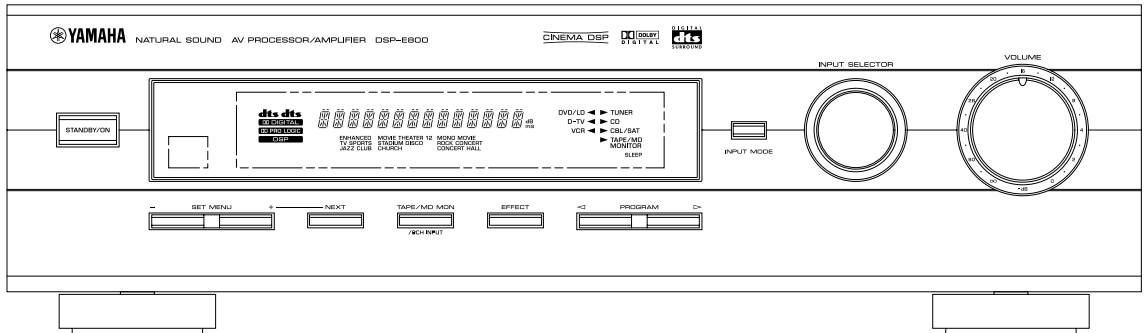
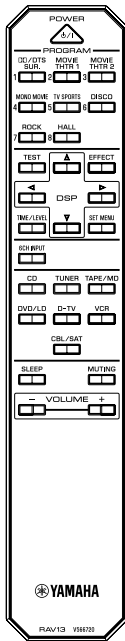


AV PROCESSOR/AMPLIFIER

DSP-E800

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 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 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 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 parts replacement. Recheck all work before you apply power to the unit.

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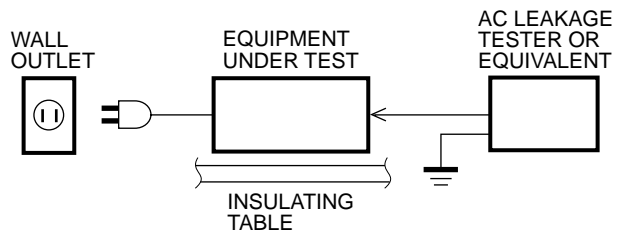
このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.



TO SERVICE PERSONNEL

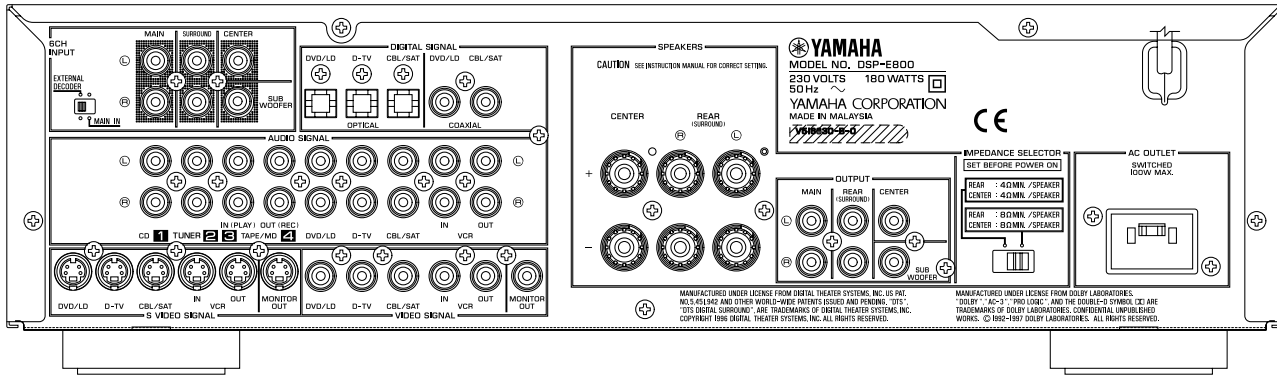
Critical Components Information

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

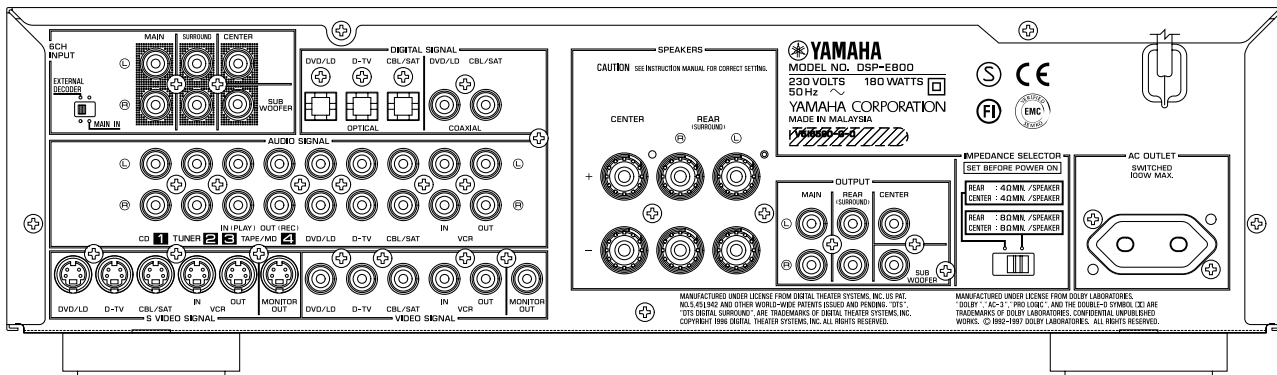


REAR PANELS

B model



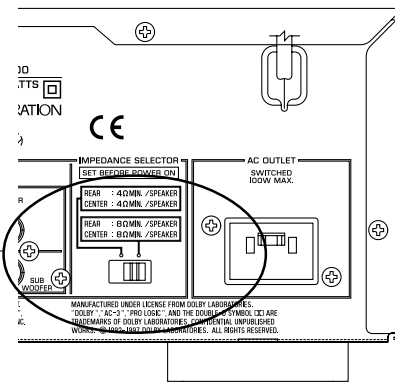
G model



WARNING

Do not change the IMPEDANCE SELECTOR switch setting while the power to this unit is on, otherwise this unit may be damaged.

IMPEDANCE SELECTOR



■ SPECIFICATIONS

■ AUDIO SECTION

Minimum RMS Output Power per Channel

CENTER		
20Hz to 20kHz, 0.06% THD, 8Ω		70W
1kHz, 0.09% THD, 8Ω		80W
REAR		
20Hz to 20kHz, 0.06% THD, 8Ω		70W+70W
1kHz, 0.09% THD, 8Ω		80W+80W

Dynamic Power per Channel (IHF)

REAR, 8Ω		90W+90W
REAR, 6Ω		110W+110W
REAR, 4Ω		135W+135W
REAR, 2Ω		160W+160W

DIN Standard Output Power per Channel (G model only)

CENTER, 1kHz, 0.7% THD, 4Ω		110W
REAR, 1kHz, 0.7% THD, 4Ω		110W+110W

IEC Power (G model only)

CENTER, 1kHz, 0.04% THD, 8Ω		75W
REAR, 1kHz, 0.04% THD, 8Ω		75W+75W

Damping Factor

CENTER, REAR, 20Hz to 20kHz, 8Ω		100 or more
---------------------------------	--	-------------

Input Sensitivity/Impedance

CD, etc.		150mV/47kΩ
6 CH INPUT (Ext. D.)		
MAIN		150mV/47kΩ
CENTER, REAR, SUBWOOFER		150mV/40kΩ

Maximum Input Signal

1kHz, 0.5% THD, CD, etc. (EFFECT ON)		2.2V
--------------------------------------	--	------

Output Level/Impedance

REC OUT		150mV/1.2kΩ
PRE OUT MAIN, CENTER, REAR		1V/1.2kΩ
PRE OUT SUBWOOFER (MAIN SP: SMALL)		4V/1.2kΩ

Frequency Response

10Hz to 100kHz, CD, etc. MAIN		0/ - 3dB
-------------------------------	--	----------

Total Harmonic Distortion

DISCRETE inputs to REAR SP OUT (20Hz to 20kHz, 35W/8Ω)		0.06%
-----------------------------------------------------------	--	-------

Signal to Noise Ratio (IHF-A-Network)

CD, etc. (EFFECT OFF) (S: 150mV)		
MAIN PRE OUT		99dB

Residual Noise (IHF-A-Network)

CENTER, REAR, SP OUT		150μV
----------------------	--	-------

Channel Separation (Vol. -30dB)

CD, etc. (EFFECT OFF) (Input 5.1kΩ Shorted)		
1kHz/10kHz		60dB/45dB

Filter Characteristics

MAIN, REAR SP SMALL : H.P.F.	fc = 90Hz, 12dB/oct.
SUBWOOFER : L.P.F.	fc = 90Hz, 18dB/oct.

■ VIDEO SECTION

Video Signal Type

B, G models		PAL
-------------	--	-----

Composite Video Signal Level

		1Vp-p/75Ω
--	--	-----------

S-Video Signal Level

Y		1Vp-p/75Ω
---	--	-----------

C		0.286Vp-p/75Ω
---	--	---------------

Video Maximum Input Level

		1.5Vp-p
--	--	---------

Video Signal to Noise Ratio

		50dB
--	--	------

Monitor Output Frequency Response

Composite Video Signal		5Hz~10MHz, -3dB
------------------------	--	-----------------

S-Video Signal		5Hz~10MHz, -3dB
----------------	--	-----------------

■ GENERAL

Power Supply

B, G models		AC 230V, 50Hz
-------------	--	---------------

Power Consumption

B, G models		180W
-------------	--	------

Standby Power Consumption (reference data)

B, G models		0.85W
-------------	--	-------

AC Outlets

Switched x 1		100W max.
--------------	--	-----------

Dimensions (W x H x D)

		435 x 126 x 391mm
		(17-1/8" x 4-15/16" x 15-3/8")

Weight

		10.0 kg (22 lbs. 1 oz)
--	--	------------------------

Finish

G model		Gold color/Titanium color/Black color
B model		Black color

Accessories


		Remote Control Transmitter x 1
		Battery (size "AA", "R06") x 2

* Specifications subject to change without notice.

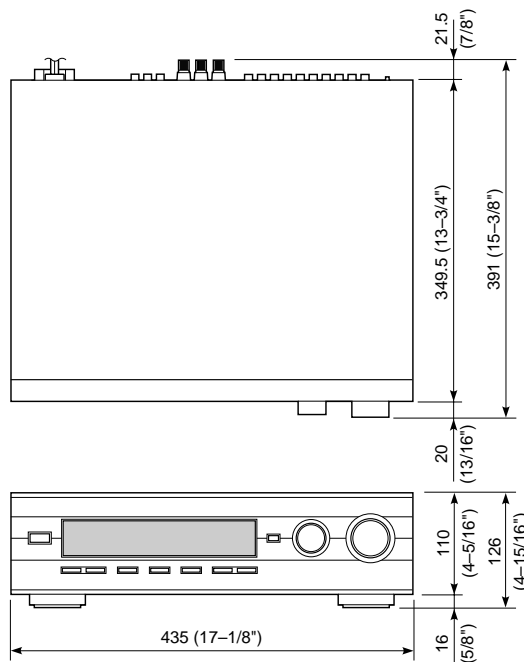
B *British model*

G *European model*

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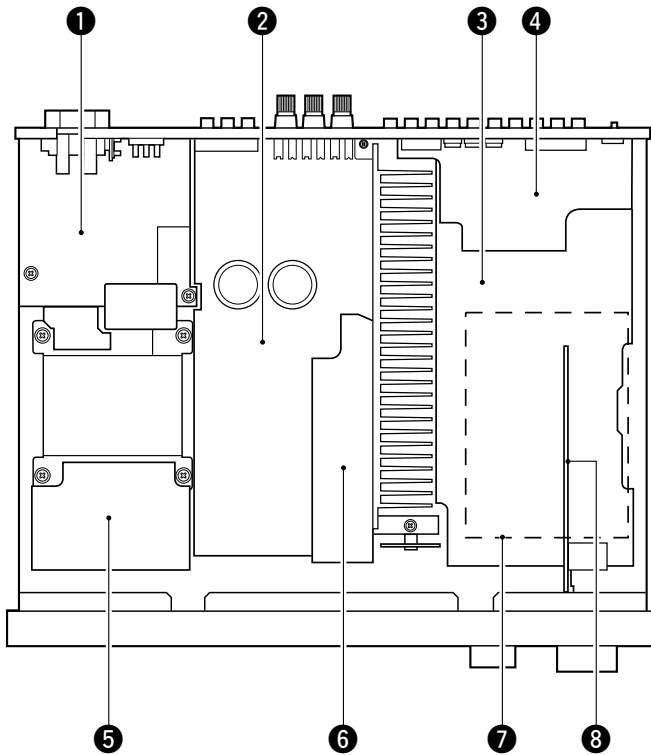
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● DIMENSIONS



Units : mm (inch)

INTERNAL VIEW



- ① MAIN (2) P.C.B.
- ② MAIN (1) P.C.B.
- ③ INPUT (1) P.C.B.
- ④ INPUT (3) P.C.B.
- ⑤ MAIN (5) P.C.B.
- ⑥ MAIN (4) P.C.B.
- ⑦ DSP P.C.B.
- ⑧ OPERATION (2) P.C.B.

DISASSEMBLY PROCEDURES (Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

- a. Remove 4 screws (①) and 4 screws (②) in Fig. 1.

2. Removal of Front Panel

- a. Remove 6 screws (③) in Fig. 1.

3. Removal of Operation (2) P.C.B.

- a. Remove the Volume knob.
- b. Disconnect a flat connecting cable (CB801) in Fig. 1.
- c. Remove a nut (④) and then remove the Operation (2) P.C.B. in Fig. 1.

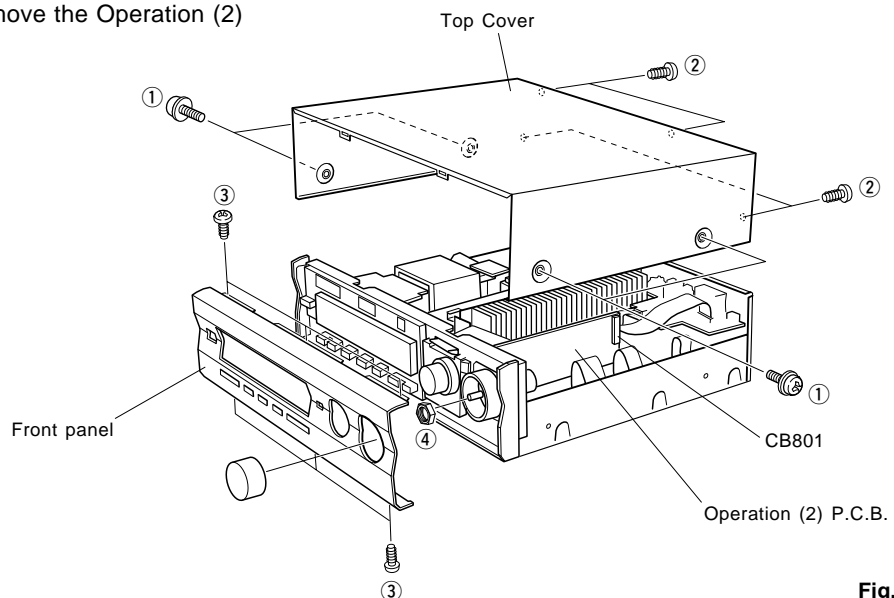


Fig. 1

4. Removal of Input (3) P.C.B.

- a. Remove 6 screws (⑤) and then remove the Input (3) P.C.B. in Fig. 2.

5. Removal of Input (1) P.C.B.

- a. Remove 6 screws (⑥) in Fig. 2.
- b. Disconnect 2 flat connecting cables (CB402, CB406) and a connector (CB410) in Fig. 3.
- c. Remove 3 screws (⑦) and then remove the Input (1) P.C.B. in Fig. 3.

Note :

1. When the rear panel has been removed, the ground connection at the input/output pin jack becomes open. Connect it to the chassis by using a lead wire.

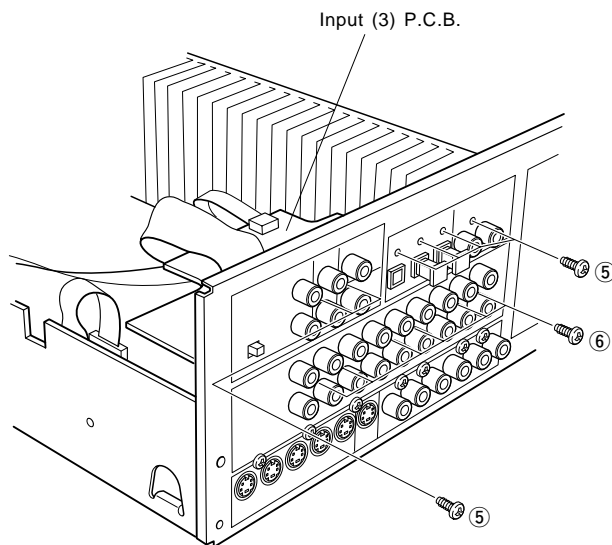


Fig. 2

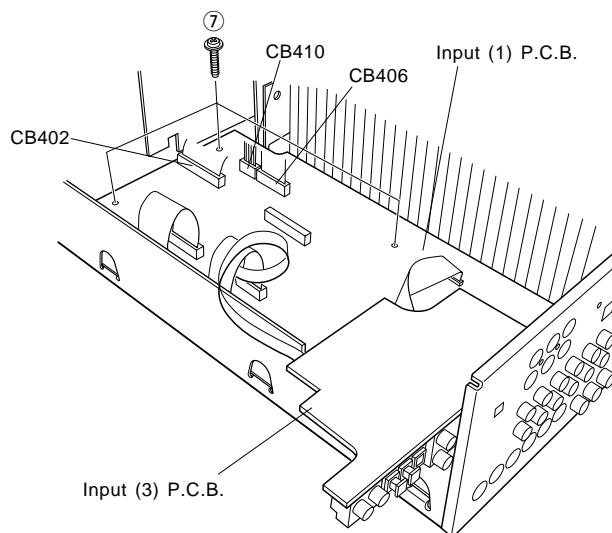


Fig. 3

6. Removal of DSP P.C.B.

- a. Remove 2 screws (⑧) and then remove the Shield Case/Top with the DSP P.C.B. in Fig. 4.

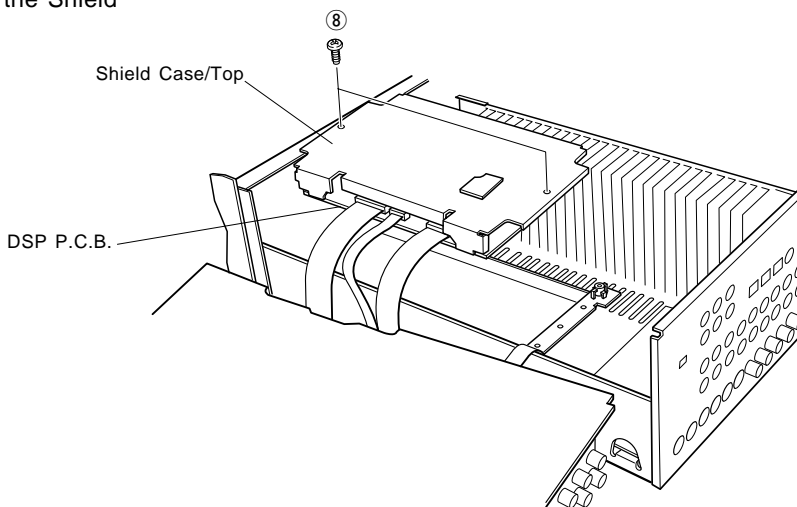


Fig. 4

7. Checking the Amplifier Unit and Replacing Components

- a. Turn off the power switch and unplug the power plug from the AC outlet.
- b. Remove 9 screws (⑨, ⑩, ⑪) indicated in Fig. 5.
- c. Remove 5 screws (⑫, ⑬) indicated in Fig. 6.
- d. Loosen the wire ring, which fixes the wire harness.
- e. After removing the Amplifier Unit / Main (2) P.C.B., lift up the rear of the Amplifier Unit with a wire and set it as shown in Fig. 7.
- f. Use an insulating material (a rather thick cloth) so as to prevent the Amplifier Unit / Main (2) P.C.B. from contacting other P.C.B.'s, chassis and power transformer.
- g. Using a lead wire, connect the grounding of the pin jack to the chassis.
(If it is left unconnected, the grounding floats and the unit may fail to function properly.)
- h. Connect the power plug and turn on the power switch.

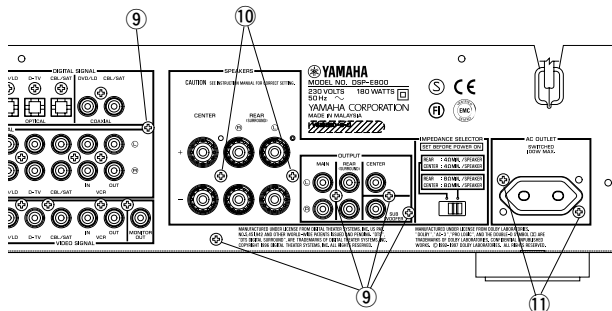


Fig. 5

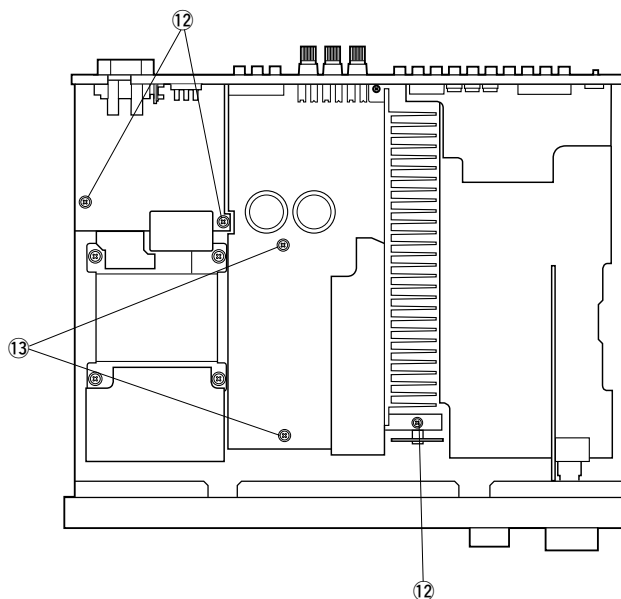


Fig. 6

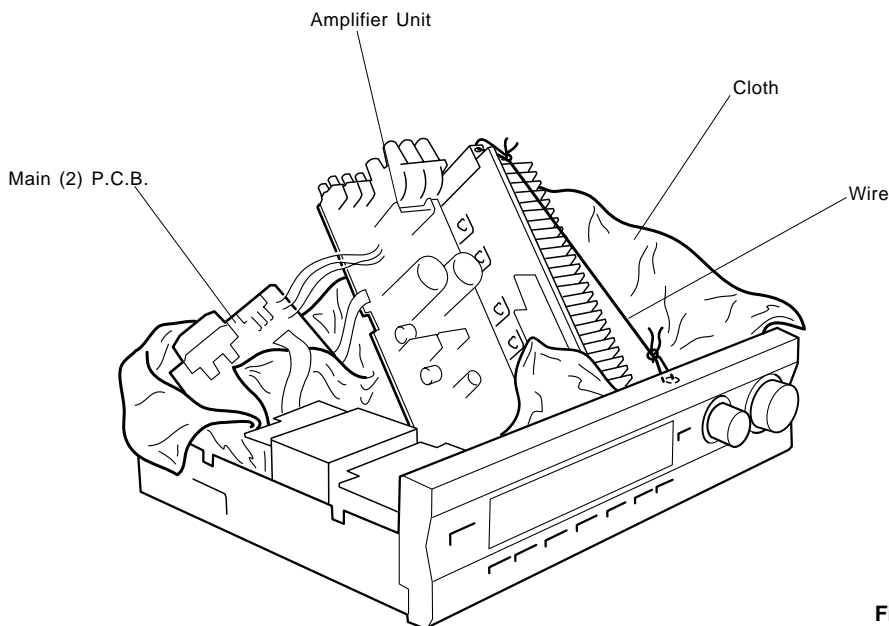
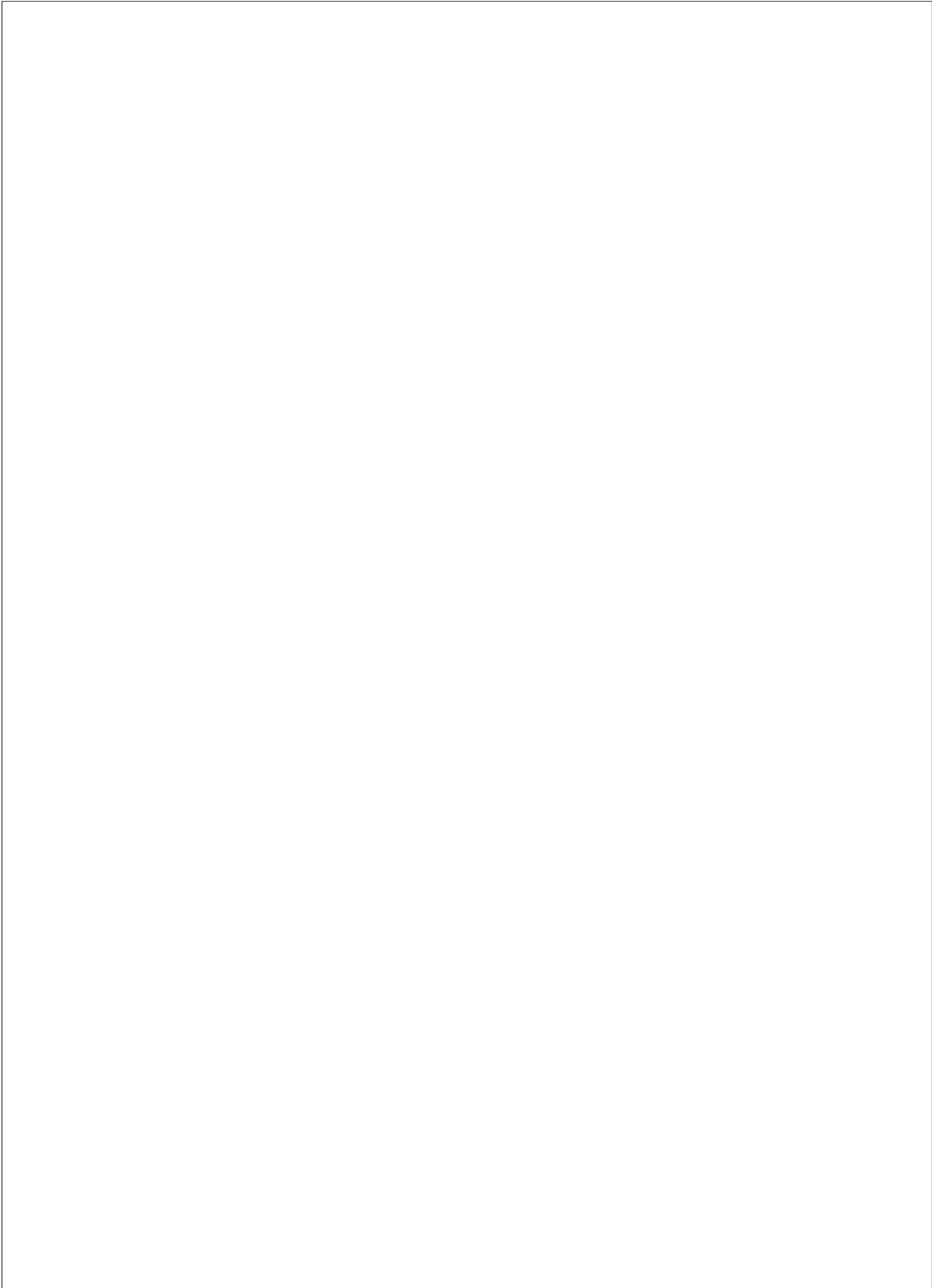


Fig. 7

MEMO



ADJUSTMENTS

Confirmation of Idling Current

- 1) No signal applied.
- 2) Non-loaded condition.
- 3) Aging is not necessary.

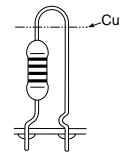
Item	Test Point	Rating (DC)	Note
REAR L	CB103	0.1mV—5mV	If the measured voltage exceeds 5.1mV, cut the lead wire of R133(RL ch), R142(RR ch) or R150(C ch) and then check again if each measured value satisfies the rating.
REAR R	R161 or R163		
CENTER	R167 or R169		

* Confirm that the voltage is 0.12—7.5mV after 60 minutes.

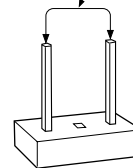
Note)

- If R133 (RL ch), R142 (RR ch) or R150 (C ch) have already been cut off and idling current does not flow, reconnect R133 (470Ω), R142 (470Ω) or R150 (470Ω).
- Q107, Q109 and Q111 are transistors for temperature compensation. Apply silicone grease to the contact surface with the heat sink.

R133 (RL ch)
R142 (RR ch)
R150 (C ch)

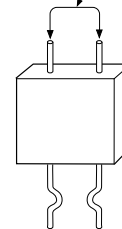


0.1mV — 5mV (DC)

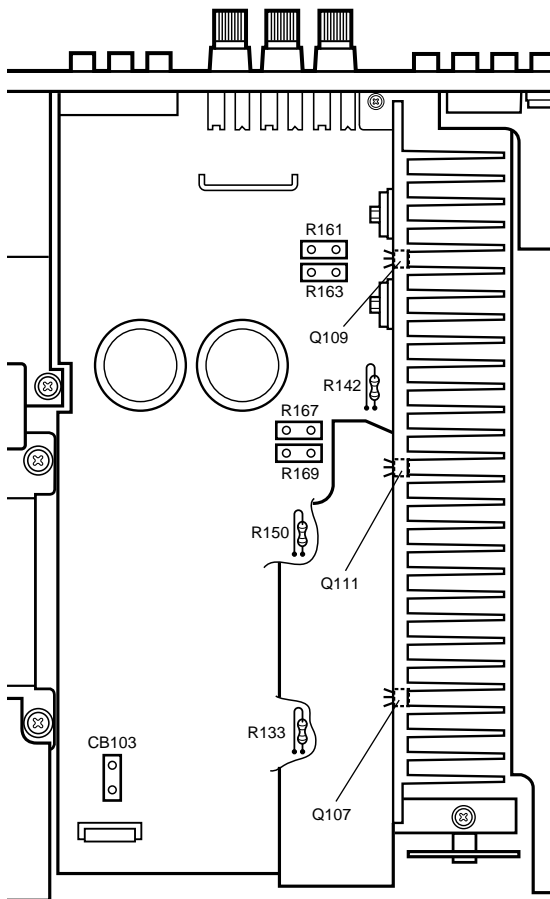


CB103 (RL ch)

0.1mV — 5mV (DC)



R161 or R163 (RR ch)
R167 or R169 (C ch)



■ SELF DIAGNOSIS FUNCTION

1. PURPOSE AND OPERATION

The DSP-E800 has a Self Diagnosis Function to locate a faulty part, if any, by inspecting and taking measurements.

There are 12 main items in the diagnostic with sub-menu items as listed below.

