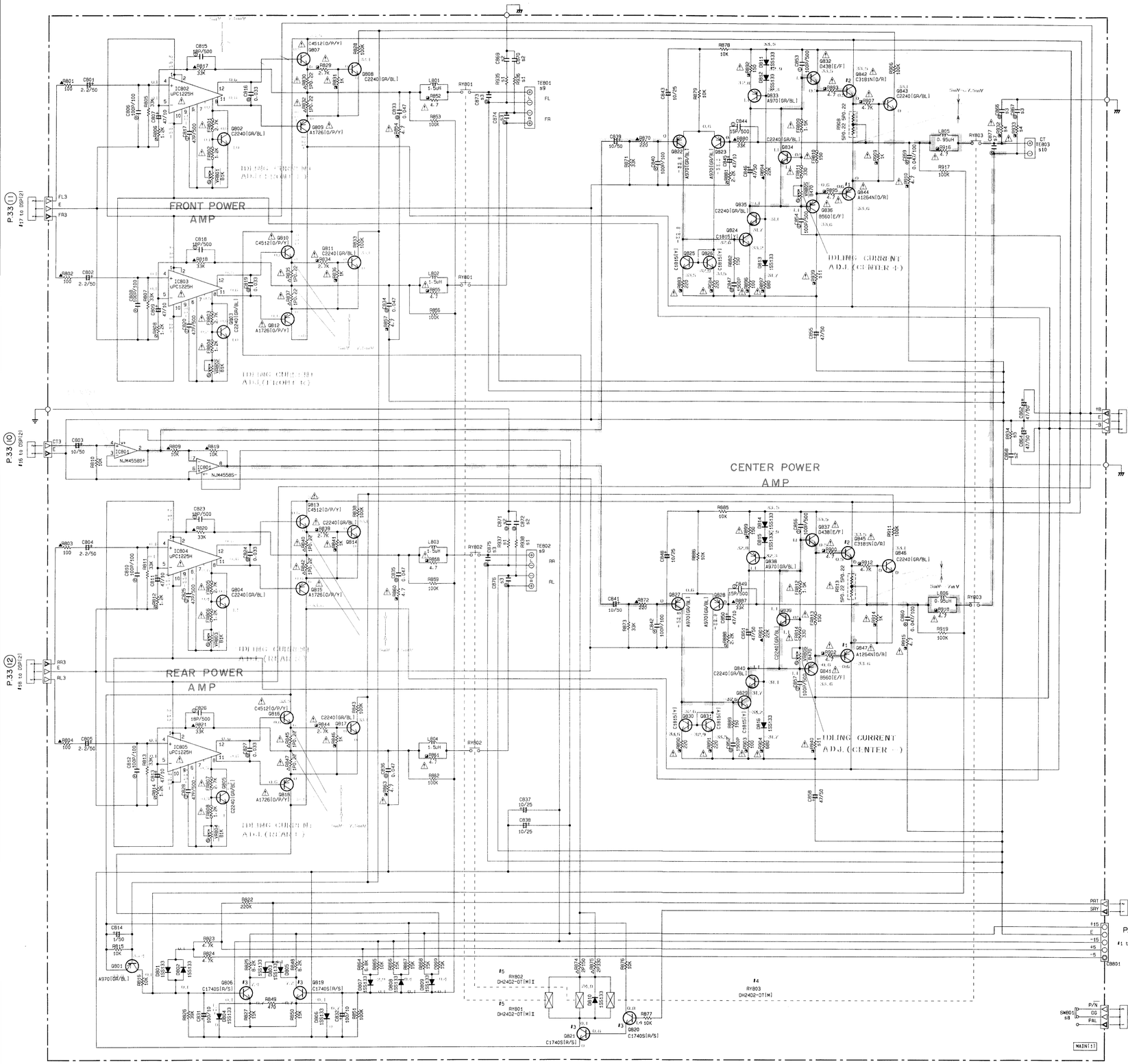
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

2SA933S(Q, R) 2SA1115(E, F) 2SA1309A(Q, R, S) 2SD400(E, F) DTA143ES DTC144ES 2SC1740S(R, S) 2SC2603(E, F) 2SC3311A(Q, R, S)	NJM78L05A-T1	AN78M15F NJM78M15FA AN78M05F NJM78M05FA	AN79M15F NJM79M15FA NJM79M05FA AN79M05F	1S2473 1SS133 MTZJ4.3A MTZJ6.8C 1SR35-100A 1SR139-100T62	D5FB20	LB1641	µPD74HCU04G-T1 MN74HCU04S µPD74HC02G-T1	HD6473258P HD6433248R04

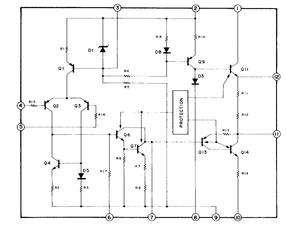
* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

■ SCHEMATIC DIAGRAM (1) ..... MAIN

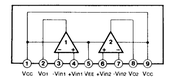
The voltage in this diagram is a voltage obtained when the test sheet program has been started and it normally initialized.



