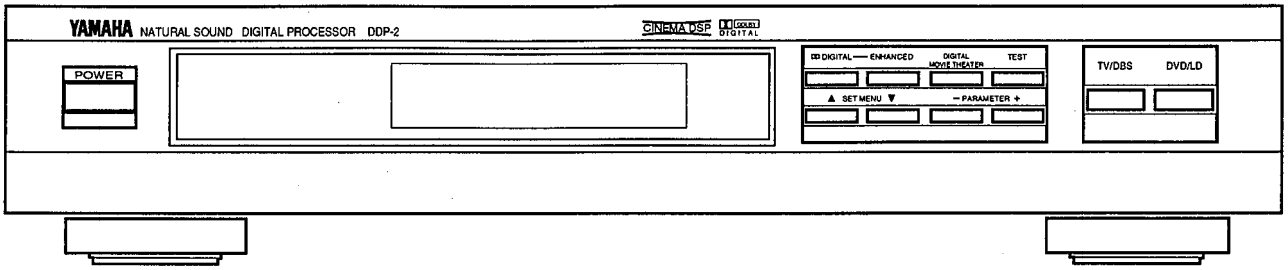
DIGITAL PROCESSOR
DDP-2
SERVICE MANUAL



DDP-2

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 inherent 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 any 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 research, 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 part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

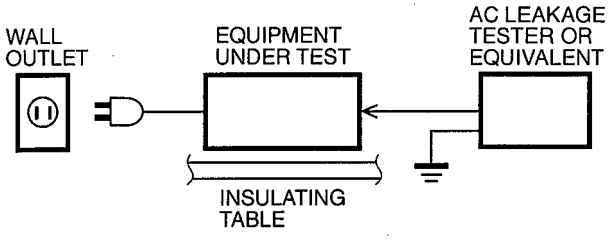
100594

YAMAHA
YAMAHA CORPORATION
P.O.Box1,Hamamatsu,Japan
3K-444 Printed in Japan '97.8

■ 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.



"CAUTION"
"F301 : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 1.5A, 250V FUSE."

CAUTION
F301 : REPLACE WITH SAME TYPE 1.5A, 250V FUSE.

ATTENTION
F301 : UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 1.5A, 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.

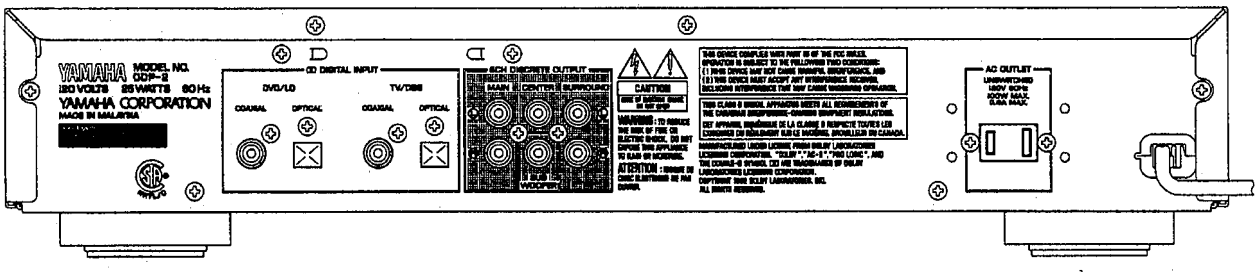
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

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

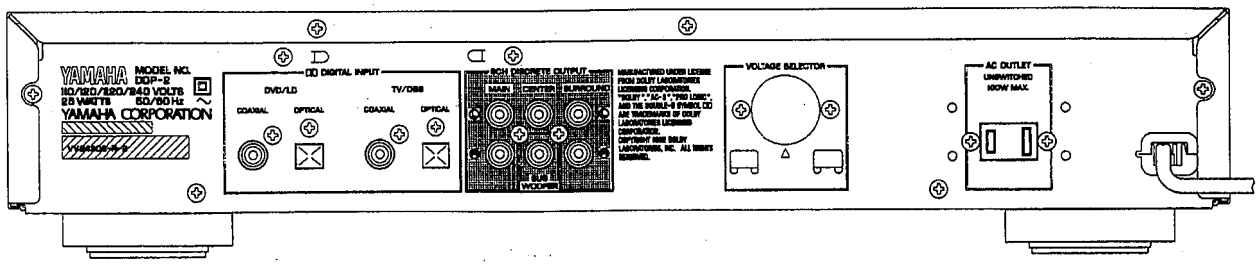
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REAR PANELS

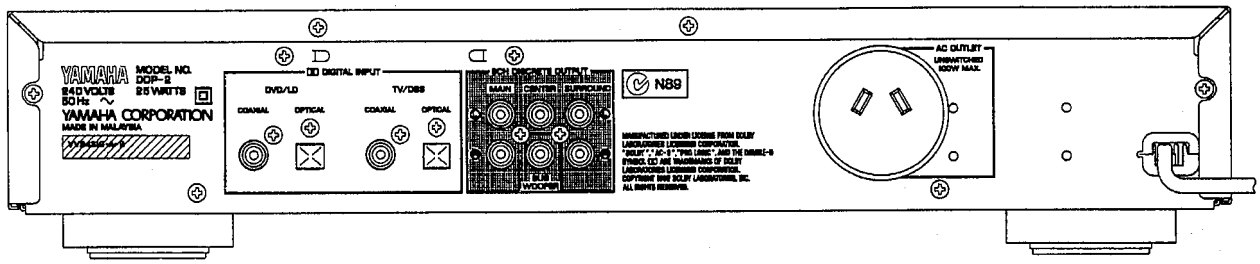
▼ U, C models



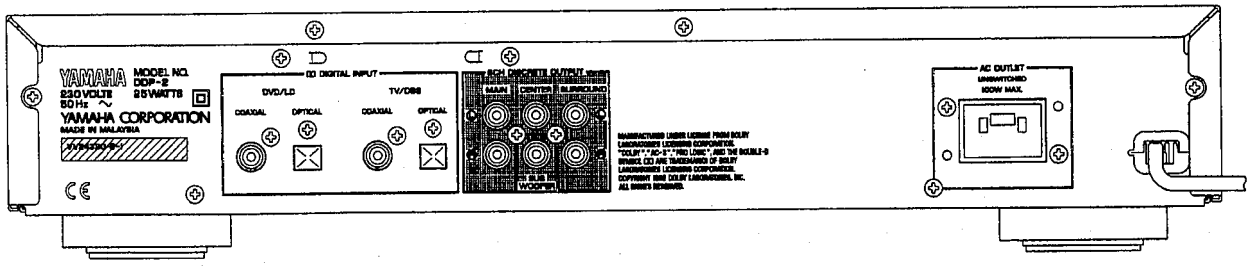
▼ R model



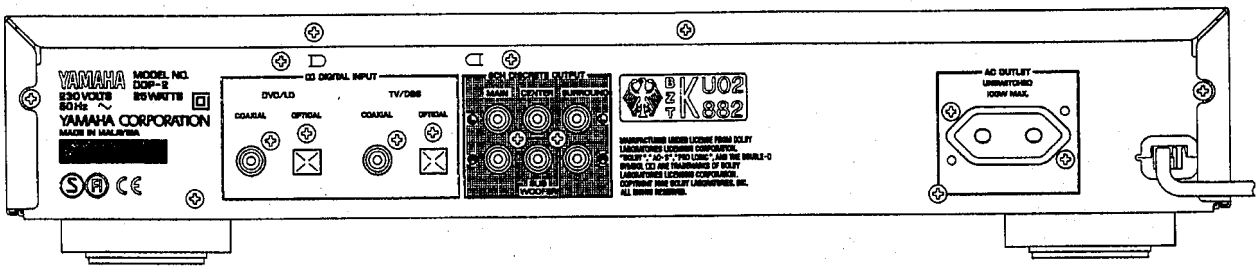
▼ A model



▼ B model



▼ G model



■ SPECIFICATIONS

■ AUDIO SECTION

Input Impedance
COAXIAL 75Ω
Output Level/Impedance
1kHz, 0dB 2V/1.2kΩ
50Hz, 0dB (SUB WOOFER) 6V/1.2kΩ
Frequency Response (20Hz to 20kHz)
OUTPUT ..... 0±1dB
Total Harmonic Distortion
1kHz, MAIN/CENTER/REAR 0.01%
50Hz, SUB WOOFER 0.01%
Signal-to-Noise Ratio (IHF-A-Network)
MAIN L/R 105dB
Filter Characteristics
MAIN, REAR SP SMALL : H.P.F. ... fc = 90Hz, 12dB/oct.
SUB WOOFER : L.P.F. ..... fc = 90Hz, 24dB/oct.

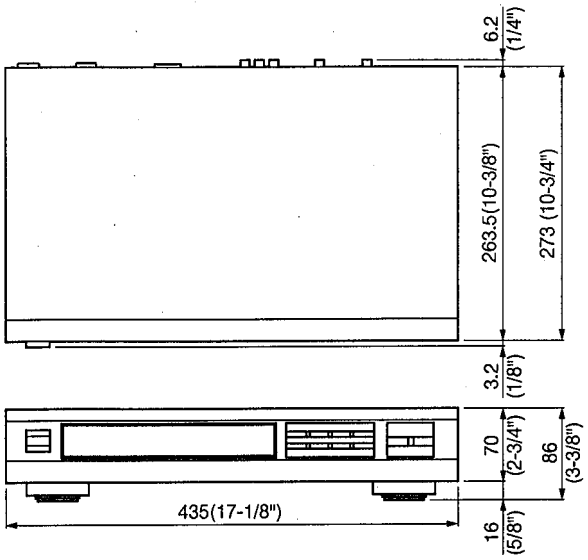
■ GENERAL

Power Supply
U, C models ..... AC 120V, 60Hz
A model ..... AC 240V, 50Hz
B, G models ..... AC 230V, 50Hz
R model ..... AC 110/120/220/240V, 50/60Hz
Power Consumption 25W
AC Outlet
Unswitched x 1 ..... 100W max
Dimensions (W x H x D) ..... 435 x 86 x 273mm
(17-1/8" x 6-3/4" x 18-1/2")
Weight ..... 4 kg (8 lbs 13oz)
Accessories ..... Pin Plug Cord (2P) x 2
Pin Plug Cord (1P) x 2

** Specifications subject to change without notice.*

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

● DIMENSIONS

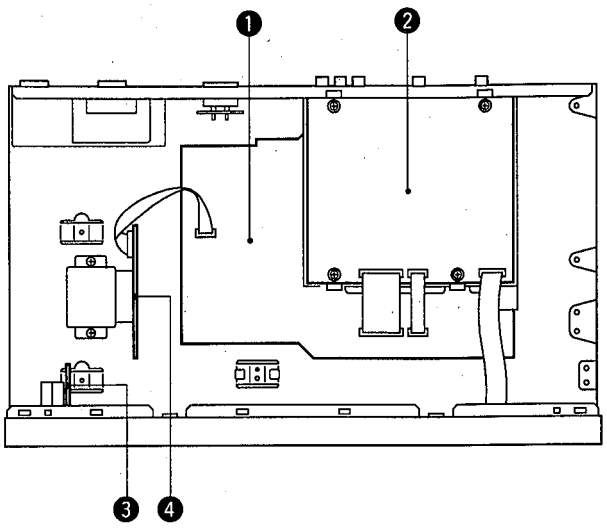


Units : mm (inch)

● SET MENU

No.	SET MENU	PRESET VALUE	SETTING RANGES
1.	CENTER SPEAKER	NORMAL	NORMAL/WIDE/PHANTOM
2.	REAR SPEAKER	SMALL	SMALL/LARGE
3.	MAIN SPEAKER	LARGE	SMALL/LARGE
4.	LFE/BASS OUT	SWFR (SUB WOOFER)	MAIN/SWFR/BOTH
5.	LFE LEVEL	0 dB	–20dB — 0dB
6.	CENTER DELAY	0 ms	0 ms — 5 ms
7.	SURROUND DELAY	0 ms	0 ms — 15 ms
8.	DYNAMIC RANGE	MAX	MAX/STD/MIN
9.	OUTPUT TRIM	0 dB	–9dB — +9dB

■ INTERNAL VIEW



❶ P. C. B. FUNCTION (1)
❷ P. C. B. DSP
❸ P. C. B. FUNCTION (4)
❹ P. C. B. FUNCTION (2)

■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

1. Removal of Top Cover

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

2. Removal of P.C.B. DSP

a. Remove 3 screws (③) and then remove the P.C.B. DSP in Fig. 1.

3. Removal of Front Panel

a. Remove 3 screws (④) and 2 screws (⑤) and then remove the Front Panel in Fig. 1.

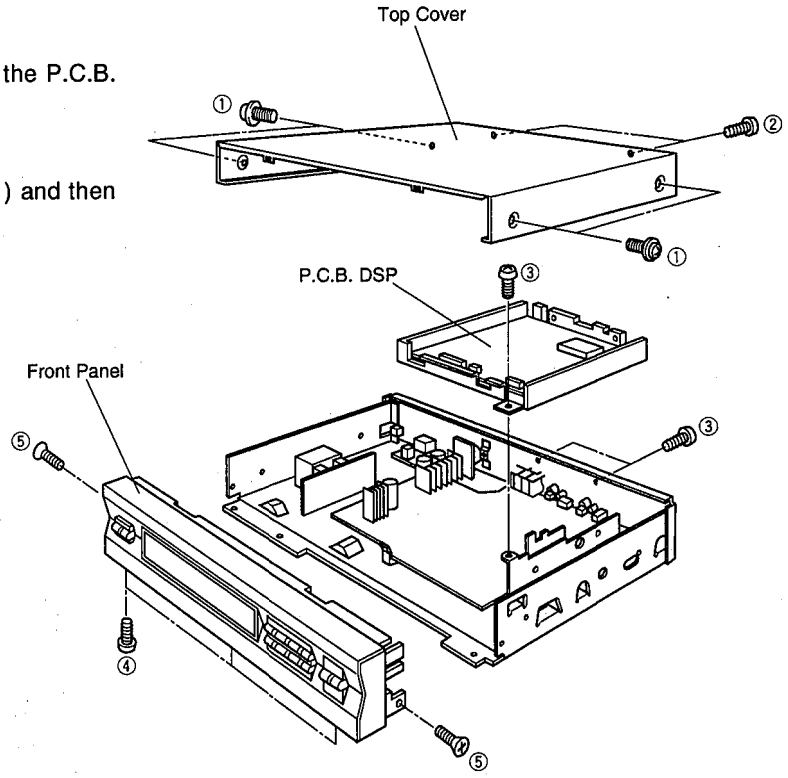


Fig. 1

■ DIAGNOSTIC MODE (DIAG)

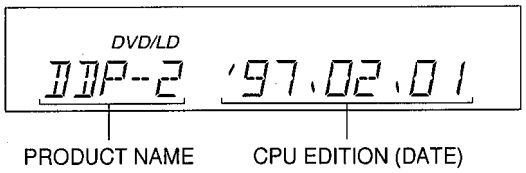
This product has a self-diagnostic mode (DIAG) which makes inspection and measurement easier.

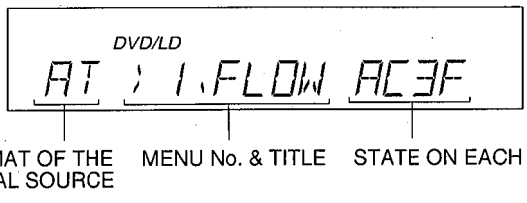
MENU	Diagnostic menu	[ ] : Initial state (settings)
1. FLOW: signal flow	Selection of signal passage	([AC3F]/HL - 3/PSRM/ANLG) on AT, AC3, PCM
1. ch: test tone channel	Selection of test noise output channel	(L/C/R/RS/LS/LFE/[ALL]) on TST
2. MAIN: main speaker size	Selection of main bass passage	([LRG]/SML)
3. CNTR: center mode	Center passage	([NRML/[WIDE]/PHTM)
4. REAR: rear speaker size	Rear bass passage	([LRG]/SML)
5. BASS: bass-band output ch.	Bass passage	(MAIN/[SW])
6. DISP. CHK: VFD-tube check	FL display	([Menu]/all ON/OFF)
7. AD CHK: AD for key-scanning	AD value for key-scanning	(0 - 99)
8. PRSET: factory preset yes/no	Memory initialized/prohibited	(YES/[NO])
9. OUTPUT: output level	Output level of all channels	(-9 ~ [0] ~ +9dB)
A. CT LVL: center level	Center E. VOL. level	(-6 ~ [0] ~ +6dB)
B. RS LVL: right surround level	Right surround E. VOL. level	(-6 ~ [0] ~ +6dB)
C. LS LVL: left surround level	Left surround E. VOL. level	(-6 ~ [0] ~ +6dB)
D. LFE LV: LFE mixing level	LFE MIX E. VOL. level	(-20 ~ [0]dB)
E. AC3F INFO: AC3F information	Operation condition of AC3F	([.. INFO]/IPORT/STATUS/BS 0 ~ 19)

1. HOW TO ENTER

Turn on the POWER switch while pressing the "DD DIGITAL" key, and then press the same key twice more within 4 seconds.

(NOTE) When the DIAG mode is set, the product name and the CPU edition will appear on display.





2. HOW TO EXIT

Turn off the POWER switch.

3. OPERATION

1. FORMAT OF THE SIGNAL SOURCE (AC-3 or PCM)

Selection of format of the SIGNAL SOUCE

Operation Key	FORMAT OF THE SIGNAL SOURCE
DD DIGITAL	**AT** : Automatic selection with priority for AC-3
ENHANCED	**AC3** : Only AC-3 permitted.
DIGITAL MOVIE THEATER	**PCM** : Only PCM permitted.
TEST	**TST** : TEST TONE

FORMAT OF THE SIGNAL SOURCE

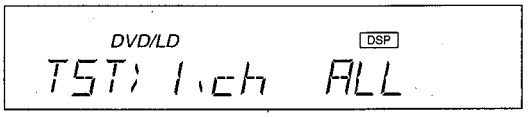
* Input signal and AC3F's output.
If the signal is AC-3, AC3F (YSS243) outputs 5. 1ch according to the encoded format.
If PCM is inputted, AC3F outputs L at L/C/RL and R at R/LFE/RR respectively.