No.	MAIN MENU	SUB-MENU	REMOTE CONTROL CODE (KEY)
1	ANALOG THROUGH	1. MAIN BYPASS 2. DSP 0dB	7D-04 ("1") ----
2	DSP THROUGH	1. YSS+SRAM M 2. YSS M 3. DSP FULL BIT	7D-05 ("2") ---- ----
3	AC-3/DTS THROUGH	1. STATUS (BINARY FORM)	----
4	PRO LOGIC	1. CENTER LARGE 2. EFFECT OFF	7D-06 ("3") ----
5	SPEAKERS SET	1. MAIN : SMALL 0dB 2. MAIN : LARGE 0dB 3. MAIN : LARGE -10dB 4. LFE/BASS : MAIN CENTER : NONE 5. LFE/BASS : MAIN 6. LFE/BASS : SUBWOOFER 7. CENTER : NONE 8. CENTER : SMALL REAR : SMALL 9. FRONT MIX	7D-07 ("4") 7D-08 ("5") 7D-09 ("6") 7D-0A ("7") 7D-0B ("8") 7D-1A ("TEST") 7D-51 ("SET MENU") ---- 7D-57 ("SLEEP")
6	DISPLAY CHECK (EFFECT OFF)	1. (EFFECT OFF) 2. ALL SEGMENTS TURN OFF 3. ALL SEGMENTS TURN ON 4. ALTERNATE SEGMENTS TURN ON 5. SOFTWARE RELEASE DATE	7D-1D ("EFFECT") ---- ---- ---- ----
7	MANUAL TEST	1. ALL 2. MAIN L 3. CENTER 4. MAIN R 5. REAR R 6. REAR L 7. LFE	---- ---- ---- ---- ---- ---- ----
8	FACTORY PRESET	1. INHIBIT (Inhibit Memory Initialize) 2. RESERVED (Reserve Memory Initialize)	---- ----
9	AD DATA CHECK	1. ---- 2. KEY1, KEY2 3. TUNER SIGNAL LEVEL 4. DC PROTECTION 5. PS PROTECTION	---- ---- ---- ---- ----
10	STATUS INFORMATION FROM DSP	1./2. DSP STATUS (1)/(2) 3./4. CHANNEL STATUS (1)/(2) 5./6. BSI0 (1)/(2) 7./8. BSI1 (1)/(2) 9./10. BSI2 (1)/(2) 11./12. BSI3 (1)/(2) 13./14. BSI4 (1)/(2) 15./16. BSI5 (1)/(2)	---- ---- ---- ---- ---- ---- ---- ----
11	EEPROM WRITING FUNCTION	1. CHECK SUM MODIFICATION DATA EEPROM DATA 2. WRITING CONFIRMATION 3. START WRITING	---- ---- ----
12	UNIT INFORMATION/ EXIT	1. VERSION and CHECK SUM 2. MODEL TYPE and DESTINATION 3. EXIT	---- ---- ----

2. BEGINNING AND CANCELLATION

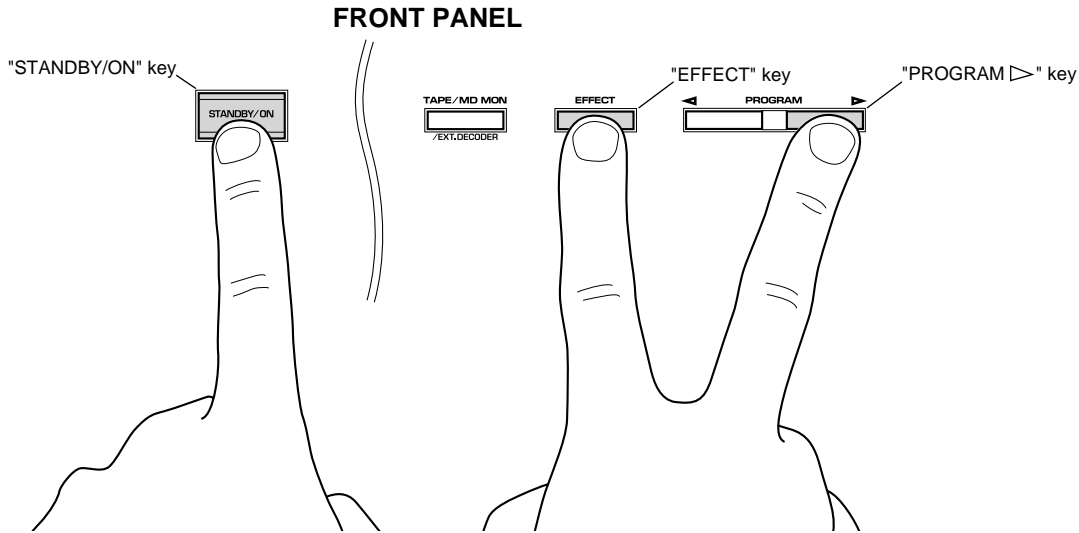
(1) Up the function and the display

Up sub-menu No.1 of the diagnosis main is selected.

A. How to start the diagnostic program

Use the front panel keys of the main unit

Plug in the AC power cord. With the Power OFF, hold down the "PROGRAM ▷" and "EFFECT" keys simultaneously (Step 1), then press the "STANDBY/ON" key (Step 2).
Sub menu No. 1 of the diagnosis main menu No. 1 will start.



Step2. Press the "STANDBY/ON" key.

Step1. Hold down the "PROGRAM ▷" and "EFFECT" key simultaneously.

B. Settings for start-up of diagnostic program

The settings used when starting the diagnostic program are as follows.

1. EFFECT LEVEL :

CHANNEL	CENTER	R SUR	L SUR	SWFR
LEVEL (dB)	0	0	0	0

- 2. MUTING : OFF
- 3. INPUT (VIDEO) : DVD/LD (DVD/LD)
- 4. CENTER SPEAKER : LARGE
- 5. REAR SPEAKER : LARGE
- 6. MAIN SPEAKER : LARGE
- 7. LFE/BASS OUT : SWFR

C. Start-up display

The protection history information appears on the front panel display.

● **FL display at start-up of diagnostic program**

When the diagnostic program has started, the check sum of the main microcomputer or the protection history (*) is displayed. If the protection function has been activated in the past, the type and voltage value are displayed. After a few seconds the diagnosis function menu will appear.

(*) If a faulty condition is detected such as excessive current, a bad power supply or excessive amplifier DC offset, the Power will be switched OFF automatically.

NOTE: For the voltages of the power and DC protection functions, see the diagnosis main menu No. 9, which will be described later. The protection history will be cleared when "RESERVED" is selected in the diagnosis main menu No. 8 and FACTORY PRESET is engaged.

● **Protection history function**

The following examples show how the protection history is displayed:

CHK SUM: XXXX X	Appears when the protection function has not been activated. Displayed the check sum (4-digit, hexadecimal) and the version (one letter) of the main microcomputer.
I PROTECTION	Appears when the current protection function has been activated. When power is turned on in an abnormal condition, the power relay will come on, protection will operate immediately, and power will turn off.
PS PRT : XX%	Appears when the power supply protection function has been activated. For the % value, the voltage at that point is shown by 5V/100%. When power is turned on in an abnormal condition, power will turn off after half a second.
DC PRT : XX%	Appears when the power amp DC protection function has been activated. For the % value, the voltage at that point is shown by 5V/100%. When power is turned on in an abnormal condition, power will turn off after two seconds.

D. Exiting method

The diagnosis function can be exited by any of the following procedures. Take care with the setting of backup memory initialization menu (diagnosis No. 8) when releasing the diagnosis function.

1. Select sub-menu No. 3 "EXIT" of the diagnosis main menu No. 12.
2. Press the "STANDBY/ON" key on the main unit or "STANDBY" key on the remote control to turn Power OFF.

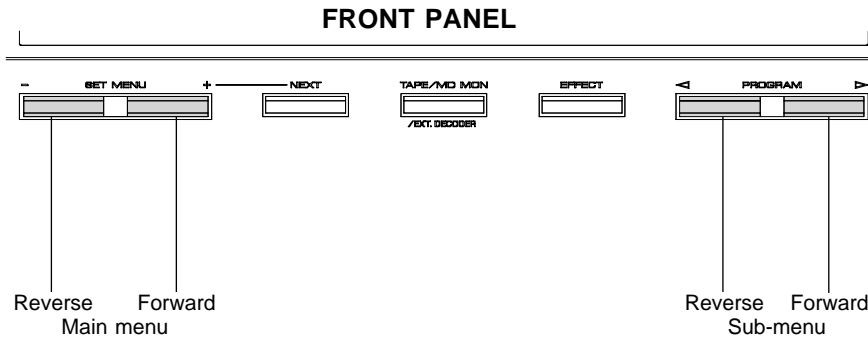
3. OPERATION AND DISPLAY WHEN STARTING DIAGNOSIS FUNCTION

(1) Selection of diagnostic menu

The diagnostic menu and the sub-menu can be selected by using the front panel keys of the main unit or the remote control unit.

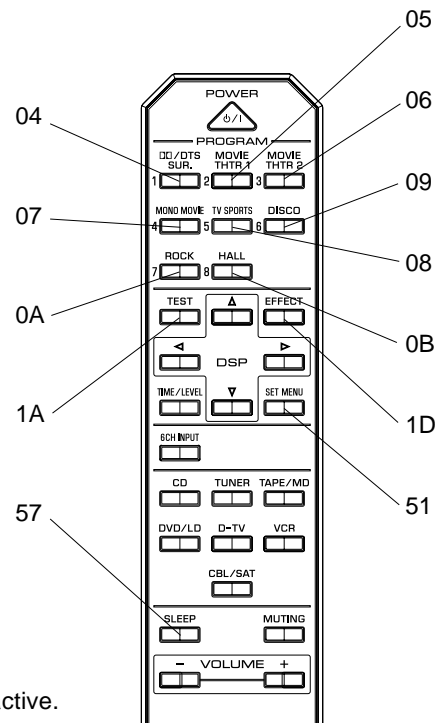
● Selection by using the front panel keys of the main unit

The main menu can be changed cyclically by using the "SET MENU -/+ " keys, and the sub-menu, by using the "PROGRAM </>" keys. The "+" and ">" key will increase the main or sub-menu number.



● Selection by using the remote control unit

The remote control codes in the menu list (see right column on page 6) correspond to the DSP program, test, set menu, sleep and effect keys. See the figure on the right.



(2) Other functions available while diagnosis function is active

Listed below are the other functions available while the diagnosis function is active.

- Selection of the input (include TAPE MONITOR/EXTERNAL DECODER)
- Effect level control (CENTER, REAR, SUBWOOFER)
- Master volume control
- Muting on/off
- Power on/off

(3) Diagnosis default status

When not otherwise specified, default settings and values in each menu are as follows:

- All "SPEAKERS" : LARGE
- ALL electronic VRs : 0dB
- DYNAMIC RANGE : MAX
- LFE LEVEL : 0dB (-10dB in AC-3(DOLBY DIGITAL))
- CENTER DELAY : 0ms

4. CONTENTS OF DIAGNOSIS FUNCTION

This section describes the contents of the Self Diagnosis Function in detail.

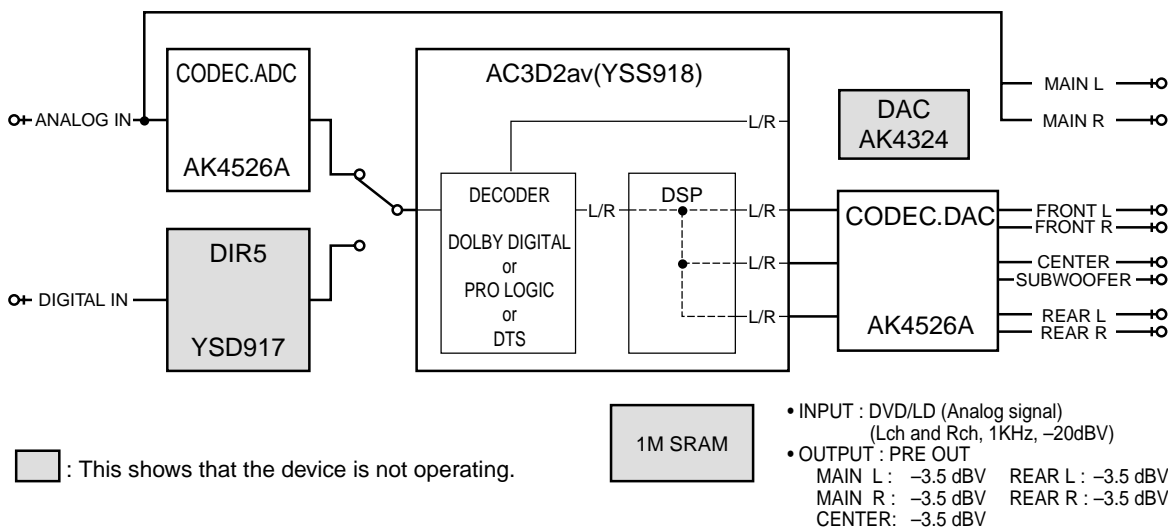
No.1 ANALOG THROUGH

The input is fixed to analog (A/D). There are two sub-menus.

1. MAIN BYPASS **1. MAIN BYPASS**

The L/R signals bypass the digital circuit, and are output to the MAIN L/R.

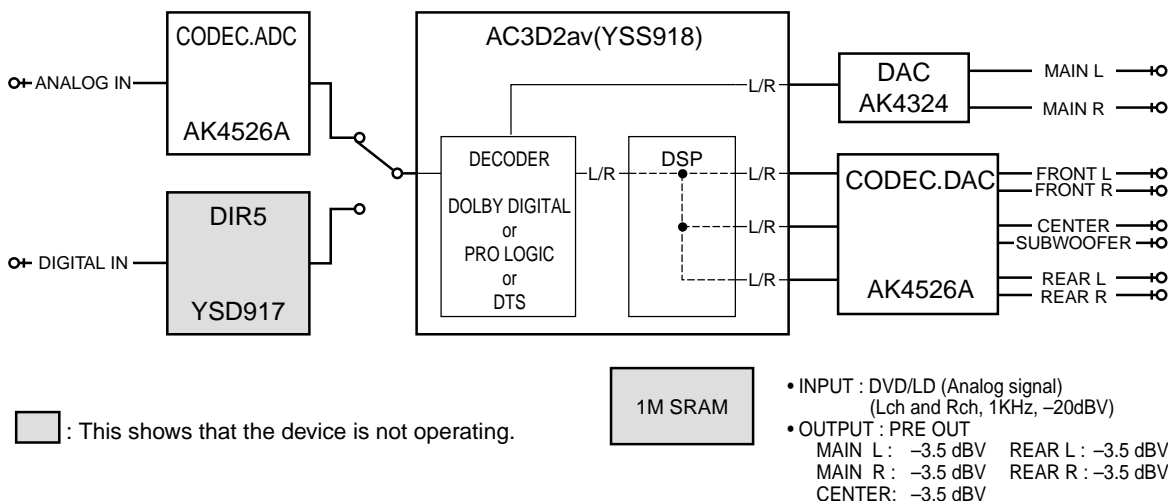
The L/R signals are output without being processed to the CENTER/SUBWOOFER, FRONT L/R and REAR L/R through the DSP. (Remote control code 7D-04: "1" key)



2. DSP 0dB **1. DSP 0DB**

The L/R signals are output without being processed to the MAIN L/R through the AC3D2av.

The L/R signals are output without being processed to the CENTER/SUBWOOFER, FRONT L/R and REAR L/R through the DSP.

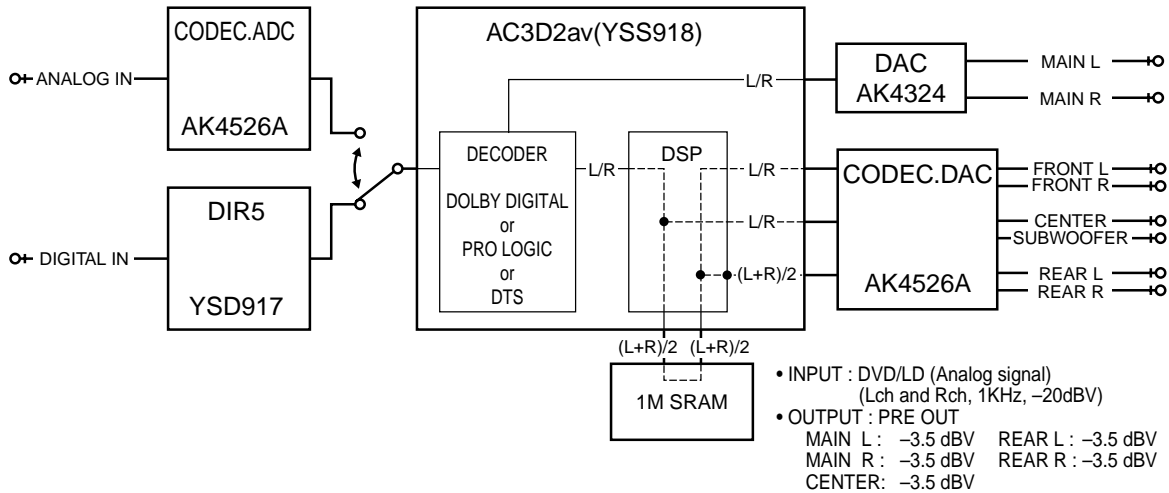


No.2 DSP THROUGH

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog.
There are the following three sub-menus.

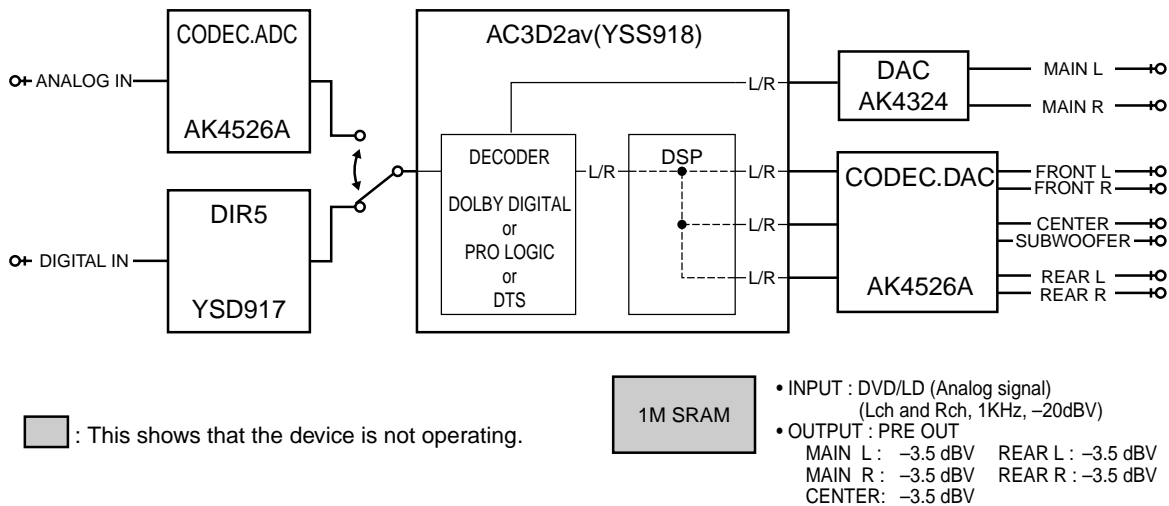
1. YSS+SRAM **2. YSS+SRAM M**

The L/R signals are output without being processed to the MAIN L/R through the AC3D2av.
The L/R signals are output without being processed to the CENTER/SUBWOOFER through the DSP.
The (L+R)/2 signals are output to the FRONT L/R and REAR L/R through the DSP and the SRAM.
When one of the L/R signals is not input, the output level is -6dB. (Remote control code 7D-05:"2" key)



2. YSS M **2. YSS M**

Same as "2. DSP 0dB" of "No.1 ANALOG THROUGH", except for the input switching.



3. DSP FULL BIT **2. DSP FULL BIT**

Same as the above menu, except that the head margin is disabled, and the digital data is output with full bits from AC3D2av to DAC.

- INPUT : DVD/LD (Analog signal)
(Lch and Rch, 1kHz, -20dBV)
- OUTPUT : PRE OUT
MAIN L : -3.5 dBV REAR L : 5.0 dBV
MAIN R : -3.5 dBV REAR R : 5.0 dBV
CENTER: -1.0 dBV

No.3 AC-3/DTS THROUGH

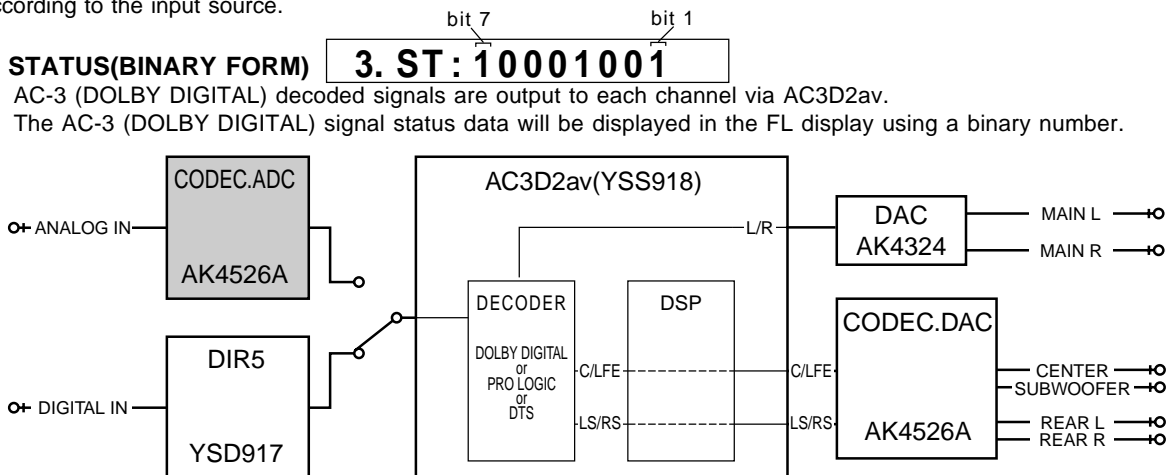
The input is digital signal only. AC-3 (DOLBY DIGITAL) or DTS Digital Surround decoding operation is executed, according to the input source.

1. STATUS(BINARY FORM)

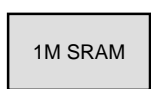
3. ST: 10001001

AC-3 (DOLBY DIGITAL) decoded signals are output to each channel via AC3D2av.

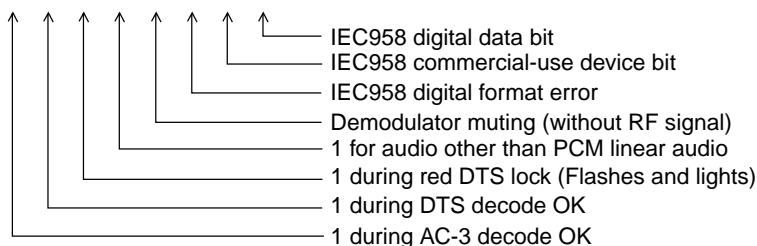
The AC-3 (DOLBY DIGITAL) signal status data will be displayed in the FL display using a binary number.



: This shows that the device is not operating.



AC-3 Status Info. : bit 7 6 5 4 3 2 1 0
(Invalid in DTS) 1 0 0 0 1 0 0 1



No.4 PRO LOGIC

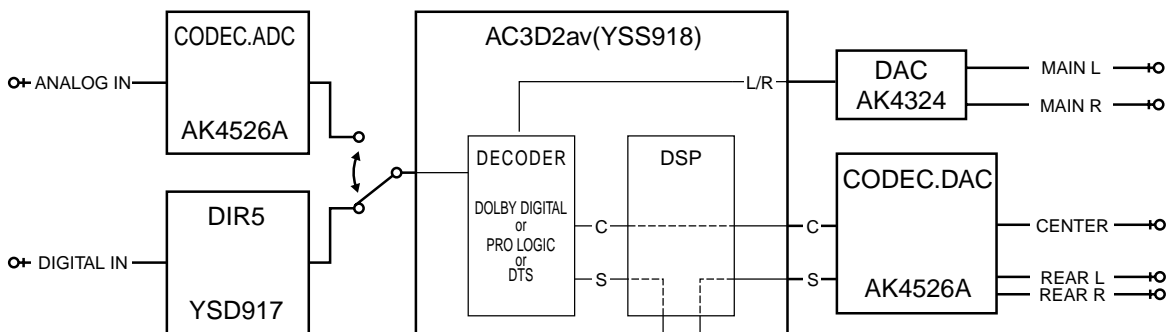
The sub-menu is switched between PRO LOGIC (AUTO BALANCE OFF) and EFFECT OFF.

1. CENTER LARGE

4. PRO CNTR: LRG

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog. DTS Digital Surround is disabled. The input signals are PRO LOGIC decoded and output.

(Remote control code 7D-06: "3" key)



- INPUT : DVD/LD (Analog signal)
(Lch and Rch, or Lch only, 1KHz, -20dBV)
- OUTPUT : PRE OUT
(INPUT : Lch and Rch) (INPUT : Lch only)
- MAIN L : -∞ dBV MAIN L : -3.5 dBV
- MAIN R : -∞ dBV MAIN R : -∞ dBV
- CENTER : -0.5 dBV CENTER : -∞ dBV
- REAR L : -∞ dBV REAR L : -∞ dBV
- REAR R : -∞ dBV REAR R : -∞ dBV

2. EFFECT OFF

4. PRO EFCT: OFF

The input is only for analog signal. The L/R signals bypass the digital circuit and are output to the MAIN L/R.

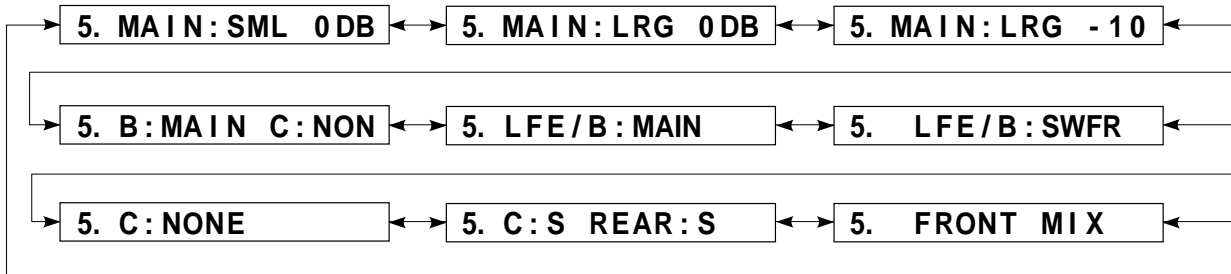
No.5 SPEAKERS SET

The input is automatically discriminated by signal detection and switched with priorities Coaxial>Optical>Analog. The L/R signals are output to channels specified by the sub-menu without being processed.

There are the following nine sub-menus items. Signal routes of the sub-menu 1-4 are the same as EFFECT OFF. But MAIN L/R are signals through the digital circuit.

Signal routes of the sub-menu 5-9 are the same as "2. YSS M" of "No. 2 DSP THROUGH".

However, only MAIN L/R is output in the sub-menu 1-4.



The analog switches in each sub-menu are set as follows:

	SUB MENU	REMOTE CONTROL CODE	SETTING					OUTPUT					
			CENTER SP	REAR SP	MAIN SP	MAIN LEVEL	LFE/BASS	MAIN L	MAIN R	CENTER	REAR L	REAR R	SUB WOOFER
1	MAIN:SML 0DB	7D-07	LARGE	LARGE	SMALL	0dB	SWFR	L	R	NONE	NONE	NONE	L+R
2	MAIN:LRG 0DB	7D-08	LARGE	LARGE	LARGE	0dB	SWFR	L	R	NONE	NONR	NONE	NONE
3	MAIN:LRG -10	7D-09	LARGE	LARGE	LARGE	-10dB	SWFR	L	R	NONE	NONE	NONE	NONE
4	B:MAIN C:NONE	7D-0A	NONE	LARGE	LARGE	0dB	MAIN	L	R	NONE	NONE	NONE	NONE
5	LFE/B:MAIN	7D-0B	LARGE	LARGE	LARGE	0dB	MAIN	LFE+FL	LFE+FR	C	NONE	NONE	NONE
6	LFE/B:SWFR	7D-1A	LARGE	LARGE	LARGE	0dB	SWFR	NONE	NONE	NONE	NONE	NONE	LFE
7	C:NONE	7D-51	NONE	LARGE	LARGE	0dB	SWFR	C+L	C+R	NONE	NONE	NONE	LFE
8	C:S REAR:S	---	SMALL	SMALL	LARGE	0dB	SWFR	L+FL	R+FR	C	RL	RR	C+RL+RR+LFE
9	FRONT MIX	7D-57	LARGE	LARGE	LARGE	0dB	SWFR	FL	FR	NONE	NONE	NONE	NONE

LARGE: Mode in which speakers with high bass-sound playback capability (large unit) are used. Full-range signals present on the channel are output from the speaker.

SMALL: Mode in which speakers with low bass-sound playback capability (small unit) are used. Low bass signals (below 90Hz) on the channel are mixed into the channel selected by the LFE/BASS setting.

NONE: Mode in which center speaker is not used. The center channel signal is reduced by 3 dB and mixed into MAIN L/R.

LFE/B:MAIN

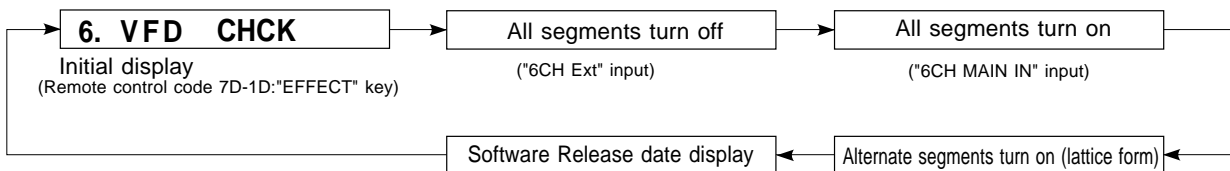
: Mode in which subwoofer speaker is not used. The LFE channel signal is reduced by 4.5 dB and mixed into MAIN L/R. But because of the phase difference, the MAIN L/R output is not simply summed.

Description of the submenu as follows:

	SUB MENU	DESCRIPTION
1	MAIN:SML 0DB	Verification of the High and low pass filter response and gain in the bass redirection mode.
2	MAIN:LRG 0DB	Reference of the sub menu No. 1 and 2.
3	MAIN:LRG -10	Verification of the effect in the main level function.
4	B:MAIN C:NONE	Verification of the mixing circuit effect to the main channel.
5	LFE/B:MAIN	Verification of the bass mix gain.
6	LFE/B:SWFR	Verification of the LFE maximum output.
7	C:NONE	Verification of the center mix gain.
8	C:S REAR:S	Verification of the high and low pass filter response and gain in the bass redirection mode.
9	FRONT MIX	Verification of the front mix gain.

No.6 DISPLAY CHECK

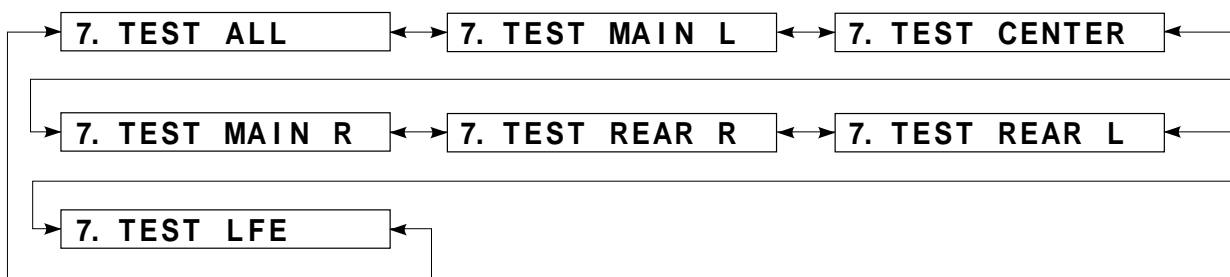
Check program for FL display. The display status will change as follows with sub-menu operation.
 The input becomes "6CH EXTERNAL" when all segments turn off and changes to "6CH MAIN IN" when all segments turn on.



A defect of the FL drive port and FL display segments can be detected by using "All segments turn off" and "All segments turn on".
 A short-circuit between adjacent segments can be detected by using "Alternate segments turn on" (lattice form).

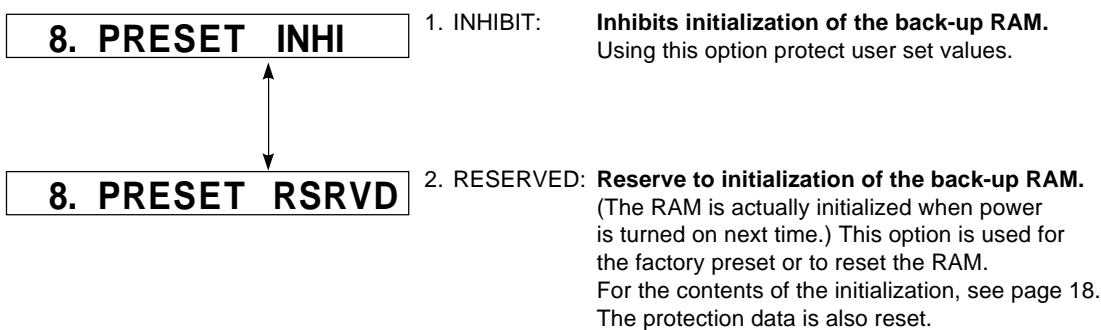
No.7 MANUAL TEST

By using the noise generator built into the DSP, test noise outputs to the channel specified by the sub-menu.



No.8 FACTORY PRESET

The initialization of the back-up RAM, which contains DSP program, set menu contents, etc. is reserved or inhibited.



No.9 AD DATA CHECK

The A/D conversion values of the microcomputer which detects key scan port, protection detection port, etc. are displayed in % (100%:5V).

The keys on the main unit cannot be operated to detect the values of all keys in the K1/K2 and SI. Turning the rotary encoder (input selector on the main unit) will switch the sub-menu.