IC802~805 : µPC1225H
Power Amp



IC801 : NJM4558S
Dual OP-Amp



S		J	U·C	R	A·B	G
1	R935-938	×	2·2	×	×	2·2
2	C866-872	×	0·01	×	×	0·01
3	C866·867·873·876	×	×	×	×	0·01/100
4	R932·933	×	×	×	×	2·2
5	R934	×	1	×	×	1
6						
7	CB77	×	×	×	×	0·01/100
8	SW801	×	×	VJ78710	×	×
9	TE801·802	VL31360	VF01840	VF01840	VF01840	VF82400
10	TE803	VL31370	VM78240	VM78240	VM78240	VM78230
11	R939·940	×	1	1	1	1

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
☑	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
⚠	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

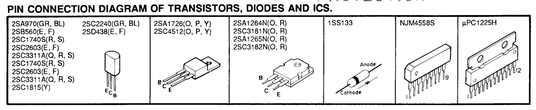
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊘	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	AXIAL LEAD CERAMIC CAPACITOR
◎	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
ⓜ	MICA CAPACITOR
ⓟ	POLYPROPYLENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
#1	Q844·847	2SA1264N(O, R) or 2SA1265N(O, R)
#2	Q842·845	2SC3181N(O, R) or 2SC3182N(O, R)
#3	Q806·819·821	2SC1740S(R, S), or 2SC2603(E, F) or 2SC3311A(Q, R, S)
#4	RY803	DH24D2-0T(M) or JR2aD-DC24V or G5R-2232P
#5	RY801·802	DH24D2-0T(M)I or DH24D2-0T(M) or