2. △ SET MENU ▽ : Selection of DIAG MENU item

3. – PARAMETER + : Selection of parameters for DIAG MENU item

4. DETAILS OF DIAG MENU

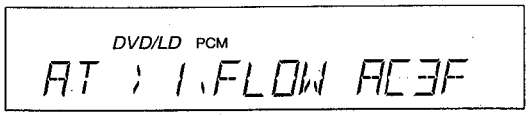
1. ch (at signal source TST)



By pressing the "PARAMETER +/–" key, the WHITE-NOISE output channel can be changed in the following order.
ALL ⟷ LEFT ⟷ CENTER ⟷ RIGHT ⟷ R SUR. ⟷ L SUR. ⟷ LFE ⟷ ALL ···

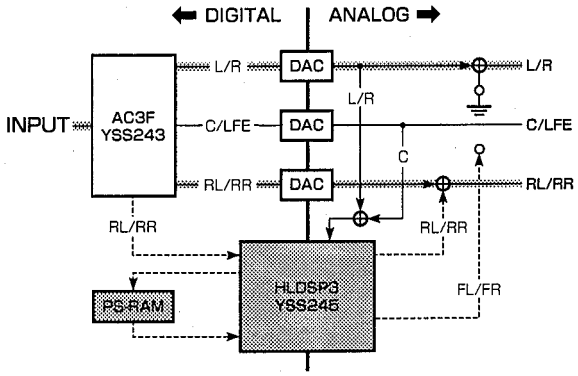
As the bandwidth is wider than PINK-NOISE in the normal test, it is easier to check the low range characteristics of LFE, etc.

1. FLOW (at signal source PCM, AC3 or AT)

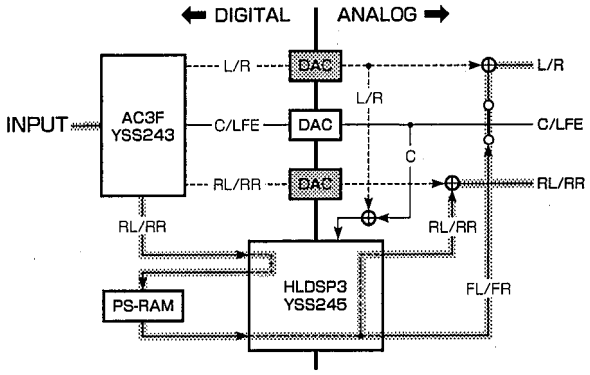


By pressing the "PARAMETER +/–" key, the L/R and RL/RR signal flow can be selected from among AC3F, HL-3, PSRM and ANLG as shown below.

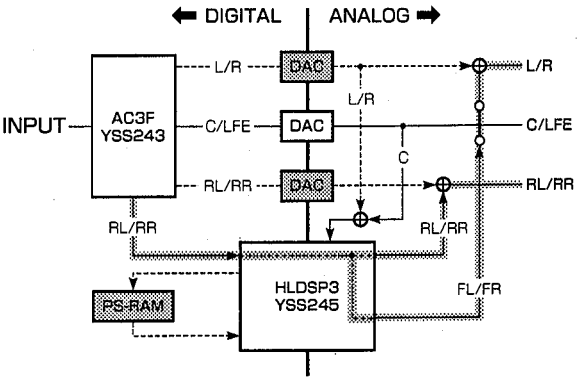
AC3F : All channels are output through AC3F (YSS243). HLDSP3 (YSS245) is not used in this flow.



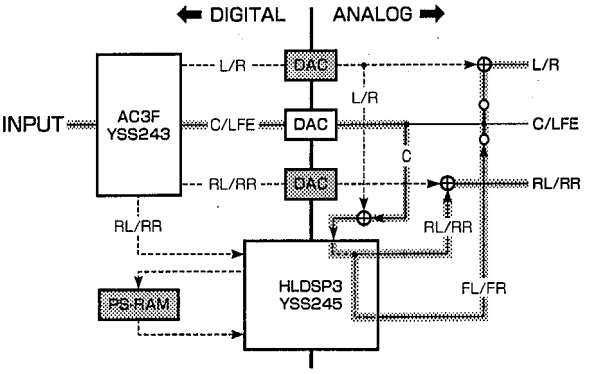
PSRM : PSRM stands for PS-RAM. L/R and RL/RR are output through HLDSP3 and PS-RAM.



HL-3 : C and LFE are output through AC3F, and L/R and REL/RR come out through HLDSP3.



ANLG : ANLG stands for ANALOG. L/R and RL/RR enter the ANALOG part of HLDSP3 and then are output.



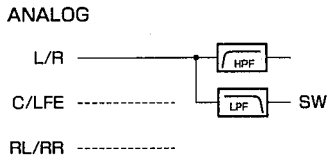
The shaded square means that the element included in it does not operate.

2. MAIN

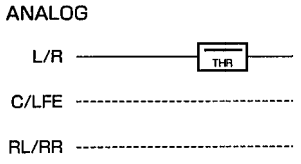
By pressing the "PARAMETER +/–" key, the MAIN speaker size can be selected from SML or LRG.

* If 5. BASS is MAIN, all of the audio-bands come out from MAIN even if 2. MAIN is SML.
* C/LFE and RL/RR are muted at AT, AC3, PCM.

SML stands for SMALL speakers. The bass-band is not output from MAIN but from SUBWOOFER.



LRG stands for LARGE speakers. All of the audio bands are output from MAIN.

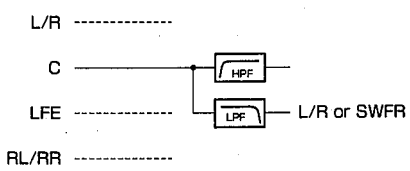


3. CNTR

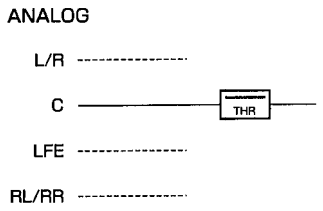
By pressing the "PARAMETER +/–" key, the CENTER mode can be selected from among NRML, WIDE and PHTM.

* L/R, LFE, RL/RR are muted at AT, AC3, PCM.

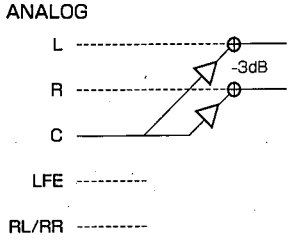
NRML stands for NORMAL. The bass-band is not output from CENTER but from MAIN or SUBWOOFER.



WIDE stands for the wide-band. All of the audio bands are output from CENTER.



PHTM stands for PHANTOM. The CENTER signal is divided between MAIN L and R with -3dB level shift.

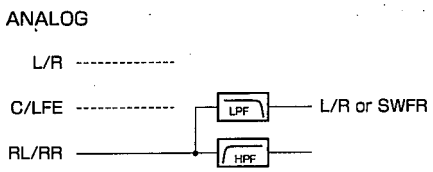


4. REAR

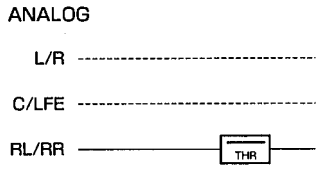
By pressing the "PARAMETER +/–" key, the REAR speaker size can be selected from SML or LRG.

* L/R, C/LFE are muted at AT, AC3, PCM.

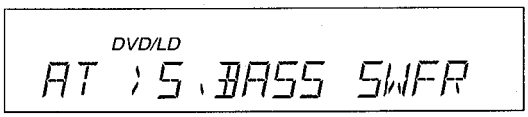
SML stands for small speakers. The bass-band is not output from REAR but from MAIN or SWFR.



LRG stands for large speakers. All of the audio-bands are output from REAR.



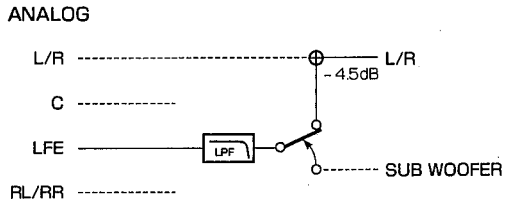
5. BASS



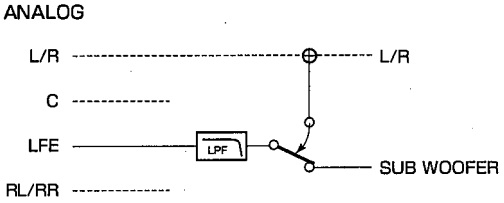
By pressing the "PARAMETER +/–" key, the output channel can be selected from among LFE, MAIN and SWFR.

* L/R, C, RL/RR are muted at AT, AC3, PCM.

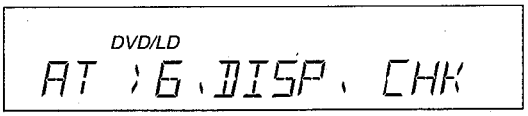
MAIN LFE and the bass-band of REAR are divided between MAIN L and R with -4.5dB level shift.



SWFR LFE and the bass-band or SMALL SP is output from SUBWOOFER.

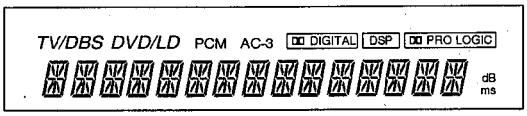


6. DISP. CHK



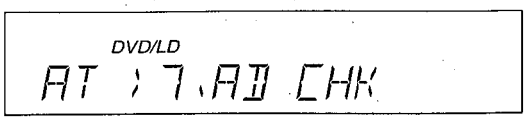
By pressing the "PARAMETER +/–" key, DISPLAY mode can be selected from menu, all on or all off.

All segments turn ON



All segments turn OFF

7. AD CHK



HOW TO ENTER : Press the "PARAMETER +/–" key.
HOW TO EXIT : Press the "SET MENU ▽/△" key for 1 second.

The value of the AD detecting the main unit key is displayed in the range of 0 to 99%.

Key	AD value % (±3)
SET MENU △	00
SET MENU ▽	10
PARAMETER –	20
PARAMETER +	30
DD DIGITAL	40
ENHANCED	50
DIGITAL MOVIE THEATER	60
TEST	70
TV/DBS	80
DVD/LD	90
KEY OFF	99

8. PRSET

By pressing the "PARAMETER +/–" key, MEMORY FACTORY PRESET can be selected from YES or NO.

NO FACTORY PRESET will not be executed.

YES FACTORY PRESET will be executed.

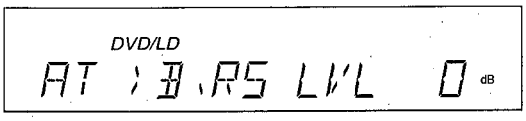
9. OUTPUT

By pressing the "PARAMETER +/–" key, the output level of all channels can be changed in its ±9dB range.

A. CT LVL

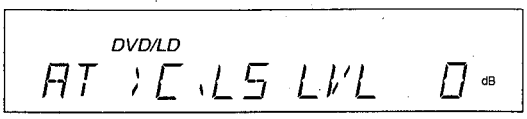
By pressing the "PARAMETER +/–" key, the center output level can be changed in its ±6dB range.

B. RS LVL



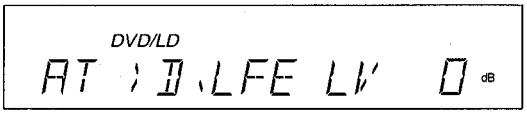
By pressing the "PARAMETER +/–" key, the right surround (rear right) output level can be changed in its ±6dB range.

C. LS LVL



By pressing the "PARAMETER +/–" key, the left surround (rear left) output level can be changed in its ±6dB range.

D. LFE LV

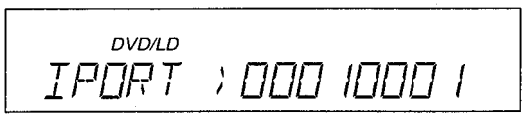


By pressing the "PARAMETER +/–" key, the LFE mix level can be changed in its -20 to 0dB range.

E. AC3F INFO

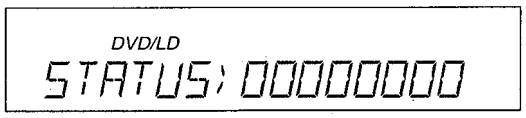
Every time the "PARAMETER +/–" key is pressed, information of AC3F(YSS243) IPORT, STATUS and Bitstream data 00 to 19 are displayed one after another in the binary notation.

IPORT



Effective always

STATUS



Effective PCM/AC-3

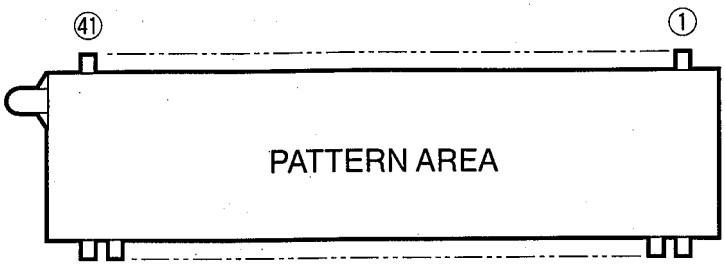
Bitstream data 0~19

Effective only AC-3

Bitstream No. (0~19)

■ DISPLAY DATA (VV485600)

● V601 : 16-BT-47GK



● PIN CONNECTION

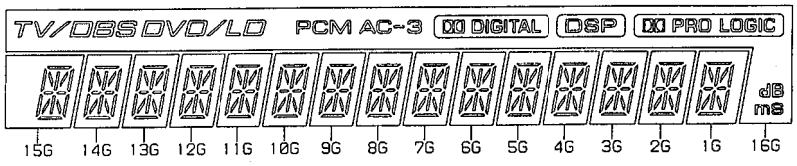
Pin No.	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23
Connection	F2	F2	NP	NP	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NC

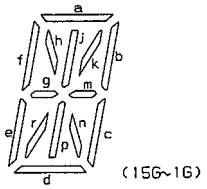
Pin No.	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
Connection	NC	NC	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP

Pin No.	3	2	1
Connection	NP	F1	F1

Note 1) F1, F2 ..... Filament
2) NP ..... No Pin
3) NC ..... No Connection
4) P1~P14 ..... Datum Line
5) 1G~16G ..... Grid

● GRID ASSIGMENT





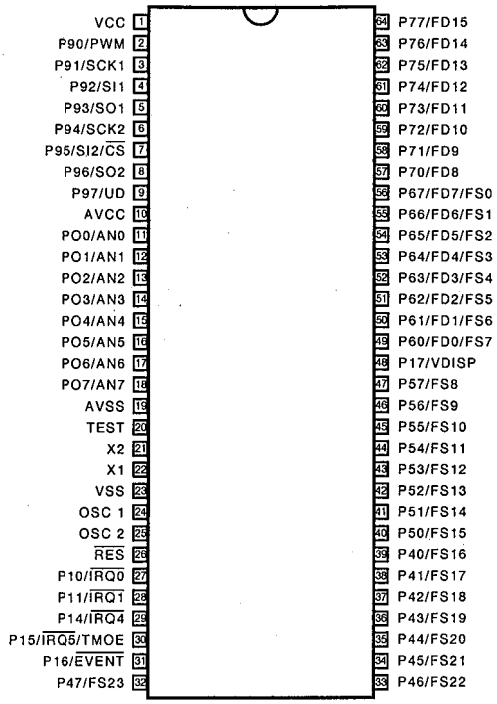
(15G~1G)

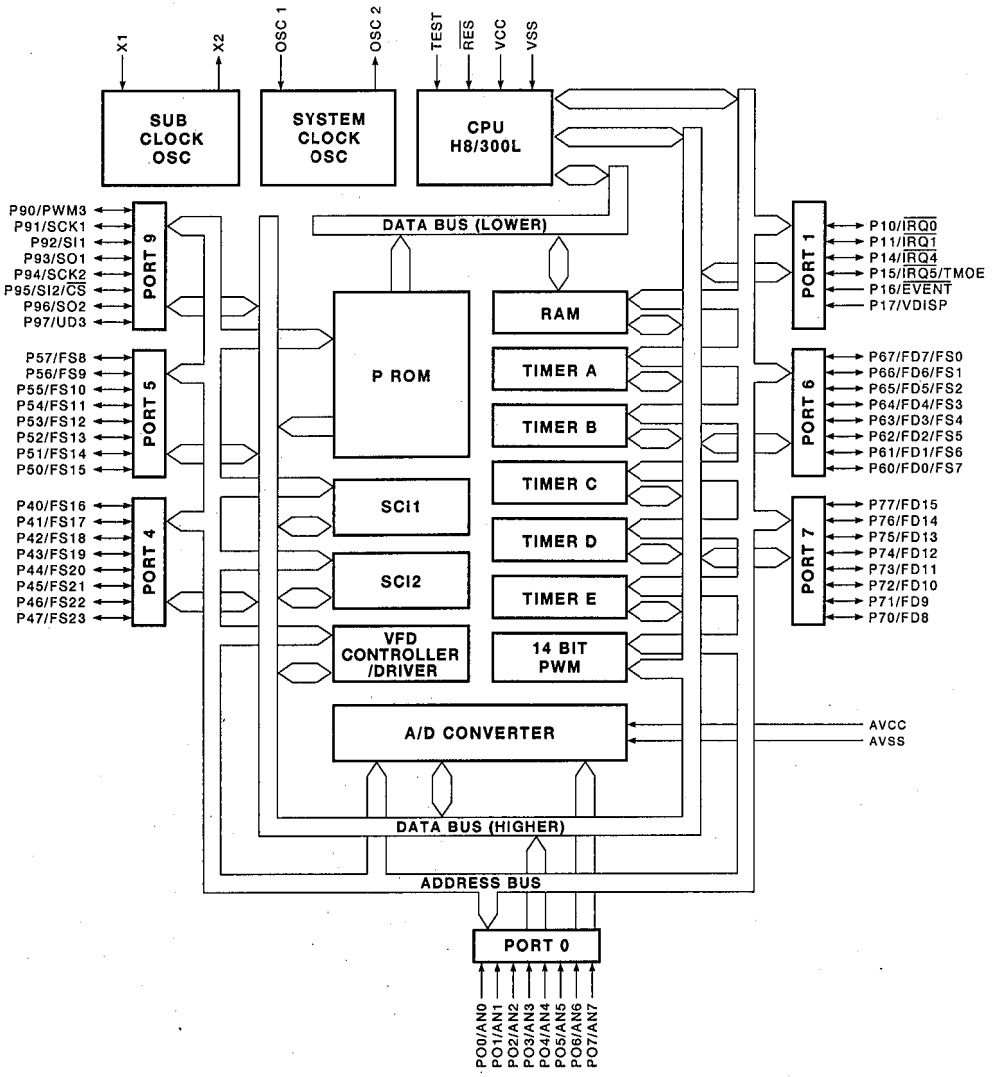
● ANODE CONNECTION

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	dB	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
P2	ms	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
P3	DIGITAL	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
P4	DSP	d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
P5	PRO LOGIC	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
P6	AC-3	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
P7	PCM	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g
P8	DVD/LD	h	h	h	h	h	h	h	h	h	h	h	h	h	h	h
P9	TV/DBS	j	j	j	j	j	j	j	j	j	j	j	j	j	j	j
P10	-	k	k	k	k	k	k	k	k	k	k	k	k	k	k	k
P11	-	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
P12	-	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
P13	-	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
P14	-	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r