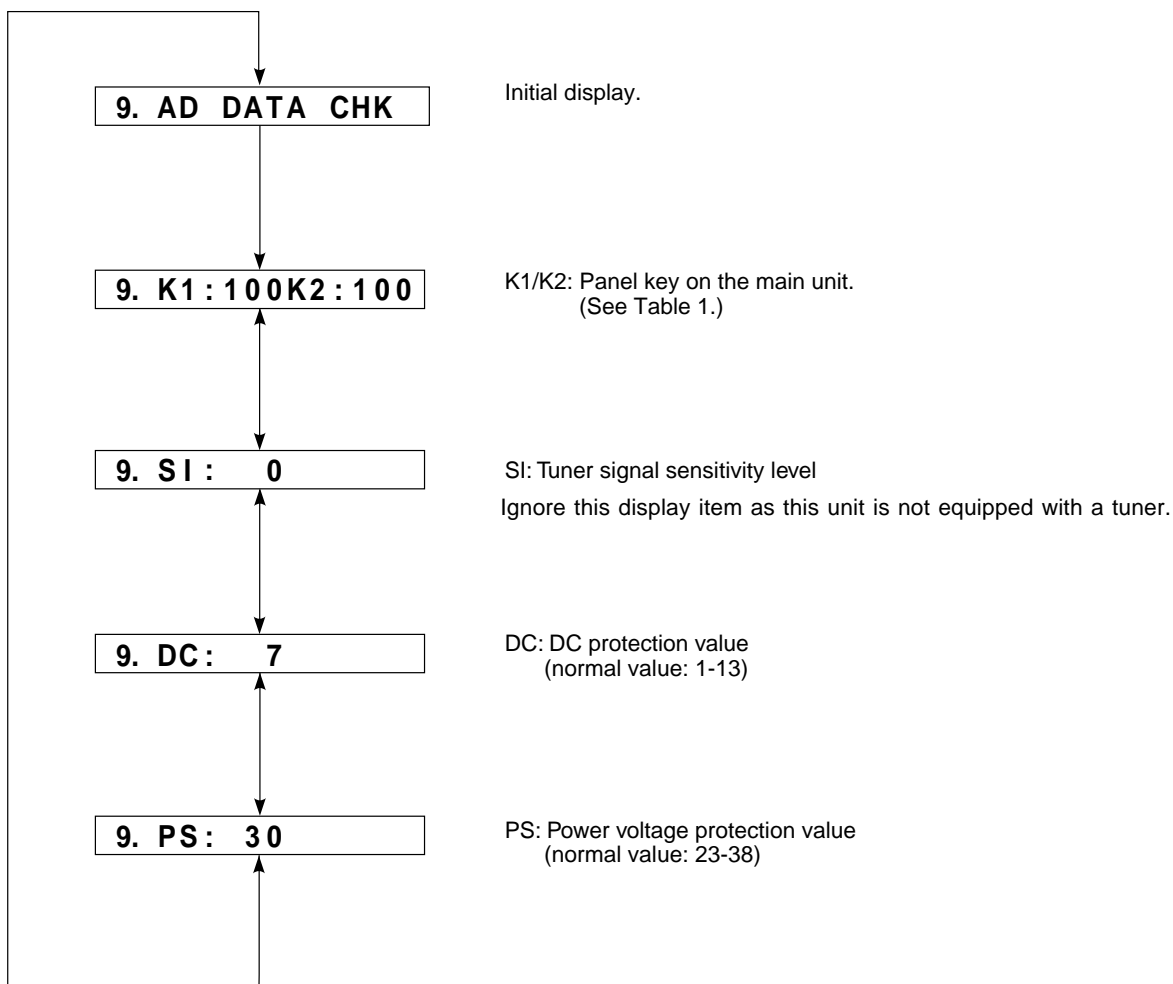


Table 1

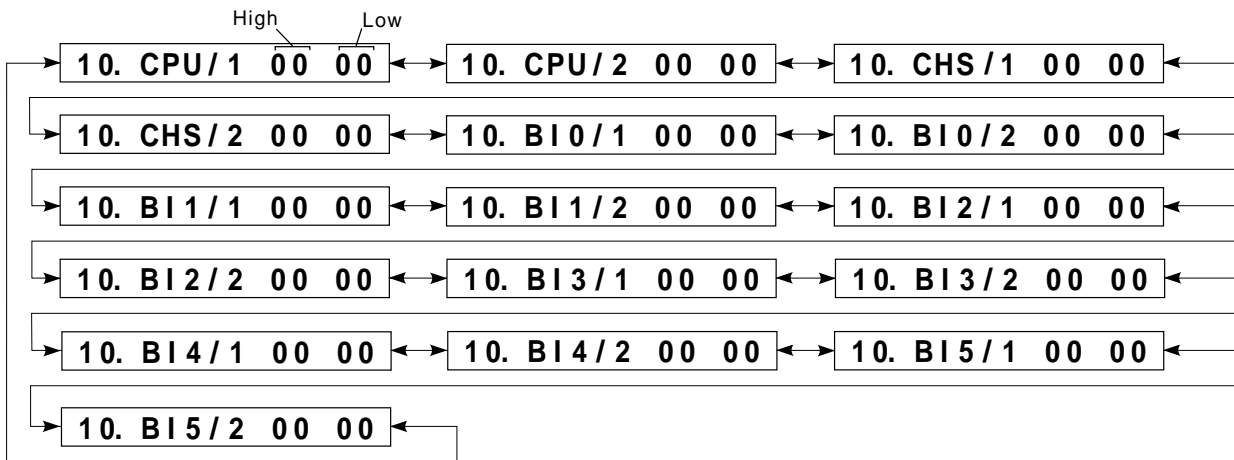
AD Value	0	15	25	35	45	55	65	75	85
K1	SET MENU		NEXT	TAPE/MD MON /EXT DECODER	EFFECT	_____	_____	_____	_____
	-	+							
K2	PROGRAM		INPUT MODE	_____	_____	_____	_____	_____	_____
	◀	▶							

Cautions:

1. If K1 and K2 are more than ±4% from the reference values, normal operation will not be executed.
2. If DC and PS are outside the normal values, the protection function will operate and power will turn off.

No.10 STATUS INFORMATION FROM DSP

The status data from the DSP block is sequentially displayed in a hexadecimal number.



[CPU/1]

<High Byte>

bit7	Mute request	bit3	acmod
bit6	fs	bit2	000B:1+1 0001B:1/0
bit5	000B:Analog 001B:32kHz	bit1	0010B:2/0 0011B:3/0
	010B:44.1kHz 011B:48kHz		0100B:2/1 0101B:3/1
bit4	100B:64kHz 101B:88.2kHz	bit0	0110B:2/2 0111B:3/2
	110B:96kHz 111B:undefined		1000B:7.1

[Note]

When acmod is beyond 1000B, it is DTS 7.1 signal. And the DSP block will be muted. The acmod of DTS 2/0 is as 000B:1+1.

<Low Byte>

bit7	AC-3 DECODE OK	bit3	DEM (Demodulator) MUTE (without RF signal)
bit6	DTS DECODE OK	bit2	IEC958 digital format error
bit5	Red DTS record (Flashes and lights)	bit1	IEC958 commercial-use device bit
bit4	1 for audio other than PCM linear audio	bit0	IEC958 digital data bit

[Note]

IEC958: Standard to identify the PCM bit stream signal. Digital format error refers to a digital signal with the sampling frequency undefined (neither 32k,44.1k,48k,64k,88.2k nor 96k). Since the operation of each device cannot be assured at fs outside specifications, this status handled as the forced analog mode (ignored even if decoding is OK from the detection terminal level), and the signals from the analog input terminal will be selected. Bits 4-6 of "CPU/1" will be 000B (Analog), and the microcomputer operates in the same way as with digital unlocking.

Indicate 0 0

bit 7 6 5 4 3 2 1 0

Indicate	bit			
	3	2	1	0
7	7	6	5	4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
A	1	0	1	0
B	1	0	1	1
C	1	1	0	0
D	1	1	0	1
E	1	1	1	0
F	1	1	1	1

[CPU/2]

<High Byte>

bit7	AC3 KARAOKE	bit3	1
bit6	DIR2 LOCKN	bit2	0
bit5	DIR2 ERR	bit1	DSP is AC3D2 (DTS present)
bit4	AC3D MUTE	bit0	RF DEM (Demodulator) present

<Low Byte> Always "00"

[CHS/1,/2] IEC958 channel status bits 00-31 available from DIR5.

- <CHS/1 High Byte>** bits 00-07
- <CHS/1 Low Byte>** bits 08-15
- <CHS/2 High Byte>** bits 16-23
- <CHS/2 Low Byte>** bits 24-31

[BI0/1,/2] Displays the bit stream information contained in AC-3(DOLBY DIGITAL)/DTS Digital Surround signal from the first byte.

[BI1-5/1,/2] Displays the bit stream information contained in AC-3(DOLBY DIGITAL) signal from the first byte.

No.11 EEPROM WRITING FUNCTION

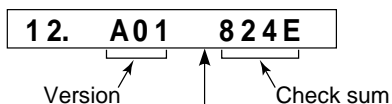
The check sum value confirmation of EEPROM and data writing

M: XXXX E: XXXX

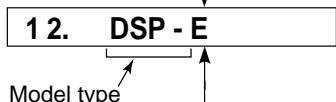
M:XXXX: The check sum value is displayed when the microcomputer has ROM modification data.
 0000 is displayed when there is no data.
 E:XXXX: The check sum value is displayed when the EEPROM is installed on and it has the ROM data .
 000 is displayed when EEPROM is not installed on or data is unusual.
 If you want to write ROM modification data of the microcomputer into the EEPROM, change to the next sub-menu.

No.12 UNIT INFORMATION/EXIT

The version of the microcomputer and the check sum, the model type and the destination are displayed.
 By the sub-menu operation, the set exits the self-diagnosis mode and returns to the normal operating mode.



The version and the check sum of the microcomputer software are displayed.
 A01: Microcomputer software version
 824E: Microcomputer software check sum



The model type and the destination are displayed.
 DSP-E: Model type
 DSP-E= DSP-E800



■ FACTORY PRESET

All of the system settings are initially set from the factory as follows.

● INPUT SELECTOR

INPUT		FACTORY PRESET PROGRAM
ROTARY ENCODER	CD	DISCO
	TUNER	ROCK CONCERT
	DVD/LD	SCI-FI
	D-TV	TV SPORTS
	VCR	PRO LOGIC
	CBL/SAT	ROCK CONCERT
MONITOR	TAPE/MD	EFFECT OFF
EXTERNAL	EXT. DECODER	NONE

● DSP PROGRAM

No.	PROGRAM	SUB-PROGRAM	DELAY PRESET VALUE
1.	DOLBY/DTS SURROUND	NORMAL	PRO LOGIC : 20ms,
		ENHANCED	DOLBY DIGITAL/DTS DIGITAL SUR : 5ms
2.	MOVIE THEATER 1	SPECTACLE	70mm : 23ms, DGTL/DTS : 15ms
		SCI-FI	70mm : 20ms, DGTL/DTS : 16ms
3.	MOVIE THEATER 2	ADVENTURE	70mm : 20ms, DGTL/DTS : 15ms
		GENERAL	
4.	MONO MOVIE	–	49ms
5.	TV SPORTS	–	9ms
6.	DISCO	–	40ms
7.	ROCK CONCERT	–	16ms
8.	CONCERT HALL	–	44ms

● SET MENU

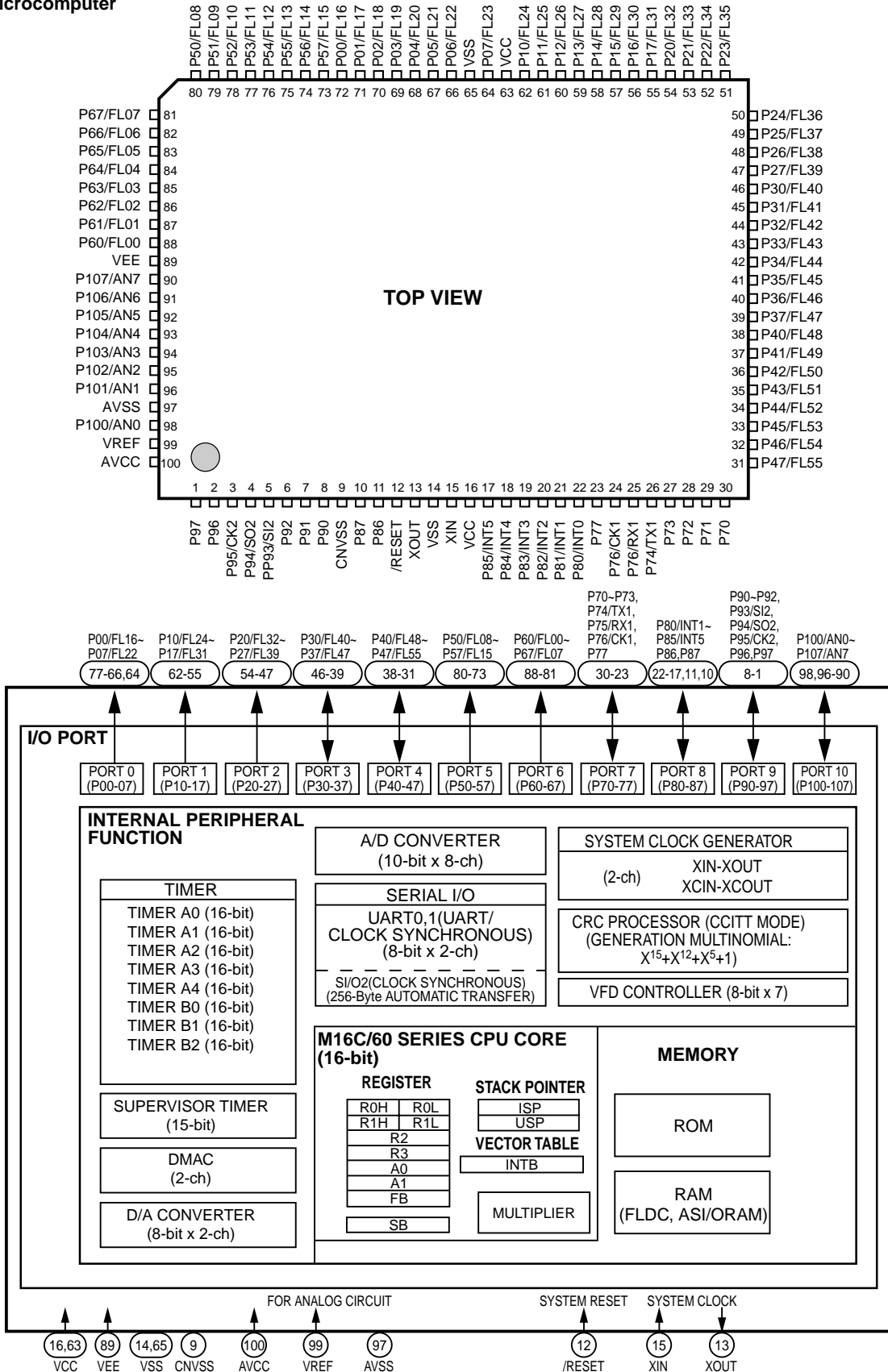
No.	SET MENU	PRESET VALUE
1.	CENTER SP SIZE	CENTER SP : LRG(LARGE)
2.	REAR SP SIZE	REAR SP : LARGE
3.	MAIN SP SIZE	MAIN SP : LARGE
4.	BASS OUT MODE	BASS OUT : BOTH
5.	M. LVL CHOICE	MAIN LVL : NRML (NORMAL)
6.	D. D. LFE OUT LEVEL	D. D. LFE 0 dB
7.	D. RNG CHOICE	D-RANGE : MAX
8.	DTS LFE OUT LEVEL	DTS LFE 0 dB
9.	C. DELAY CHANGE	CENTER DELAY 0ms
10.	MEMORY GUARD	MEM. GUARD : OFF
11.	INPUT MODE D-TV	TV INPUT : AUTO
12.	INPUT MODE CBL/SAT	CBL INPUT : AUTO

● EFFECT LEVEL

EFFECT CHANNEL	PRESET VALUE
CENTER	0 dB
RIGHT SURROUND	0 dB
LEFT SURROUND	0 dB
SUBWOOFER	0 dB

IC DATA

IC701 : M30218FCFP
16-bit Microcomputer



IC701 : M30218FCFP
16-bit Microcomputer

Pin No.	Port	Pin Name	I/O	Function	
1	P97	SCK	O	Serial Clock output	For Input selector, etc.
2	P96	SDT	O	Serial Data output	
3	P95 /CK2	RCK	I/O	Model select (GND)	
4	P94 /SO2	RDT	I/O	Data output for destination distinction of Tuner (Not used)	
5	P93 /SI2	DEST /RD0	I	Data input for destination distinction of Tuner (Not used)	
6	P92	RCE	I/O	Model select (Pull up)	
7	P91	SCKD	O	Serial Clock output for DIR5	
8	P90	SID	O	Serial data output for DIR5	
9	CNVSS	CNVSS		For flash μ -COM write connector	
10	P87	CKB	O	Clock output for output port expansion IC	
11	P86	DTB	O	Data output for output port expansion IC	
12	/RESET	/RES		System reset	
13	XOUT	XOUT		Crystal oscillator connected (10MHz)	
14	VSS	MG		Ground	
15	XIN	MU		Crystal oscillator connected (10MHz)	
16	VCC	+5BU		+5V Power supply	
17	P85/INT5	INTD	I	Interrupt factor detect input from DIR5	
18	P84/INT4	ERRA	I	Data mute detect input from AC3D2av	
19	P83/INT3	REM	I	Remote control input	
20	P82/INT2	PDT	I	Power down detect input	
21	P81/INT1	PSW	I	Standby switch input	
22	P80/INT0	DBL	I	Double speed sampling mode selection data input DIR5	
23	P77	CEAC2	O	Chip enable output 2 for AC3D2av	
24	P76/CK1	CLKAC	O	Serial clock output for AC3D2av	
25	P75/RX1	RXAC	I	Serial data input from AV3D2av	
26	P74/TX1	TXAC	O	Serial data output for AC3D2av	
27	P73	CEAC1	O	Chip enable output 1 for AC3D2av	
28	P72	TCE	O	Chip enable output for Tuner (Not used)	
29	P71	CELC	O	Chip enable output for Input Selector	
30	P70	CETC	O	Chip enable output for Input Selector	

Pin No.	Port	Pin Name	I/O	Function	
31	P47/FL55	F-CE	O	Chip enable output	For flash μ -COM write connector
32	P46/FL54	F-CK	O	Serial clock output	
33	P45/FL53	F-RX	I	Serial data input	
34	P44/FL52	F-TX	O	Serial data output	connector
35	P43/FL51	VUP	O	Volume up output	
36	P42/FL50	VDN	O	Volume down output	
37	P41/FL49	SOD	I	Serial data input from DIR5	
38	P40/FL48	CECOD	O	Chip enable output for CODEC	
39	P37/FL47	/CSD	O	Chip select output for DIR5	
40	P36/FL46	PRI	I	I (Over current) protection detect input	
41	P35/FL45	POT-A	I	Rotary encoder input A	
42	P34/FL44	POT-B	I	Rotary encoder input B	
43	P33/FL43	/ST	I	Stereo input from Tuner (Not used)	
44	P32/FL42	DO	I	Serial data input from Tuner (Not used)	
45	P31/FL41	/ICD	O	Initial clear output for DIR5	
46	P30/FL40	PRY	O	Power relay output	
47	P27/FL39	SRY	O	Speaker relay output	
48	P26/FL38	ERY	O	Effect relay output	
49	P25/FL37	G1	O	Grid 1 for FL display	
50	P24/FL36	G2	O	Grid 2 for FL display	
51	P23/FL35	G3	O	Grid 3 for FL display	
52	P22/FL34	G4	O	Grid 4 for FL display	
53	P21/FL33	G5	O	Grid 5 for FL display	
54	P20/FL32	G6	O	Grid 6 for FL display	
55	P17/FL31	G7	O	Grid 7 for FL display	
56	P16/FL30	G8	O	Grid 8 for FL display	
57	P15/FL29	G9	O	Grid 9 for FL display	
58	P14/FL28	G10	O	Grid 10 for FL display	
59	P13/FL27	G11	O	Grid 11 for FL display	
60	P12/FL26	G12	O	Grid 12 for FL display	
61	P11/FL25	G13	O	Grid 13 for FL display	
62	P10/FL24	G14	O	Grid 14 for FL display	
63	VCC	+5VBU		+5V power supply	
64	P07/FL23	G15	O	Grid 15 for FL display	
65	VSS	MG		Ground	
66	P06/FL22	G16	O	Grid 16 for FL display	

IC701 : M30217MA-A203FP

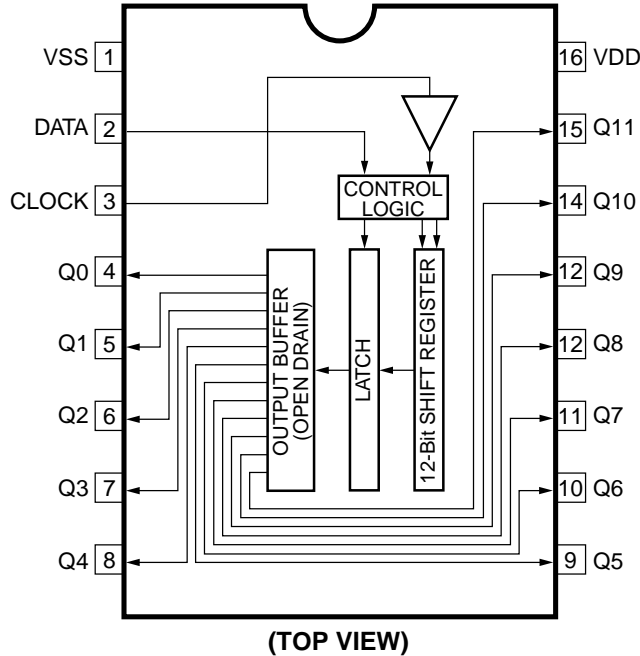
16-bit Microcomputer

Pin No.	Port	Pin Name	I/O	Function
67	P05/FL21	P1	O	Segment 1 for FL display
68	P04/FL20	P2	O	Segment 2 for FL display
69	P03/FL19	P3	O	Segment 3 for FL display
70	P02/FL18	P4	O	Segment 4 for FL display
71	P01/FL17	P5	O	Segment 5 for FL display
72	P00/FL16	P6	O	Segment 6 for FL display
73	P57/FL15	P7	O	Segment 7 for FL display
74	P56/FL14	P8	O	Segment 8 for FL display
75	P55/FL13	P9	O	Segment 9 for FL display
76	P54/FL12	P10	O	Segment 10 for FL display
77	P53/FL11	P11	O	Segment 11 for FL display
78	P52/FL10	P12	O	Segment 12 for FL display
79	P51/FL09	P13	O	Segment 13 for FL display
80	P50/FL08	P14	O	Segment 14 for FL display
81	P67/FL07	P15	O	Segment 15 for FL display
82	P66/FL06	P16	O	Segment 16 for FL display
83	P65/FL05	P17	O	Segment 17 for FL display
84	P64/FL04	P18	O	Segment 18 for FL display

Pin No.	Port	Pin Name	I/O	Function
85	P63/FL03	P19	O	Segment 19 for FL display
86	P62/FL02	P20	O	Segment 20 for FL display
87	P61/FL01	P21	O	Segment 21 for FL display
88	P60/FL00	P22	O	Segment 22 for FL display
89	VEE	VP	O	Power supply for FL display
90	P107/AN7	LIMDT	I	Limiter DC detect input (Not used)
91	P106/AN6	PRV	I	PS (power voltage) protection AD value detect input
92	P105/AN5	PRD	I	DC (power amp voltage) protection AD value detect input
93	P104/AN4	EXT	I	6CH select SW input
94	P103/AN3	NC	O	No connection
95	P102/AN2	/FMT	O	Full mute output (L: ON)
96	P101/AN1	KEY2	I	Key 2 AD data value input
97	AVSS	MG		Ground
98	P100/AN0	KEY1	I	Key 1 AD data value input
99	VREF	+5M		Standard power supply for AD input
100	AVCC	+5BU		+5V power supply

IC407 : BU2090

Serial Input/Parallel Output Driver for Output port expansion



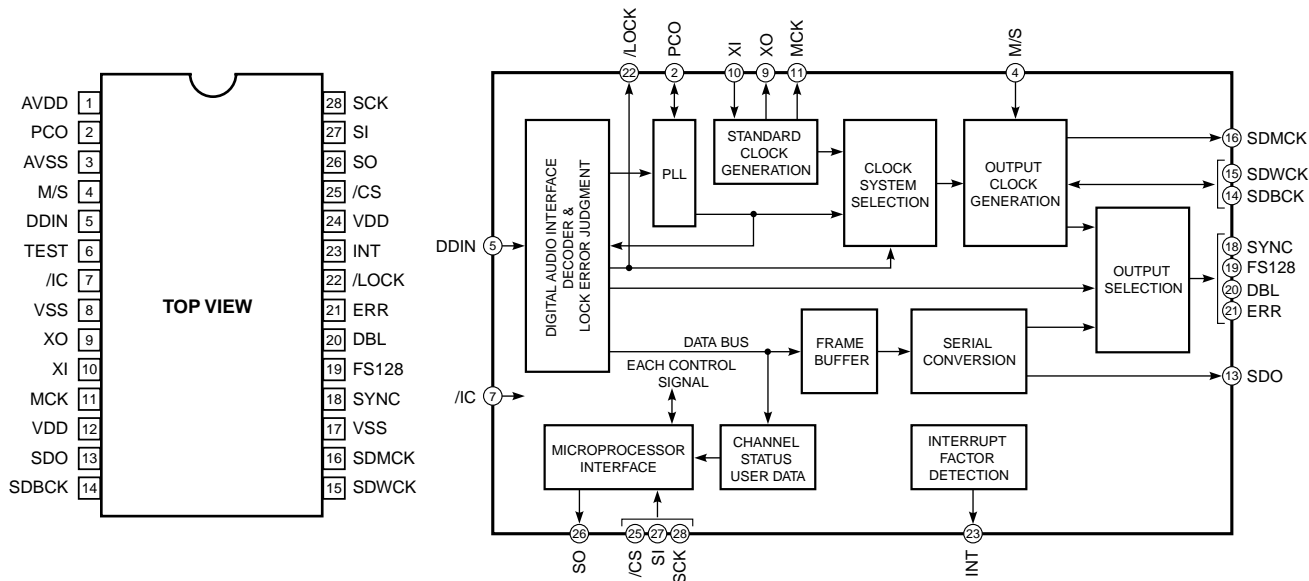
Pin No.	Port	Pin Name	I/O	Function
1	VSS	VSS		Ground
2	DATA	DTB	I	Control data input
3	CLOCK	CKB	I	Control clock input
4	Q0	SW1	O	Video select data output 1-5(*) for video input selector
5	Q1	SW2	O	
6	Q2	SW3	O	
7	Q3	SW4	O	
8	Q4	SW5	O	
9	Q5	NC	O	Unconnected
10	Q6	NC	O	Unconnected
11	Q7	/-10dB	O	-10dB control data output (L : -10dB)
12	Q8	/ICAC	O	Initial clear output for AC3D2av
13	Q9	NC	O	Unconnected
14	Q10	NC	O	Unconnected
15	Q11	/T-MUTE	O	Unconnected
16	VDD	VDD		+5V power supply

* Video input Selector Control (H=High, L=Low, X=Don't care)

Video Input	SW1	SW2	SW3	SW4	SW5
CBL/SAT	H	L	X	L	H
D-TV	H	H	X	L	H
DVD/LD	H	L	L	H	H
VCR	L	H	X	X	H
OFF	L	L	X	X	L

IC3 : YSD917 (DIR5)

Digital Format Interface Receiver

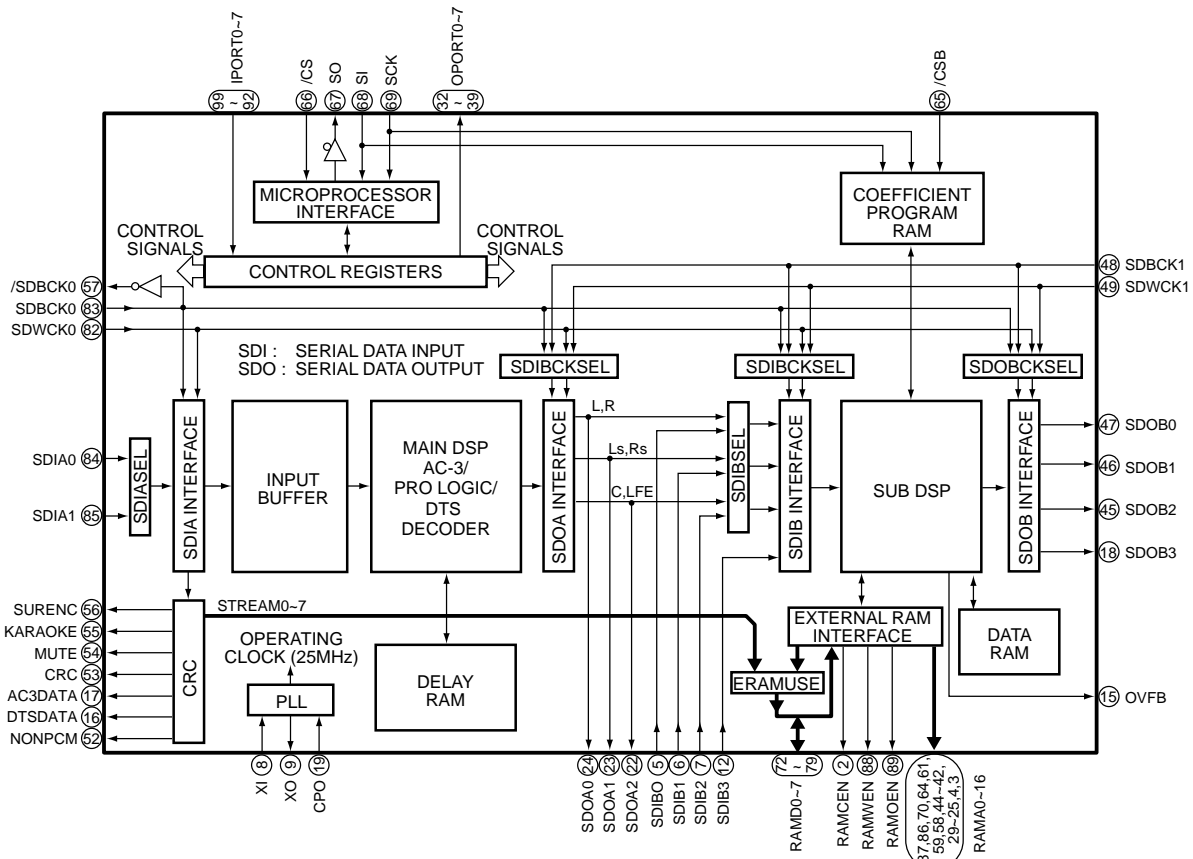
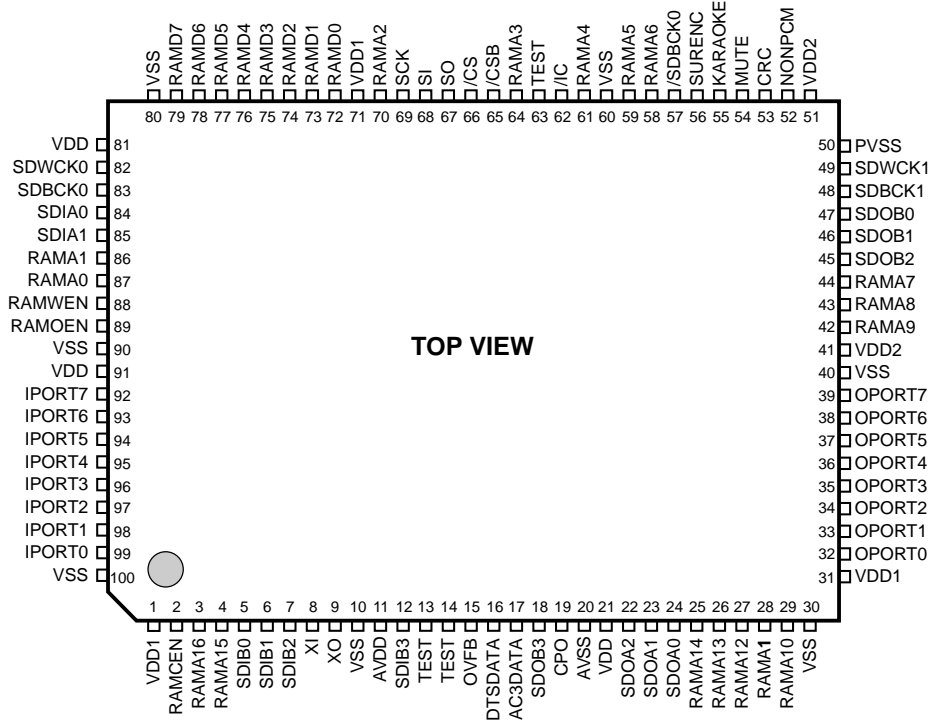