	LAST NO.
C	877
R	940
Q	847
D	819
IC	805

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

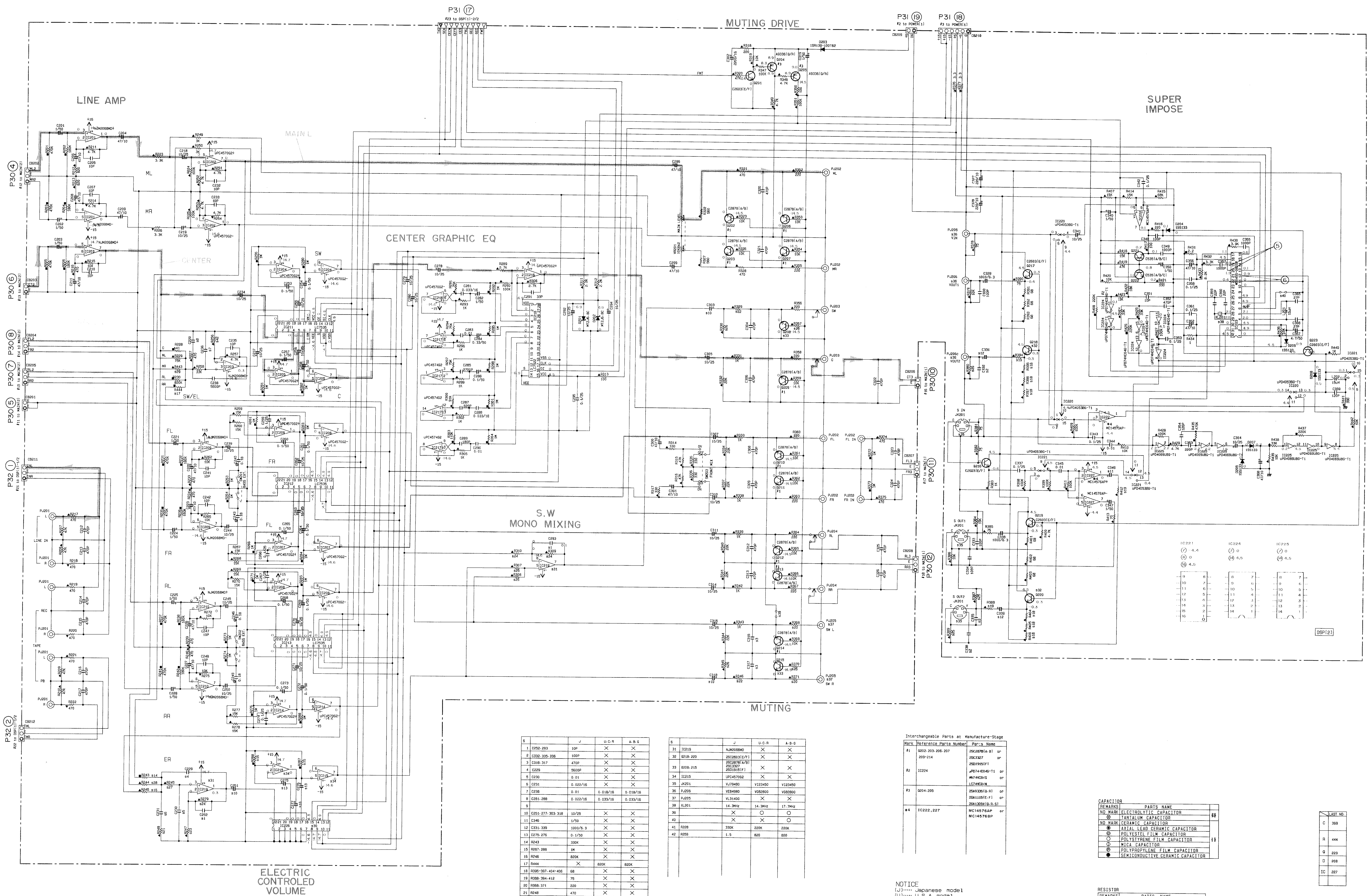


* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

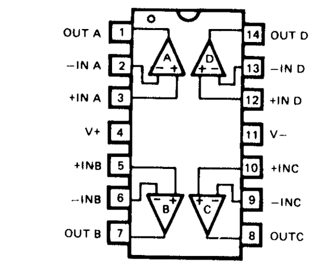
■ SCHEMATIC DIAGRAM (4) .... DSP (2)

Each voltage in this diagram is a voltage obtained when the test signal program has been started and its memory initialized.

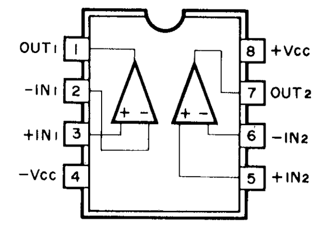
⑤ and ⑥ : WAVEFORM OF TEST POINT (See page 29)



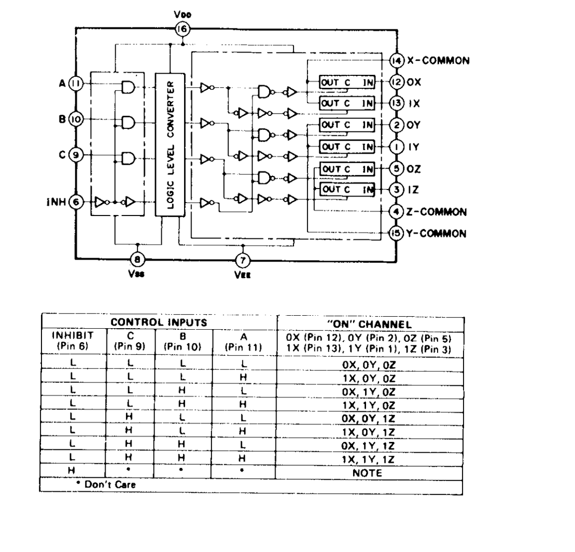
IC217 : μPC4574G2
4-Channel OP-Amp



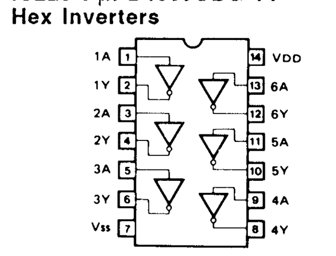
IC201, 203, 209, 210, 219 : NJM2068MD
IC202, 204~208, 214~216 : μPC4570G2
IC222, 227 : MC14576A
Dual OP-Amp



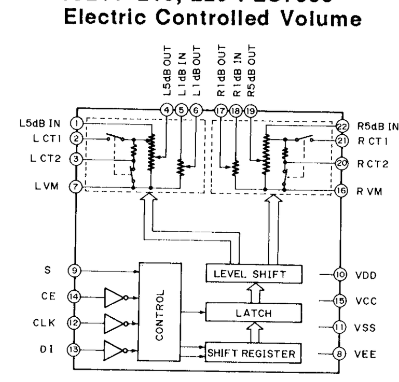
IC220, 221 : μPD4053BG-T1
Triple 2-Channel Multiplexer/Demultiplexer