■ IC DATA

IC601 : HD6433712C63P
8 bit μ-COM





IC601 : HD6433712C63P
8 bit μ-COM

No.	PORT	Name	Function	I/O	No.	PORT	Name	Function	I/O
1	Vcc	+5M	+5V	+5V	64	FD15	16G	FL DIGIT	O
2	P90	/CS	CS HL3/AC3F (H/L)	O	63	FD14	15G	FL DIGIT	O
3	SCK1	XCLK	AC3F & HL3 CLK	O	62	FD13	14G	FL DIGIT	O
4	SI0	RXD	AC3F RX DATA	I	61	FD12	13G	FL DIGIT	O
5	SO0	TXD	AC3F/HL3 TX DATA	O	60	FD11	12G	FL DIGIT	O
6	SCK2	SCK	LC****/TC**** CLK	O	59	FD10	11G	FL DIGIT	O
7	P95	CEL	LC**** CE	O	58	FD9	10G	FL DIGIT	O
8	SO2	SO2	LC****/TC**** TX	O	57	FD8	9G	FL DIGIT	O
9	P97	CET	TC**** CE	O	56	FD7	8G	FL DIGIT	O
10	AVcc	+5A	Power supply for A/D	+5V	55	FD6	7G	FL DIGIT	O
11	AN0	KEY	Key A/D input	A/D	54	FD5	6G	FL DIGIT	O
12	P01		PDET short	I	53	FD4	5G	FL DIGIT	O
13	P02	PDET	Power detect	I	52	FD3	4G	FL DIGIT	O
14	P03	10/2	DDP-10/2 (H/L)	I	51	FD2	3G	FL DIGIT	O
15	P04	O/C	OPT/COAX (H/L)	I	50	FD1	2G	FL DIGIT	O
16	P05			G	49	FD0	1G	FL DIGIT	O
17	P06			G	48	Vdisp	VP	FL Power Supply	+5V
18	P07			G	47	FS8	P1	FL Segment	O
19	AVcc	AG	A/D GND	G	46	FS9	P2	FL Segment	O
20	TEST	TEST	GND	G	45	FS10	P3	FL Segment	O
21	X2	X2	OPEN		44	FS11	P4	FL Segment	O
22	X1	X1	+5	+5	43	FS12	P5	FL Segment	O
23	Vss	GND	GND	G	42	FS13	P6	FL Segment	O
24	OSC1	OSC1	8MHz	ø	41	FS14	P7	FL Segment	O
25	OSC2	OSC2	8MHz	ø	40	FS15	P8	FL Segment	O
26	/RES	/RES	CPU RESET		39	FS16	P9	FL Segment	O
27	/IRQ0	REM	REM IN	IRQ	38	FS17	P10	FL Segment	O
28	/IRQ1	/DER	DER LOCK + ERR	IRQ	37	FS18	P11	FL Segment	O
29	/IRQ4	AC3ER	AC3 ERR	IRQ	36	FS19	P12	FL Segment	O
30	P15	/ICD	DIR, AC3F, DAC /IC	O	35	FS20	P13	FL Segment	O
31	P16			G	34	FS21	P14	FL Segment	O
32	P47	/FMT	Full mute	O	33	P46	/IC	HLDSP3 /IC	O

◎ Types of IC601 (μ-COM)

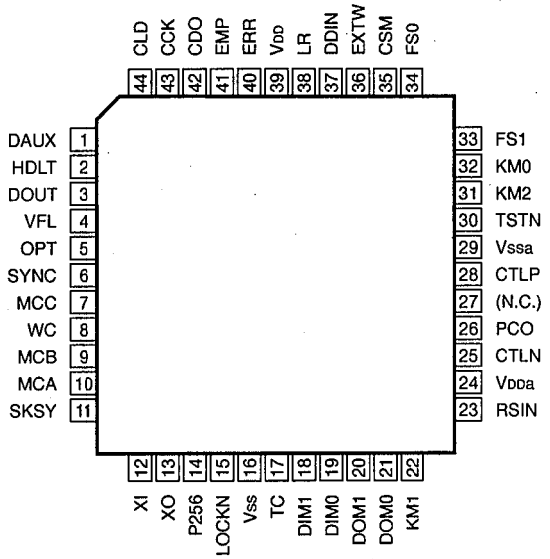
1) There are two types of IC601 (μ-COM). One has chip resistors R621 - 650 (82kΩ) and the other has no such resistors. Identify the type of IC601 by checking the label attached on each one.

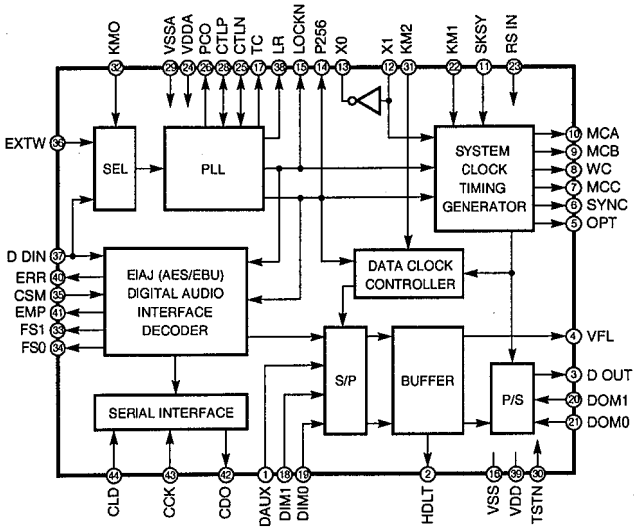
Type of IC601	R621 - 650 (82kΩ)
XS574A0 (OTP type)	Included
XS575A0 (Mask type)	Not included

2) As a service part of IC601, only XS575A0 (Mask type) is available.

3) When the XS574A0 type IC 601 has been replaced with an XS575A0 type, remove chip resistors R621 - 650 (82kΩ).

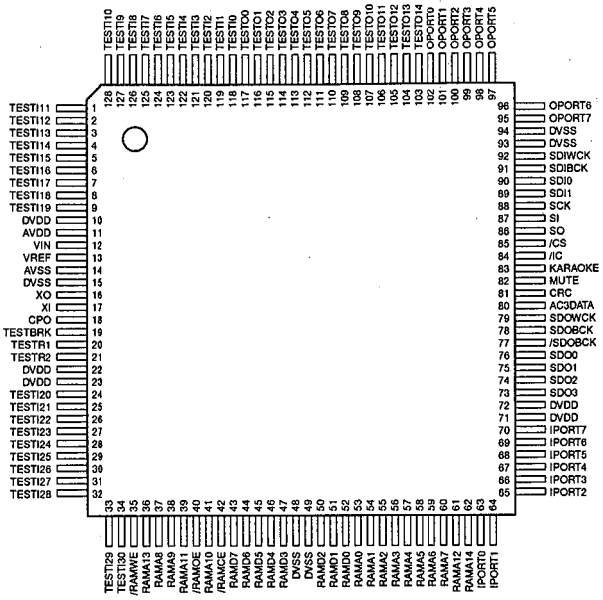
IC3 : YM3436DK
DIR (Digital Format Interface Receiver)

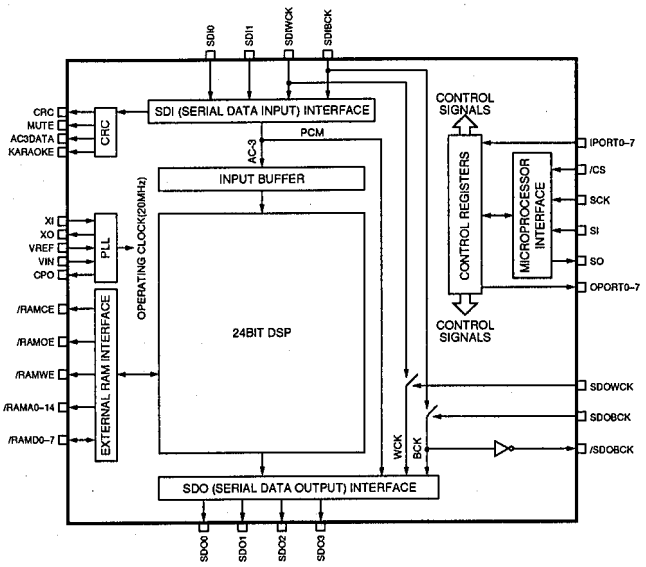




Pin No.	Pin Name	I/O	Function	Pin No.	Pin Name	I/O	Function
1	DAUX	I	Auxiliary input for audio data	26	PCO	O	PLL phase comparison output
2	HDLT	O	Asynchronous buffer operation flag	27	(NC)		
3	DOUT	O	Audio data output	28	CTLP	I	VCO control input P
4	VFL	O	Parity flag output	29	Vssa		VCO section power (GND)
5	OPT	O	Fs x 1 Synchronous output signal for DAC	30	TSTN	I	Test terminal. Open for normal use
6	SYNC	O	Fs x 1 Synchronous output signal for DSP	31	KM2	I	Clock mode switching input 2
7	MCC	O	Fs x 64Bit clock output	32	KM0	I	Clock mode switching input 0
8	WC	O	Fs x 1Word clock output	33	FS1	O	Channel status sampling frequency display output 1
9	MCB	O	Fs x 128Bit clock output				
10	MCA	O	Fs x 256Bit clock output	34	FS0	O	Channel status sampling frequency display output 0
11	SKSY	I	Clock synchronization control input				
12	XI	I	Crystal oscillator connection or external clock input	35	CSM	I	Channel status output method selection
13	XO	O	Crystal oscillator connection	36	EXTW	I	External synchronous auxiliary input word clock
14	P256	O	VCO oscillator clock connection	37	DDIN	I	EIAJ (AES/EBU) data input
15	LOCKN	O	PLL lock flag	38	LR	O	PLL word clock output
16	Vss		Logic section power (GND)	39	VDD		Logic section power (+5V)
17	TC	O	PLL time constant switching output	40	ERR	O	Data error flag output
18	DIM1	I	Data input mode selection	41	EMP	O	Channel status emphasis control code output
19	DIM0	I	Data input mode selection				
20	DOM1	I	Data output mode selection	42	CDO	O	3-wire type microcomputer interface data output
21	DOM0	I	Data output mode selection				
22	KM1	I	Clock mode switching input 1	43	CCK	I	3-wire type microcomputer interface clock output
23	RSTN	I	System reset input				
24	VDDa		VCO section power (+5V)	44	CLD	I	3-wire type microcomputer interface load input
25	CTLN	I	VCO control input N				

IC4 : YSS243B
AC3F (AC-3 5.1ch Full Decoder)





No.	Name	I/O	Function
1	TESTI11	I+	LSI test terminal (normally unconnected)
2	TESTI12	I+	LSI test terminal (normally unconnected)
3	TESTI13	I+	LSI test terminal (normally unconnected)
4	TESTI14	I+	LSI test terminal (normally unconnected)
5	TESTI15	I+	LSI test terminal (normally unconnected)
6	TESTI16	I+	LSI test terminal (normally unconnected)
7	TESTI17	I+	LSI test terminal (normally unconnected)
8	TESTI18	I+	LSI test terminal (normally unconnected)
9	TESTI19	I+	LSI test terminal (normally unconnected)
10	DVDD		+5V power supply (digital section)
11	AVDD		+5V power supply (for analog circuit in PLL section)
12	VIN	AI	PLL input terminal, connected to CPO through external analog filter)
13	VREF	AI	PLL input terminal, connected to AVDD through external analog filter)
14	AVSS		Ground (for analog circuit in PLL section)
15	DVSS		Ground (digital section)
16	XO	O	Crystal oscillator connecting terminal
17	XI	I	Crystal oscillator connecting terminal or external clock input terminal (2.5MHz - 40.0MHz)
18	CPO	AO	PLL output terminal, connected to VIN through external analog filter)
19	TESTBRK	I+	LSI test terminal (normally unconnected)
20	TESTR1	I+	LSI test terminal (normally unconnected)
21	TESTR2	I+	LSI test terminal (normally unconnected)
22	DVDD		+5V power supply (digital section)
23	DVDD		+5V power supply (digital section)
24	TESTI20	I+	LSI test terminal (normally unconnected)
25	TESTI21	I+	LSI test terminal (normally unconnected)
26	TESTI22	I+	LSI test terminal (normally unconnected)
27	TESTI23	I+	LSI test terminal (normally unconnected)
28	TESTI24	I+	LSI test terminal (normally unconnected)
29	TESTI25	I+	LSI test terminal (normally unconnected)
30	TESTI26	I+	LSI test terminal (normally unconnected)

IC4 : YSS243B
AC3F (AC-3 5.1ch Full Decoder)

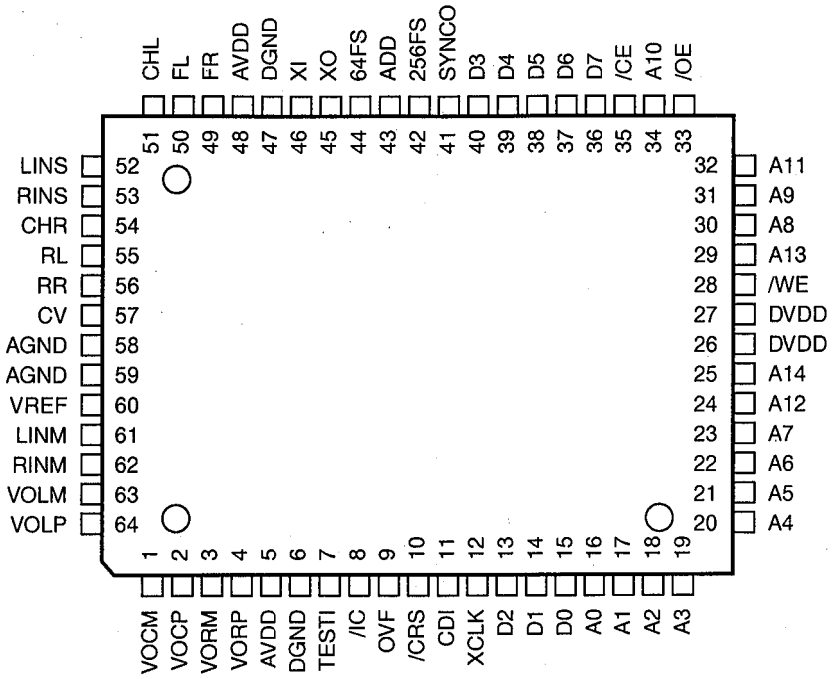
No.	Name	I/O	Function
31	TESTI27	I+	LSI test terminal (normally unconnected)
32	TESTI28	I+	LSI test terminal (normally unconnected)
33	TESTI29	I+	LSI test terminal (normally unconnected)
34	TESTI30	I+	LSI test terminal (normally unconnected)
35	/RAMWE	O	External SRAM write enable signal, "L" active
36	RAMA13	O	External SRAM address output, address 13
37	RAMA8	O	External SRAM address output, address 8
38	RAMA9	O	External SRAM address output, address 9
39	RAMA11	O	External SRAM address output, address 11
40	/RAMOE	O	External SRAM output enable signal, "L" active
41	RAMA10	O	External SRAM address output, address 10
42	/RAMCE	O	External SRAM chip enable signal, "L" active
43	RAMD7	I/O	External SRAM data terminal, data bus 7
44	RAMD6	I/O	External SRAM data terminal, data bus 6
45	RAMD5	I/O	External SRAM data terminal, data bus 5
46	RAMD4	I/O	External SRAM data terminal, data bus 4
47	RAMD3	I/O	External SRAM data terminal, data bus 3
48	DVSS		Ground (digital section)
49	DVSS		Ground (digital section)
50	RAMD2	I/O	External SRAM data terminal, data bus 2
51	RAMD1	I/O	External SRAM data terminal, data bus 1
52	RAMD0	I/O	External SRAM data terminal, data bus 0
53	RAMA0	O	External SRAM address output, address 0
54	RAMA1	O	External SRAM address output, address 1
55	RAMA2	O	External SRAM address output, address 2
56	RAMA3	O	External SRAM address output, address 3
57	RAMA4	O	External SRAM address output, address 4
58	RAMA5	O	External SRAM address output, address 5
59	RAMA6	O	External SRAM address output, address 6
60	RAMA7	O	External SRAM address output, address 7
61	RAMA12	O	External SRAM address output, address 12
62	RAMA14	O	External SRAM address output, address 14
63	IPORT0	I+	DIR sampling frequency input 0 (FS0)
64	IPORT1	I+	DIR sampling frequency input 1 (FS1)
65	IPORT2	I+	General purpose input terminal
66	IPORT3	I+	General purpose input terminal
67	IPORT4	I+	DIR pre-emphasis detect (EMP)
68	IPORT5	I+	General purpose input terminal
69	IPORT6	I+	General purpose input terminal
70	IPORT7	I+	General purpose input terminal
71	DVDD		+5V power supply (digital section)
72	DVDD		+5V power supply (digital section)
73	SDO3	O	PCM output terminal (MIX0, MIX1 output)
74	SDO2	O	PCM output terminal (C, LFE output)
75	SDO1	O	PCM output terminal (LS, RS output)
76	SDO0	O	PCM output terminal (L, R output)
77	/SDOBCK	O	Inverted signal of SDOBCK output
78	SDOBCK	I+	SDO output signal bit clock input terminal
79	SDOWCK	I+	SDO output signal word clock input terminal
80	AC3DATA	O	AC-3 bit stream data detect terminal
81	CRC	O	CRC error detect terminal (when decoding AC-3 bit stream data)

IC4 : YSS243B
AC3F (AC-3 5.1ch Full Decoder)