Pin No.	Pin Name	I/O	Function
1	AVDD		Power supply
2	PCO	I/O	PLL phase comparison output
3	AVSS		Ground
4	M/S	I	Unconnected
5	DDIN	I	Digital audio data input
6	TEST		Unconnected
7	/IC	I	Initial clear input from microcomputer
8	VSS		Ground
9	XO	O	Crystal oscillator connection (24.576MHz)
10	XI	I	Crystal oscillator connection (24.576MHz)
11	MCK	O	Master clock output for AC3D2av
12	VDD		Power supply
13	SDO	O	Serial audio data output for AC3D2av
14	SDBCK	I/O	64fs bit clock output for microcomputer, CODEC, DAC
15	SDWCK	I/O	1fs word clock output for microcomputer, CODEC, DAC
16	SDMCK	O	256fs bit clock output for microcomputer, CODEC, DAC

Pin No.	Pin Name	I/O	Function
17	VSS		Ground
18	SYNC	O	Unconnected
19	FS128	O	Unconnected
20	DBL	O	Double speed sampling mode selection data output for microcomputer, CODEC, DAC
21	ERR	O	Unconnected
22	/LOCK	O	Unconnected
23	INT	O	Interrupt factor detect output for microcomputer
24	VDD		Power supply
25	/CS	I	Chip select input from microcomputer
26	SO	O	Serial data output for microcomputer
27	SI	I	Serial data input for microcomputer
28	SCK	I	Serial clock input from microcomputer

IC4 : YSS918D-F (AC3D2av)

DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder



IC4 : YSS918D-F (AC3D2av)

DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder

No.	Name	I/O	Function
1	VDD1		+5V power supply
2	RAMCEN	O	RAM chip enable output terminal (normally unconnected)
3	RAMA16	O	RAM address output terminal 16, connected to external 1M SRAM address
4	RAMA15	O	RAM address output terminal 15, connected to external 1M SRAM address
5	SDIB0	I	Serial data input B terminal 0 (normally connected to ground)
6	SDIB1	I	Serial data input B terminal 1 (normally connected to ground)
7	SDIB2	I	Serial data input B terminal 2 (normally connected to ground)
8	XI	I	Crystal oscillator connection or external clock input terminal, connected to external DIR5 master clock output
9	XO	O	Crystal oscillator connection (normally unconnected)
10	VSS		Ground
11	AVDD		+3V power supply
12	SDIB3	I	Serial data input B terminal 3 (normally unconnected)
13	TEST		Test terminal (normally unconnected)
14	TEST		Test terminal (normally unconnected)
15	OVFB	O	Overflow detect terminal (normally unconnected)
16	DTSDATA	O	DTS data detect terminal (normally unconnected)
17	AC3DATA	O	AC-3 data detect terminal (normally unconnected)
18	SDOB3	O	Serial data output B terminal 3 (normally unconnected)
19	CPO	O	PLL output terminal (connected to AVSS through external analog filter)
20	AVSS		Ground
21	VDD		+3V power supply
22	SDOA2	O	Serial data output A terminal 2 (normally unconnected)
23	SDOA1	O	Serial data output A terminal 1 (normally unconnected)
24	SDOA0	O	Serial data output A terminal 0 connected to external ADC serial data input
25	RAMA14	O	RAM address terminal 14 output terminal, connected to external 1M SRAM address
26	RAMA13	O	RAM address terminal 13 output terminal, connected to external 1M SRAM address
27	RAMA12	O	RAM address terminal 12 output terminal, connected to external 1M SRAM address
28	RAMA11	O	RAM address terminal 11 output terminal, connected to external 1M SRAM address
29	RAMA10	O	RAM address terminal 10 output terminal, connected to external 1M SRAM address
30	VSS		Ground
31	VDD1		+5V power supply
32	OPORT0	O	Output expansion port terminal 0, digital input selector A output (DIA *)
33	OPORT1	O	Output expansion port terminal 1, digital input selector B output (DIB *)
34	OPORT2	O	Output expansion port terminal 2 (normally unconnected)
35	OPORT3	O	Output expansion port terminal 3, compulsive analog performance mode (KM1) output
36	OPORT4	O	Output expansion port terminal 4, connected to external CODEC initial clear input
37	OPORT5	O	Output expansion port terminal 5, PRO LOGIC decode output (H:PRO LOGIC decode)
38	OPORT6	O	Output expansion port terminal 6 (normally unconnected)
39	OPORT7	O	Output expansion port terminal 7 (normally unconnected)
40	VSS		Ground
41	VDD2		+3V power supply
42	RAMA9	O	RAM address output terminal 9, connected to external 1M SRAM address
43	RAMA8	O	RAM address output terminal 8, connected to external 1M SRAM address
44	RAMA7	O	RAM address output terminal 7, connected to external 1M SRAM address
45	SDOB2	O	Serial data output B terminal 2, connected to external CODEC PCM audio data output
46	SDOB1	O	Serial data output B terminal 1, connected to external CODEC PCM audio data output
47	SDOB0	O	Serial data output B terminal 0, connected to external CODEC PCM audio data output
48	SDBCK1	I	Serial data bit clock input terminal 1, connected to external DIR5 64fs bit clock output
49	SDWCK1	I	Serial data word clock input terminal 1, connected to external DIR5 1fs word clock output
50	VSS		Ground

* Digital Input Selector Control (H=1, L=0)

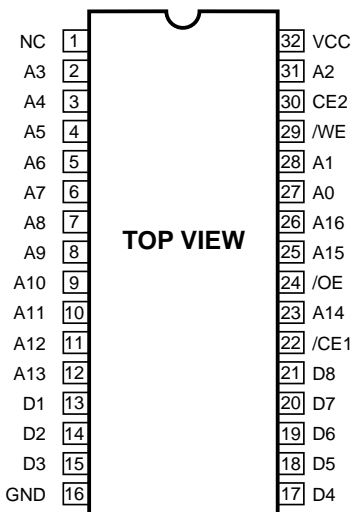
Digital Input	DIB	DIA
NONE	0	0
DVD/LD	0	1
CBL/SAT	1	0
D-TV	1	1

IC4 : YSS918D-F (AC3D2av)

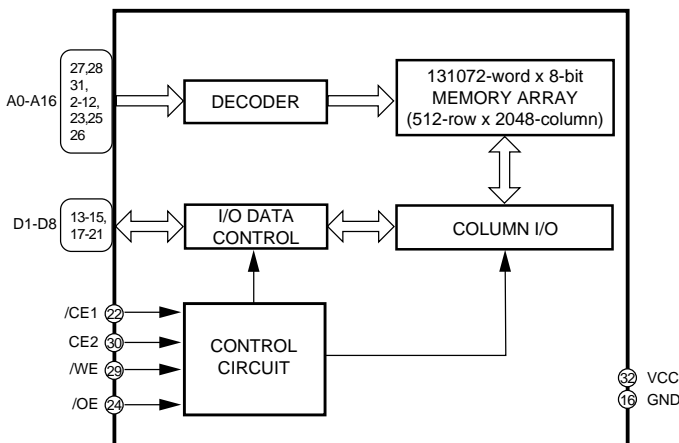
DSP + AC-3(Dolby Digital)/ Pro Logic/ DTS Digital Surround Decoder

No.	Name	I/O	Function
51	VDD2		+3V power supply
52	NONPCM	O	Non-PCM data output terminal, non-PCM data detect output
53	CRC	O	CRC output terminal (normally unconnected)
54	MUTE	O	Mute output terminal, connected to external microcomputer data mute detect input
55	KARAOKE	O	Karaoke output terminal (normally unconnected)
56	SURENC	O	Surround encoder output terminal (normally unconnected)
57	/SDBCK0	O	Inverted signal of serial data bit clock output terminal 0 (normally unconnected)
58	RAMA6	O	RAM address output terminal 6, connected to external 1M SRAM address
59	RAMA5	O	RAM address output terminal 5, connected to external 1M SRAM address
60	VSS		Ground
61	RAMA4	O	RAM address output terminal 4, connected to external 1M SRAM address
62	/IC	I	Initial clear input terminal, connected to external output port expansion IC initial clear output
63	TEST		Test terminal (normally unconnected)
64	RAMA3	O	RAM address output terminal 3, connected to external 1M SRAM address
65	/CSB	I	Chip select B input terminal, connected to external microcomputer chip enable output 2
66	/CS	I	Chip select input terminal, connected to external microcomputer chip enable output 1
67	SO	O	Serial data output terminal, connected to external microcomputer serial data input
68	SI	I	Serial data input terminal, connected to external microcomputer serial data output
69	SCK	I	Serial clock input terminal, connected to external microcomputer serial clock output
70	RAMA2	O	RAM address output terminal 2, connected to external 1M SRAM address
71	VDD1		+5V power supply
72	RAMD0	I/O	RAM data bus terminal 0, connected to external 1M SRAM data
73	RAMD1	I/O	RAM data bus terminal 1, connected to external 1M SRAM data
74	RAMD2	I/O	RAM data bus terminal 2, connected to external 1M SRAM data
75	RAMD3	I/O	RAM data bus terminal 3, connected to external 1M SRAM data
76	RAMD4	I/O	RAM data bus terminal 4, connected to external 1M SRAM data
77	RAMD5	I/O	RAM data bus terminal 5, connected to external 1M SRAM data
78	RAMD6	I/O	RAM data bus terminal 6, connected to external 1M SRAM data
79	RAMD7	I/O	RAM data bus terminal 7, connected to external 1M SRAM data
80	VSS		Ground
81	VDD2		+3V power supply
82	SDWCK0	I	Serial data word clock input terminal 0, connected to external DIR5 1fs word clock output
83	SDBCK0	I	Serial data bit clock input terminal 0, connected to external DIR5 64fs bit clock output
84	SDIA0	I	Serial data input A terminal 0, AC-3/DTS bit stream (or PCM) data input, connected to external DIR5 audio data output
85	SDIA1	I	Serial data input A terminal 1, connected to external CODEC audio data output
86	RAMA1	O	RAM address output terminal 1, connected to external 1M SRAM address
87	RAMA0	O	RAM address output terminal 0, connected to external 1M SRAM address
88	RAMWEN	O	RAM write enable output terminal, connected to external 1M SRAM write enable
89	RAMOEN	O	RAM output enable output terminal, connected to external 1M SRAM output enable
90	VSS		Ground
91	VDD		+3V power supply
92	IPOINT7	I	Input expansion port terminal 7, DVD coaxial/optical select
93	IPOINT6	I	Input expansion port terminal 6, DBS coaxial/optical select
94	IPOINT5	I	Input expansion port terminal 5 (normally connected to ground)
95	IPOINT4	I	Input expansion port terminal 4, digital sampling frequency select (H:96kHz, L:Non 96kHz)
96	IPOINT3	I	Input expansion port terminal 3, Front mix select (H: Outside, L: Inside)
97	IPOINT2	I	Input expansion port terminal 2, RF select (H: Exist, L:None)
98	IPOINT1	I	Input expansion port terminal 1, DTS select (H: DTS (YSS918), L: Non DTS (YSS908))
99	IPOINT0	I	Input expansion port terminal 0, SRAM select (H: 1M, L: 256k)
100	VSS		Ground

IC5 : IS61C1024-20J (1M SRAM)
131072-word x 8-bit High Speed Static RAM



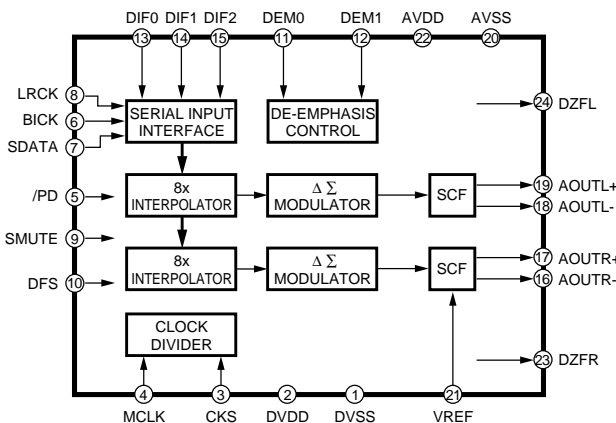
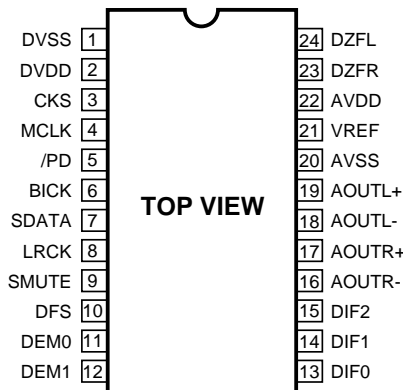
NOTE)
 A0-A16: Address input
 D1-D8: Data input/output
 /CE1,CE2: Chip enable input 1,2
 /OE: Output enable input
 /WE: Write enable input



Mode	/WE	/CE1	/CE2	/OE	Data I/O	Power
Not Selected (Power-down)	X	X	X	X	High impedance	Standby
Output Disabled	H	L	H	H	High impedance	On
Read	H	L	H	L	Output	On
Write	L	L	H	X	Input	On

NOTE) H: High Level L: Low level X: Don't care

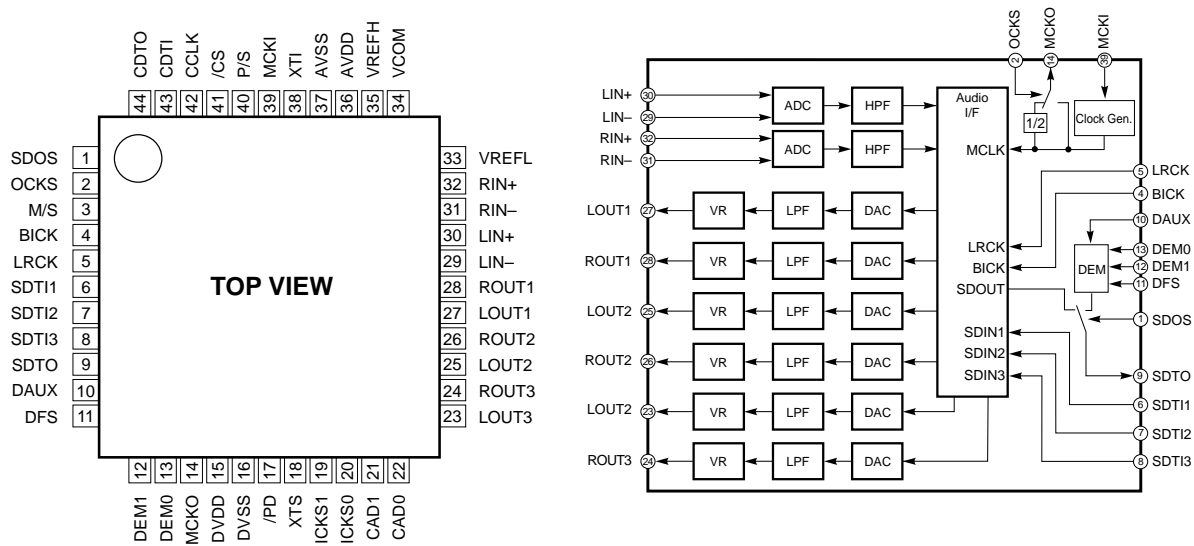
IC7 : AK4324-VF-E2 (DAC)
1-bit D/A Converter



Pin No.	Pin Name	I/O	Function
1	DVSS		Ground (digital)
2	DVDD		Power supply (digital)
3	CKS	I	Master clock (MCLK) select input (Fixed L) Normal speed (L:256fs, H:384fs) High speed (L:128fs, H:192fs)
4	MCLK	I	256fs bit clock input from DIR5
5	/PD	I	Power-down and reset, initial clear input from AC3D2av (L:Reset)
6	BICK	I	64fs bit clock input from DIR5
7	SDATA	I	Serial data input from AC3D2av
8	LRCK	I	1fs word clock input from DIR5
9	SMUTE	I	Soft mute detect input (H:Soft mute, L:off)
10	DFS	I	Double speed sampling mode select input from DIR5 (L:Normal speed, H:High speed)

Pin No.	Pin Name	I/O	Function
11	DEM0	I	De-emphasis frequency select input 0 (Fixed H)
12	DEM1	I	De-emphasis frequency select input 1 (Fixed L)
13	DIF0	I	Digital input format input 0 (Fixed L)
14	DIF1	I	Digital input format input 1 (Fixed H)
15	DIF2	I	Digital input format input 2 (Fixed L)
16	AOUTR-	O	Rch negative analog output
17	AOUTR+	O	Rch positive analog output
18	AOUTL-	O	Lch negative analog output
19	AOUTL+	O	Lch positive analog output
20	AVSS		Ground (analog)
21	VREF	I	Reference voltage input
22	AVDD		Power supply (analog)
23	DZFR	O	Rch zero input detect output
24	DZFL	O	Lch zero input detect output

IC6 : AK4526A-VQ (CODEC. ADC/DAC)
20-bit 6-channel A/D, D/A Converter

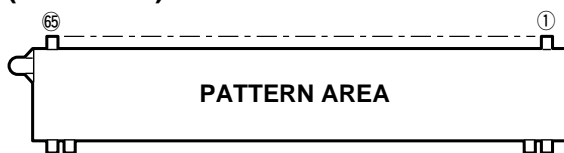


Pin No.	Pin Name	I/O	Function
1	SDOS	I	Fixed L
2	OCKS	I	Fixed L
3	M/S	I	Fixed L
4	BICK	I	Audio serial data clock, 64fs bit clock input from microcomputer
5	LRCK	I	L/R channel clock, 1fs word clock input from microcomputer
6	SDT11	I	DAC Audio serial data input 1-3, PCM input from AC3D2av
7	SDT12	I	
8	SDT13	I	
9	SDTO	O	Audio serial data output, audio data for AC3D2av
10	DAUX	I	Fixed L
11	DFS	I	Double speed sampling mode selection data input from DIR5
12	DEM1	I	De-emphasis frequency select input 1 (Fixed L)
13	DEM0	I	De-emphasis frequency select input 0 (Fixed L)
14	MCKO	O	Unconnected
15	DVDD		Power supply (digital)
16	DVSS		Ground (digital)
17	/PD	I	Power-down and reset, initial clear input from AC3D2av
18	XTS	I	Connected to ground (analog)
19	ICKS1	I	Connected to ground (analog)
20	ICKS0	I	Connected to ground (analog)
21	CAD1	I	Connected to ground (analog)
22	CAD0	I	Connected to ground (analog)

Pin No.	Pin Name	I/O	Function
23	LOUT3	O	Lch analog output 3, for CENTER
24	ROUT3	O	Rch analog output 3, for LFE
25	LOUT2	O	Lch analog output 2, for REAR
26	ROUT2	O	Rch analog output 2, for REAR
27	LOUT1	O	Lch analog output 1, for FRONT
28	ROUT1	O	Rch analog output 1, for FRONT
29	LIN-	I	Lch negative analog input, from MAIN
30	LIN+	I	Lch positive analog input, from MAIN
31	RIN-	I	Rch negative analog input, from MAIN
32	RIN+	I	Rch positive analog input, from MAIN
33	VREFL	I	Reference voltage (Low) input (analog)
34	VCOM	O	Common voltage output
35	VREFH	I	Reference voltage (High) input (analog)
36	AVDD		Power supply (analog)
37	AVSS		Ground (analog)
38	XTI		Unconnected
39	MCKI	I	External master clock input, 256fs bit clock input from DIR5
40	P/S	I	Fixed L
41	/CS	I	Chip select in serial mode, chip enable from microcomputer
42	CCLK	I	Control data clock in serial mode, serial clock from microcomputer
43	CDTI	I	Control data input in serial mode, serial data from microcomputer
44	CDTO	O	Unconnected

■ DISPLAY DATA

● V701 : 16-BT-76GK (V5938300)

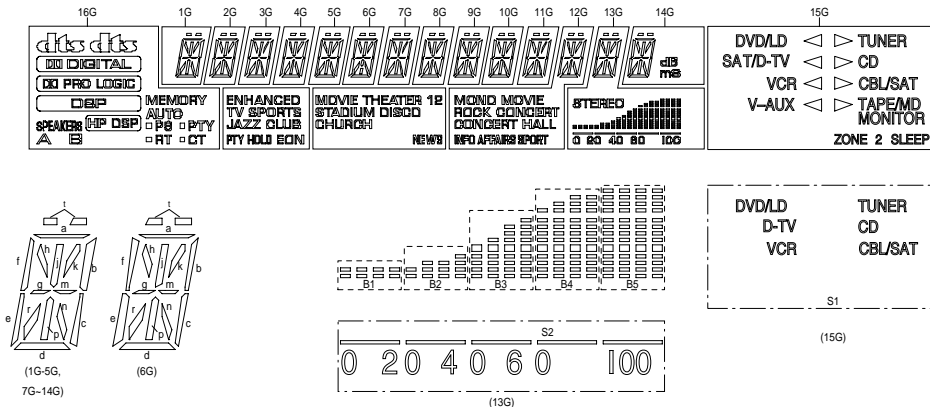


● PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CONNECTION	F1	F1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	Fd	Fd	NP	NP	P22	P21	P20	P19
Pin No.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
CONNECTION	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	16G	15G	14G	13G	12G
Pin No.	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65										
CONNECTION	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2										

- NOTE**
- 1) F1, F2..... Filament
 - 2) NP..... No pin
 - 3) P1~P22 Datum Line
 - 4) 1G~16G..... GRID
 - 5) Fd terminals are to be supplied through 51kΩ from Ec.
 - 6) Field of vision is a minimum of 23° from the lower side.

● GRID ASSIGNMENT

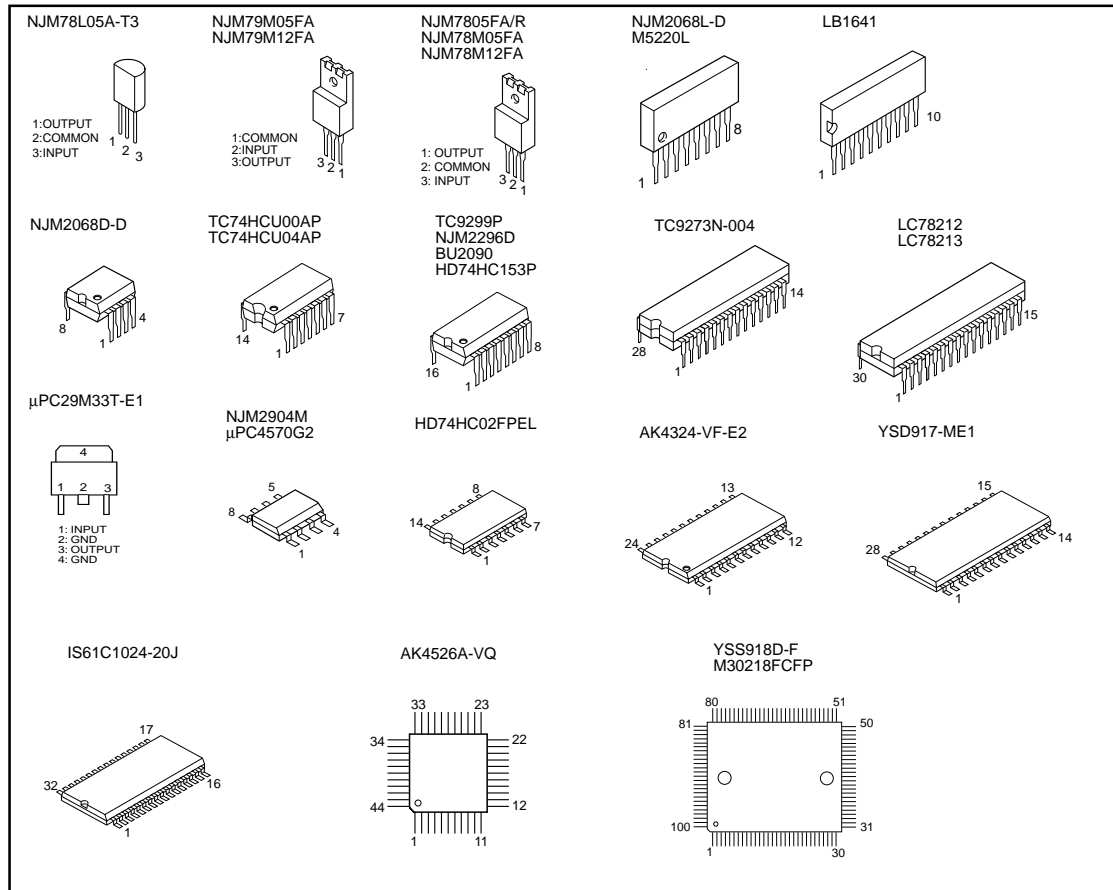


● ANODE CONNECTION

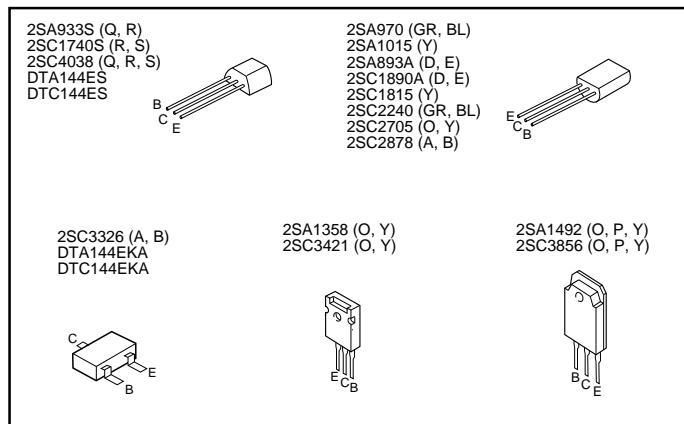
	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	(LEFT)	(TUNER)	a	a	a	a	a	a	a	a	a	a	a	a	a	a
P2	(RIGHT)	(CD)	b	b	b	b	b	b	b	b	b	b	b	b	b	b
P3		(CBL/SAT)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
P4		(TAPE/MD)	d	d	d	d	d	d	d	d	d	d	d	d	d	d
P5		-	e	e	e	e	e	e	e	e	e	e	e	e	e	e
P6		(V-AUX)	f	f	f	f	f	f	f	f	f	f	f	f	f	f
P7		(VCR)	g	g	g	g	g	g	g	g	g	g	g	g	g	g
P8		(SAT/D-TV)	h	h	h	h	h	h	h	h	h	h	h	h	h	h
P9		(DVD/LD)	j	j	j	j	j	j	j	j	j	j	j	j	j	j
P10		S1	k	k	k	k	k	k	k	k	k	k	k	k	k	k
P11		SAT/	m	m	m	m	m	m	m	m	m	m	m	m	m	m
P12		V-AUX	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
P14		TAPE/MD	r	r	r	r	r	r	r	r	r	r	r	r	r	r
P15		MONITOR	t	t	t	t	t	t	t	t	t	t	t	t	t	t
P16		ZONE 2	dB	STEREO	MONO	MOVIE	MOVIE	THEATER	ENHANCED	-	-	-	-	-	-	-
P17		SLEEP	ms	B1	ROCK	CONCERT	1	TV	SPORTS	-	-	-	-	-	-	-
P18		-	-	B2	CONCERT	HALL	2	JAZZ	CLUB	-	-	-	-	-	-	-
P19		-	-	B3	INFO	STADIUM	DISCO	PTV	HOLD	-	-	-	-	-	-	-
P20	-	-	-	B4	AFFAIRS	DISCO	CHURCH	EON	-	-	-	-	-	-	-	-
P21	-	-	-	B5	SPORT	CHURCH	-	-	-	-	-	-	-	-	-	-
P22	-	-	-	S2	-	NEWS	-	-	-	-	-	-	-	-	-	-

PIN CONNECTION DIAGRAM

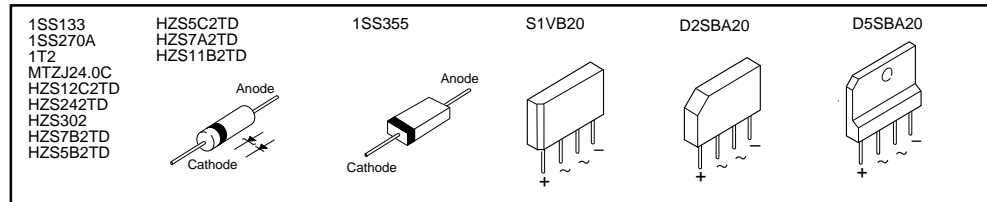
ICs



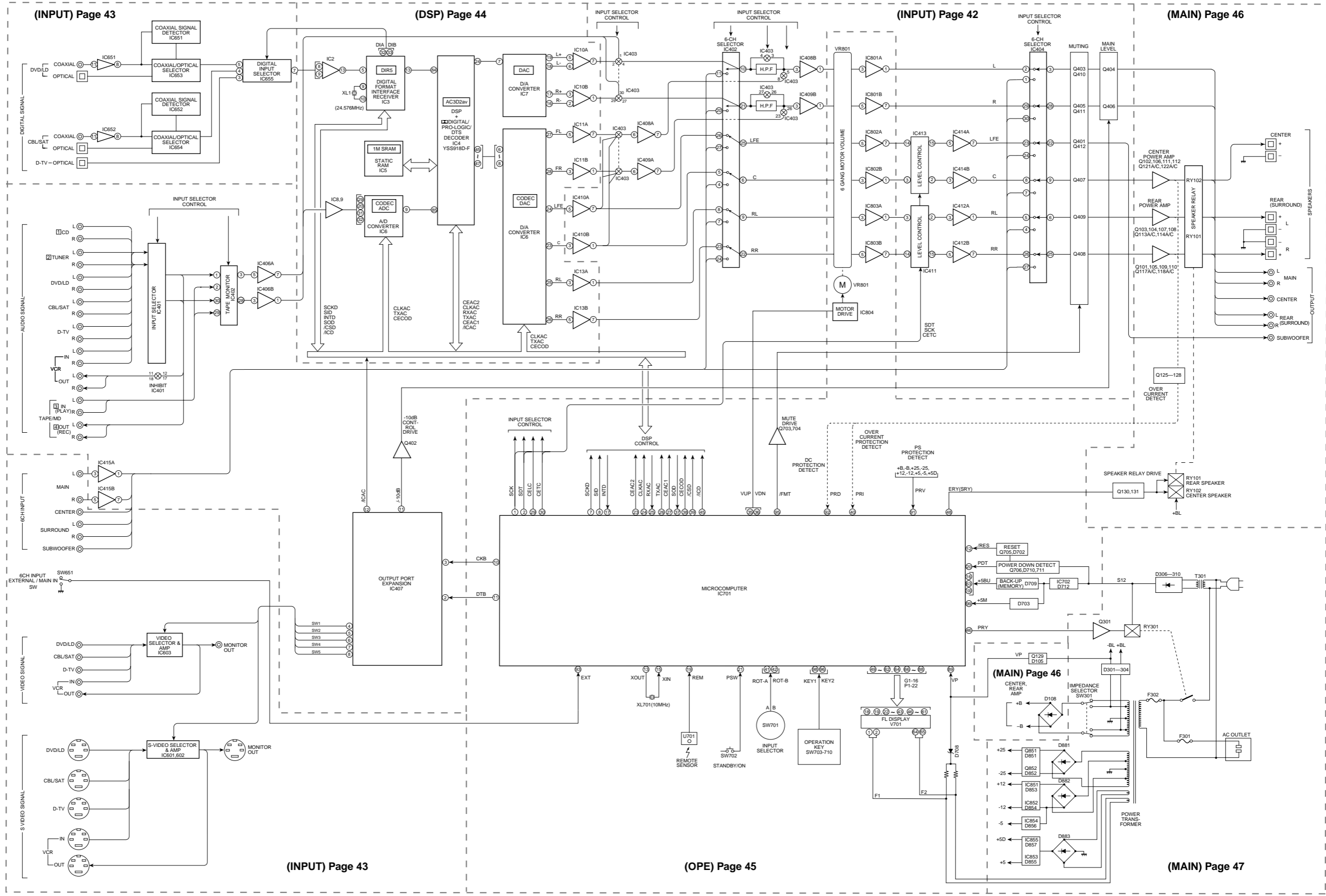
Transistors



Diodes

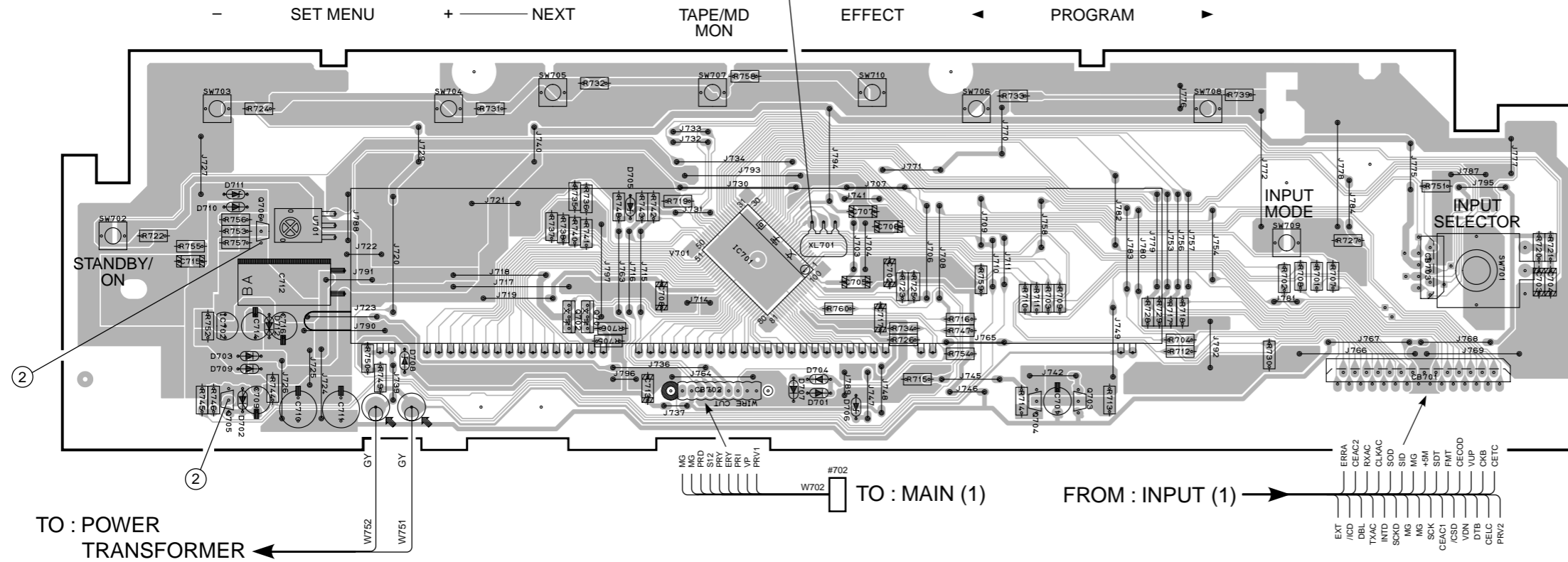


BLOCK DIAGRAM

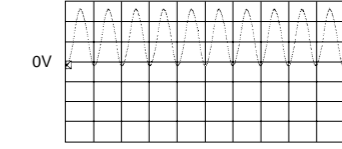


PRINTED CIRCUIT BOARD (Foil side)