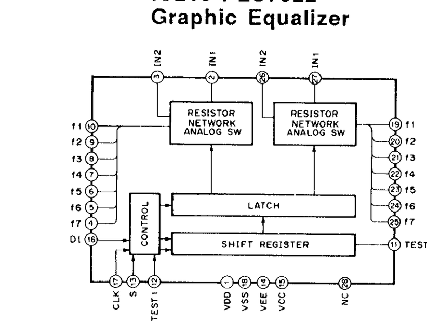
IC224 : μPD74HC04G-T1, MN74HC04S or LC74HC04M
IC225 : μPD4069UBG-T1
Hex Inverters



IC211~213, 226 : LC7535
Electric Controlled Volume



IC218 : LC7522
Graphic Equalizer



S		J	U, C, R	A, B, G
1	C252, 293	10P	×	×
2	C332, 335, 336	100P	×	×
3	C316, 317	470P	×	×
4	C229	5600P	×	×
5	C230	0.01	×	×
6	C231	0.022/16	×	×
7	C236	0.01	0.018/16	0.018/16
8	C281, 288	0.022/16	0.033/16	0.033/16
9				
10	C251, 277, 303, 318	10/25	×	×
11	C346	1/50	×	×
12	C331, 339	1000/6.3	×	×
13	C275, 276	0.1/50	×	×
14	R243	330K	×	×
15	R287, 288	1M	×	×
16	R246	820K	×	×
17	R444	×	820K	820K
18	R395~397, 404~406	68	×	×
19	R388, 394, 412	75	×	×
20	R368, 371	220	×	×
21	R248	470	×	×
22	R329, 346	1K	×	×
23	R247	1.5K	×	×
24	R279, 309, 310	4.7K	×	×
25	R307, 308, 357, 370 380, 387, 389	10K	×	×
26	R330, 345	22K	×	×
27	R245	33K	×	×
28	R244	75K	×	×
29	R443	×	75K	75K
30	IC226	LC7535	×	×

S		J	U, C, R	A, B, G
31	IC219	NJM2068MD	×	×
32	Q218, 220	2SC2603(E/F)	×	×
33	Q208, 215	2SC2878(A/B) 2SC3327 2SD1915(F)	×	×
34	IC215	UPC4570G2	×	×
35	JK201	VJ78480	VI23450	VI23450
36	PJ206	VE84980	VG82800	VG82800
37	PJ205	VL31400	×	×
38	XL201	14.3MHz	14.3MHz	17.7MHz
39		×	○	○
40		×	×	○
41	R228	330K	220K	220K
42	R256	1.5	820	820

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
#1	Q202, 203, 206, 207 209~214	2SC2878(A, B) or 2SC3327 or 2SD1915(F)
#2	IC224	μPD74HC04G-T1 or MN74HC04S or LC74HC04M
#3	Q204, 205	2SA933S(Q, R) or 2SA1115(E, F) or 2SA1309A(Q, R, S)
#4	IC222, 227	MC14576AP or MC14576BP

NOTICE
(J)····· Japanese model
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model
(P)····· RP model

CAPACITOR

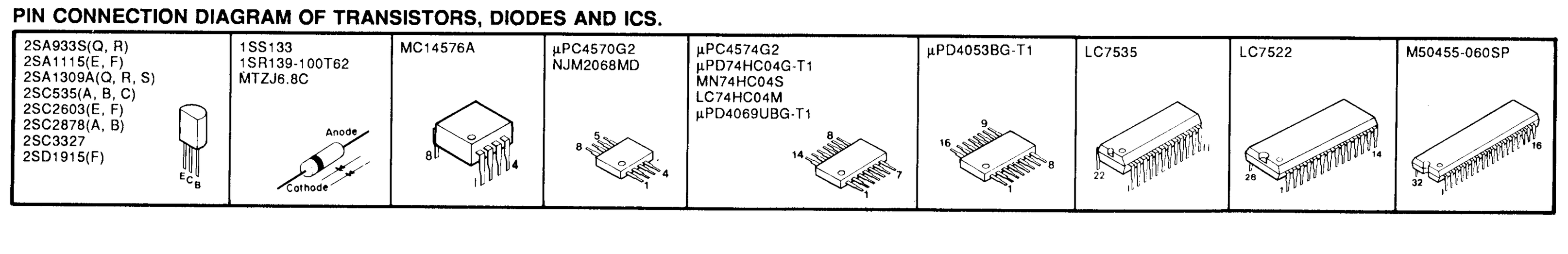
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊣⊢ (electrolytic)
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⊣⊢
◉	AXIAL LEAD CERAMIC CAPACITOR	
◎	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⦶	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
⧄	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

	LAST NO.
C	369
R	444
Q	223
D	208
IC	227

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.



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* *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
* *Schematic diagram is subject to change without notice.*