No.	Name	I/O	Function
82	MUTE	O	Output data mute detect terminal
83	KARAOKE	O	AC-3 karaoke data detect terminal
84	/IC	Is	Initial clear terminal
85	/CS	Is	Microprocessor interface chip select input terminal
86	SO	O	Microprocessor interface serial data output terminal
87	SI	Is	Microprocessor interface serial data input terminal
88	SCK	Is	Microprocessor interface serial clock input terminal
89	SDI1	I	AC-3 bit stream (or PCM) data input terminal
90	SDI0	I	AC-3 bit stream (or PCM) data input terminal
91	SDIBCK	I	Bit clock input terminal for SDI input signal
92	SDIWCK	I	Word clock input terminal for SDI input signal
93	DVSS		Ground (digital section)
94	DVSS		Ground (digital section)
95	OPORT7	O	General purpose output terminal
96	OPORT6	O	General purpose output terminal
97	OPORT5	O	DIGITAL INPUT SELECTOR control signal A (DIA) (TV/DBS : H)
98	OPORT4	O	Switching DIR forced internal synchronization (KM1)
99	OPORT3	O	DAC MUTE control signal (DMT)
100	OPORT2	O	De-emphasis control signal 1 to DAC (EMP1)
101	OPORT1	O	De-emphasis control signal 0 to DAC (EMP0)
102	OPORT0	O	Control signal to switch master clock of AC3F output master clock (CLKS)
103	TESTO14	O	LSI test terminal (normally unconnected)
104	TESTO13	O	LSI test terminal (normally unconnected)
105	TESTO12	O	LSI test terminal (normally unconnected)
106	TESTO11	O	LSI test terminal (normally unconnected)
107	TESTO10	O	LSI test terminal (normally unconnected)
108	TESTO9	O	LSI test terminal (normally unconnected)
109	TESTO8	O	LSI test terminal (normally unconnected)
110	TESTO7	O	LSI test terminal (normally unconnected)
111	TESTO6	O	LSI test terminal (normally unconnected)
112	TESTO5	O	LSI test terminal (normally unconnected)
113	TESTO4	O	LSI test terminal (normally unconnected)
114	TESTO3	O	LSI test terminal (normally unconnected)
115	TESTO2	O	LSI test terminal (normally unconnected)
116	TESTO1	O	LSI test terminal (normally unconnected)
117	TESTO0	O	LSI test terminal (normally unconnected)
118	TESTI0	I+	LSI test terminal (normally unconnected)
119	TESTI1	I+	LSI test terminal (normally unconnected)
120	TESTI2	I+	LSI test terminal (normally unconnected)
121	TESTI3	I+	LSI test terminal (normally unconnected)
122	TESTI4	I+	LSI test terminal (normally unconnected)
123	TESTI5	I+	LSI test terminal (normally unconnected)
124	TESTI6	I+	LSI test terminal (normally unconnected)
125	TESTI7	I+	LSI test terminal (normally unconnected)
126	TESTI8	I+	LSI test terminal (normally unconnected)
127	TESTI9	I+	LSI test terminal (normally unconnected)
128	TESTI10	I+	LSI test terminal (normally unconnected)

AI : Input AO : Output I+ : Built-in pull up resistance Is : Schmidt input

IC7 : YSS245
HL3 (Dolby-Pro-Logic Decoder + DSP)



No.	Name	I/O	Function
1	VOCM	AO	Cch multiplying DAC (-) side output, connected to (-) terminal of Cch operation amplifier
2	VOCP	AO	Cch multiplying DAC (+) side output, connected to (+) terminal of Cch operation amplifier
3	VORM	AO	Rch multiplying DAC (-) side output, connected to (-) terminal of Rch operation amplifier
4	VORP	AO	Rch multiplying DAC (+) side output, connected to (+) terminal of Rch operation amplifier
5	AVDD		+5V power supply (analog section)
6	DGND		Ground (digital section)
7	TESTI	Ic	Test terminal, connected to DGND
8	/IC	Ics	Initial clear terminal
9	OVF	O	Input (LINS, RINS or ADD) overflow detect terminal
10	/CRS	Its	Serial microprocessor interface reset terminal
11	CDI	Its	Serial microprocessor interface data input terminal
12	XCLK	Its	Serial microprocessor interface clock terminal
13	D2	It/O	External PSRAM terminal, connected to external PSRAM data terminal
14	D1	It/O	External PSRAM terminal, connected to external PSRAM data terminal
15	D0	It/O	External PSRAM terminal, connected to external PSRAM data terminal
16	A0	O	External PSRAM terminal, connected to external PSRAM address terminal
17	A1	O	External PSRAM terminal, connected to external PSRAM address terminal
18	A2	O	External PSRAM terminal, connected to external PSRAM address terminal
19	A3	O	External PSRAM terminal, connected to external PSRAM address terminal
20	A4	O	External PSRAM terminal, connected to external PSRAM address terminal
21	A5	O	External PSRAM terminal, connected to external PSRAM address terminal
22	A6	O	External PSRAM terminal, connected to external PSRAM address terminal
23	A7	O	External PSRAM terminal, connected to external PSRAM address terminal
24	A12	O	External PSRAM terminal, connected to external PSRAM address terminal
25	A14	O	External PSRAM terminal, connected to external PSRAM address terminal
26	DVDD		+5V terminal (digital section)

IC7 : YSS245
HL3 (Dolby-Pro-Logic Decoder + DSP)

No.	Name	I/O	Function
27	DVDD		+5V terminal (digital section)
28	/WE	O	External PSRAM terminal, connected to external PSRAM /WE terminal
29	A13	O	External PSRAM terminal, connected to external PSRAM address terminal
30	A8	O	External PSRAM terminal, connected to external PSRAM address terminal
31	A9	O	External PSRAM terminal, connected to external PSRAM address terminal
32	A11	O	External PSRAM terminal, connected to external PSRAM address terminal
33	/OE	O	External PSRAM terminal, connected to external PSRAM /OE terminal
34	A10	O	External PSRAM terminal, connected to external PSRAM address terminal
35	/CE	O	External PSRAM terminal, connected to external PSRAM /CE terminal
36	D7	It/O	External PSRAM terminal, connected to external PSRAM data terminal
37	D6	It/O	External PSRAM terminal, connected to external PSRAM data terminal
38	D5	It/O	External PSRAM terminal, connected to external PSRAM data terminal
39	D4	It/O	External PSRAM terminal, connected to external PSRAM data terminal
40	D3	It/O	External PSRAM terminal, connected to external PSRAM data terminal
41	SYNCO	O	fs (word) clock output terminal for external A/D converter
42	256FS	O	256fs clock output terminal for external A/D converter
43	ADD	It	Data input terminal for external A/D converter
44	64FS	O	64fs clock output terminal for external A/D converter
45	XO	O	Crystal oscillator connecting terminal
46	XI	Ic	Crystal oscillator connecting terminal (11.2896MHz)
47	DGND		Ground (digital section)
48	AVDD		+5V terminal (analog section)
49	FR	AO	FRch D/A output terminal
50	FL	AO	FLch D/A output terminal
51	CHL	AI/O	Capacitor connecting terminal for LINS input sample/hold
52	LINS	AI	Lch built-in A/D input terminal
53	RINS	AI	Rch built-in A/D input terminal
54	CHR	AI/O	Capacitor connecting terminal for RINS input sample/hold
55	RL	AO	RLch built-in D/A output terminal
56	RR	AO	RRch built-in D/A output terminal
57	CV	AO	Built-in A/D, D/A center potential output terminal
58	AGND		Ground (analog section)
59	AGND		Ground (analog section)
60	VREF	AI	Built-in multiplying DAC reference potential input terminal
61	LINM	AI	Lch built-in multiplying DAC input terminal
62	RINM	AI	Rch built-in multiplying DAC input terminal
63	VOLM	AO	Lch multiplying DAC (-) side output, connected to Lch operation amplifier (-) terminal
64	VOLP	AO	Lch multiplying DAC (+) side output, connected to Lch operation amplifier (+) terminal

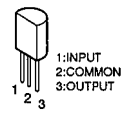
Note : Letters used in the above I/O column represent as follows.

Ic : CMOS level input terminal
It : TTL level input terminal
Is : Schmidt trigger input terminal
O : Digital output terminal
AI : Analog input terminal
AO : Analog output terminal

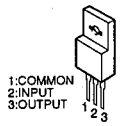
■ PIN CONNECTION DIAGRAM

● ICs

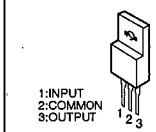
NJM78L05A



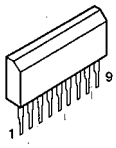
AN79M15F



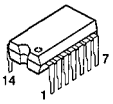
AN7805F
AN78M15F



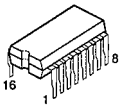
µPC4570HA



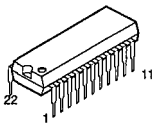
TC74HCU04AP



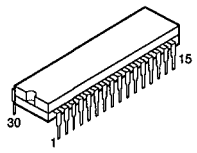
TC74HC153AP
TC9299P



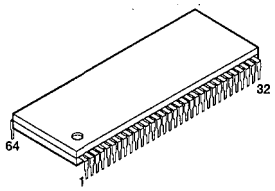
LC7535



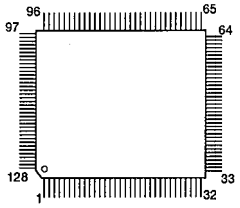
LC78213



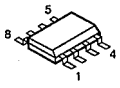
HD6433712C63P



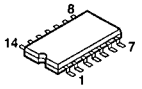
YSS243B



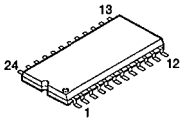
NJM2904M-T1
NJM4558MT-1
µPC4570G2



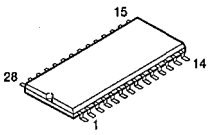
TC74HC02AF-TP1
TC74HC157AF-TP1



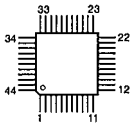
AK4320-VM



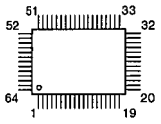
LH5P832N-10
UM61256FS-15Q



YM3436DK



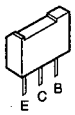
YSS245



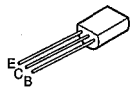
● Transistors

2SA1037K(Q, R, S)
2SC3326 (A, B)
DTA144EK

2SB1237 (Q, R)

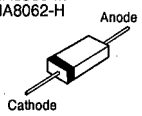


2SB2878 (A, B)

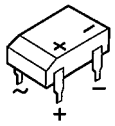


● Diodes

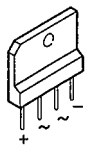
1SS355
1SR154-400
MA8051-M
MA8300-M
MA8062-H



S1NB20



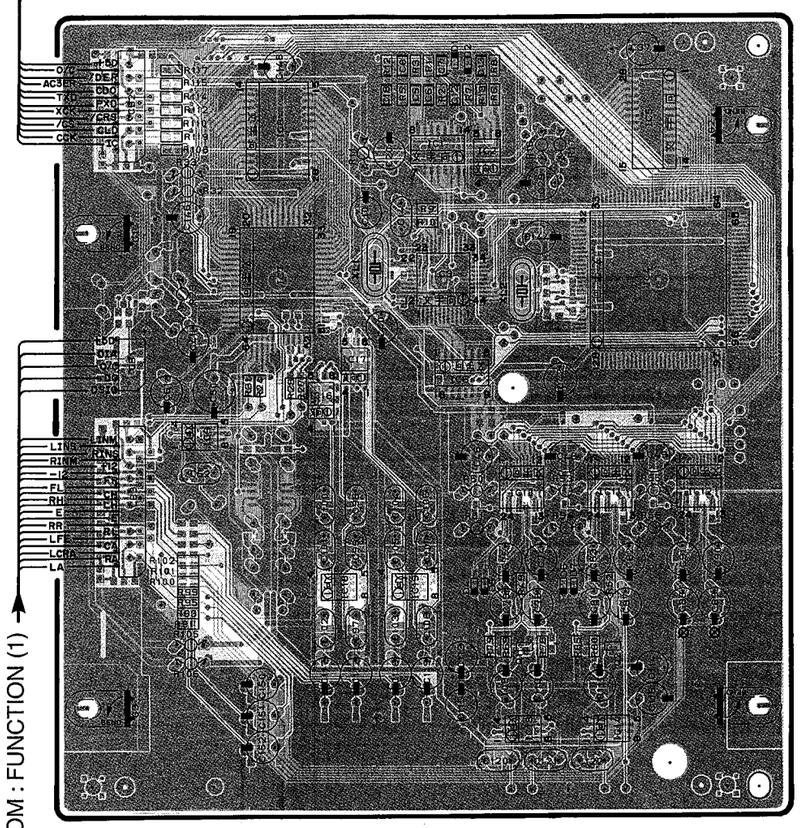
D3SBA20



■ PRINTED CIRCUIT BOARD (Foil side) /シート図（パターン側）

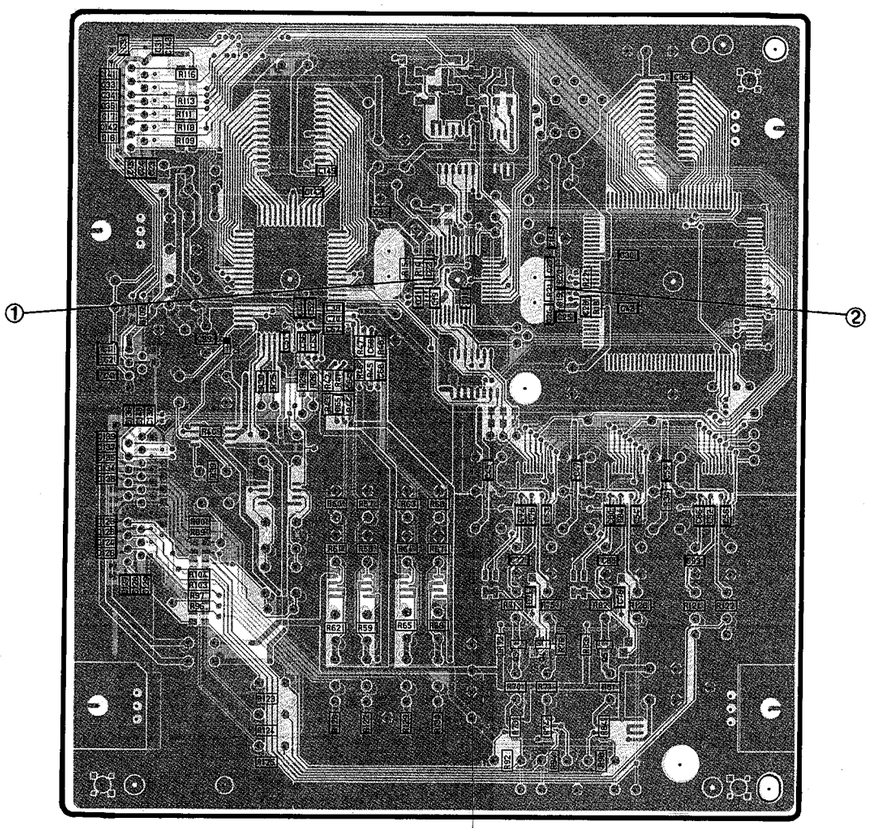
P. C. B. DSP

FROM : OPERATION

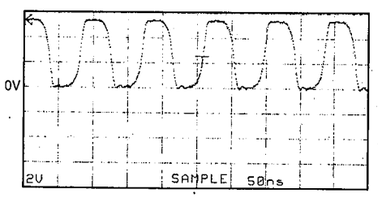


FROM : FUNCTION (1)

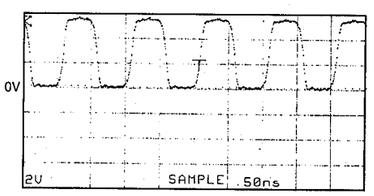
P. C. B. DSP



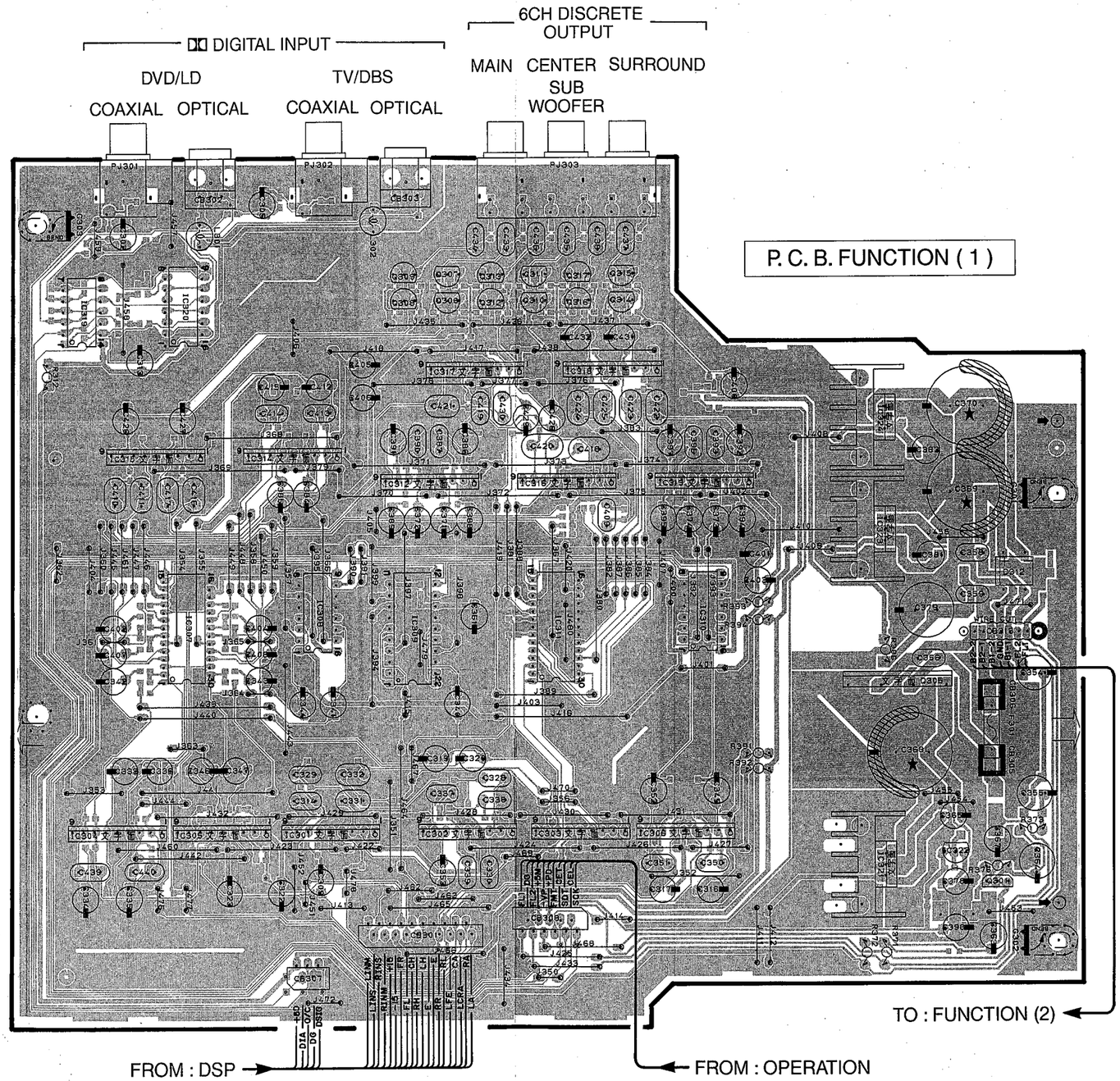
Point ① (Pin13 of IC3)
V : 2V/divH : 50 nsec/div
DC range 1 : 1 probe