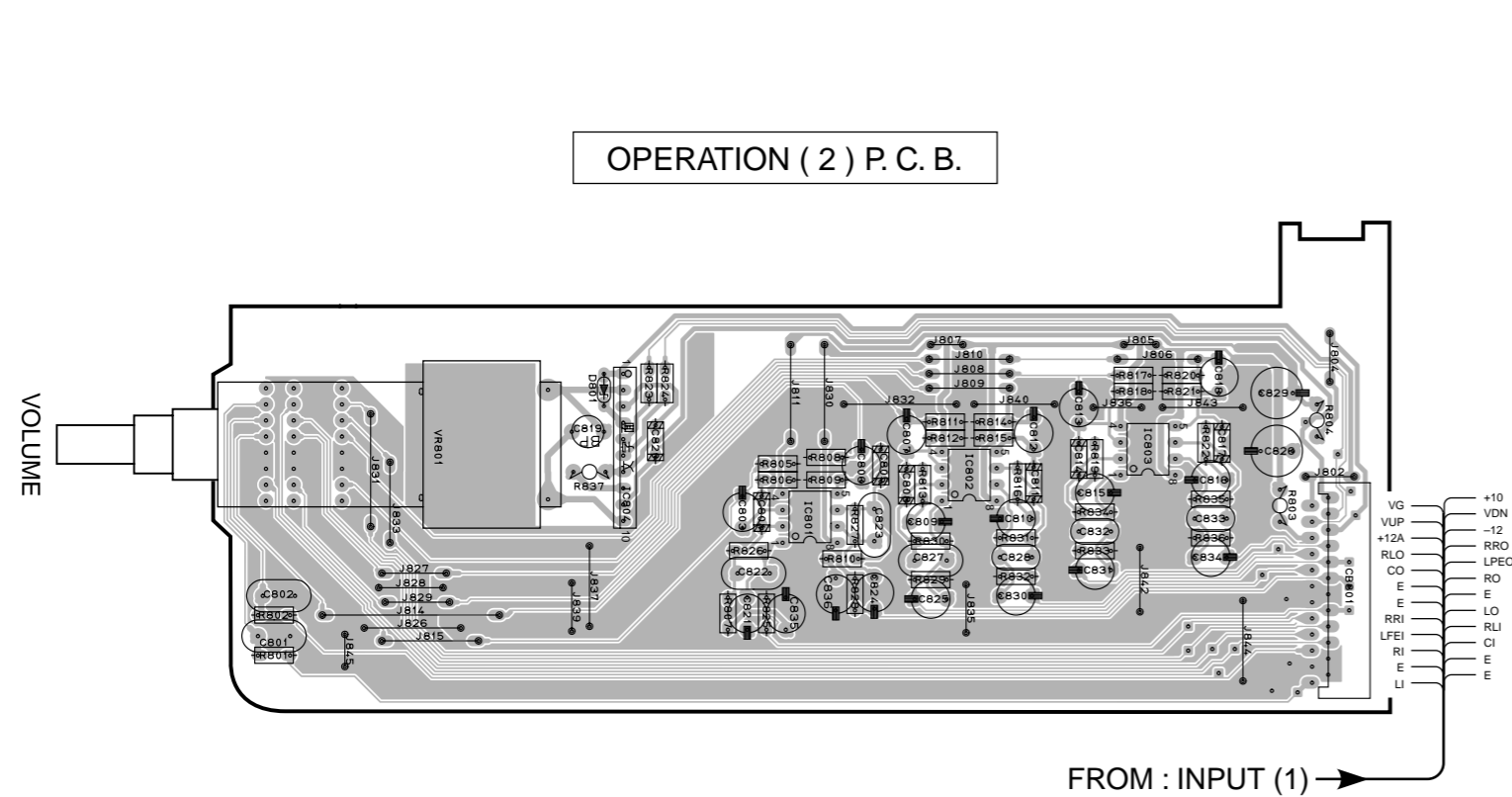
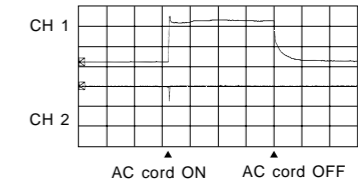
OPERATION (1) P. C. B.



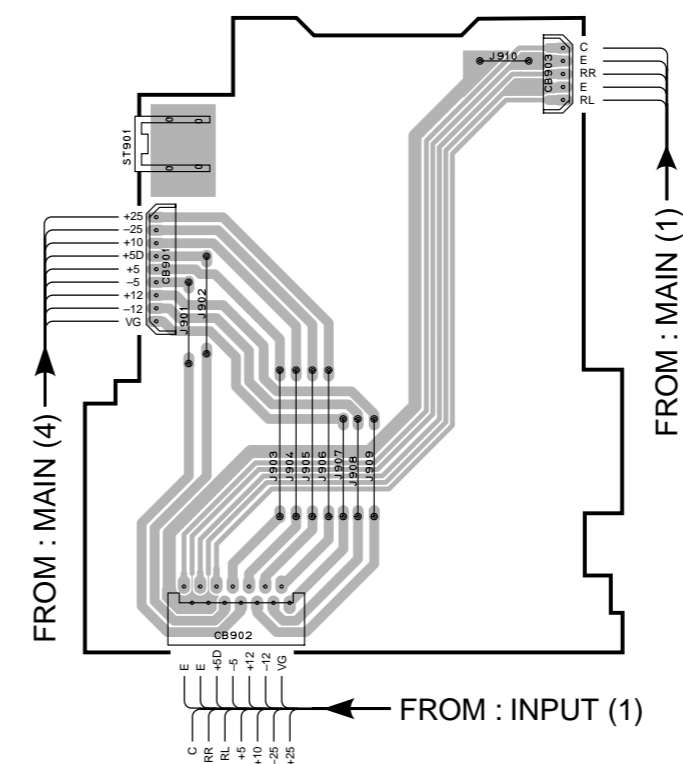
Point ① (Pin13 of IC701)
 V : 2V/div H : 0.1 μsec/div
 DC range 1 : 1 probe



Point ②
 [CH1 : Emitter of Q706]
 [CH2 : Collector of Q705]
 V : 5V/div (CH1) V : 5V/div (CH2)
 H : 5 sec/div DC range 1 : 1 probe
 (This waveform is not available by pushing the power switch ON and OFF.)



OPERATION (3) P. C. B.



Semiconductor Location

Ref. No.	Location
D701	D3
D702	B3
D703	B3
D704	D3
D705	C2
D706	D3
D707	D3
D708	B3
D709	B3
D710	B2
D711	B2
D712	B2
D801	B5
IC701	D2
IC702	B2
IC801	C5
IC802	C5
IC803	D5
IC804	B5
Q701	C2
Q702	C2
Q703	E3
Q704	E3
Q705	B3
Q706	B2

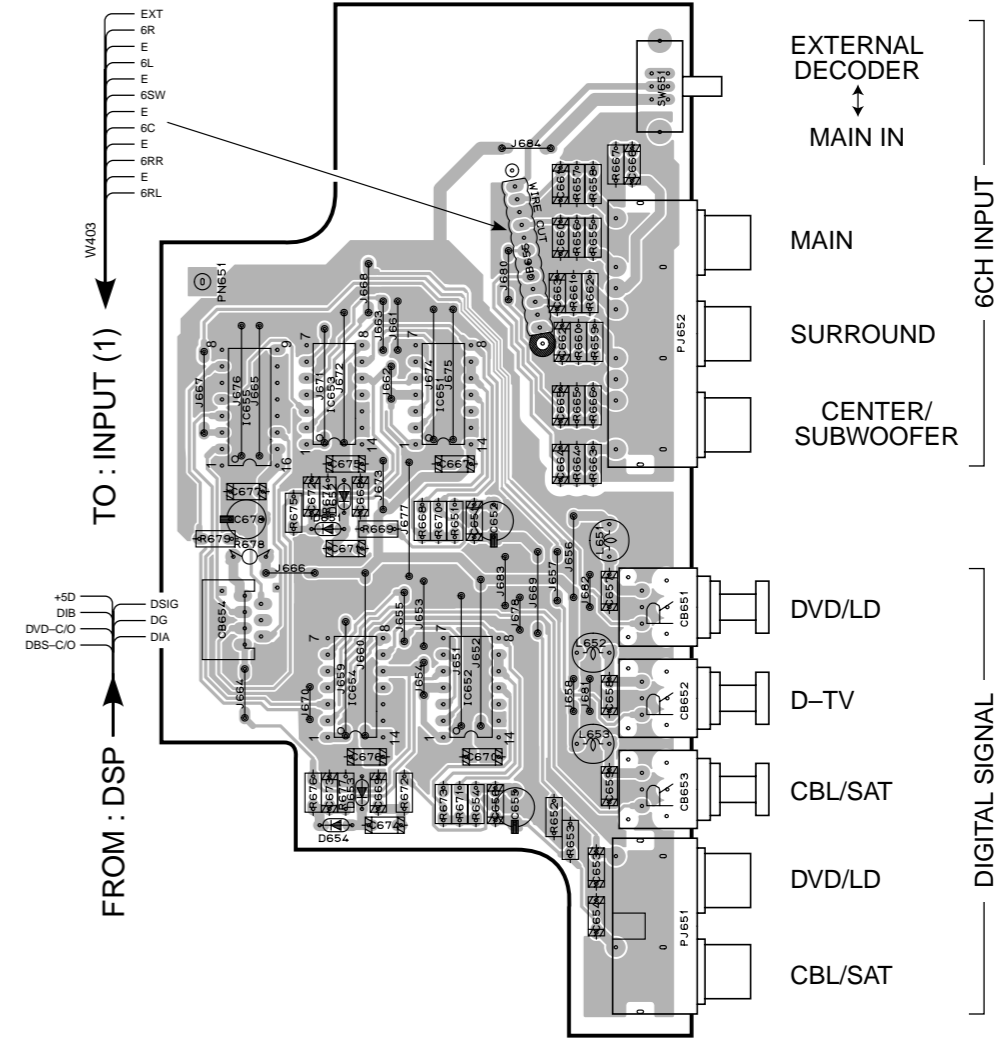
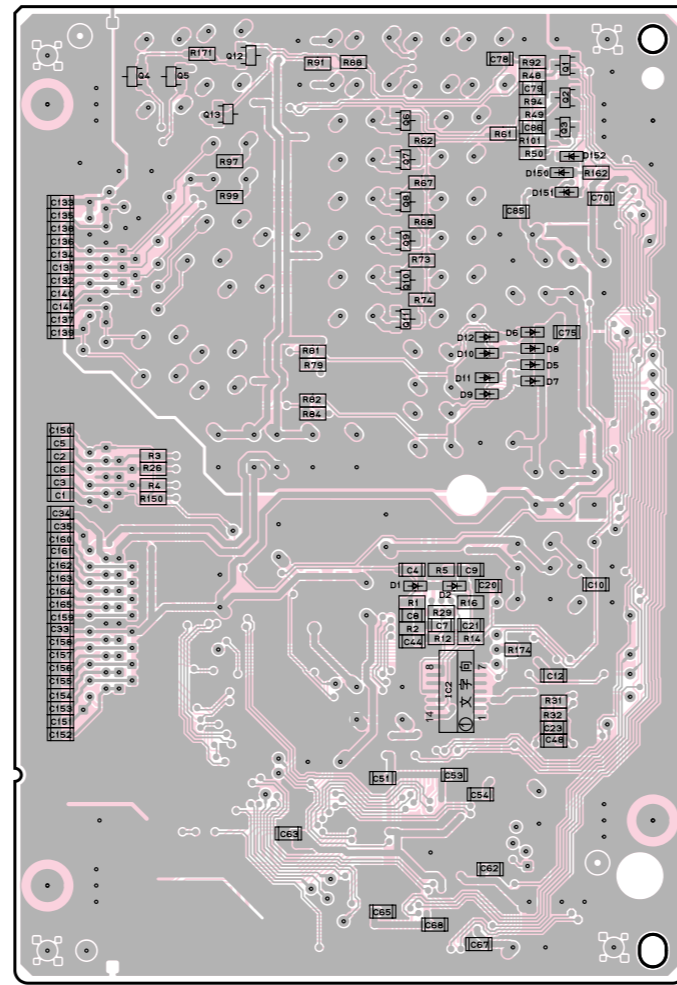
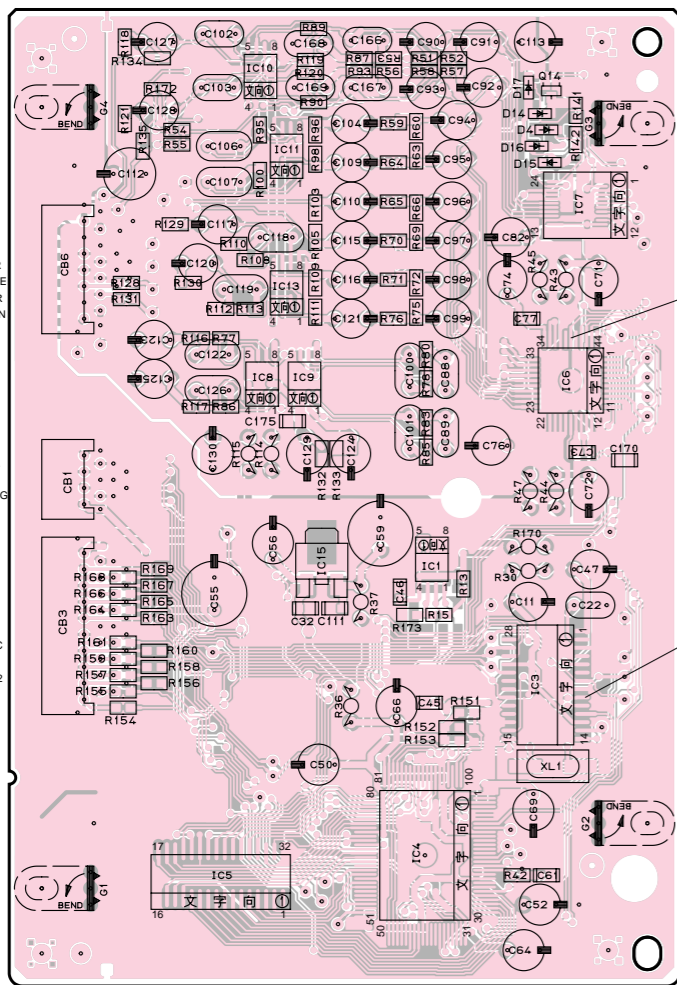
PRINTED CIRCUIT BOARD (Foil side)

DSP P.C.B.
(Lead Type Device)

DSP P.C.B.
(Surface Mount Device)

INPUT (3) P. C. B.

FROM : INPUT (3)
FROM : INPUT (1)
FROM : INPUT (1)
FROM : INPUT (1)



● Semiconductor Location

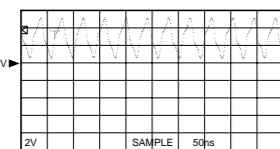
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	D3	IC1	B3	Q1	E2
D2	E3	IC2	E3	Q2	E2
D4	C2	IC3	C3	Q3	E2
D5	E2	IC4	B4	Q4	D2
D6	E2	IC5	B4	Q5	D2
D7	E2	IC6	C2	Q6	D2
D8	E2	IC7	C2	Q7	D2
D9	E2	IC8	B2	Q8	D2
D10	E2	IC9	B2	Q9	D2
D11	E2	IC10	B2	Q10	D2
D12	E2	IC11	B2	Q11	D2
D14	C2	IC13	B2	Q12	D1
D15	C2	IC15	B3	Q13	D2
D16	C2			Q14	C2
D17	C2				
D150	E2				
D151	E2				
D152	E2				

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D651	F3	IC651	G2
D652	F3	IC652	G3
D653	F3	IC653	F2
D654	F3	IC654	F3
		IC655	F2

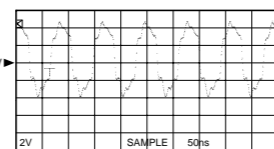
Point ③ (Pin 9 of IC3)

V : 2V/div H : 50 nsec/div
DC range 1 : 1 probe



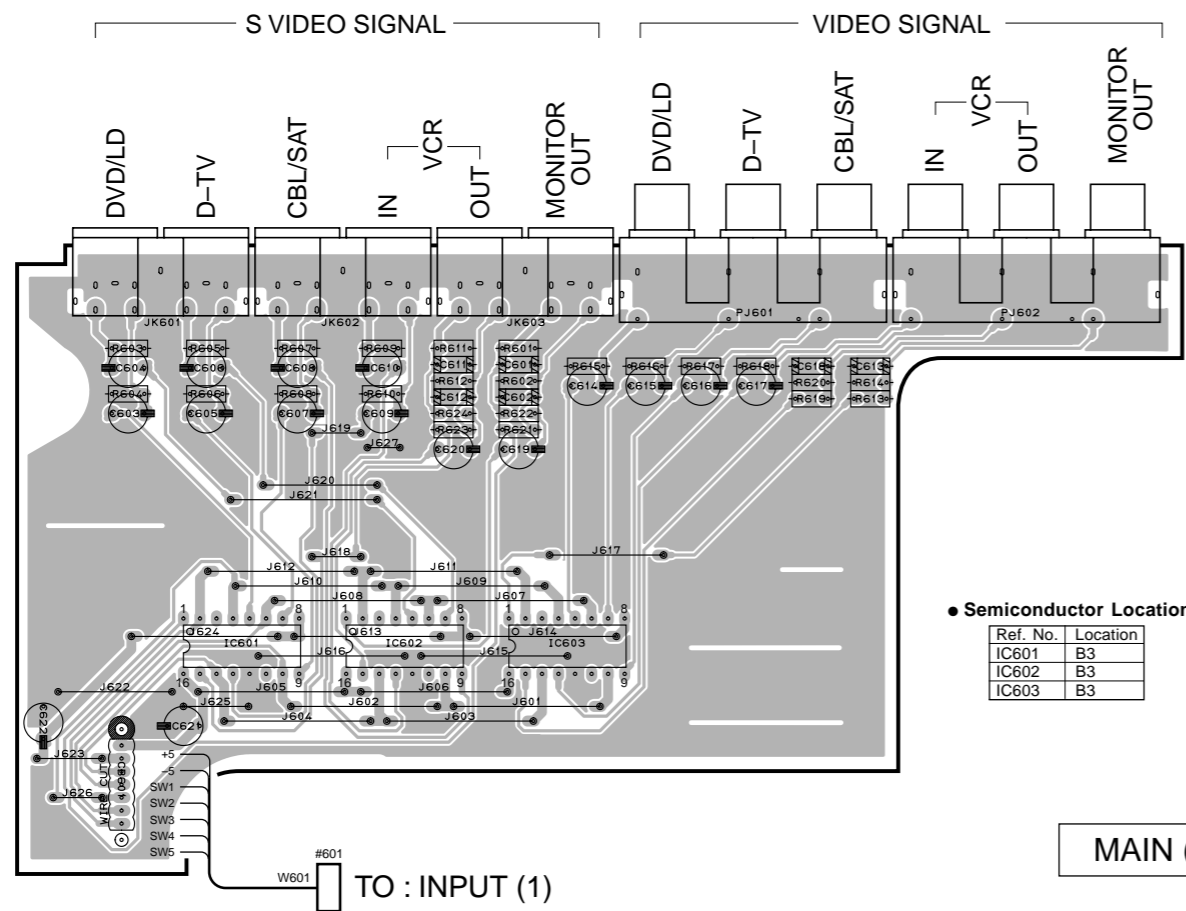
Point ④ (Pin 39 of IC6)

V : 2V/div H : 50 nsec/div
DC range 1 : 1 probe



PRINTED CIRCUIT BOARD (Foil side)

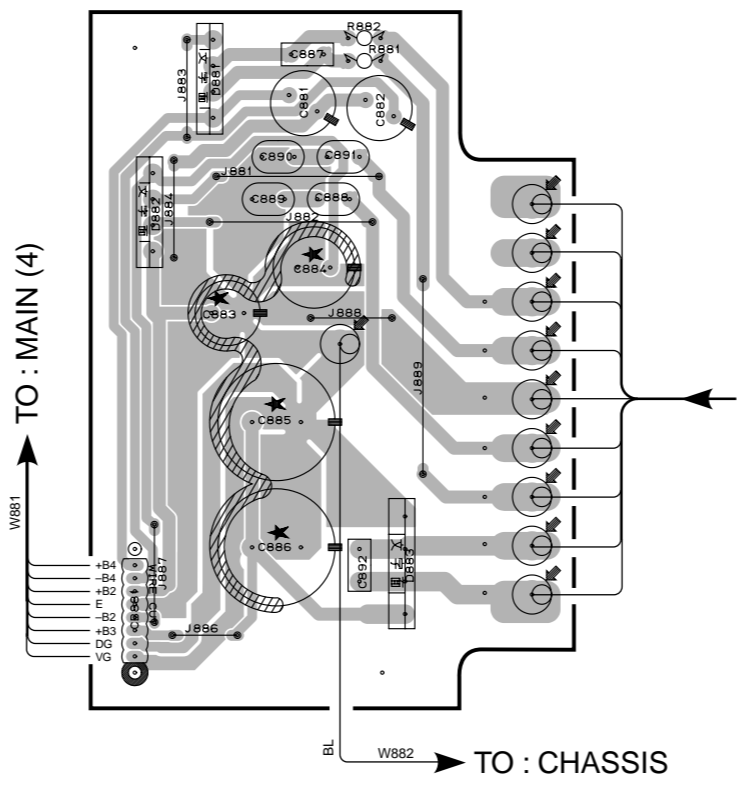
INPUT (2) P. C. B.



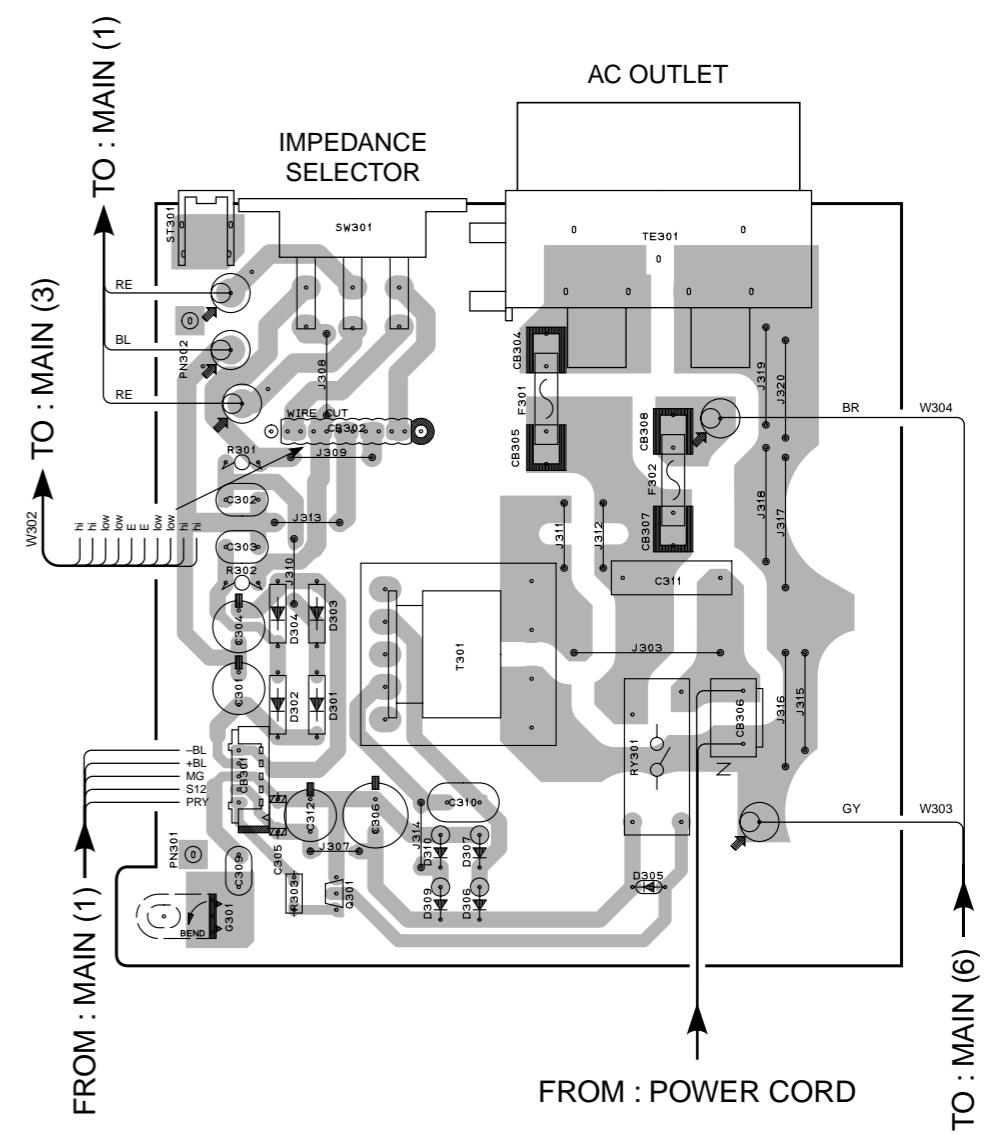
● Semiconductor Location

Ref. No.	Location
IC601	B3
IC602	B3
IC603	B3

MAIN (5) P. C. B.



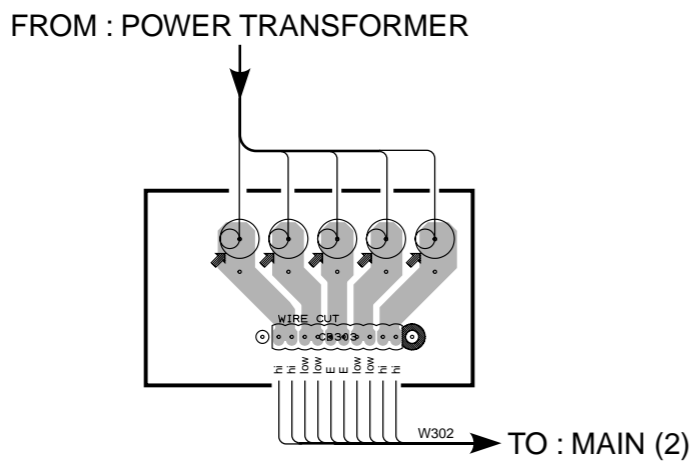
MAIN (2) P. C. B.



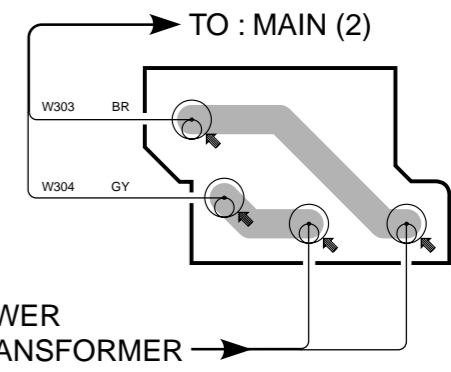
● Semiconductor Location

Ref. No.	Location
D301	F3
D302	F3
D303	F3
D304	F3
D305	G4
D306	F4
D307	F3
D309	F4
D310	F3
D881	D4
D882	D4
D883	D5
Q301	F4

MAIN (3) P. C. B.

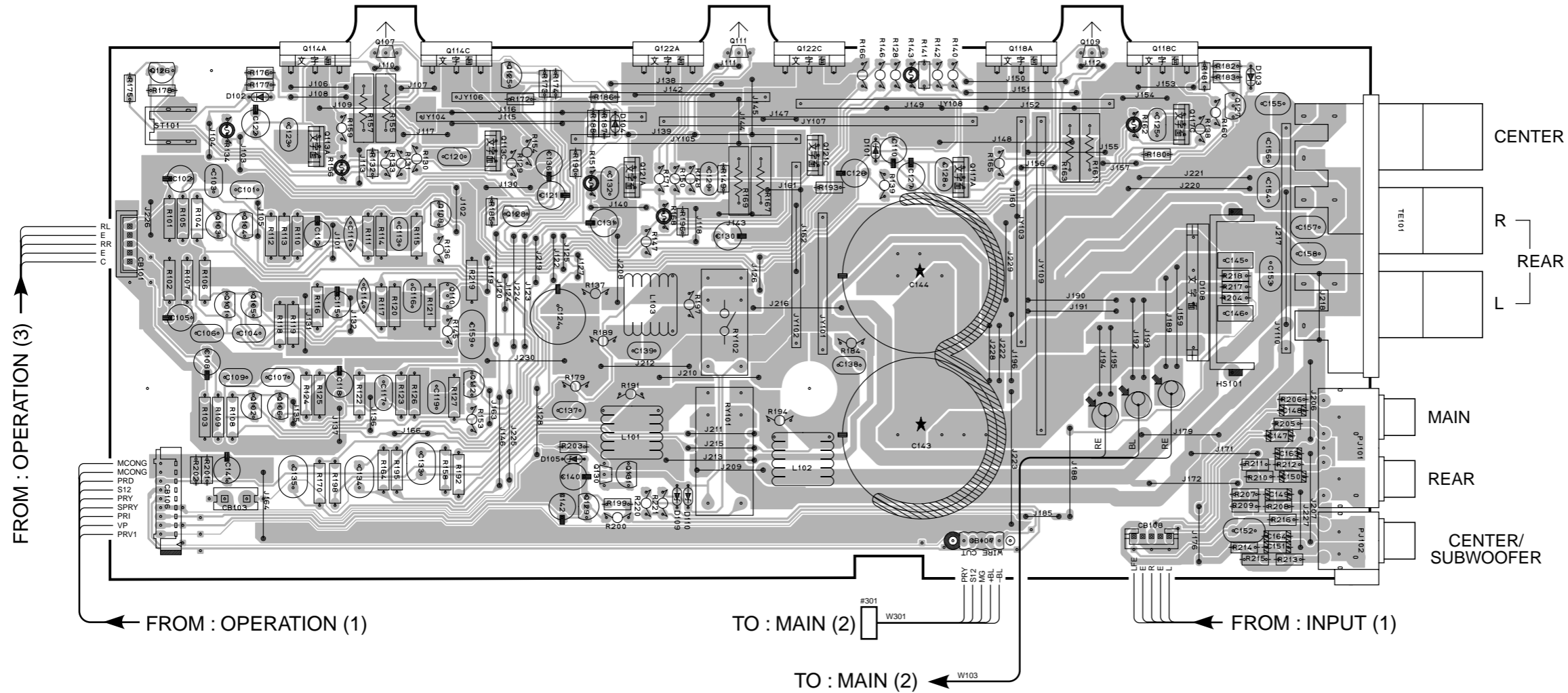


MAIN (6) P. C. B.

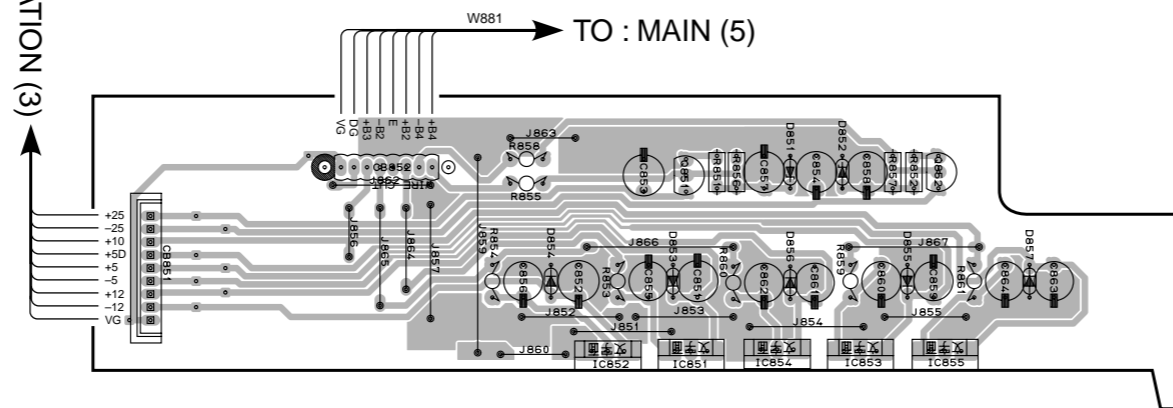


PRINTED CIRCUIT BOARD (Foil side)

MAIN (1) P.C.B.



MAIN (4) P.C.B.



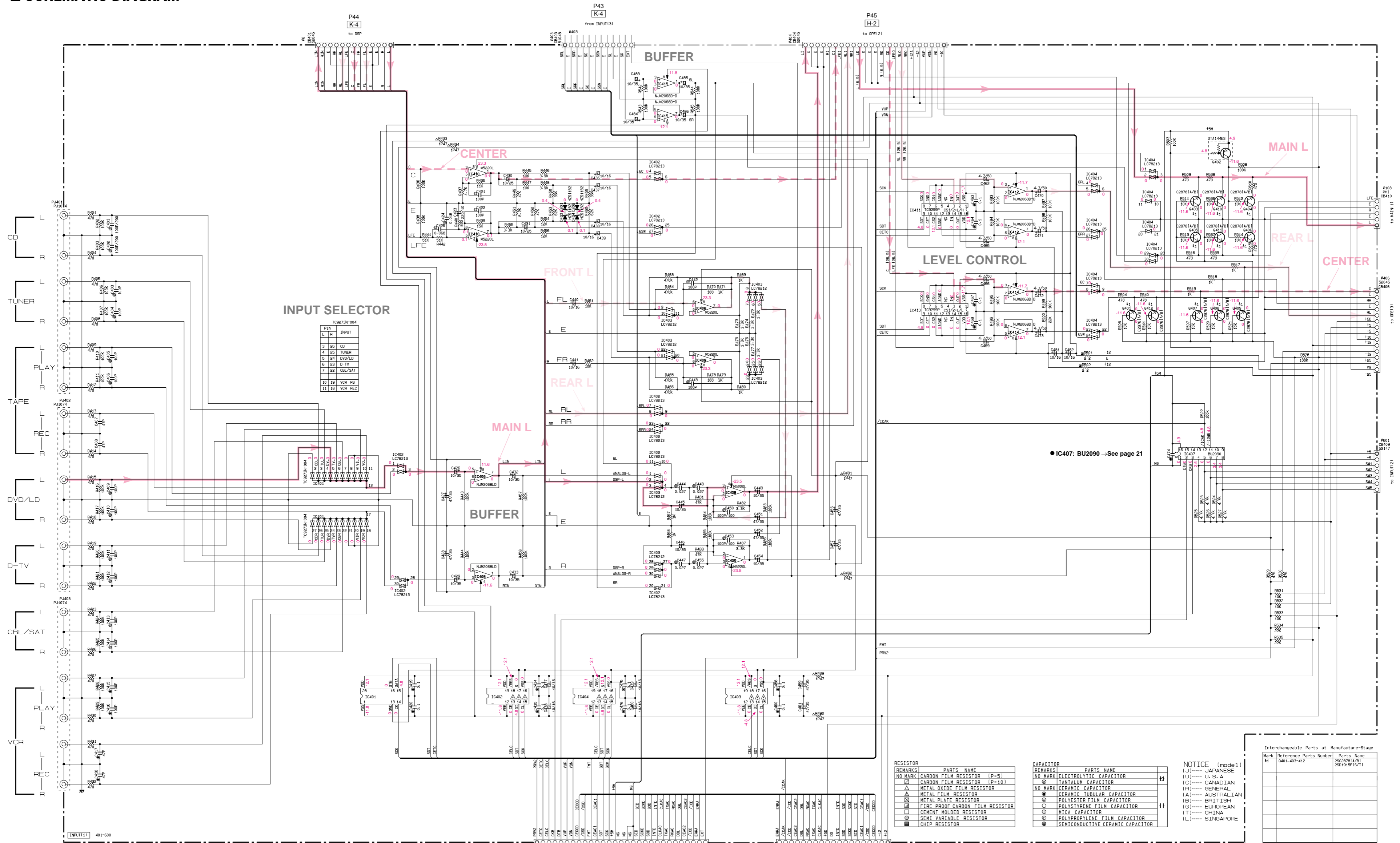
● Semiconductor Location

Ref. No.	Location
D101	D2
D102	B2
D103	F2
D104	C2
D105	C3
D108	F2
D109	D3
D110	D3
D851	E5
D852	E5
D853	D5
D854	D5
D855	E5
D856	E5
D857	E5

Ref. No.	Location
IC851	D6
IC852	D6
IC853	E6
IC854	E6
IC855	E6

Ref. No.	Location
Q101	B2
Q102	B3
Q103	B2
Q104	B2
Q105	B2
Q106	B3
Q107	C1
Q108	C2
Q109	E1
Q110	C2
Q111	D1
Q112	C3
Q113A	B2
Q113C	C2
Q114A	B1
Q114C	C1
Q117A	E2
Q117C	F2
Q118A	E1
Q118C	F1
Q121A	D2
Q121C	D2
Q122A	D1
Q122C	D1
Q125	C2
Q126	B2
Q127	F2
Q128	C2
Q129	C3
Q130	C3
Q131	C3
Q851	D5
Q852	E5

SCHEMATIC DIAGRAM



INPUT SELECTOR

BUFFER

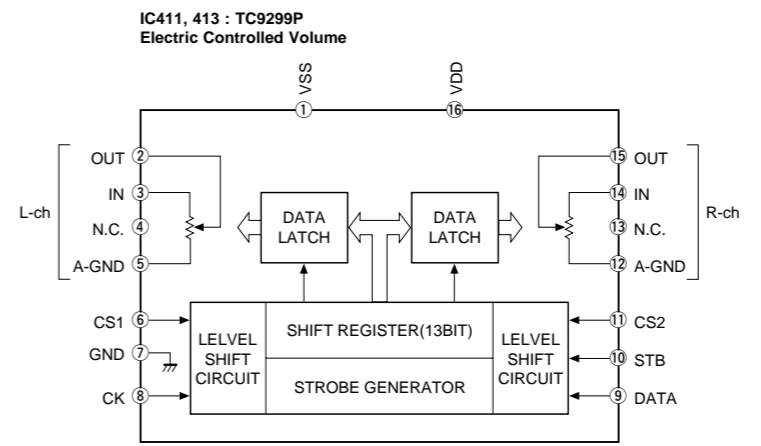
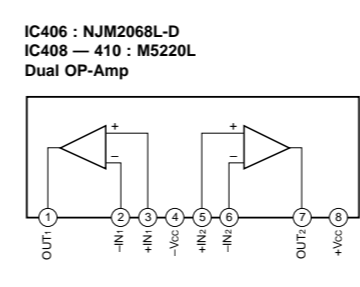
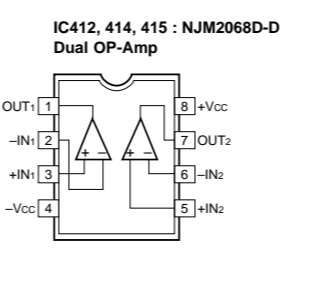
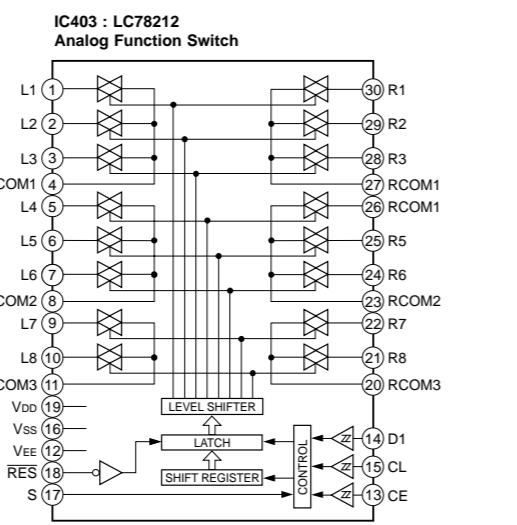
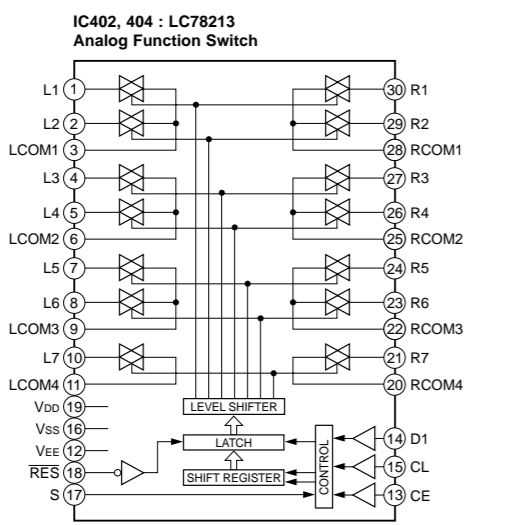
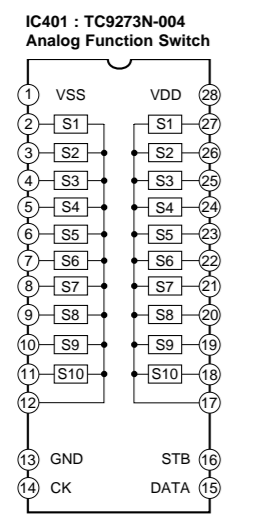
LEVEL CONTROL

BUFFER

REMARKS	PARTS NAME	REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)	NO MARK	ELECTROLYTIC CAPACITOR
△	CARBON FILM RESISTOR (P=10)	⊗	TANTALUM CAPACITOR
▲	METAL FILM RESISTOR	○	CERAMIC TUBULAR CAPACITOR
■	METAL PLATE RESISTOR	⊙	POLYESTER FILM CAPACITOR
□	FIRE PROOF CARBON FILM RESISTOR	○	POLYSTYRENE FILM CAPACITOR
▢	CEMENT MOLDED RESISTOR	○	MICA CAPACITOR
⊞	SEMI-VARIABLE RESISTOR	⊙	POLYPROPYLENE FILM CAPACITOR
■	CHIP RESISTOR	●	SEMICONDUCTIVE CERAMIC CAPACITOR

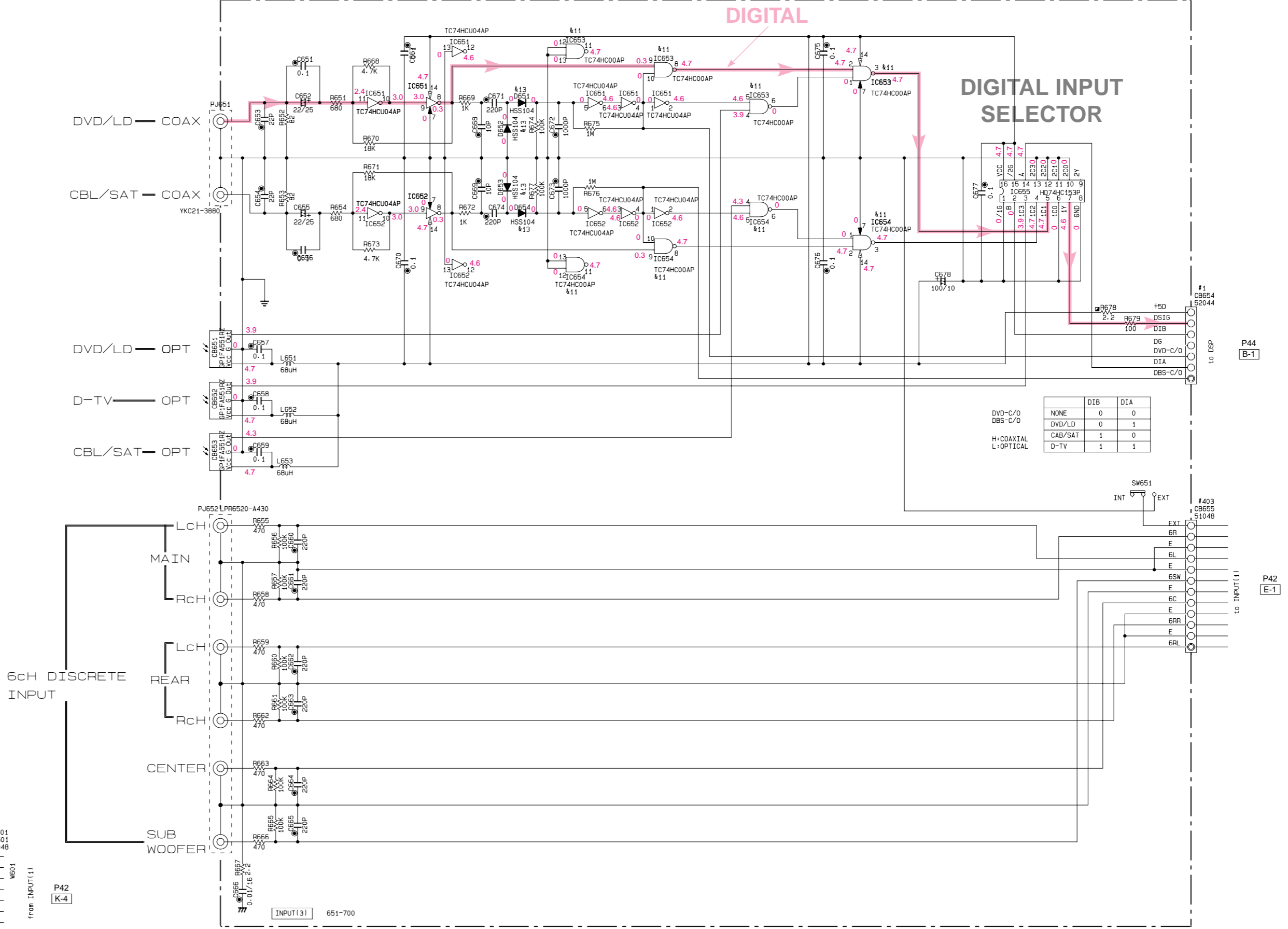
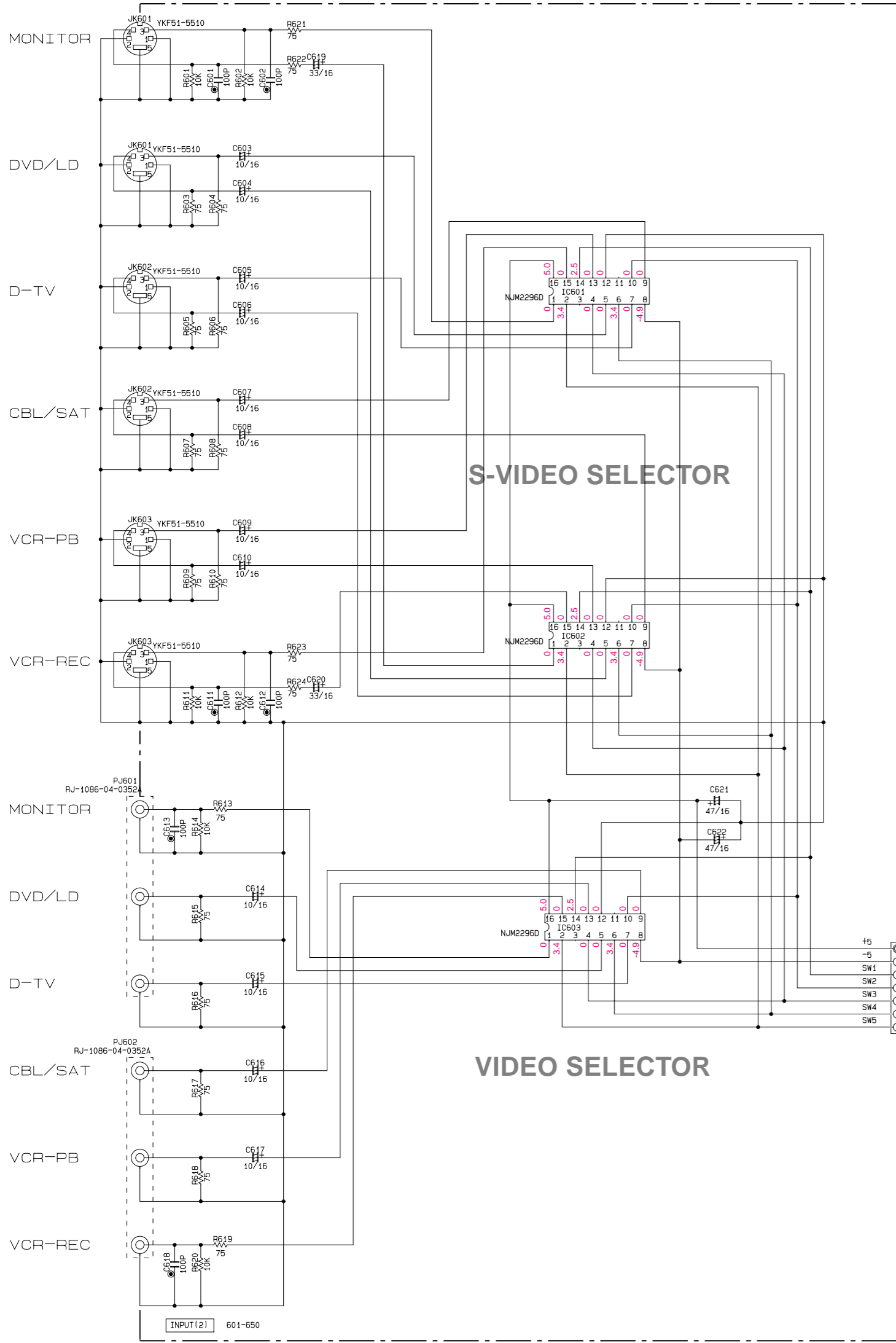
NOTICE (model)
 (J)..... JAPANESE
 (U)..... U.S.A.
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage		
Mark	Reference Parts Number	Parts Name
△	0401-403-412	25C2876(A)(V) 25C1916F(L)(V)



All voltages are measured with a 10MΩ/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



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

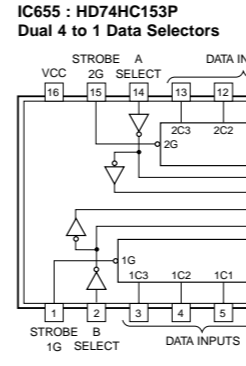
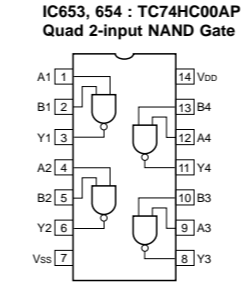
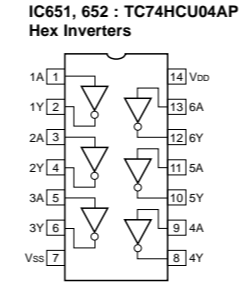
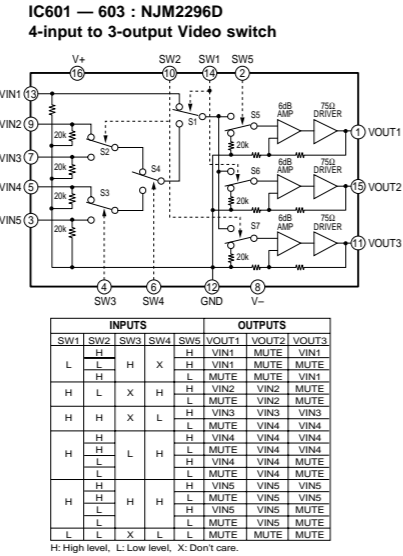
CAPACITOR

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
⊖	POLYPHENYLENE SULFIDE FILM CAPACITOR

NOTICE (mode1)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

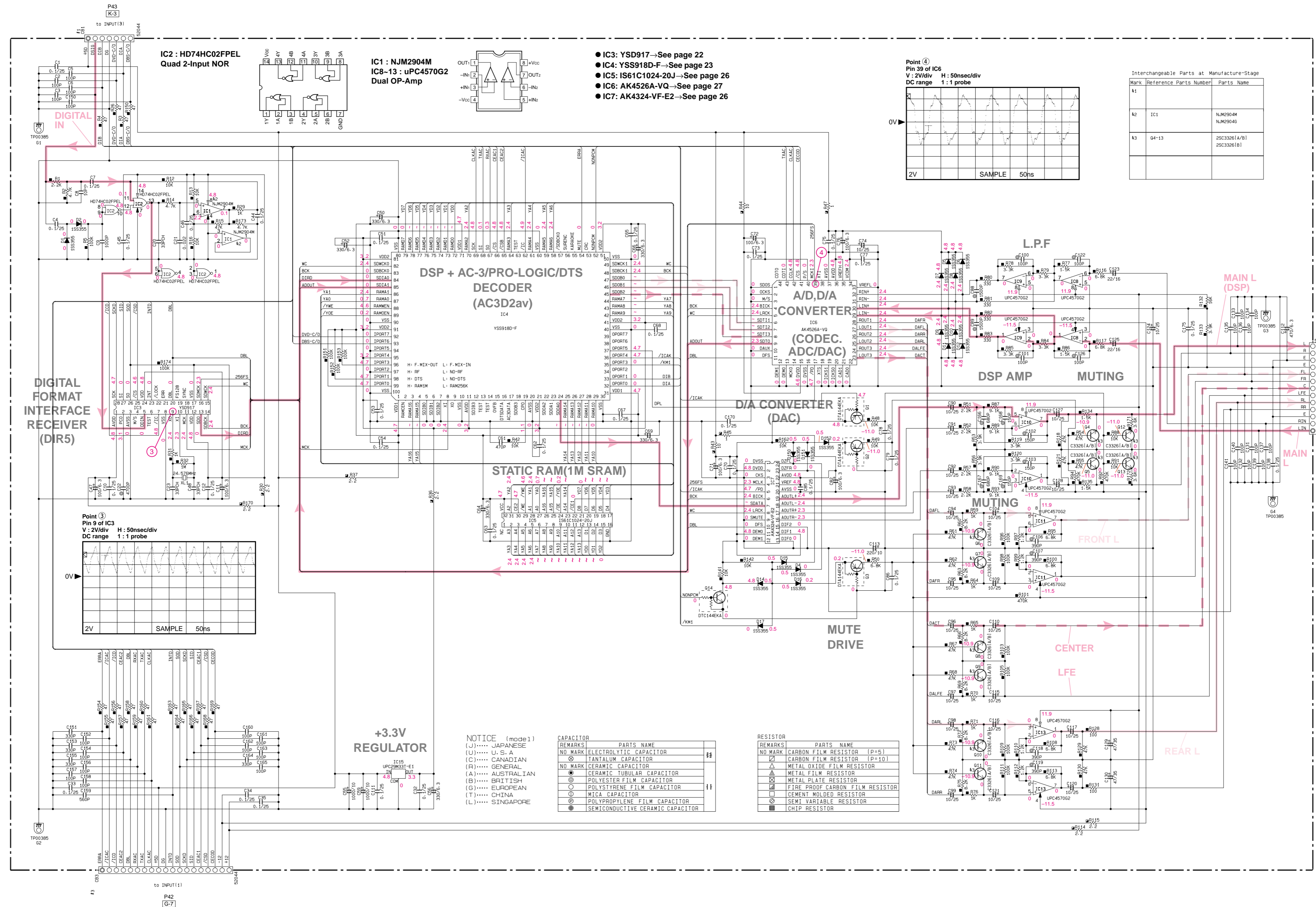
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
K11	IC653-654	TC74HC00AP MC74HC00AN
K12		
K13	D651-654	HSS104 ISS133 ISS176

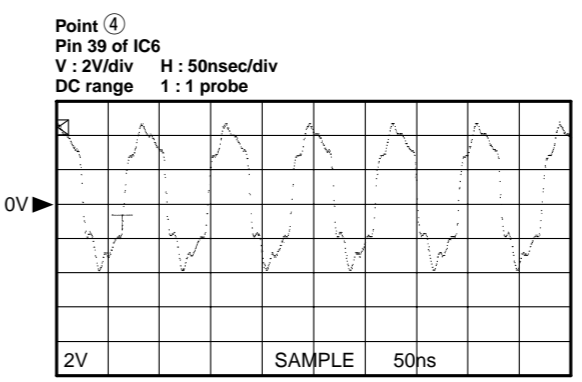


* All voltages are measured with a 10MΩ/DC electric volt meter.
 * Components having special characteristics are marked ▲ and must be replaced with parts having specifications equal to those originally installed.
 * Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM

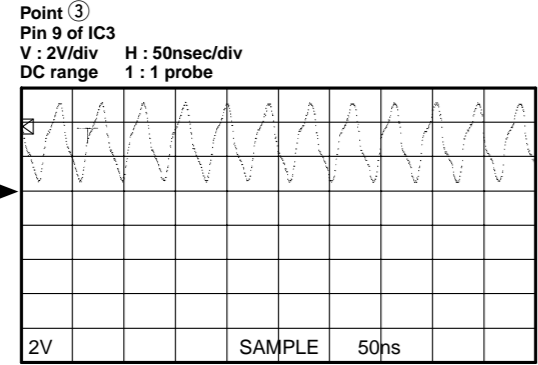


- IC3: YSD917→See page 22
- IC4: YSS918D-F→See page 23
- IC5: IS61C1024-20J→See page 26
- IC6: AK4526A-VQ→See page 27
- IC7: AK4324-VF-E2→See page 26



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1		
k2	IC1	NJM2904M NJM2904E
k3	04-13	25C3326(A/B) 25C3326(B)



NOTICE (model1)
(J)..... JAPANESE
(U)..... U.S.A
(C)..... CANADIAN
(R)..... GENERAL
(A)..... AUSTRALIAN
(B)..... BRITISH
(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

CAPACITOR

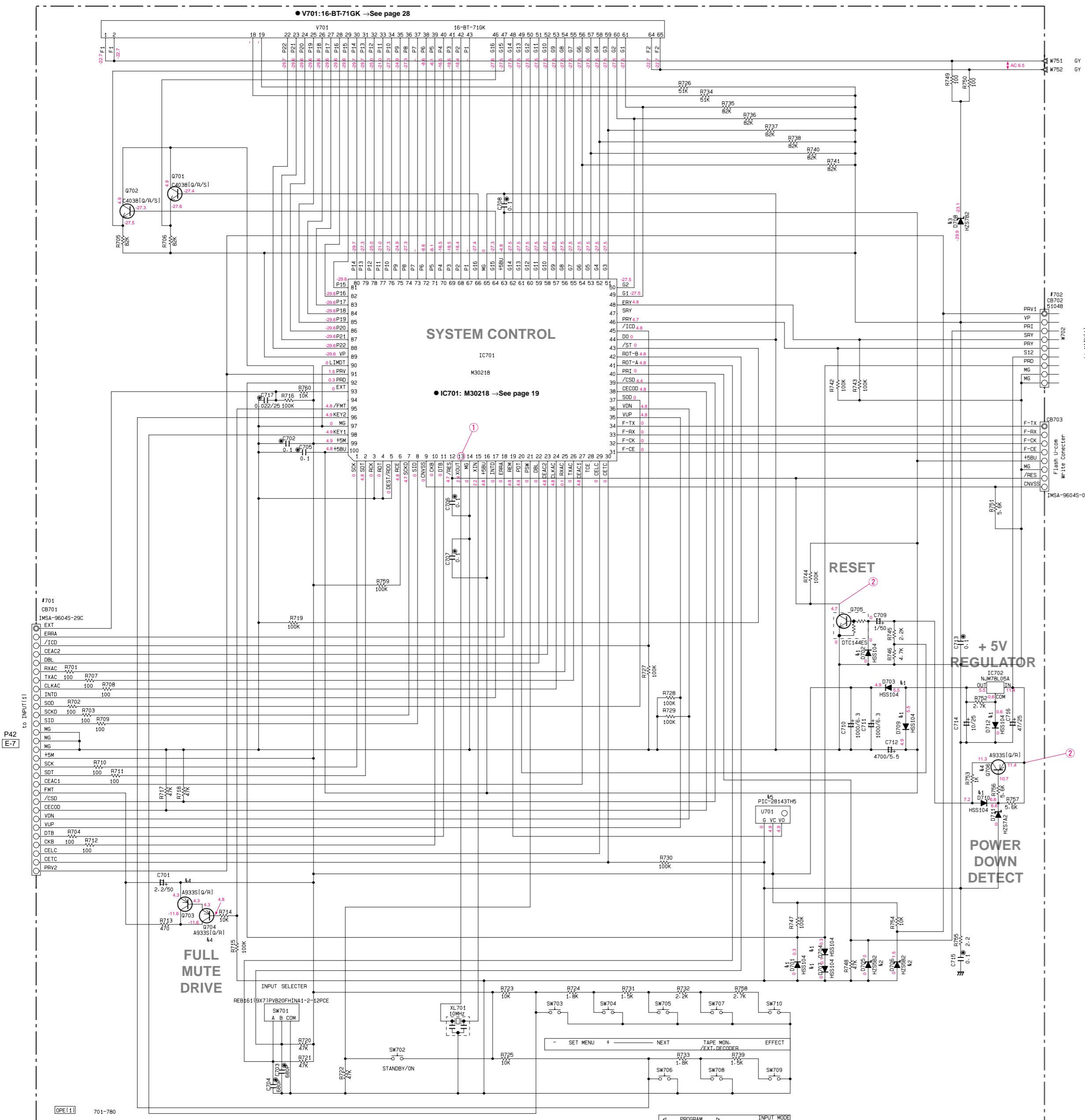
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
○	CERAMIC TUBULAR CAPACITOR
⊙	POLYESTER FILM CAPACITOR
⊕	POLYSTYRENE FILM CAPACITOR
Ⓜ	MICA CAPACITOR
⊖	POLYPROPYLENE FILM CAPACITOR
⦿	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR [P=5]
NO MARK	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

• All voltages are measured with a 10MΩ/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



CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
○	TANTALUM CAPACITOR
●	CERAMIC TUBULAR CAPACITOR
○	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
○	MICA CAPACITOR
○	POLYPROPYLENE FILM CAPACITOR
○	SEMICONDUCTIVE CERAMIC CAPACITOR
○	POLYPHENYLENE SULFIDE FILM CAPACITOR