Point ② (Pin16 of IC4)
V : 2V/divH : 50 nsec/div
DC range 1 : 1 probe

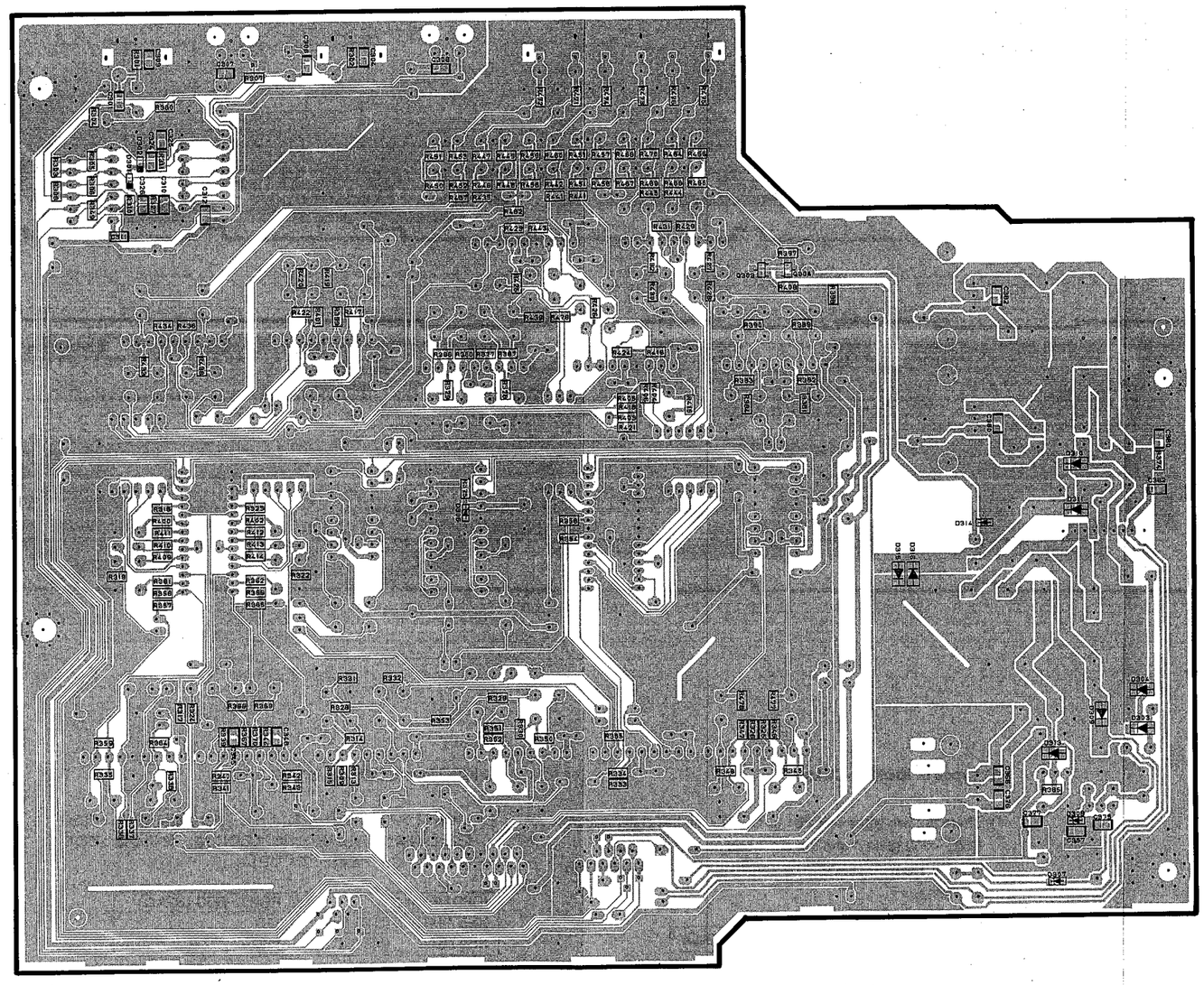


■ PRINTED CIRCUIT BOARD (Foil side) /シート図（パターン側）



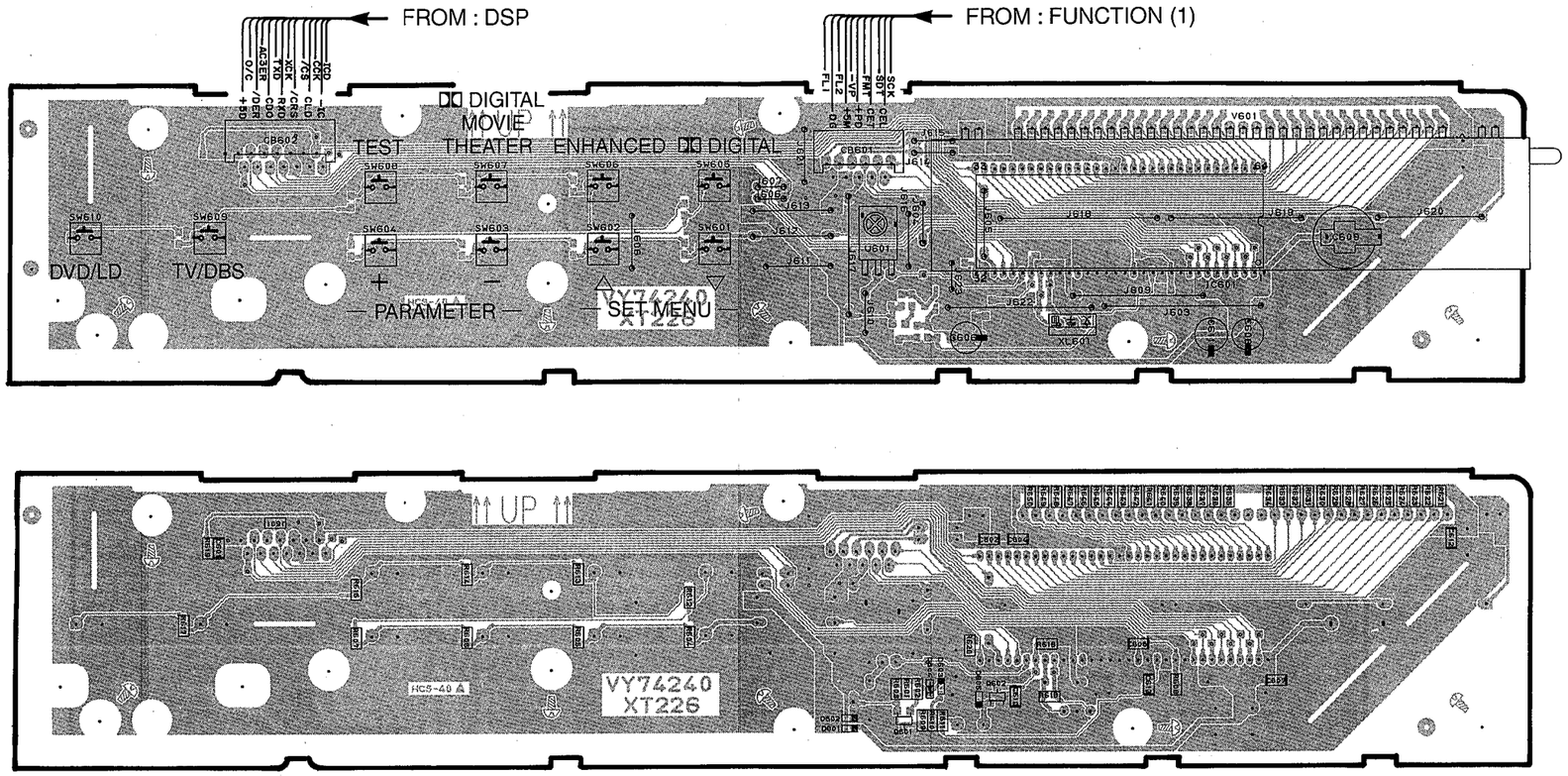
■ PRINTED CIRCUIT BOARD (Foil side) /シート図（パターン側）

P. C. B. FUNCTION (1)



■ PRINTED CIRCUIT BOARD (Foil side) /シート図（パターン側）

P. C. B. OPERATION



◎ Types of IC601 (μ-COM)

1) There are two types of IC601 (μ-COM). One has chip resistors R621 - 650 (82kΩ) and the other has no such resistors. Identify the type of IC601 by checking the label attached on each one.

Type of IC601	R621 - 650 (82kΩ)
XS574A0 (OTP type)	Included
XS575A0 (Mask type)	Not included

2) As a service part of IC601, only XS575A0 (Mask type) is available.

3) When the XS574A0 type IC 601 has been replaced with an XS575A0 type, remove chip resistors R621 - 650 (82kΩ).

◎ IC601(μ-COM)のタイプについて

1) IC601(μ-COM)のタイプによって、チップ抵抗R621～650 (82kΩ)は有り／無しがあります。IC601には、ラベルが貼ってありますので、タイプを確認してください。

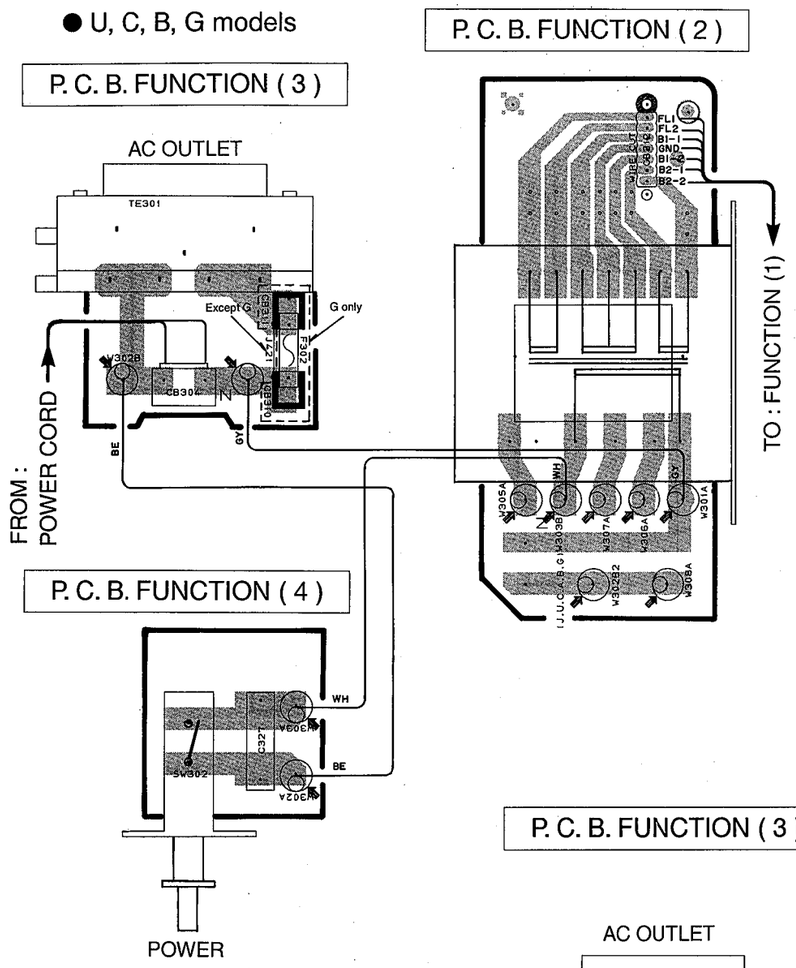
IC601のタイプ		R621～650 (82kΩ)
XS574A0	(OTP type)	有り
XS575A0	(Mask type)	無し

2) IC601のサービスパーツは、XS575A0(Mask type)のみを供給します。

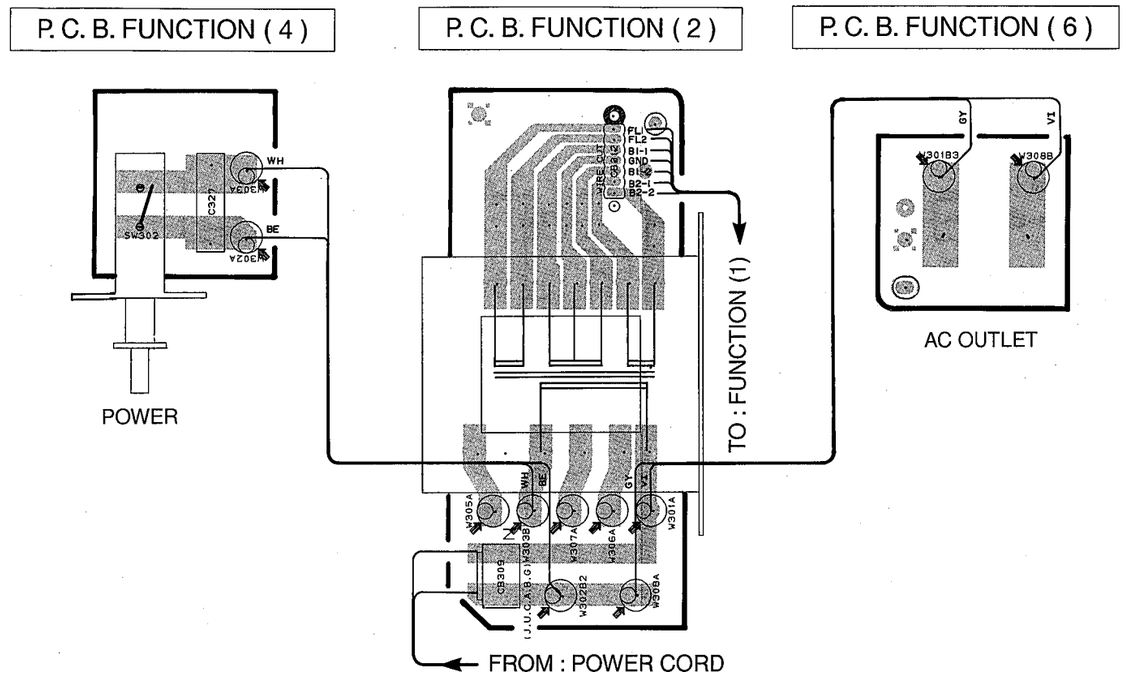
3) IC601を部品交換して、XS574A0からXS575A0に変更した場合は、R621～ 650 (82kΩ)を取り外してください。