RESISTOR

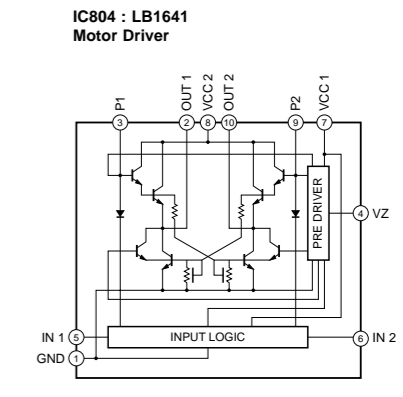
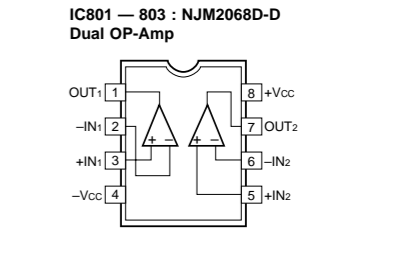
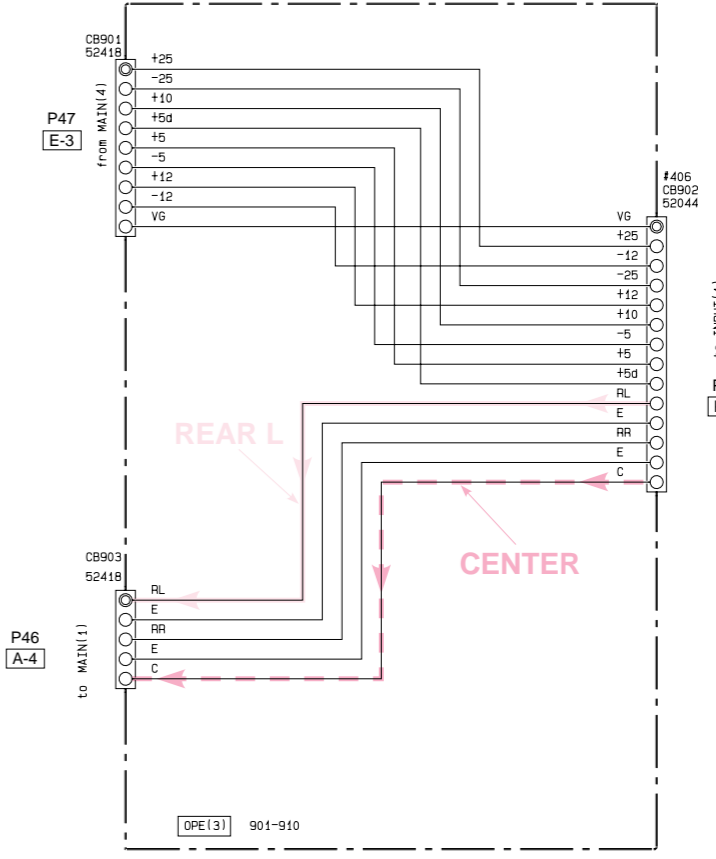
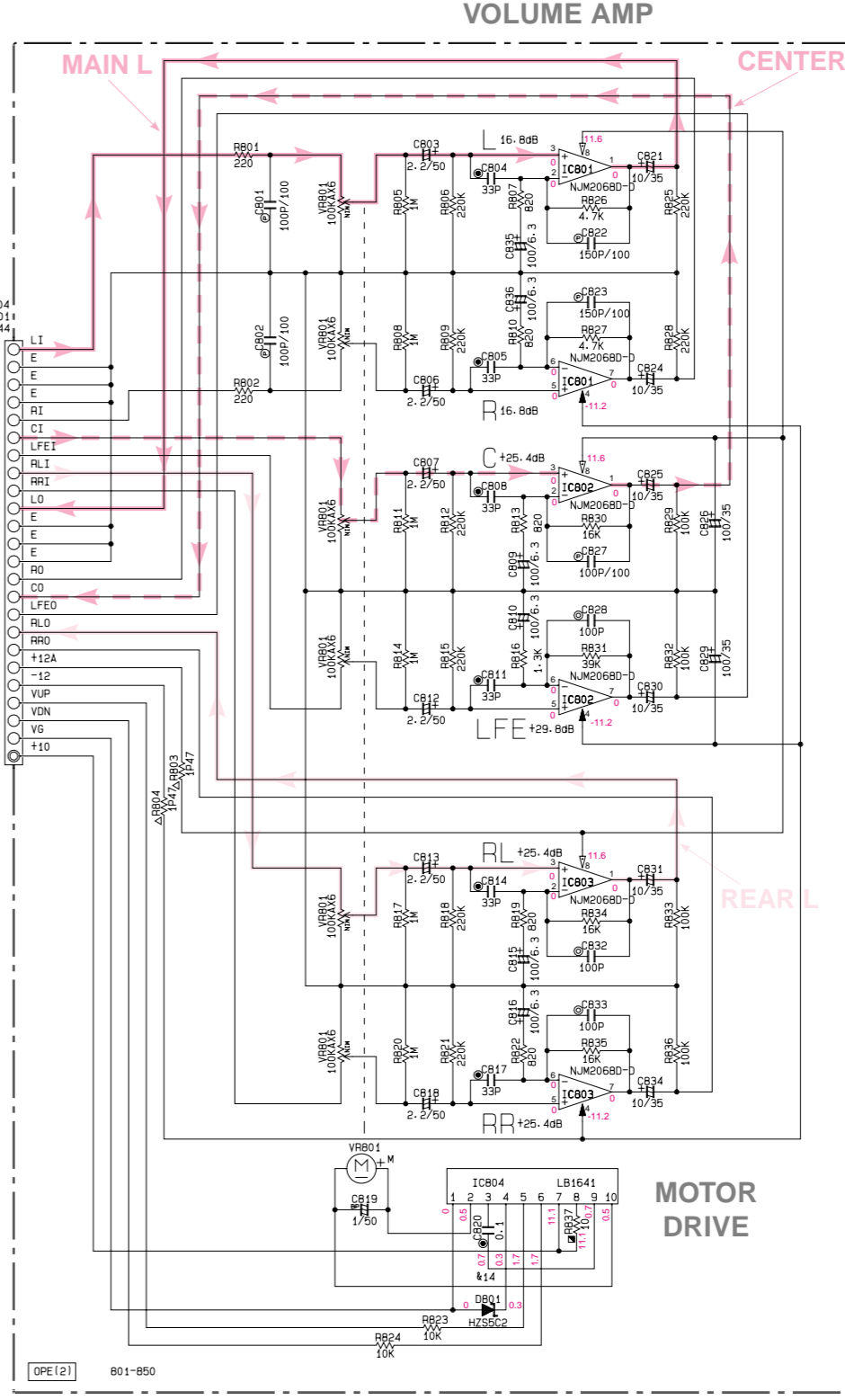
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
○	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
△	METAL FILM RESISTOR
△	METAL PLATE RESISTOR
△	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
○	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

NOTICE (mode1)

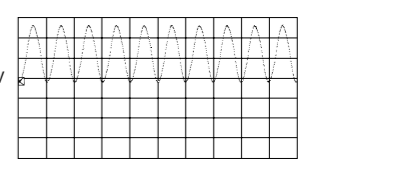
(J)..... JAPANESE
 (U)..... U.S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	D701-704-707 709-710-712	HSS104 ISS13 ISS76
k2	D705-706	H2S8B2 M7244-7C
k3	D708	H2S7B2 M7247-8A
k4	D703-704-706	SA433S1G/R1 SA411S1E/P1 SA41309A1G/R/S1
k5	U701	PTC-28143TH5 SP1U271X

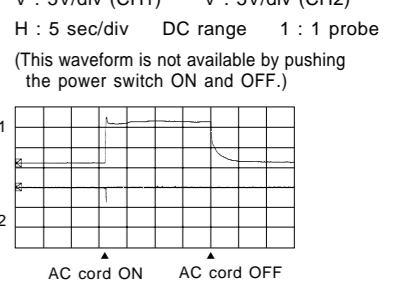


Point ① (Pin13 of IC701)
 V : 2V/div H : 0.1 μsec/div
 DC range 1 : 1 probe



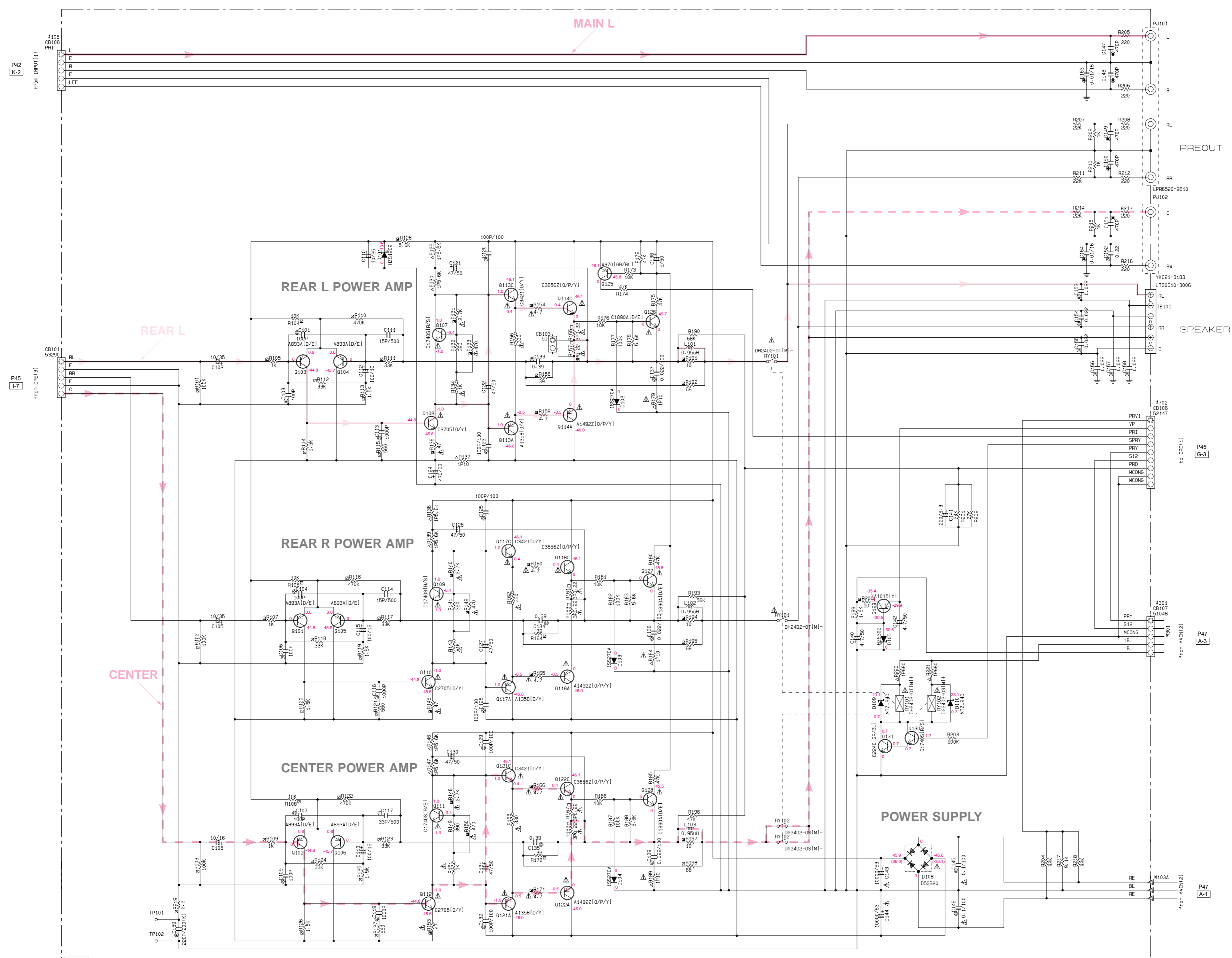
Point ②
 CH1 : Emitter of Q706
 CH2 : Collector of Q705

V : 5V/div (CH1) V : 5V/div (CH2)
 H : 5 sec/div DC range 1 : 1 probe
 (This waveform is not available by pushing the power switch ON and OFF.)



* All voltages are measured with a 10MΩ/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



REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊘
NO MARK	TANTALUM CAPACITOR	⊗
NO MARK	CERAMIC CAPACITOR	⊖
NO MARK	CERAMIC TUBULAR CAPACITOR	⊙
NO MARK	POLYESTER FILM CAPACITOR	⊕
NO MARK	POLYSTYRENE FILM CAPACITOR	⊖
NO MARK	MICA CAPACITOR	⊕
NO MARK	POLYPROPYLENE FILM CAPACITOR	⊖
NO MARK	SEMICONDUCTIVE CERAMIC CAPACITOR	⊕
NO MARK	POLYPHENYLENE SULFIDE FILM CAPACITOR	⊗

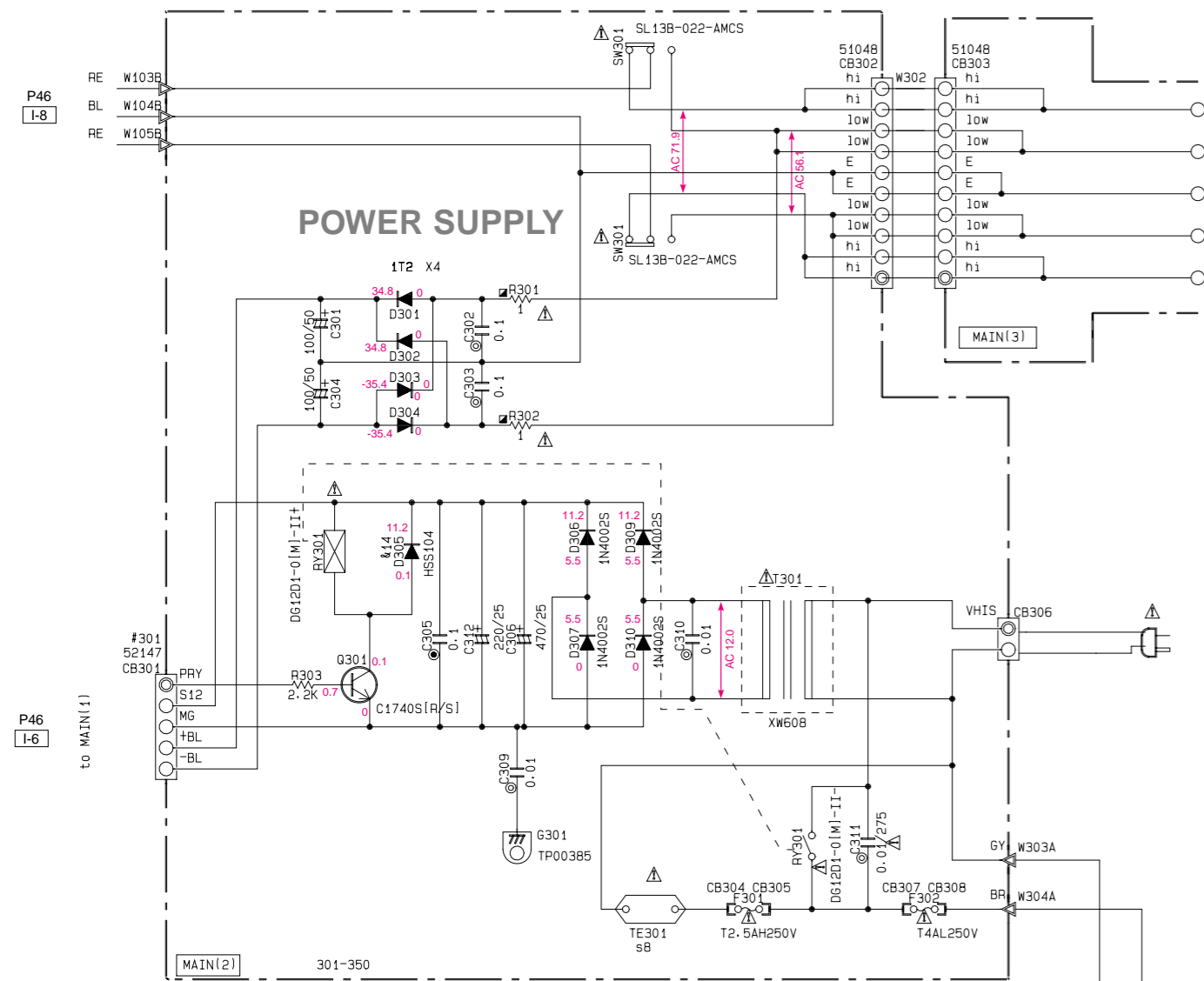
REMARKS	PARTS NAME	
NO MARK	CARBON FILM RESISTOR (P=5)	□
NO MARK	CARBON FILM RESISTOR (P=10)	△
NO MARK	METAL OXIDE FILM RESISTOR	⊖
NO MARK	METAL FILM RESISTOR	⊕
NO MARK	METAL PLATE RESISTOR	⊗
NO MARK	FIRE PROOF CARBON FILM RESISTOR	⊖
NO MARK	CEMENT MOLDED RESISTOR	⊕
NO MARK	SEMI VARIABLE RESISTOR	⊗
NO MARK	CHIP RESISTOR	⊖

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

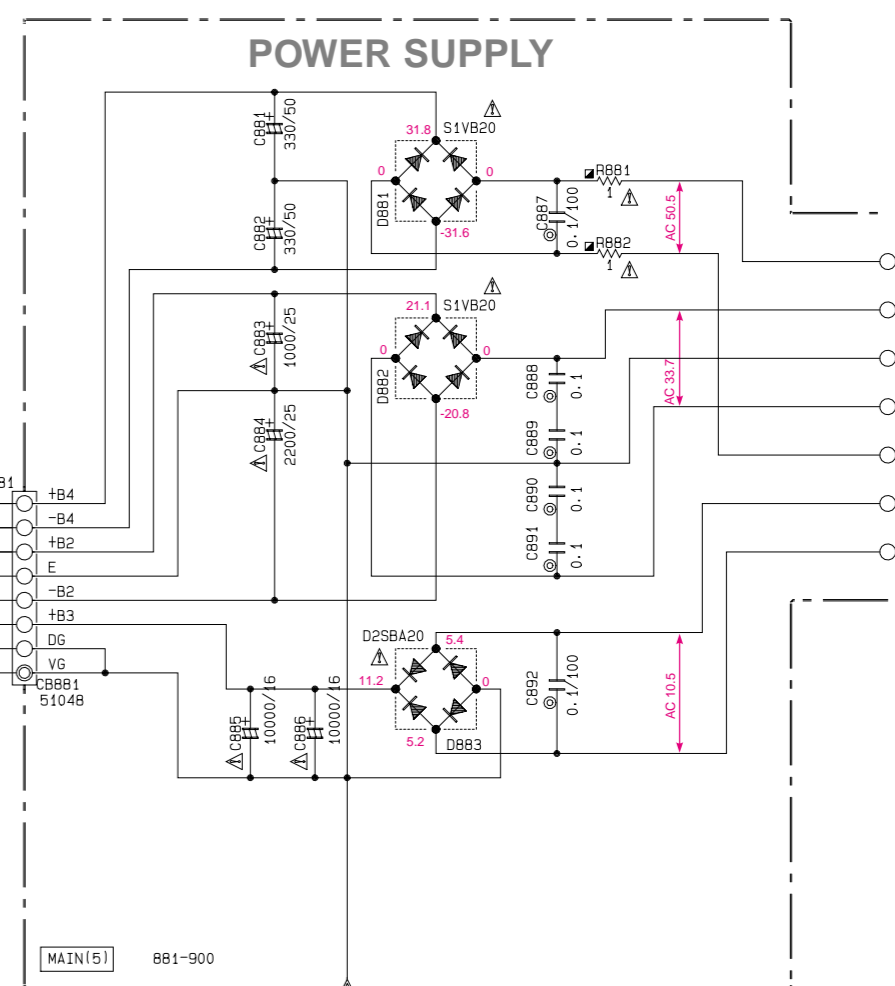
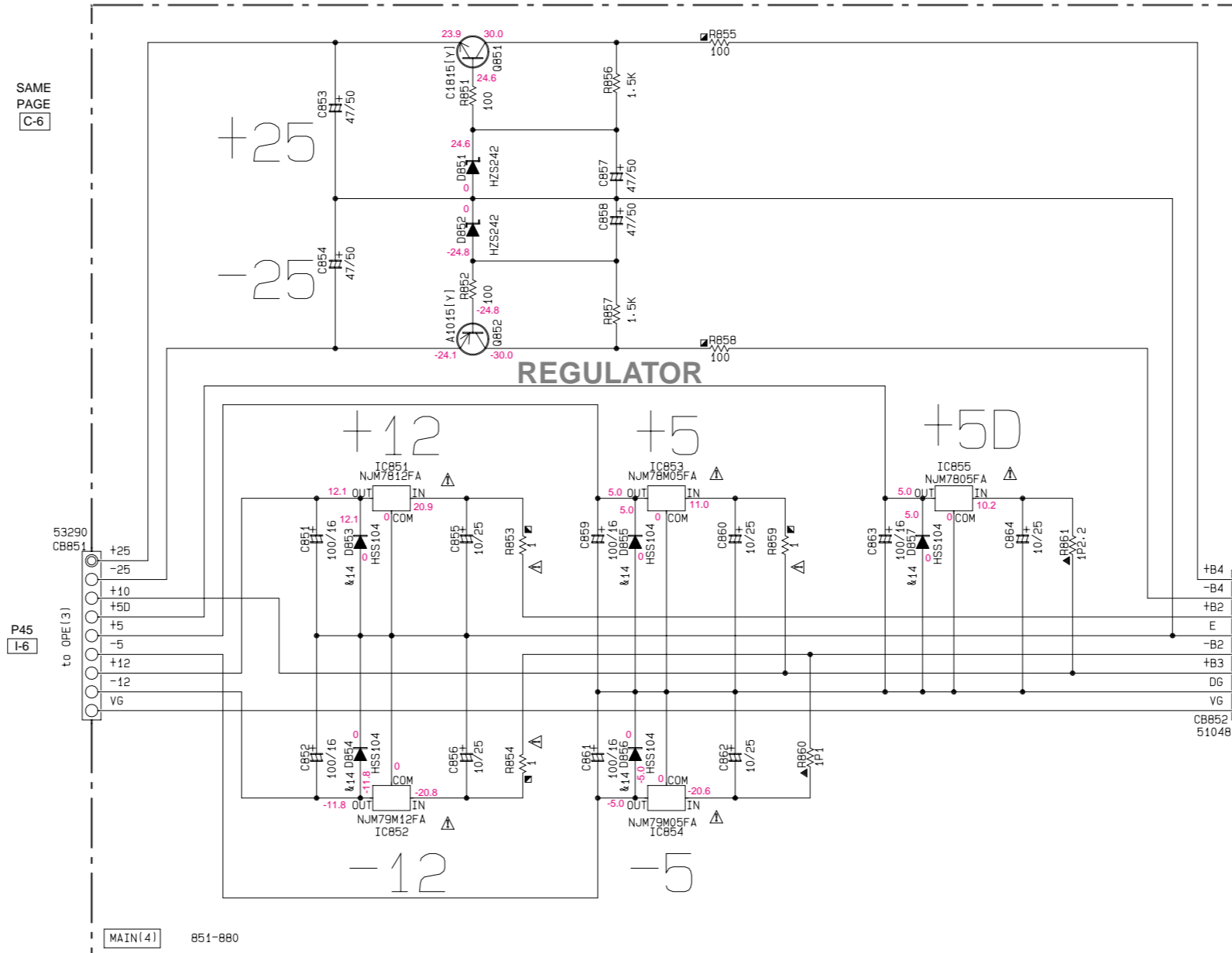
MAIN11 101-300

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

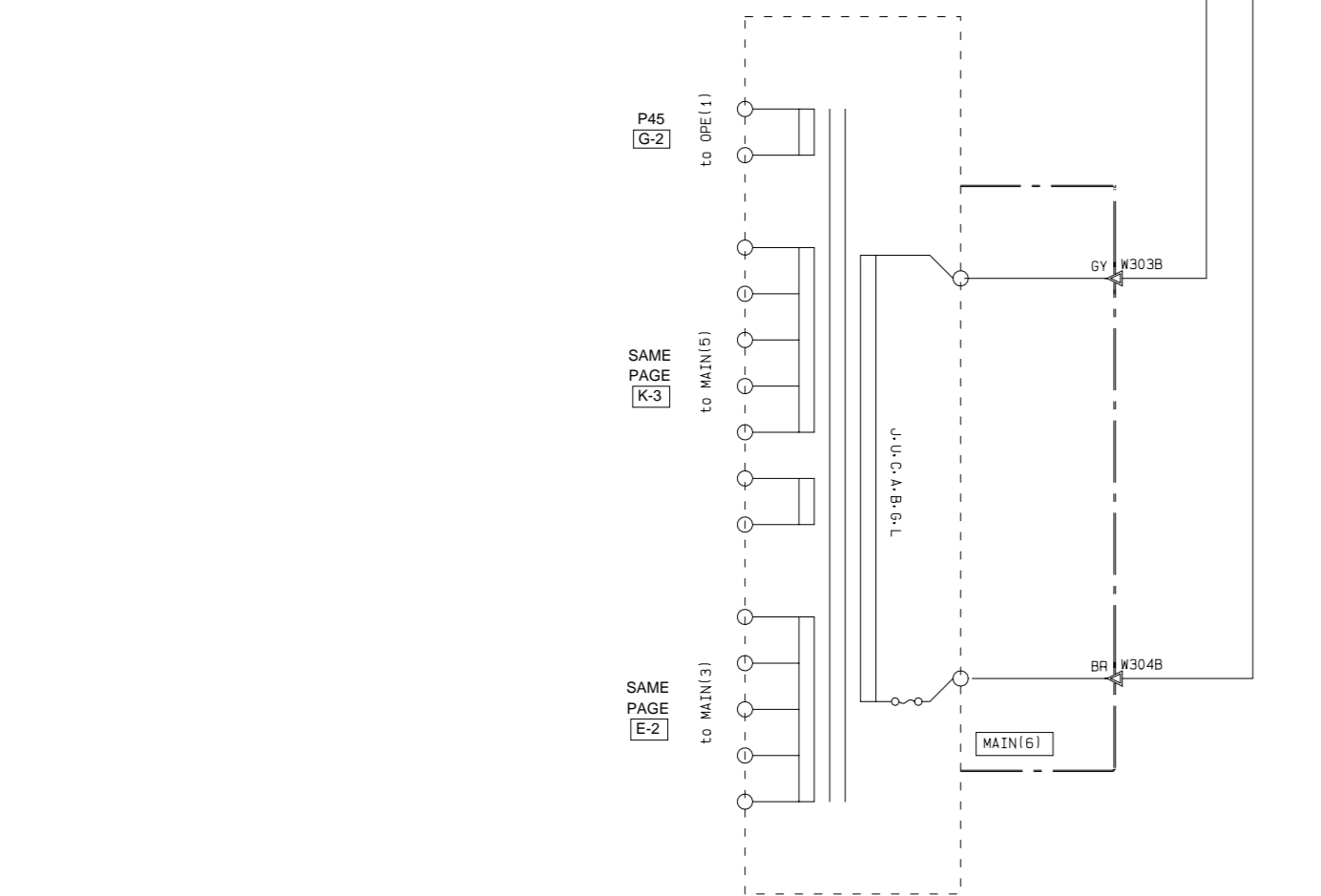
■ SCHEMATIC DIAGRAM



SAME PAGE [C-6]



SAME PAGE [C-5]



SAME PAGE [K-3]

SAME PAGE [E-2]

98	TE301	MAIN(2)	B	VU54330	G	VV53740
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NOTICE (mode1)
 (J)..... JAPANESE
 (U)..... U. S. A
 (C)..... CANADIAN
 (R)..... GENERAL
 (A)..... AUSTRALIAN
 (B)..... BRITISH
 (G)..... EUROPEAN
 (T)..... CHINA
 (L)..... SINGAPORE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
411		
413		
414	D305, 853-857	HSS104 1SS133 1SS176

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
○	POLYPHENYLENE SULFIDE FILM CAPACITOR

NOTICE (mode1)

(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/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.

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

Components having special characteristics are marked \triangle 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.
- Chip resistors are listed on page 56.