■ PRINTED CIRCUIT BOARD (Foil side) /シート図（パターン側）

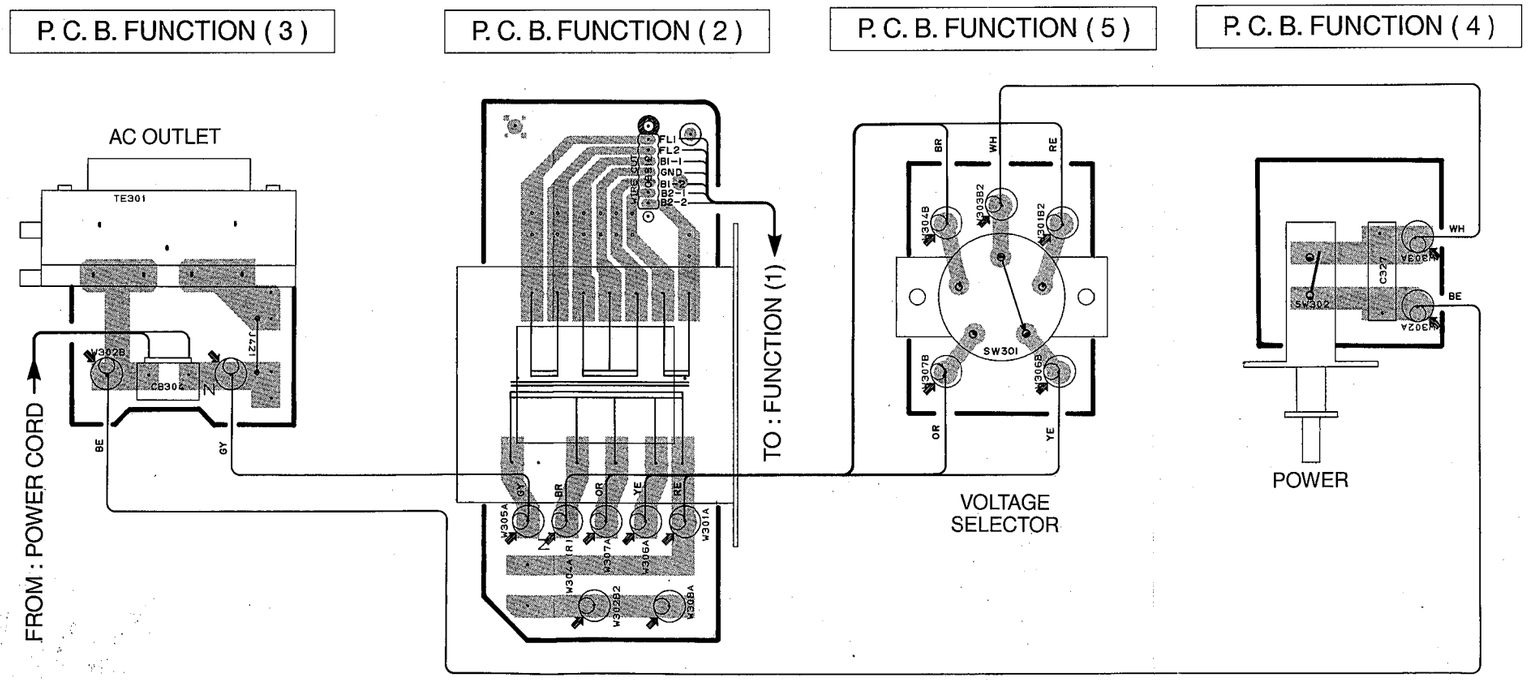
● U, C, B, G models



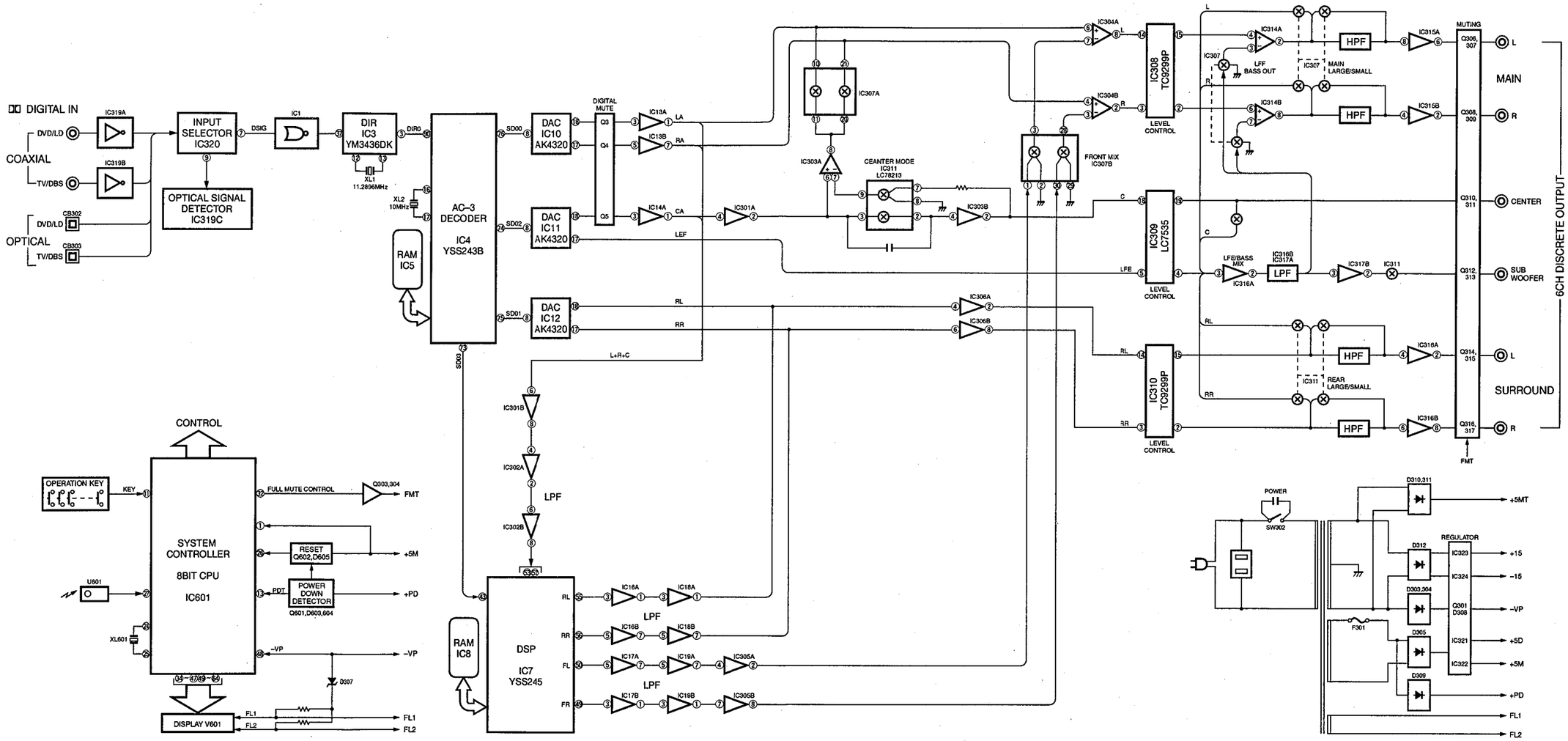
● A model



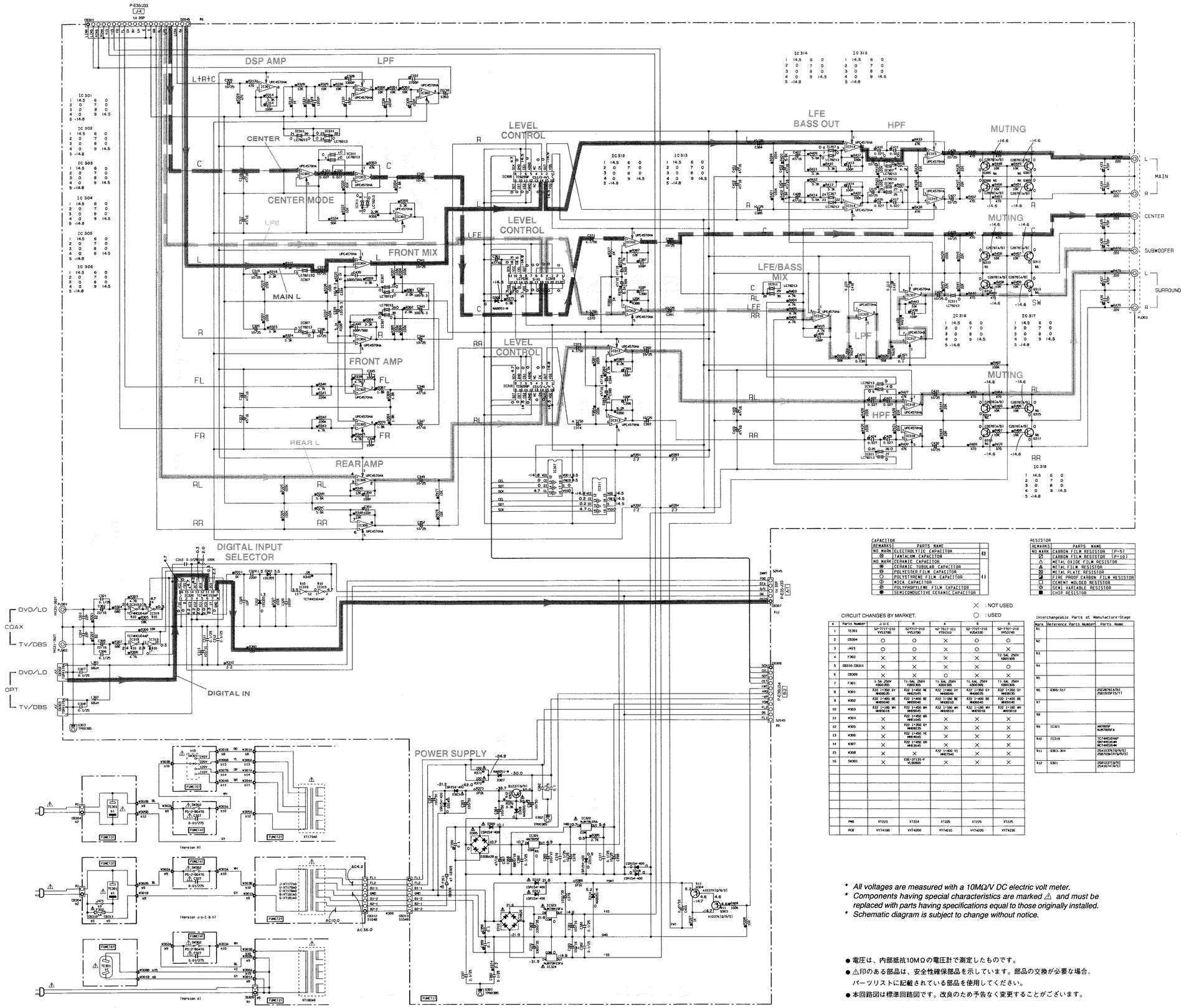
● R model



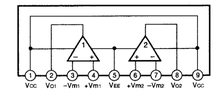
■ BLOCK DIAGRAM /ブロックダイアグラム



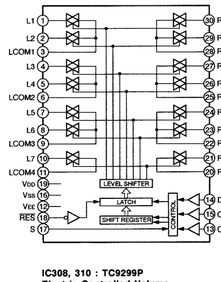
■ SCHEMATIC DIAGRAM (FUNCTION) /総回路図



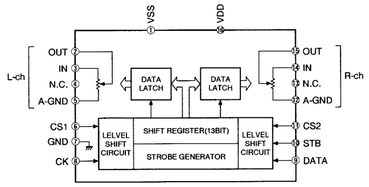
IC301~306, 312~318 : μPC4570HA
Dual OP-Amp



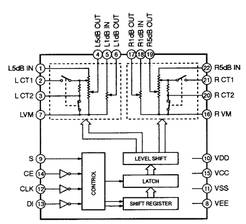
IC307, 311 : LC78213
Analog Function Switch



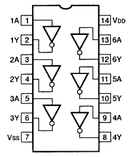
IC308, 310 : TC9299P
Electric Controlled Volume



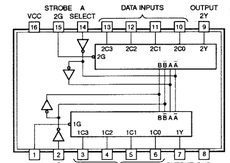
IC309 : LC7535
Electric Controlled Volume



IC319 : TC74HCUO4AP
Hex Inverters



IC320 : TC74HC153AP
Dual 4 to 1 Data Selectors



INPUTS		OUTPUT
SELECT	STROBE	Y
B A	G	
X X	H	L
L L	L	C0
L H	L	C1
H L	L	C2
H H	L	C3

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊖	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊗	CERAMIC TUBULAR CAPACITOR
⊖	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
Ⓜ	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
◇	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CIRCUIT CHANGES BY MARKET.

× : NOT USED
○ : USED

⊘	Parts Number	J.U.C	R	A	B	G
1	TE301	SP-7717-210 VY53780	SP7717-210 VY53780	SP-7617-101 VY59140	SP-7721-210 VY54330	SP-7701-210 VY53740
2	CB304	○	○	×	○	○
3	J421	○	○	×	○	×
4	F302	×	×	×	×	T2.5AL 250V K80130X
5	CB310-CB311	×	×	×	×	○
6	CB309	×	×	○	×	×
7	F301	1.5A 250V K80135X	T1.6AL 250V K80130X	T1.6AL 250V K80130X	T1.6AL 250V K80130X	T1.6AL 250V K80130X
8	W301	#22 1×350 GY MH80635	#22 1×450 BE MH80645	#22 1×400 BE MH80640	#22 1×350 GY MH80635	#22 1×350 GY MH80635
9	W302	#22 1×400 BE MH80640	#22 1×400 BE MH80640	#22 1×400 BE MH80640	#22 1×400 BE MH80640	#22 1×400 BE MH80640
10	W303	#22 1×280 WH MH80618	#22 1×450 WH MH80635	#22 1×280 WH MH80618	#22 1×280 WH MH80618	#22 1×280 WH MH80618
11	W304	×	#22 1×450 BR MH81045	×	×	×
12	W305	×	#22 1×350 GY MH80635	×	×	×
13	W306	×	#22 1×450 YE MH81445	×	×	×
14	W307	×	#22 1×450 OR MH81345	×	×	×
15	W308	×	×	#22 1×400 VI MH81940	×	×
16	SW301	×	ESE-37131-F VL90900	×	×	×
	PWB	XT223	XT224	XT225	XT225	XT225
	PCB	VY74190	VY74200	VY74210	VY74200	VY74230

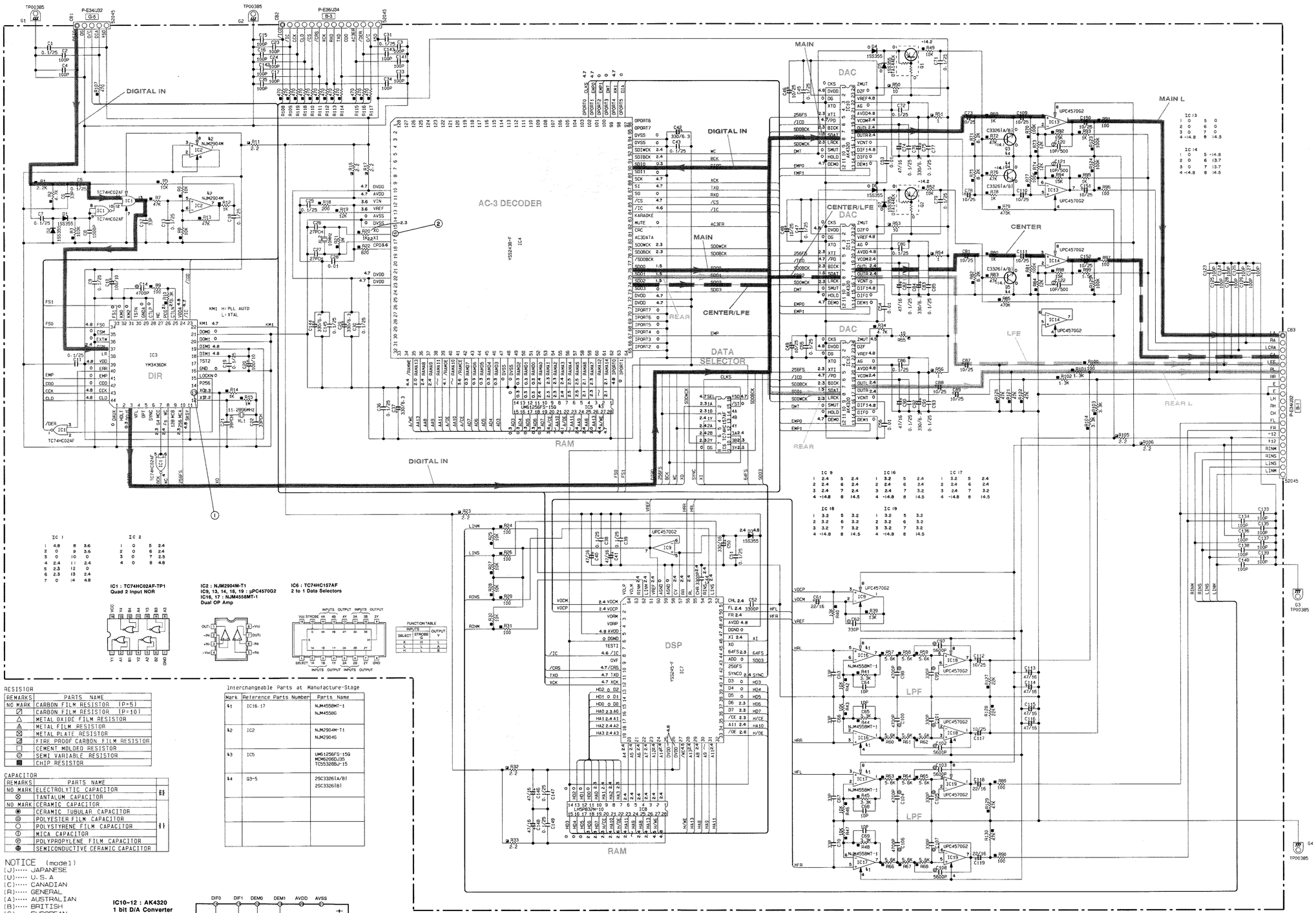
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1		
&2		
&3		
&4		
&5		
&6	Q306-317	2SC2878(A/B) 2SD1859(F/G/Y)
&7		
&8		
&9	IC321	AN7805F NJM7805FA
&10	IC319	TC74HCU04AP SN74HCU04N MC74HCU04N
&11	Q303-304	2SA1037K(R/S/T) 2SB709A(R/S/T)
&12	Q301	2SB1237(E/F) 2SA1674(E/F)

* *All voltages 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.*

● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ⚠印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
● 本回路図は標準回路図です。改良のため予告なく変更することがございます。

■ SCHEMATIC DIAGRAM (DSP) /総回路図



RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	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	⫫
◉	CERAMIC TUBULAR CAPACITOR	⫫
◎	POLYESTER FILM CAPACITOR	⫫
○	POLYSTYRENE FILM CAPACITOR	⫫
⊙	MICA CAPACITOR	⫫
◍	POLYPROPYLENE FILM CAPACITOR	⫫
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR	⫫

Interchangeable Parts at Manufacture-Stage

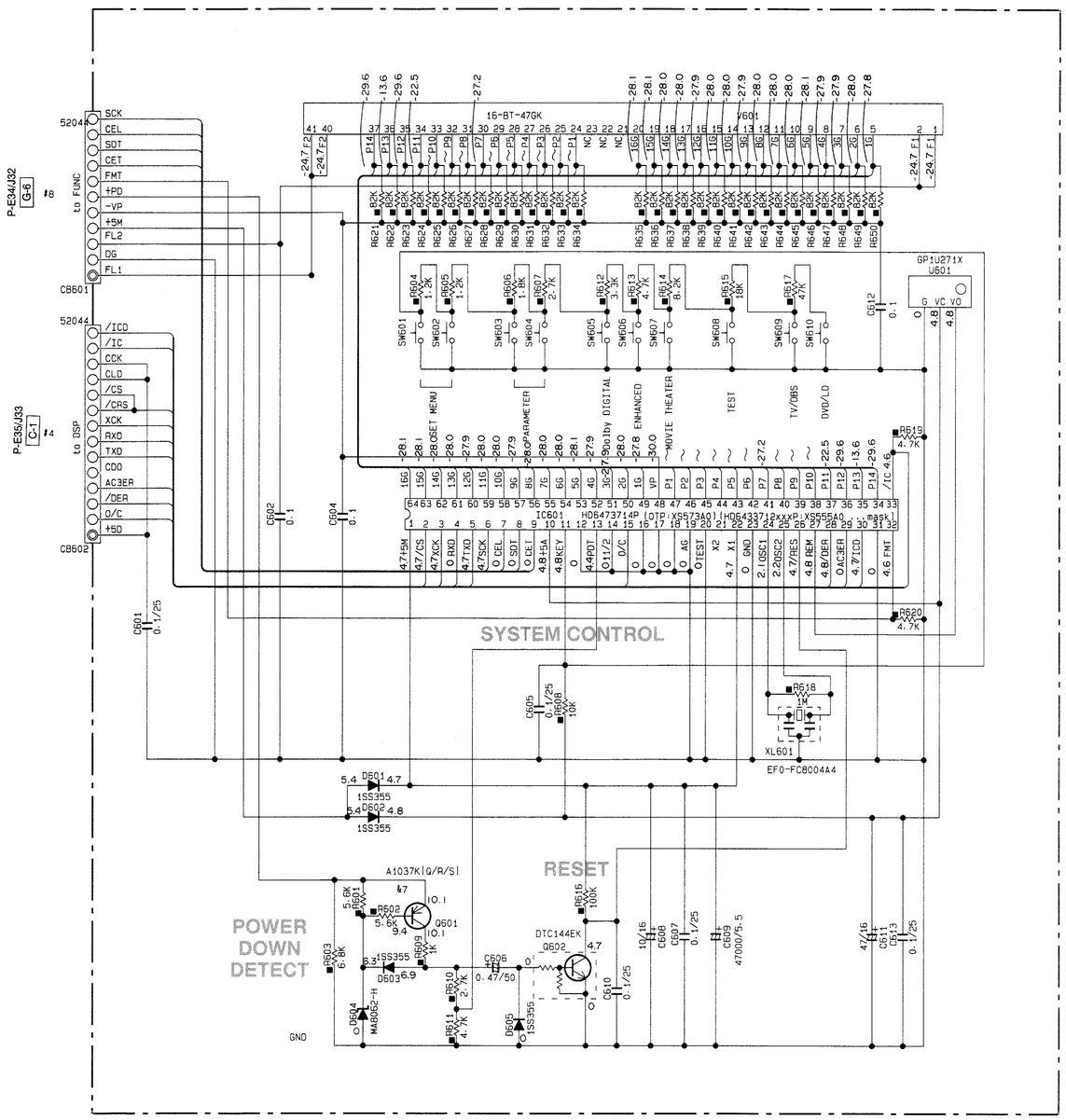
Mark	Reference Parts Number	Parts Name
k1	IC16,17	NJM4558MT-1 NJM4558G
k2	IC2	NJM2904M-T1 NJM2904G
k3	IC5	UM61256FS-15G MCM6206DJ35 TC55328BJ-15
k4	Q3-5	2SC3326(A/B) 2SC3326(B)

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

* All voltages 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.

● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ⚠印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
● 本回路図は標準回路図です。改良のため予告なく変更することがございます。

■ SCHEMATIC DIAGRAM (OPERATION) /総回路図



IC601 : HD6473714P → See page E-13/J-11

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
▨	CARBON FILM RESISTOR (P=10)
△	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	‡
◉	CERAMIC TUBULAR CAPACITOR	‡
◎	POLYESTER FILM CAPACITOR	‡
○	POLYSTYRENE FILM CAPACITOR	‡
◐	MICA CAPACITOR	‡
Ⓟ	POLYPROPYLENE FILM CAPACITOR	‡
●	SEMICONDUCTIVE CERAMIC CAPACITOR	‡

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

◎ Types of IC601 (μ-COM)

1) There are two types of IC601 (μ-COM). One has chip resistors R621 - 650 (82kΩ) and the other has no such resistors. Identify the type of IC601 by checking the label attached on each one.

Type of IC601	R621 - 650 (82kΩ)
XS574A0 (OTP type)	Included
XS575A0 (Mask type)	Not included

2) As a service part of IC601, only XS575A0 (Mask type) is available.

3) When the XS574A0 type IC 601 has been replaced with an XS575A0 type, remove chip resistors R621 - 650 (82kΩ).

◎ IC601(μ-COM)のタイプについて

1) IC601(μ-COM)のタイプによって、チップ抵抗R621～650 (82kΩ)は有り／無しがあります。IC601には、ラベルが貼ってありますので、タイプを確認してください。

IC601のタイプ		R621～650 (82kΩ)
XS574A0	(OTP type)	有り
XS575A0	(Mask type)	無し

2) IC601のサービスパーツは、XS575A0(Mask type)のみを供給します。

3) IC601を部品交換して、XS574A0からXS575A0に変更した場合は、R621～650 (82kΩ)を取り外してください。

** All voltages 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.*

● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ⚠印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
● 本回路図は標準回路図です。改良のため予告なく変更することがございます。

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 part Nos. of the carbon resistors refer to the last page.
- Flame proof carbon resistors and chip resistors are listed on page 42.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	: CHIP ALUMI. ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED, INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR, RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN, TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR, BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR, CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR, DIN	SCR.TR	: SCREW, TRANSISTOR
CN.FLAT	: CONNECTOR, FLAT CABLE	SUPRT.PCB	: SUPPORT, P.C.B.
CN.POST	: CONNECTOR, BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL, AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL, FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL, FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL, FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'y
FLTR.LC.RF	: LC FILTER ,EMI	TUNER.AM	: TUNER PACK, AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK, FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-END TUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER, TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

P.C.B. DSP

	Schm Ref.	PART NO.	Description		
*		VY741800	P.C.B.	DSP	
	CB1	VQ046900	CN.BS.PIN	5P	
	CB2	VN394900	CN.BS.PIN	14P	
	CB3	VQ047500	CN.BS.PIN	20P	
	C1	UB245100	C.CE.M.CHP	0.1uF	25V
	C2～4	UB052100	C.CE.M.CHP	100pF	50V
	C5	UB245100	C.CE.M.CHP	0.1uF	25V
	C6	UB051330	C.CE.M.CHP	33pF	50V
	C7	UB245100	C.CE.M.CHP	0.1uF	25V
	C8	UB013100	C.CE.M.CHP	1000pF	50V
	C9	UB245100	C.CE.M.CHP	0.1uF	25V
	C10	VF760000	C.EL	100uF	10V
	C11	UB245100	C.CE.M.CHP	0.1uF	25V
	C12	UB051330	C.CE.M.CHP	33pF	50V
	C13	UB245100	C.CE.M.CHP	0.1uF	25V
	C14	UA653470	C.MYLAR	4700pF	50V
	C15	UB052100	C.CE.M.CHP	100pF	50V
	～17	UB052100	C.CE.M.CHP	100pF	50V
	C18	UB245100	C.CE.M.CHP	0.1uF	25V
	C19	UB245100	C.CE.M.CHP	0.1uF	25V
	C20	VF760000	C.EL	100uF	10V
	C21	VJ900900	C.CE.M.CHP	39pF	50V
	C22	VJ900700	C.CE.M.CHP	33pF	50V
	C23	UB052100	C.CE.M.CHP	100pF	50V
	C24	UB052100	C.CE.M.CHP	100pF	50V
	C25	UB245100	C.CE.M.CHP	0.1uF	25V
	C26	VJ900500	C.CE.M.CHP	27pF	50V
	C27	VJ900500	C.CE.M.CHP	27pF	50V
	C28	UB044100	C.CE.M.CHP	0.01uF	50V
	C29	VJ836300	C.EL	330uF	6.3V
	C30	UB245100	C.CE.M.CHP	0.1uF	25V
	C31	UB245100	C.CE.M.CHP	0.1uF	25V
	C33	UB052100	C.CE.M.CHP	100pF	50V
	～35	UB052100	C.CE.M.CHP	100pF	50V
	C36	UB245100	C.CE.M.CHP	0.1uF	25V
	C37	VJ836300	C.EL	330uF	6.3V
	C38	UB245100	C.CE.M.CHP	0.1uF	25V
	C39	UB245100	C.CE.M.CHP	0.1uF	25V
	C40	VJ837200	C.EL	47uF	16V
	C41	VJ837200	C.EL	47uF	16V
	C42	VJ836300	C.EL	330uF	6.3V
	C43	UB245100	C.CE.M.CHP	0.1uF	25V
	C44	UB013330	C.CE.M.CHP	3300pF	50V
	C45	UB245100	C.CE.M.CHP	0.1uF	25V
	C46	UM417100	C.EL	10uF	50V
	C47	UB245100	C.CE.M.CHP	0.1uF	25V
	C48	UM417100	C.EL	10uF	50V
	C49	UM417100	C.EL	10uF	50V
	C50	UJ638330	C.EL	330uF	16V
	C51	UB245100	C.CE.M.CHP	0.1uF	25V
	C52	UB013330	C.CE.M.CHP	3300pF	50V
	C53	UB044100	C.CE.M.CHP	0.01uF	50V
	C54	UB044100	C.CE.M.CHP	0.01uF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C55	UB245100	C.CE.M.CHP	0.1uF	25V
C56	UB044100	C.CE.M.CHP	0.01uF	50V
C61	UM407220	C.EL	22uF	25V
C62	UA652330	C.MYLAR	330pF	50V
C63	VJ900700	C.CE.M.CHP	33pF	50V
C64	UB051100	C.CE.M.CHP	10pF	50V
C65	UB051100	C.CE.M.CHP	10pF	50V
C66	VJ900700	C.CE.M.CHP	33pF	50V
C67	VJ900700	C.CE.M.CHP	33pF	50V
C68	UB051100	C.CE.M.CHP	10pF	50V
C69	UB051100	C.CE.M.CHP	10pF	50V
C70	VJ900700	C.CE.M.CHP	33pF	50V
C71	UB245100	C.CE.M.CHP	0.1uF	25V
C72	UB245100	C.CE.M.CHP	0.1uF	25V
C73	UM417100	C.EL	10uF	50V
C74	VJ837200	C.EL	47uF	16V
C75	VJ836300	C.EL	330uF	6.3V
C76	UB245100	C.CE.M.CHP	0.1uF	25V
C77	UB245100	C.CE.M.CHP	0.1uF	25V
C78	UM417100	C.EL	10uF	50V
C79	UB245100	C.CE.M.CHP	0.1uF	25V
C80	UB245100	C.CE.M.CHP	0.1uF	25V
C81	UM417100	C.EL	10uF	50V
C82	VJ837200	C.EL	47uF	16V
C83	VJ836300	C.EL	330uF	6.3V
C84	UB245100	C.CE.M.CHP	0.1uF	25V
～86	UB245100	C.CE.M.CHP	0.1uF	25V
C87	UM417100	C.EL	10uF	50V
～89	UM417100	C.EL	10uF	50V
C90	VJ837200	C.EL	47uF	16V
C91	VJ836300	C.EL	330uF	6.3V
C92	UB245100	C.CE.M.CHP	0.1uF	25V
C93	UB245100	C.CE.M.CHP	0.1uF	25V
C97	UA653560	C.MYLAR	5600pF	50V
C98	UA653470	C.MYLAR	4700pF	50V
C99	UA652330	C.MYLAR	330pF	50V
C100	UA653470	C.MYLAR	4700pF	50V
C101	UA652330	C.MYLAR	330pF	50V
C102	UA653560	C.MYLAR	5600pF	50V
C103	UA653560	C.MYLAR	5600pF	50V
C104	UA653470	C.MYLAR	4700pF	50V
C105	UA652330	C.MYLAR	330pF	50V
C106	UA653470	C.MYLAR	4700pF	50V
C107	UA652330	C.MYLAR	330pF	50V
C108	UA653560	C.MYLAR	5600pF	50V
C109	UM417100	C.EL	10uF	50V
～112	UM417100	C.EL	10uF	50V
C113	VJ837200	C.EL	47uF	16V
～116	VJ837200	C.EL	47uF	16V
C117	UM417100	C.EL	10uF	50V
C118	UM407220	C.EL	22uF	25V
C119	UM407220	C.EL	22uF	25V
C120	FU451100	C.MICA	10pF	500V

* New Parts

P.C.B. DSP & FUNCTION

	Schm Ref.	PART NO.	Description	
	~122	FU451100	C.MICA	10pF 500V
	C123	UB052100	C.CE.M.CHP	100pF 50V
	~143	UB052100	C.CE.M.CHP	100pF 50V
	C144	VJ836300	C.EL	330uF 6.3V
	C145	UB245100	C.CE.M.CHP	0.1uF 25V
	C146	VJ837200	C.EL	47uF 16V
	C147	UB245100	C.CE.M.CHP	0.1uF 25V
	C148	VJ837200	C.EL	47uF 16V
	C149	UB245100	C.CE.M.CHP	0.1uF 25V
	C150	UM417100	C.EL	10uF 50V
	~152	UM417100	C.EL	10uF 50V
	D1~7	VT332900	DIODE	1SS355
	G1~4	VR463400	TERM.GND	D3.5 TP00385
	IC1	XD600A00	IC	TC74HC02AF-TP1 NOR
	IC2	XR038A00	IC	NJM2904M OP AMP
	IC3	XG948E00	IC	YM3436DK
	IC4	XS462B00	IC	YSS243B-F/AC3F
*	IC5	XS282A00	IC	UM61256FS-15Q SRAM
	IC6	XH603A00	IC	TC74HC157AF-TP1
*	IC7	XS463A00	IC	YSS245-F/HLDSP3
	IC8	XQ545A00	IC	LH5P832N-10 PS-RAM
	IC9	XF291A00	IC	uPC4570G2
	IC10	XR361A00	IC	AK4320-VM-E1
	~12	XR361A00	IC	AK4320-VM-E1
	IC13	XF291A00	IC	uPC4570G2
	IC14	XF291A00	IC	uPC4570G2
	IC16	iG103520	IC	NJM4558MT-1
	IC17	iG103520	IC	NJM4558MT-1
	IC18	XF291A00	IC	uPC4570G2
	IC19	XF291A00	IC	uPC4570G2
	Q1	VC124000	TR.DGT	DTA144EK
	Q2	VC124000	TR.DGT	DTA144EK
	Q3~5	VD303700	TR	2SC3326 A,B
	XL1	Vi551900	RSNR.CRYS	11.2896MHz
	XL2	VM651900	RSNR.CRYS	10.0MHz
*		VY741900	P.C.B.	FUNCTION(UC)
*		VY742000	P.C.B.	FUNCTION(RT)
*		VY742100	P.C.B.	FUNCTION(A)
*		VY742200	P.C.B.	FUNCTION(B)
*		VY742300	P.C.B.	FUNCTION(G)
	CB301	VQ047500	CN.BS.PIN	20P
	CB302	VT620100	L.DTCT	1P TORX178A
	CB303	VT620100	L.DTCT	1P TORX178A
	CB304	VG879900	CN.BS.PIN	2P(UCRBG)
	CB305	VP206500	HOLDER.FUS	EYF-52BC
	CB306	VP206500	HOLDER.FUS	EYF-52BC
	CB307	VQ046900	CN.BS.PIN	5P
	CB308	VM859500	CN.BS.PIN	11P
	CB309	VG879900	CN.BS.PIN	2P(A)
	CB310	VP206500	HOLDER.FUS	EYF-52BC(G)

*New Parts

	Schm Ref.	PART NO.	Description	
	CB311	VP206500	HOLDER.FUS	EYF-52BC(G)
	CB312	Vi878500	CN.BS.PIN	7P
	CB313	Vi878500	CN.BS.PIN	7P
	C301	UB245100	C.CE.M.CHP	0.1uF 25V
	C302	UM407220	C.EL	22uF 25V
	C303	UB051220	C.CE.M.CHP	22pF 50V
	C304	UB051220	C.CE.M.CHP	22pF 50V
	C305	UM407220	C.EL	22uF 25V
	C306	UB245100	C.CE.M.CHP	0.1uF 25V
	~308	UB245100	C.CE.M.CHP	0.1uF 25V
	C309	UM417100	C.EL	10uF 50V
	C310	UB245100	C.CE.M.CHP	0.1uF 25V
	~312	UB245100	C.CE.M.CHP	0.1uF 25V
	C313	VF760000	C.EL	100uF 10V
	C314	UA652100	C.MYLAR	100pF 50V
	C316	VJ837200	C.EL	47uF 16V
	C317	VJ837200	C.EL	47uF 16V
	C319	UM417100	C.EL	10uF 50V
	C320	UM417100	C.EL	10uF 50V
	C322	VJ837200	C.EL	47uF 16V
	C323	VJ837200	C.EL	47uF 16V
	C324	UB012220	C.CE.M.CHP	220pF 50V
	C325	UB051100	C.CE.M.CHP	10pF 50V
	C326	UB013100	C.CE.M.CHP	1000pF 50V
⚠	C327	VS741700	C.CE.SAFTY	0.01uF 275V
	C328	UA653330	C.MYLAR	3300pF 50V
	C329	UA653120	C.MYLAR	1200pF 50V
	C330	UA652150	C.MYLAR	150pF 50V
	C331	UA654270	C.MYLAR	0.027uF 50V
	C332	UA654270	C.MYLAR	0.027uF 50V
	C333	UM417100	C.EL	10uF 50V
	C334	VF760000	C.EL	100uF 10V
	C335	VF760000	C.EL	100uF 10V
	C336	UM417100	C.EL	10uF 50V
	C337	UA653270	C.MYLAR	2700pF 50V
	C338	UA653100	C.MYLAR	1000pF 50V
	C339	UA652150	C.MYLAR	150pF 50V
	C340	UM417100	C.EL	10uF 50V
	C341	UM417100	C.EL	10uF 50V
	C342	VF760000	C.EL	100uF 10V
	C343	VF760000	C.EL	100uF 10V
	C344	UM417100	C.EL	10uF 50V
	C345	UB052100	C.CE.M.CHP	100pF 50V
	C346	VJ837200	C.EL	47uF 16V
	C347	VJ837200	C.EL	47uF 16V
	C348	UB052100	C.CE.M.CHP	100pF 50V
	C349	UM417100	C.EL	10uF 50V
	C350	UA652100	C.MYLAR	100pF 50V
	C351	UA652100	C.MYLAR	100pF 50V
	C352	UM417100	C.EL	10uF 50V
	C353	UM407220	C.EL	22uF 25V
	C354	UJ668100	C.EL	100uF 50V
	C355	UJ668100	C.EL	100uF 50V

*New Parts

P.C.B. FUNCTION

Schm Ref.	PART NO.	Description	
C356	VR168300	C.MYLAR.ML	ECQ-V1H104JL3
C357	UB245100	C.CE.M.CHP	0.1uF 25V
C358	VR168300	C.MYLAR.ML	ECQ-V1H104JL3
C359	VR168300	C.MYLAR.ML	ECQ-V1H104JL3
C360	UB245100	C.CE.M.CHP	0.1uF 25V
C361	VJ837200	C.EL	47uF 16V
C362	UB045100	C.CE.M.CHP	0.1uF 50V
C363	UM417100	C.EL	10uF 50V
C364	UJ668100	C.EL	100uF 50V
C365	VF760000	C.EL	100uF 10V
C366	UB245100	C.CE.M.CHP	0.1uF 25V
C367	VJ837200	C.EL	47uF 16V
C368	VH507200	C.EL	6800uF 16V
C369	UH159330	C.EL	3300uF 35V
C370	UH159330	C.EL	3300uF 35V
C371	UM416470	C.EL	4.7uF 50V
~374	UM416470	C.EL	4.7uF 50V
C375	UB045100	C.CE.M.CHP	0.1uF 50V
C376	UB245100	C.CE.M.CHP	0.1uF 25V
C377	UB245100	C.CE.M.CHP	0.1uF 25V
C378	UM417100	C.EL	10uF 50V
C379	VH520500	C.EL	1000uF 35V
C380	UB245100	C.CE.M.CHP	0.1uF 25V
C381	VF964800	C.EL	100uF 16V
C382	UB245100	C.CE.M.CHP	0.1uF 25V
C383	VF964800	C.EL	100uF 16V
C384	UM417100	C.EL	10uF 50V
~386	UM417100	C.EL	10uF 50V
C387	UA652100	C.MYLAR	100pF 50V
C388	VJ837200	C.EL	47uF 16V
C389	VJ837200	C.EL	47uF 16V
C390	UA652100	C.MYLAR	100pF 50V
C391	UM417100	C.EL	10uF 50V
C392	UM417100	C.EL	10uF 50V
C393	UA652100	C.MYLAR	100pF 50V
C394	VJ837200	C.EL	47uF 16V
C395	VJ837200	C.EL	47uF 16V
C396	UA652100	C.MYLAR	100pF 50V
C397	UM417100	C.EL	10uF 50V
C398	UM417100	C.EL	10uF 50V
C400	VJ839000	C.EL	0.47uF 50V
C401	VJ837200	C.EL	47uF 16V
~408	VJ837200	C.EL	47uF 16V
C409	UA652100	C.MYLAR	100pF 50V
C410	UA654270	C.MYLAR	0.027uF 50V
C411	UA654270	C.MYLAR	0.027uF 50V
C412	UM417100	C.EL	10uF 50V
C413	UA652100	C.MYLAR	100pF 50V
C414	UA652100	C.MYLAR	100pF 50V
C415	UM417100	C.EL	10uF 50V
C416	UA654270	C.MYLAR	0.027uF 50V
C417	UA654270	C.MYLAR	0.027uF 50V
C418	UA654330	C.MYLAR	0.033uF 50V

*New Parts

Schm Ref.	PART NO.	Description	
C419	UA654130	C.MYLAR	0.013uF 50V
C420	UA654390	C.MYLAR	0.039uF 50V
C421	UA655100	C.MYLAR	0.1uF 50V
C422	UA654270	C.MYLAR	0.027uF 50V
~425	UA654270	C.MYLAR	0.027uF 50V
C426	UM407220	C.EL	22uF 25V
C427	UM407220	C.EL	22uF 25V
C428	UM417100	C.EL	10uF 50V
C429	UM417100	C.EL	10uF 50V
C430	UA652100	C.MYLAR	100pF 50V
C431	UM417100	C.EL	10uF 50V
C432	UM417100	C.EL	10uF 50V
C433	UA652470	C.MYLAR	470pF 50V
~438	UA652470	C.MYLAR	470pF 50V
C439	FU452100	C.MICA	100pF 500V
C440	FU452100	C.MICA	100pF 500V
D301	VT332900	DIODE	1SS355
D302	VT332900	DIODE	1SS355
⚠ D303	VT532500	DIODE	1SR154-400
⚠ D304	VT532500	DIODE	1SR154-400
⚠ D305	VN011300	DIODE.BRG	D3SBA20 4A 200V
* D306	VU992600	DIODE.ZENR	MA8051-M 5.1V
* D307	VU992600	DIODE.ZENR	MA8051-M 5.1V
* D308	VU999900	DIODE.ZENR	MA8300-M 30V
⚠ D309	VT532500	DIODE	1SR154-400
⚠ ~311	VT532500	DIODE	1SR154-400
⚠ D312	VR253700	DIODE.BRG	S1NB20 1.0A 200V
D313	VT532500	DIODE	1SR154-400
* D314	VU992600	DIODE.ZENR	MA8051-M 5.1V
D315	VT532500	DIODE	1SR154-400
D316	VT532500	DIODE	1SR154-400
⚠ F301	KB003060	FUSE	TL1.6A 250V(RABG)
⚠ F301	KB003550	FUSE	T1.5A 250V(UC)
⚠ F302	KB002980	FUSE	T2.5A 250V(G)
G301	VR463400	TERM.GND	D3.5 TP00385
~303	VR463400	TERM.GND	D3.5 TP00385
IC301	XB247301	IC	uPC4570HA
~306	XB247301	IC	uPC4570HA
IC307	XP896A00	IC	LC78213
IC308	XR040A00	IC	TC9299P
IC309	XE536001	IC	LC7535
IC310	XR040A00	IC	TC9299P
IC311	XP896A00	IC	LC78213
IC312	XB247301	IC	uPC4570HA
~318	XB247301	IC	uPC4570HA
IC319	iG142200	IC	TC74HCU04AP
IC320	iR015300	IC	TC74HC153AP MPX
IC321	XJ607A00	IC	NJM7805FA 5V
⚠ IC322	XJ757A00	IC	NJM78L05A-T3
⚠ IC323	XJ603A00	IC	NJM78M15FA
⚠ IC324	XG505A00	IC	NJM79M15FA
L301	GE901970	COIL	68uH
L302	GE901970	COIL	68uH

*New Parts

P.C.B. FUNCTION & OPERATION

	Schm Ref.	PART NO.	Description	
*	PJ301	VY667700	JACK.PIN	1P
*	PJ302	VY667700	JACK.PIN	1P
	PJ303	VT914800	JACK.PIN	6P
⚠	Q301	VE613300	TR	2SB1237 Q,R
	Q303	iA103700	TR.CHP	2SA1037 Q,R,S
	Q304	iA103700	TR.CHP	2SA1037 Q,R,S
	Q306	iC287820	TR	2SC2878 A,B
	～317	iC287820	TR	2SC2878 A,B
	R373	HL316100	R.MTL.OXD	1KΩ 1W
	R386	HL316100	R.MTL.OXD	1KΩ 1W
⚠	SW301	VL908000	VOLT.SELCT	ESE-370(R)
⚠	SW302	VV524000	SW	PS-2-B-M-4-T6
⚠	TE301	VU543300	OUTLET.AC	1P(B)
⚠*	TE301	VV537400	OUTLET.AC	1P(G)
⚠*	TE301	VV537800	OUTLET.AC	1P(UCR)
		VL391100	RADIATOR	OSH-2440-SPL
		ED330066	SCR.BND.HD	3x6 FCRM3-BL
*		VY742400	P.C.B.	OPERATION
	CB601	VQ044500	CN.BS.PIN	11P
	CB602	VF982200	CN.BS.PIN	14P
	C601	UB045100	C.CE.M.CHP	0.1uF 50V
	C602	UB045100	C.CE.M.CHP	0.1uF 50V
	C604	UB045100	C.CE.M.CHP	0.1uF 50V
	C605	UB045100	C.CE.M.CHP	0.1uF 50V
	C606	VJ839000	C.EL	0.47uF 50V
	C607	UB045100	C.CE.M.CHP	0.1uF 50V
	C608	VJ836900	C.EL	10uF 16V
	C609	VU545000	C.EL	47000uF 5.5V
	C610	UB045100	C.CE.M.CHP	0.1uF 50V
	C611	VJ837200	C.EL	47uF 16V
	C612	UB045100	C.CE.M.CHP	0.1uF 50V
	C613	UB045100	C.CE.M.CHP	0.1uF 50V
	D601	VT332900	DIODE	1SS355
	～603	VT332900	DIODE	1SS355
*	D604	VU993500	DIODE.ZENR	MA8062-H 6.4V
	D605	VT332900	DIODE	1SS355
	IC601	XS575A00	IC	HD6433712C63P CPU
	Q601	iA103700	TR.CHP	2SA1037 Q,R,S
	Q602	VB504200	TR.DGT	DTC144EK
	SW601	VG392900	SW.TACT	SKHVAA
	～610	VG392900	SW.TACT	SKHVAA
	U601	VU591000	L.DTCT	GP1U271X
*	V601	VV485600	FL.DSPLY	16-BT-47GK
	XL601	VE222400	RSNR.CE	8MHz
		VR519500	SHEET	
		VZ177300		20

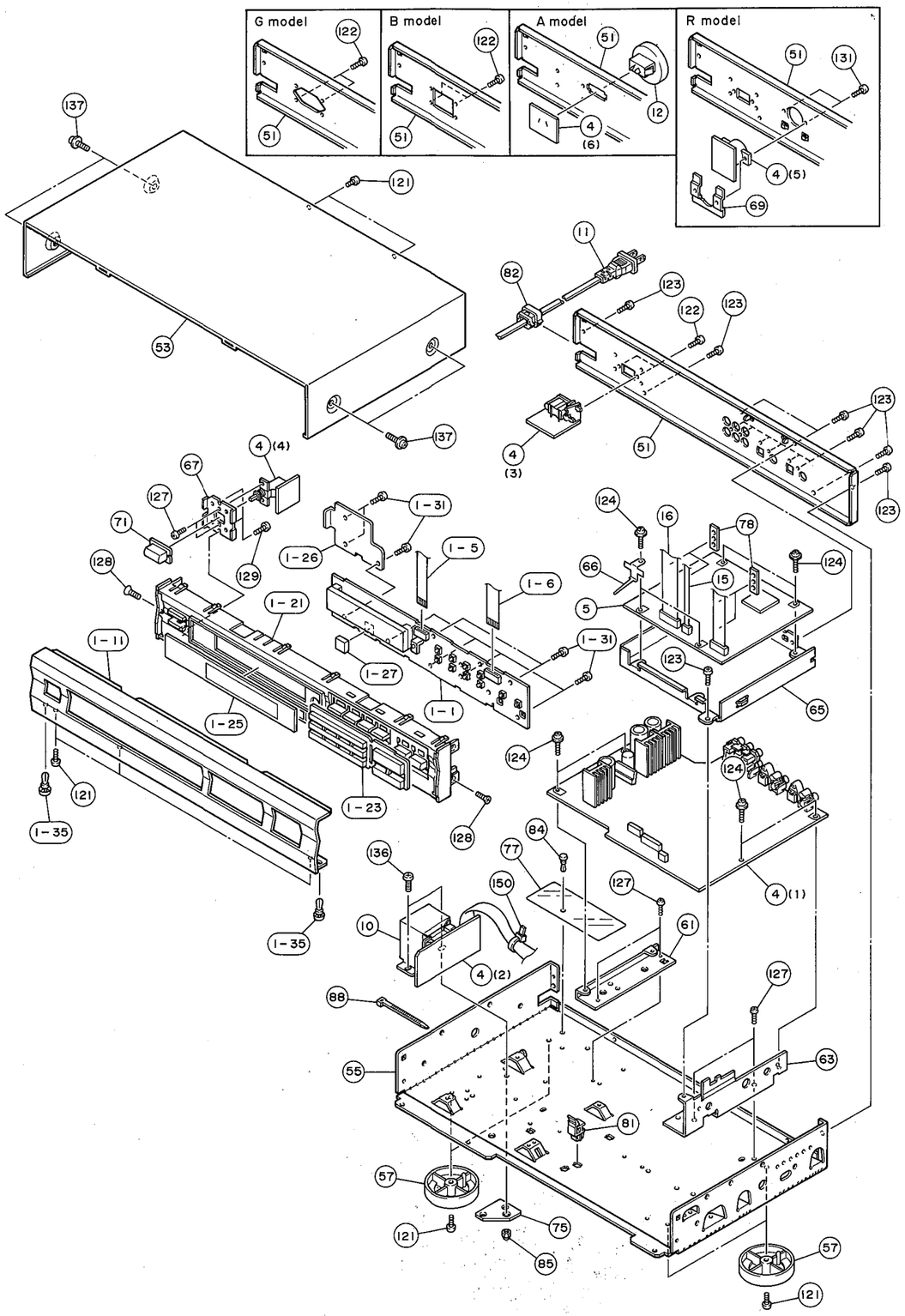
*New Parts

FLAME PROOF CARBON RESISTOR & CHIP RESISTOR

	Schm Ref.	PART NO.	Description		
		HV453100	R.CAR.FP	1Ω	1/4W
		HV453220	R.CAR.FP	2.2Ω	1/4W
		HV454100	R.CAR.FP	10Ω	1/4W
⚠		HV455100	R.CAR.FP	100Ω	1/4W
		HV456330	R.CAR.FP	3.3KΩ	1/4W
		RD250000	R.CAR.CHP	0Ω	1/10W
		RD253220	R.CAR.CHP	2.2Ω	1/10W
		RD254820	R.CAR.CHP	82Ω	1/10W
		RD255100	R.CAR.CHP	100Ω	1/10W
		RD255200	R.CAR.CHP	200Ω	1/10W
		RD255220	R.CAR.CHP	220Ω	1/10W
		RD255470	R.CAR.CHP	470Ω	1/10W
		RD255680	R.CAR.CHP	680Ω	1/10W
		RD255820	R.CAR.CHP	820Ω	1/10W
		RD256100	R.CAR.CHP	1KΩ	1/10W
		RD256120	R.CAR.CHP	1.2KΩ	1/10W
		RD256130	R.CAR.CHP	1.3KΩ	1/10W
		RD256150	R.CAR.CHP	1.5KΩ	1/10W
		RD256180	R.CAR.CHP	1.8KΩ	1/10W
		RD256200	R.CAR.CHP	2KΩ	1/10W
		RD256220	R.CAR.CHP	2.2KΩ	1/10W
		RD256270	R.CAR.CHP	2.7KΩ	1/10W
		RD256330	R.CAR.CHP	3.3KΩ	1/10W
		RD256390	R.CAR.CHP	3.9KΩ	1/10W
		RD256470	R.CAR.CHP	4.7KΩ	1/10W
		RD256510	R.CAR.CHP	5.1KΩ	1/10W
		RD256560	R.CAR.CHP	5.6KΩ	1/10W
		RD256620	R.CAR.CHP	6.2KΩ	1/10W
		RD256680	R.CAR.CHP	6.8KΩ	1/10W
		RD256820	R.CAR.CHP	8.2KΩ	1/10W
		RD257100	R.CAR.CHP	10KΩ	1/10W
		RD257120	R.CAR.CHP	12KΩ	1/10W
		RD257130	R.CAR.CHP	13KΩ	1/10W
		RD257150	R.CAR.CHP	15KΩ	1/10W
		RD257180	R.CAR.CHP	18KΩ	1/10W
		RD257220	R.CAR.CHP	22KΩ	1/10W
		RD257330	R.CAR.CHP	33KΩ	1/10W
		RD257390	R.CAR.CHP	39KΩ	1/10W
		RD257470	R.CAR.CHP	47KΩ	1/10W
		RD257560	R.CAR.CHP	56KΩ	1/10W
		RD257910	R.CAR.CHP	91KΩ	1/10W
		RD258100	R.CAR.CHP	100KΩ	1/10W
		RD258120	R.CAR.CHP	120KΩ	1/10W
		RD258220	R.CAR.CHP	220KΩ	1/10W
		RD258330	R.CAR.CHP	330KΩ	1/10W
		RD258470	R.CAR.CHP	470KΩ	1/10W
		RD259100	R.CAR.CHP	1MΩ	1/10W

*New Parts

■ EXPLODED VIEW



■ MECHANICAL PARTS

	Ref. No.	PART NO.	Description	Remarks	Markets
*	1- 1	VY742400	P.C.B. ASS'Y	OPERATION	
*	1- 5	MF111100	FLEXIBLE FLAT CABLE	11P 100mm	
	1- 6	MF114140	FLEXIBLE FLAT CABLE	14P 140mm	
*	1-11	VV242000	FRONT PANEL	BL	
*	1-11	VV242100	FRONT PANEL	TI	
*	1-21	VV292500	SUB PANEL	BL	
*	1-21	VV292600	SUB PANEL	TI	
*	1-23	VV244800	ESCUTCHEON	BL	
*	1-23	VV244900	ESCUTCHEON	TI	
*	1-25	VV245200	SHEET		
	1-26	VZ369800	SHIELD PLATE		
	1-27	VS758000	DAMPER, T5		
	1-31	EP630220	BIND HEAD P-TITE SCREW	3x8 ZMC2-BL	
	1-35	VQ368600	PUSH RIVET	P3555-B	
*	4	VY741900	P.C.B. ASS'Y	FUNCTION	(UC)
*	4	VY742000	P.C.B. ASS'Y	FUNCTION	(RT)
*	4	VY742100	P.C.B. ASS'Y	FUNCTION	(A)
*	4	VY742200	P.C.B. ASS'Y	FUNCTION	(B)
*	4	VY742300	P.C.B. ASS'Y	FUNCTION	(G)
*	5	VY741800	P.C.B. ASS'Y	DSP	
⚠*	10	XT178A00	POWER TRANSFORMER		(UC)
⚠*	10	XT179A00	POWER TRANSFORMER		(RT)
⚠*	10	XT180A00	POWER TRANSFORMER		(A)
⚠*	10	XT181A00	POWER TRANSFORMER		(BG)
⚠	11	VL238100	POWER CORD ASS'Y		(R)
⚠	11	VN363700	POWER CORD ASS'Y		(G)
⚠	11	VQ508600	POWER CORD ASS'Y		(A)
⚠	11	VV437200	POWER CORD ASS'Y		(UC)
⚠	11	VV437300	POWER CORD ASS'Y		(B)
⚠	11	VZ542500	POWER CORD ASS'Y		(T)
⚠	12	VT915100	AC OUTLET	2P	(A)
*	15	MF105100	FLEXIBLE FLAT CABLE	5P 100mm	
*	16	MF120100	FLEXIBLE FLAT CABLE	20P 100mm	
*	51	VV242900	REAR PANEL		(UC)
*	51	VV243000	REAR PANEL		(RT)
*	51	VV243100	REAR PANEL		(A)
*	51	VV243200	REAR PANEL		(B)
*	51	VV243300	REAR PANEL		(G)
	53	VV245400	TOP COVER	BL	
	53	VV245500	TOP COVER	TI	
	55	VQ709000	CHASSIS		
	57	VQ780300	LEG	D60xH16	
*	61	VV244300	SUPPORT	L	
*	63	VV244400	SUPPORT	R	
*	65	VV244700	SHIELD CASE		
	66	VZ038000	EARTH PLATE		
	67	VV244200	SUPPORT	PWR	
	69	VS257300	PLATE, R		(RT)
	71	VV501000	BUTTON	9.5x22V	BL
	71	VV501100	BUTTON	9.5x22V	TI
	75	VY735100	SPACER		
*	77	VY746200	SHEET, PWB		
	78	VT967100	DAMPER, STB		

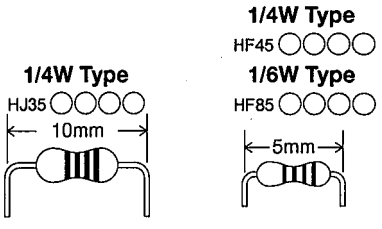
*New Parts

Ref. No.	PART NO.	Description			Remarks	Markets
81	VL791900	HOLDER, P.C.B.				
82	VN158600	CORD STOPPER	No.2104			
84	VQ368500	PUSH RIVET	P3545-B			
85	VK002600	HEXAGONAL CAP NUT	4mm			
88	VU590000	BINDING TIE	CBTD001B			
121	Ei330086	BIND HEAD B-TITE SCREW	3x8	FCRM3-BL		
122	Ei030086	BIND HEAD B-TITE SCREW	3x8	ZMC2-Y		
123	VN413300	BIND HEAD BONDING B-T. SCREW	3x8	MFZN2-BL		
124	VT669300	PW HEAD B-TITE SCREW	3x8-8	MFC2		
127	EP630210	BIND HEAD S-TITE SCREW	3x6	ZMC2-BL		
128	E0030066	FLAT HEAD SCREW	3x6	ZMC2-Y		
129	EP630220	BIND HEAD P-TITE SCREW	3x8	ZMC2-BL		
131	EP600140	BIND HEAD B-TITE SCREW	3x10	MFZN2-BL		(RT)
136	EK396010	BIND HEAD S-TITE SCREW	4x8	FCRM3-BL		
137	EK365090	PW HEAD S-TITE SCREW	4x8-10	FCRM3-BL	BL	
137	EX601150	BW HEAD S-TITE SCREW	4x8-10	FNM3-BL	TI	
150	CB836200	BINDING TIE	S-70B			
		ACCESSORIES				
	VS381600	PIN PLUG CORD	1.0m			
*	VY709700	PIN-PLUG CORD	1P 1.0m			

* New Parts

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	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	※	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	※	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	※
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	※
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



1992