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
	V4800100	P.C.B. DSP(BG)
CB1	VQ044300	CN.BS.PIN 7P
CB3	VQ044900	CN.BS.PIN 19P
CB6	VQ044600	CN.BS.PIN 13P
C1	UB245100	C.CE.M.CHP 0.1uF 25V
C2	UB052100	C.CE.M.CHP 100pF 50V
C3	UB052100	C.CE.M.CHP 100pF 50V
C4	UB245100	C.CE.M.CHP 0.1uF 25V
C5	UB052100	C.CE.M.CHP 100pF 50V
C6	UB052100	C.CE.M.CHP 100pF 50V
C7	UB245100	C.CE.M.CHP 0.1uF 25V
C8	UB051100	C.CE.M.CHP 10pF 50V
C9	UB013100	C.CE.M.CHP 1000pF 50V
C10	UB245100	C.CE.M.CHP 0.1uF 25V
C11	UR818100	C.EL 100uF 6.3V
C12	UB245100	C.CE.M.CHP 0.1uF 25V
C20	VJ900700	C.CE.M.CHP 33pF 50V
C21	UB044220	C.CE.M.CHP 0.022uF 50V
C22	UA953470	C.MYLAR 4700pF 50V
C23	VJ900700	C.CE.M.CHP 33pF 50V
C32	UB245100	C.CE.M.CHP 0.1uF 25V
C33	UB245100	C.CE.M.CHP 0.1uF 25V
C34	UB245100	C.CE.M.CHP 0.1uF 25V
C35	UB245100	C.CE.M.CHP 0.1uF 25V
C44	UB245100	C.CE.M.CHP 0.1uF 25V
C45	UB245100	C.CE.M.CHP 0.1uF 25V
C46	UB245100	C.CE.M.CHP 0.1uF 25V
C47	UR818100	C.EL 100uF 6.3V
C48	VJ900700	C.CE.M.CHP 33pF 50V
C50	UR818330	C.EL 330uF 6.3V
C51	UB245100	C.CE.M.CHP 0.1uF 25V
C52	UR818330	C.EL 330uF 6.3V
C53	UB245100	C.CE.M.CHP 0.1uF 25V
C54	UB245100	C.CE.M.CHP 0.1uF 25V
C55	UR829100	C.EL 1000uF 10V
C56	UR818330	C.EL 330uF 6.3V
C59	UR829100	C.EL 1000uF 10V
C61	UB012470	C.CE.M.CHP 470pF 50V
C62	UB245100	C.CE.M.CHP 0.1uF 25V
C63	UB245100	C.CE.M.CHP 0.1uF 25V
C64	UR818330	C.EL 330uF 6.3V
C65	UB245100	C.CE.M.CHP 0.1uF 25V
C66	UR818330	C.EL 330uF 6.3V
C67	UB245100	C.CE.M.CHP 0.1uF 25V
C68	UB245100	C.CE.M.CHP 0.1uF 25V
C69	UR818330	C.EL 330uF 6.3V
C70	UB245100	C.CE.M.CHP 0.1uF 25V
C71	VG286200	C.EL 100uF 10V
C72	VG286200	C.EL 100uF 10V
C73	UB245100	C.CE.M.CHP 0.1uF 25V
C74	VG288500	C.EL 10uF 50V
C75	UB245100	C.CE.M.CHP 0.1uF 25V
C76	VG286200	C.EL 100uF 10V

* New Parts

Schm Ref.	PART NO.	Description
C77	UB245100	C.CE.M.CHP 0.1uF 25V
C78	UB245100	C.CE.M.CHP 0.1uF 25V
C79	UB245100	C.CE.M.CHP 0.1uF 25V
C82	VG286200	C.EL 100uF 10V
C85	UB245100	C.CE.M.CHP 0.1uF 25V
C86	UB245100	C.CE.M.CHP 0.1uF 25V
C88	UA953150	C.MYLAR 1500pF 50V
C89	UA953150	C.MYLAR 1500pF 50V
C90	VG288500	C.EL 10uF 50V
C91	VG288500	C.EL 10uF 50V
C92	VG288500	C.EL 10uF 50V
C93	VG288500	C.EL 10uF 50V
C94	VG288500	C.EL 10uF 50V
C95	VG288500	C.EL 10uF 50V
C96	VG288500	C.EL 10uF 50V
C97	VG288500	C.EL 10uF 50V
C98	VG288500	C.EL 10uF 50V
C99	VG288500	C.EL 10uF 50V
C100	UA952100	C.MYLAR 100pF 50V
C101	UA952100	C.MYLAR 100pF 50V
C102	UA952150	C.MYLAR 150pF 50V
C103	UA952150	C.MYLAR 150pF 50V
C104	VG288500	C.EL 10uF 50V
C106	UA952390	C.MYLAR 390pF 50V
C107	UA952390	C.MYLAR 390pF 50V
C109	VG288500	C.EL 10uF 50V
C110	VG288500	C.EL 10uF 50V
C111	UB245100	C.CE.M.CHP 0.1uF 25V
C112	VG286500	C.EL 470uF 10V
C113	VG286900	C.EL 220uF 10V
C115	VG288500	C.EL 10uF 50V
C116	VG288500	C.EL 10uF 50V
C117	VG288500	C.EL 10uF 50V
C118	UA952390	C.MYLAR 390pF 50V
C119	UA952390	C.MYLAR 390pF 50V
C120	VG288500	C.EL 10uF 50V
C121	VG288500	C.EL 10uF 50V
C122	UA952100	C.MYLAR 100pF 50V
C123	VG287300	C.EL 22uF 50V
C124	VG288500	C.EL 10uF 50V
C125	VG287300	C.EL 22uF 50V
C126	UA952100	C.MYLAR 100pF 50V
C127	VG288500	C.EL 10uF 50V
C128	VG288500	C.EL 10uF 50V
C129	V4578900	C.EL 47uF 35V
C130	V4578900	C.EL 47uF 35V
C131	UB052100	C.CE.M.CHP 100pF 50V
C132	UB052100	C.CE.M.CHP 100pF 50V
C133	UB052100	C.CE.M.CHP 100pF 50V
C134	UB052100	C.CE.M.CHP 100pF 50V
C135	UB052100	C.CE.M.CHP 100pF 50V
C136	UB052100	C.CE.M.CHP 100pF 50V
C137	UB052100	C.CE.M.CHP 100pF 50V

* New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description		
C138	UB245100	C.CE.M.CHP	0.1uF	25V
C139	UB052100	C.CE.M.CHP	100pF	50V
C140	UB052100	C.CE.M.CHP	100pF	50V
C141	UB052100	C.CE.M.CHP	100pF	50V
C150	UB052100	C.CE.M.CHP	100pF	50V
C151	UB012330	C.CE.M.CHP	330pF	50V
C152	UB052100	C.CE.M.CHP	100pF	50V
C153	UB012330	C.CE.M.CHP	330pF	50V
C154	UB052100	C.CE.M.CHP	100pF	50V
C155	UB012330	C.CE.M.CHP	330pF	50V
C156	UB052100	C.CE.M.CHP	100pF	50V
C157	UB052100	C.CE.M.CHP	100pF	50V
C158	UB052100	C.CE.M.CHP	100pF	50V
C159	UB012560	C.CE.M.CHP	560pF	50V
C160	UB052100	C.CE.M.CHP	100pF	50V
C161	UB052100	C.CE.M.CHP	100pF	50V
C162	UB052100	C.CE.M.CHP	100pF	50V
C163	UB052100	C.CE.M.CHP	100pF	50V
C164	UB012330	C.CE.M.CHP	330pF	50V
C165	UB052100	C.CE.M.CHP	100pF	50V
C166	UA952680	C.MYLAR	680pF	50V
C167	UA952680	C.MYLAR	680pF	50V
C168	UA952150	C.MYLAR	150pF	50V
C169	UA952150	C.MYLAR	150pF	50V
C170	UB245100	C.CE.M.CHP	0.1uF	25V
C175	UB245100	C.CE.M.CHP	0.1uF	25V
D1	VT332900	DIODE	1SS355	
D2	VT332900	DIODE	1SS355	
D4	VT332900	DIODE	1SS355	
D5	VT332900	DIODE	1SS355	
D6	VT332900	DIODE	1SS355	
D7	VT332900	DIODE	1SS355	
D8	VT332900	DIODE	1SS355	
D9	VT332900	DIODE	1SS355	
D10	VT332900	DIODE	1SS355	
D11	VT332900	DIODE	1SS355	
D12	VT332900	DIODE	1SS355	
D14	VT332900	DIODE	1SS355	
D15	VT332900	DIODE	1SS355	
D16	VT332900	DIODE	1SS355	
D17	VT332900	DIODE	1SS355	
D150	VT332900	DIODE	1SS355	
D151	VT332900	DIODE	1SS355	
D152	VT332900	DIODE	1SS355	
G1	VR463400	TERM.GND	D3.5	TP00385
G2	VR463400	TERM.GND	D3.5	TP00385
G3	VR463400	TERM.GND	D3.5	TP00385
G4	VR463400	TERM.GND	D3.5	TP00385
IC1	XR038A00	IC	NJM2904M	OP AMP
IC2	XL091A00	IC	HD74HC02	FPEL NOR
IC3	XW526A00	IC	YSD917	
IC4	XV304B00	IC	YSS918D-F	
IC5	XV305A00	IC	IS61C1024-20J	SRAM

* New Parts

Schm Ref.	PART NO.	Description		
IC6	XV951A00	IC	AK4526A-VQ	
IC7	XT955A00	IC	AK4324-VF-E2	
IC8	XF291A00	IC	uPC4570G2	
IC9	XF291A00	IC	uPC4570G2	
IC10	XF291A00	IC	uPC4570G2	
IC11	XF291A00	IC	uPC4570G2	
IC13	XF291A00	IC	uPC4570G2	
IC15	XU965A00	IC	uPC29M33T-E1	3.3V
Q1	VV655300	TR.DGT	DTA144EKA	
Q2	VV655300	TR.DGT	DTA144EKA	
Q3	VV655300	TR.DGT	DTA144EKA	
Q4	VD303700	TR	2SC3326 A,B	
Q5	VD303700	TR	2SC3326 A,B	
Q6	VD303700	TR	2SC3326 A,B	
Q7	VD303700	TR	2SC3326 A,B	
Q8	VD303700	TR	2SC3326 A,B	
Q9	VD303700	TR	2SC3326 A,B	
Q10	VD303700	TR	2SC3326 A,B	
Q11	VD303700	TR	2SC3326 A,B	
Q12	VD303700	TR	2SC3326 A,B	
Q13	VD303700	TR	2SC3326 A,B	
Q14	VV655700	TR.DGT	DTC144EKA	
R30	HV753220	R.CAR.FP	2.2Ω	1/4W
R36	HV753220	R.CAR.FP	2.2Ω	1/4W
R37	HV753220	R.CAR.FP	2.2Ω	1/4W
R43	HV754100	R.CAR.FP	10Ω	1/4W
R44	HV754100	R.CAR.FP	10Ω	1/4W
R45	HV753100	R.CAR.FP	1Ω	1/4W
R47	HV753100	R.CAR.FP	1Ω	1/4W
R114	HV753220	R.CAR.FP	2.2Ω	1/4W
R115	HV753220	R.CAR.FP	2.2Ω	1/4W
R170	HV753220	R.CAR.FP	2.2Ω	1/4W
XL1	V3625700	RSNR.CRYS	24.576MHz	

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
*	V5840900	P.C.B.	MAIN(B)	
*	V5841000	P.C.B.	MAIN(G)	
CB101	VQ962600	CN.BS.PIN	5P	
CB103	LA002110	TERM.WRAP	2P	
CB106	VK025300	CN.BS.PIN	9P	
CB107	Vi878300	CN.BS.PIN	5P	
CB108	VB390100	CN.BS.PIN	5P	
CB301	VK024900	CN.BS.PIN	5P	
CB302	Vi878800	CN.BS.PIN	10P	
CB303	Vi878800	CN.BS.PIN	10P	
CB304	VP206500	HOLDER.FUS	EYF-52BCT	
CB305	VP206500	HOLDER.FUS	EYF-52BCT	
CB306	VG879900	CN.BS.PIN	2P	
CB307	VP206500	HOLDER.FUS	EYF-52BCT	
CB308	VP206500	HOLDER.FUS	EYF-52BCT	
CB851	VQ963000	CN.BS.PIN	9P	
CB852	Vi878600	CN.BS.PIN	8P	
CB881	Vi878600	CN.BS.PIN	8P	
C101	UA652100	C.MYLAR	100pF	50V
C102	UR857100	C.EL	10uF	35V
C103	UA652100	C.MYLAR	100pF	50V
C104	UA652100	C.MYLAR	100pF	50V
C105	UR857100	C.EL	10uF	35V
C106	UA652100	C.MYLAR	100pF	50V
C107	UA652100	C.MYLAR	100pF	50V
C108	UR837100	C.EL	10uF	16V
C109	UA652100	C.MYLAR	100pF	50V
C110	UR847100	C.EL	10uF	25V
C111	VR516400	C.CE	15pF	500V
C112	UR838100	C.EL	100uF	16V
C113	UA953100	C.MYLAR	1000pF	50V
C114	VR516400	C.CE	15pF	500V
C115	UR838100	C.EL	100uF	16V
C116	UA953100	C.MYLAR	1000pF	50V
C117	FU451330	C.MICA	33pF	500V
C118	UR838100	C.EL	100uF	16V
C119	UA953100	C.MYLAR	1000pF	50V
C120	VR325000	C.MYLAR	100pF	100V
C121	UR867470	C.EL	47uF	50V
C122	UR867470	C.EL	47uF	50V
C123	VR325000	C.MYLAR	100pF	100V
C124	VK347900	C.EL	470uF	63V
C125	VR325000	C.MYLAR	100pF	100V
C126	UR867470	C.EL	47uF	50V
C127	UR867470	C.EL	47uF	50V
C128	VR325000	C.MYLAR	100pF	100V
C129	VR325000	C.MYLAR	100pF	100V
C130	UR867470	C.EL	47uF	50V
C131	UR867470	C.EL	47uF	50V
C132	VR325000	C.MYLAR	100pF	100V
C133	VK399200	C.MYLAR.ML	0.39uF	50V
C134	VK399200	C.MYLAR.ML	0.39uF	50V
C135	VK399200	C.MYLAR.ML	0.39uF	50V

* New Parts

Schm Ref.	PART NO.	Description			
C136	UR866100	C.EL	1uF	50V	
C137	VR325200	C.MYLAR	0.022uF	100V	
C138	VR325200	C.MYLAR	0.022uF	100V	
C139	VR325200	C.MYLAR	0.022uF	100V	
C140	UR866470	C.EL	4.7uF	50V	
C141	UR818220	C.EL	220uF	6.3V	
C142	UR866470	C.EL	4.7uF	50V	
△ C143	VS529200	C.EL	10000uF	63V	
△ C144	VS529200	C.EL	10000uF	63V	
△ C145	VS745400	C.POL.MTL	0.1uF	100V	
△ C146	VS745400	C.POL.MTL	0.1uF	100V	
C147	VF466900	C.CE.TUBLR	470pF	50V	
C148	VF466900	C.CE.TUBLR	470pF	50V	
C149	VF466900	C.CE.TUBLR	470pF	50V	
C150	VF466900	C.CE.TUBLR	470pF	50V	
C151	VF466900	C.CE.TUBLR	470pF	50V	
C152	UA655220	C.MYLAR	0.22uF	50V	
C153	UA954220	C.MYLAR	0.022uF	50V	
C154	UA954220	C.MYLAR	0.022uF	50V	
C155	UA954220	C.MYLAR	0.022uF	50V	
C156	UA954220	C.MYLAR	0.022uF	50V	
C157	UA954220	C.MYLAR	0.022uF	50V	
C158	UA954220	C.MYLAR	0.022uF	50V	
C159	VK534000	C.PP	220pF	200V	
C163	VF467300	C.CE.TUBLR	0.01uF	16V	
C164	VF467300	C.CE.TUBLR	0.01uF	16V	
C301	VG291300	C.EL	100uF	50V	
C302	UA655100	C.MYLAR	0.1uF	50V	
C303	UA655100	C.MYLAR	0.1uF	50V	
C304	VG291300	C.EL	100uF	50V	
C305	VJ599100	C.CE.TUBLR	0.1uF	50V	
C306	UR848470	C.EL	470uF	25V	
C309	UA954100	C.MYLAR	0.01uF	50V	
C310	UA954100	C.MYLAR	0.01uF	50V	
△ C311	V3501400	C.CE.SAFTY	0.01uF	275V	
C312	UR848220	C.EL	220uF	25V	
C851	VG287600	C.EL	100uF	25V	
C852	VG287600	C.EL	100uF	25V	
C853	VG291200	C.EL	47uF	50V	
C854	VG291200	C.EL	47uF	50V	
C855	VG288500	C.EL	10uF	50V	
C856	VG288500	C.EL	10uF	50V	
C857	VG291200	C.EL	47uF	50V	
C858	VG291200	C.EL	47uF	50V	
C859	UR838100	C.EL	100uF	16V	
C860	UR847100	C.EL	10uF	25V	
C861	UR838100	C.EL	100uF	16V	
C862	UR847100	C.EL	10uF	25V	
C863	UR838100	C.EL	100uF	16V	
C864	UR847100	C.EL	10uF	25V	
C881	VG291500	C.EL	330uF	50V	
C882	VG291500	C.EL	330uF	50V	
△ C883	UR749100	C.EL	1000uF	25V	

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
△ C884	UR749220	C.EL	2200uF	25V
△ C885	UR73A100	C.EL	10000uF	16V
△ C886	UR73A100	C.EL	10000uF	16V
C887	VS745400	C.POL.MTL	0.1uF	100V
C888	VE326000	C.MYLAR.ML	0.1uF	50V
C889	VE326000	C.MYLAR.ML	0.1uF	50V
C890	VE326000	C.MYLAR.ML	0.1uF	50V
C891	VE326000	C.MYLAR.ML	0.1uF	50V
C892	VS745400	C.POL.MTL	0.1uF	100V
D101	VM975700	DIODE.ZENR	HZS12C2TD	12V
D102	VN008700	DIODE	1SS270A	
D103	VN008700	DIODE	1SS270A	
D104	VN008700	DIODE	1SS270A	
D105	VM976500	DIODE.ZENR	HZS302TD	30V
△ D108	VN011400	DIODE.BRG	D5SB20	5A 200V
D109	VG442600	DIODE.ZENR	MTZJ24C	24V
D110	VG442600	DIODE.ZENR	MTZJ24C	24V
D301	VS997800	DIODE	1T2	
D302	VS997800	DIODE	1T2	
D303	VS997800	DIODE	1T2	
D304	VS997800	DIODE	1T2	
D305	VD631600	DIODE	1SS133,176	
D306	VV307700	DIODE	1N4002S	
D307	VV307700	DIODE	1N4002S	
D309	VV307700	DIODE	1N4002S	
D310	VV307700	DIODE	1N4002S	
D851	VM976300	DIODE.ZENR	HZS242TD	24V
D852	VM976300	DIODE.ZENR	HZS242TD	24V
D853	VD631600	DIODE	1SS133,176	
D854	VD631600	DIODE	1SS133,176	
D855	VD631600	DIODE	1SS133,176	
D856	VD631600	DIODE	1SS133,176	
D857	VD631600	DIODE	1SS133,176	
△ D881	VQ379300	DIODE.BRG	S1VB20	1.0A 200V
△ D882	VQ379300	DIODE.BRG	S1VB20	1.0A 200V
△ D883	V4269600	DIODE.BRG	D2SBA20	1.5A 200V
△ F301	VT942900	FUSE	TH2.5A	250V
△ F302	KB000790	FUSE	T4.0A	250V
G301	VR463400	TERM.GND	D3.5	TP00385
HS101	VS606000	HEAT.SINK	DPS35-45	
△ IC851	XJ608A00	IC	NJM7812FA	
△ IC852	XD343A00	IC	NJM79M12FA	
△ IC853	XJ604A00	IC	NJM78M05FA	
△ IC854	XE436A00	IC	NJM79M05FA	
△ IC855	XJ607A00	IC	NJM7805FA	5V
L101	VU038200	COIL	0.95uH	
L102	VU038200	COIL	0.95uH	
L103	VU038200	COIL	0.95uH	
PJ101	V3855600	JACK.PIN	4P	
* PJ102	V2571900	JACK.PIN	2P	
PN301	V3750200	PIN	L=70	
PN302	V3750200	PIN	L=70	
Q101	VP883000	TR	2SA893A	D,E

* New Parts

Schm Ref.	PART NO.	Description		
Q102	VP883000	TR	2SA893A	D,E
Q103	VP883000	TR	2SA893A	D,E
Q104	VP883000	TR	2SA893A	D,E
Q105	VP883000	TR	2SA893A	D,E
Q106	VP883000	TR	2SA893A	D,E
△ Q107	iC174020	TR	2SC1740S	R,S
△ Q108	VE198800	TR	2SC2705	O,Y
△ Q109	iC174020	TR	2SC1740S	R,S
△ Q110	VE198800	TR	2SC2705	O,Y
△ Q111	iC174020	TR	2SC1740S	R,S
△ Q112	VE198800	TR	2SC2705	O,Y
△ Q113	iP011600	TR.PAIR	2SA1358/C3421	O,Y
△ Q114	VY760300	TR.PAIR	2SA1492/C3856	OPY
△ Q117	iP011600	TR.PAIR	2SA1358/C3421	O,Y
△ Q118	VY760300	TR.PAIR	2SA1492/C3856	OPY
△ Q121	iP011600	TR.PAIR	2SA1358/C3421	O,Y
△ Q122	VY760300	TR.PAIR	2SA1492/C3856	OPY
Q125	iA097030	TR	2SA970	GR,BL
△ Q126	VP883100	TR	2SC1890A	D,E
△ Q127	VP883100	TR	2SC1890A	D,E
△ Q128	VP883100	TR	2SC1890A	D,E
Q129	iA101510	TR	2SA1015	Y
Q130	iC174020	TR	2SC1740S	R,S
Q131	iC224030	TR	2SC2240	GR,BL
Q301	iC174020	TR	2SC1740S	R,S
Q851	iC181510	TR	2SC1815	Y
Q852	iA101510	TR	2SA1015	Y
R128	HV756560	R.CAR.FP	5.6KΩ	1/4W
R129	VP941600	R.MTL.OXD	5.6KΩ	1W
R130	VP941600	R.MTL.OXD	5.6KΩ	1W
△ R131	HV756270	R.CAR.FP	2.7KΩ	1/4W
△ R133	HV755470	R.CAR.FP	470Ω	1/4W
△ R134	VK189000	R.FUS	1KΩ	1/4W
△ R136	HV754470	R.CAR.FP	47Ω	1/4W
R137	VP939800	R.MTL.OXD	10Ω	1W
R138	VP941600	R.MTL.OXD	5.6KΩ	1W
R139	VP941600	R.MTL.OXD	5.6KΩ	1W
△ R140	HV756270	R.CAR.FP	2.7KΩ	1/4W
△ R142	HV755470	R.CAR.FP	470Ω	1/4W
△ R143	VK189000	R.FUS	1KΩ	1/4W
△ R145	HV754470	R.CAR.FP	47Ω	1/4W
R146	VP941600	R.MTL.OXD	5.6KΩ	1W
R147	VP941600	R.MTL.OXD	5.6KΩ	1W
△ R148	HV756270	R.CAR.FP	2.7KΩ	1/4W
△ R150	HV755470	R.CAR.FP	470Ω	1/4W
△ R151	VK189000	R.FUS	1KΩ	1/4W
△ R153	HV754470	R.CAR.FP	47Ω	1/4W
△ R154	HV753470	R.CAR.FP	4.7Ω	1/4W
△ R155	VZ123100	R.MTL.PLAT	0.22Ω	3W
△ R156	VK188400	R.FUS	330Ω	1/4W
△ R157	VZ123100	R.MTL.PLAT	0.22Ω	3W
△ R159	HV753470	R.CAR.FP	4.7Ω	1/4W
△ R160	HV753470	R.CAR.FP	4.7Ω	1/4W

* New Parts

P.C.B. MAIN & INPUT

Schm Ref.	PART NO.	Description		
△	R161	VZ123100	R.MTL.PLAT	0.22Ω 3W
△	R162	VK188400	R.FUS	330Ω 1/4W
△	R163	VZ123100	R.MTL.PLAT	0.22Ω 3W
△	R165	HV753470	R.CAR.FP	4.7Ω 1/4W
△	R166	HV753470	R.CAR.FP	4.7Ω 1/4W
△	R167	VZ123100	R.MTL.PLAT	0.22Ω 3W
△	R168	VK188400	R.FUS	330Ω 1/4W
△	R169	VZ123100	R.MTL.PLAT	0.22Ω 3W
△	R171	HV753470	R.CAR.FP	4.7Ω 1/4W
△	R179	VP939800	R.MTL.OXD	10Ω 1W
△	R184	VP939800	R.MTL.OXD	10Ω 1W
△	R189	VP939800	R.MTL.OXD	10Ω 1W
	R191	HV754100	R.CAR.FP	10Ω 1/4W
	R194	HV754100	R.CAR.FP	10Ω 1/4W
	R197	HV754100	R.CAR.FP	10Ω 1/4W
	R200	HV754100	R.CAR.FP	10Ω 1/4W
	R220	VP941000	R.MTL.OXD	680Ω 1W
	R221	VP941000	R.MTL.OXD	680Ω 1W
△	R301	HV753100	R.CAR.FP	1Ω 1/4W
△	R302	HV753100	R.CAR.FP	1Ω 1/4W
△	R853	HV753100	R.CAR.FP	1Ω 1/4W
△	R854	HV753100	R.CAR.FP	1Ω 1/4W
	R855	HV755100	R.CAR.FP	100Ω 1/4W
	R858	HV755100	R.CAR.FP	100Ω 1/4W
△	R859	HV753100	R.CAR.FP	1Ω 1/4W
	R860	VP939500	R.MTL.FLM	1Ω 1W
	R861	VP939600	R.MTL.FLM	2.2Ω 1W
△	R881	HV753100	R.CAR.FP	1Ω 1/4W
△	R882	HV753100	R.CAR.FP	1Ω 1/4W
△	RY101	VK438300	RELAY	DH24D2-OT/M2
△	RY102	VU566700	RELAY	DG24D2-OS/M
△	RY301	V2695300	RELAY	DC DG12D1-O/M-II
	ST101	BB071360	SCR.TERM	8.3x13
	ST301	BB071360	SCR.TERM	8.3x13
△	SW301	V4104200	SW.SLIDE	SL13B-022-AMCS
△	T301	XW608A00	TRANS.PWR	
*	TE101	V5723700	TERM.SP	6P
△	TE301	VU543300	OUTLET.AC	1P(B)
△	TE301	VV537400	OUTLET.AC	1P(G)
		EP600140	SCR.BND.HD	3x10 MFZN2-BL

* New Parts

Schm Ref.	PART NO.	Description		
*	V5841300	P.C.B.	INPUT(BG)	
	CB401	VM923600	CN.BS.PIN	13P
	CB402	VQ047900	CN	29P
	CB403	Vi879000	CN.BS.PIN	12P
	CB404	VP127700	CN	24P
	CB405	VQ047400	CN.BS.PIN	19P
	CB406	VN394900	CN.BS.PIN	14P
	CB409	VK025100	CN.BS.PIN	7P
	CB410	VB390100	CN.BS.PIN	5P
	CB601	Vi878500	CN.BS.PIN	7P
	CB651	V5478200	CN.PHOT.SN	1P GP1FA551RZ
	CB652	V5478200	CN.PHOT.SN	1P GP1FA551RZ
	CB653	V5478200	CN.PHOT.SN	1P GP1FA551RZ
	CB654	VQ044300	CN.BS.PIN	7P
	CB655	Vi879000	CN.BS.PIN	12P
	C401	VK533900	C.PP	100pF 200V
	C402	VK533900	C.PP	100pF 200V
	C403	UA952100	C.MYLAR	100pF 50V
	C404	UA952100	C.MYLAR	100pF 50V
	C405	UA952100	C.MYLAR	100pF 50V
	C406	UA952100	C.MYLAR	100pF 50V
	C407	FG651470	C.CE	47pF 50V
	C408	FG651470	C.CE	47pF 50V
	C409	UA952100	C.MYLAR	100pF 50V
	C410	UA952100	C.MYLAR	100pF 50V
	C411	UA952100	C.MYLAR	100pF 50V
	C412	UA952100	C.MYLAR	100pF 50V
	C413	UA952100	C.MYLAR	100pF 50V
	C414	UA952100	C.MYLAR	100pF 50V
	C415	VF466800	C.CE.TUBLR	100pF 50V
	C416	VF466800	C.CE.TUBLR	100pF 50V
	C417	VF466700	C.CE.TUBLR	47pF 50V
	C418	VF466700	C.CE.TUBLR	47pF 50V
	C419	VJ599100	C.CE.TUBLR	0.1uF 50V
	C420	VJ599100	C.CE.TUBLR	0.1uF 50V
	C421	UA952100	C.MYLAR	100pF 50V
	C422	UA952100	C.MYLAR	100pF 50V
	C423	UR828220	C.EL	220uF 10V
	C424	UA954180	C.MYLAR	0.018uF 50V
	C425	UA954680	C.MYLAR	0.068uF 50V
	C426	Vi578700	C.EL	10uF 50V
	C427	V4578900	C.EL	47uF 35V
	C428	V4578900	C.EL	47uF 35V
	C429	Vi578700	C.EL	10uF 50V
	C430	VG288500	C.EL	10uF 50V
	C431	VG288500	C.EL	10uF 50V
	C432	Vi578700	C.EL	10uF 50V
	C433	Vi578700	C.EL	10uF 50V
	C434	VJ599100	C.CE.TUBLR	0.1uF 50V
	C435	VJ599100	C.CE.TUBLR	0.1uF 50V
	C436	VG287200	C.EL	10uF 50V
	C437	VG287200	C.EL	10uF 50V
	C438	VG287200	C.EL	10uF 50V

* New Parts

P.C.B. INPUT

Schm Ref.	PART NO.	Description		
C439	VG287200	C.EL	10uF	50V
C440	UR837100	C.EL	10uF	16V
C441	UR837100	C.EL	10uF	16V
C442	UA952100	C.MYLAR	100pF	50V
C443	UA952100	C.MYLAR	100pF	50V
C444	UA954270	C.MYLAR	0.027uF	50V
C445	Vi578700	C.EL	10uF	50V
C446	Vi578700	C.EL	10uF	50V
C447	UA954270	C.MYLAR	0.027uF	50V
C448	UA954270	C.MYLAR	0.027uF	50V
C449	Vi578700	C.EL	10uF	50V
C450	UT652100	C.PP	100pF	100V
C451	V4578900	C.EL	47uF	35V
C452	V4578900	C.EL	47uF	35V
C453	UT652100	C.PP	100pF	100V
C454	Vi578700	C.EL	10uF	50V
C455	UA954270	C.MYLAR	0.027uF	50V
C456	V4578900	C.EL	47uF	35V
C457	V4578900	C.EL	47uF	35V
C458	VJ599100	C.CE.TUBLR	0.1uF	50V
C459	V4578900	C.EL	47uF	35V
C460	VJ599100	C.CE.TUBLR	0.1uF	50V
C461	V4578900	C.EL	47uF	35V
C462	UR866470	C.EL	4.7uF	50V
C463	VJ599100	C.CE.TUBLR	0.1uF	50V
C464	VJ599100	C.CE.TUBLR	0.1uF	50V
C465	UR866470	C.EL	4.7uF	50V
C466	UR866470	C.EL	4.7uF	50V
C467	VJ599100	C.CE.TUBLR	0.1uF	50V
C468	VJ599100	C.CE.TUBLR	0.1uF	50V
C469	UR866470	C.EL	4.7uF	50V
C470	VG290800	C.EL	4.7uF	63V
C471	VG290800	C.EL	4.7uF	63V
C472	VG290800	C.EL	4.7uF	63V
C473	VG290800	C.EL	4.7uF	63V
C474	VJ599100	C.CE.TUBLR	0.1uF	50V
C475	VJ599100	C.CE.TUBLR	0.1uF	50V
C476	VJ599100	C.CE.TUBLR	0.1uF	50V
C477	UR837100	C.EL	10uF	16V
C478	UR837100	C.EL	10uF	16V
C479	UR837100	C.EL	10uF	16V
C480	UR837100	C.EL	10uF	16V
C481	UR837100	C.EL	10uF	16V
C482	UR837100	C.EL	10uF	16V
C483	Vi578700	C.EL	10uF	50V
C484	Vi578700	C.EL	10uF	50V
C485	Vi578700	C.EL	10uF	50V
C486	Vi578700	C.EL	10uF	50V
C601	VF466800	C.CE.TUBLR	100pF	50V
C602	VF466800	C.CE.TUBLR	100pF	50V
C603	UR837100	C.EL	10uF	16V
C604	UR837100	C.EL	10uF	16V
C605	UR837100	C.EL	10uF	16V

* New Parts

Schm Ref.	PART NO.	Description		
C606	UR837100	C.EL	10uF	16V
C607	UR837100	C.EL	10uF	16V
C608	UR837100	C.EL	10uF	16V
C609	UR837100	C.EL	10uF	16V
C610	UR837100	C.EL	10uF	16V
C611	VF466800	C.CE.TUBLR	100pF	50V
C612	VF466800	C.CE.TUBLR	100pF	50V
C613	VF466800	C.CE.TUBLR	100pF	50V
C614	UR837100	C.EL	10uF	16V
C615	UR837100	C.EL	10uF	16V
C616	UR837100	C.EL	10uF	16V
C617	UR837100	C.EL	10uF	16V
C618	VF466800	C.CE.TUBLR	100pF	50V
C619	UR837330	C.EL	33uF	16V
C620	UR837330	C.EL	33uF	16V
C621	UR837470	C.EL	47uF	16V
C622	UR837470	C.EL	47uF	16V
C651	VJ599100	C.CE.TUBLR	0.1uF	50V
C652	UR847220	C.EL	22uF	25V
C653	VG276600	C.CE.TUBLR	22pF	50V
C654	VG276600	C.CE.TUBLR	22pF	50V
C655	UR847220	C.EL	22uF	25V
C656	VJ599100	C.CE.TUBLR	0.1uF	50V
C657	VJ599100	C.CE.TUBLR	0.1uF	50V
C658	VJ599100	C.CE.TUBLR	0.1uF	50V
C659	VJ599100	C.CE.TUBLR	0.1uF	50V
C660	VG278400	C.CE.TUBLR	220pF	50V
C661	VG278400	C.CE.TUBLR	220pF	50V
C662	VG278400	C.CE.TUBLR	220pF	50V
C663	VG278400	C.CE.TUBLR	220pF	50V
C664	VG278400	C.CE.TUBLR	220pF	50V
C665	VG278400	C.CE.TUBLR	220pF	50V
C666	VF467300	C.CE.TUBLR	0.01uF	16V
C667	VJ599100	C.CE.TUBLR	0.1uF	50V
C668	VF466600	C.CE.TUBLR	10pF	50V
C669	VF466600	C.CE.TUBLR	10pF	50V
C670	VJ599100	C.CE.TUBLR	0.1uF	50V
C671	VG278400	C.CE.TUBLR	220pF	50V
C672	VF467000	C.CE.TUBLR	1000pF	50V
C673	VF467000	C.CE.TUBLR	1000pF	50V
C674	VG278400	C.CE.TUBLR	220pF	50V
C675	VJ599100	C.CE.TUBLR	0.1uF	50V
C676	VJ599100	C.CE.TUBLR	0.1uF	50V
C677	VJ599100	C.CE.TUBLR	0.1uF	50V
C678	UR828100	C.EL	100uF	10V
D401	VM975300	DIODE.ZENR	HZS11B2TD	11V
D402	VM975300	DIODE.ZENR	HZS11B2TD	11V
D403	VM975300	DIODE.ZENR	HZS11B2TD	11V
D404	VM975300	DIODE.ZENR	HZS11B2TD	11V
D651	VD631600	DIODE	1SS133,176	
D652	VD631600	DIODE	1SS133,176	
D653	VD631600	DIODE	1SS133,176	
D654	VD631600	DIODE	1SS133,176	

* New Parts

P.C.B. INPUT & OPERATION

Schm Ref.	PART NO.	Description
IC401	XP580A00	IC TC9273N-004
IC402	XP896A00	IC LC78213
IC403	XP895A00	IC LC78212
IC404	XP896A00	IC LC78213
IC406	XM356A00	IC NJM2068LD
IC407	XP265A00	IC BU2090
IC408	iG092000	IC M5220L
IC409	iG092000	IC M5220L
IC410	iG092000	IC M5220L
IC411	XR040A00	IC TC9299P
IC412	XA987A00	IC NJM2068D-D
IC413	XR040A00	IC TC9299P
IC414	XA987A00	IC NJM2068D-D
IC415	XA987A00	IC NJM2068D-D
IC601	XW164A00	IC NJM2296D
IC602	XW164A00	IC NJM2296D
IC603	XW164A00	IC NJM2296D
IC651	iG142200	IC TC74HCU04AP
IC652	iG142200	IC TC74HCU04AP
IC653	iR000000	IC TC74HC00AP
IC654	iR000000	IC TC74HC00AP
IC655	XT208A00	IC HD74HC153P MPX
JK601	VP113600	CN.DIN 2P
JK602	VP113600	CN.DIN 2P
JK603	VP113600	CN.DIN 2P
L651	GE901970	COIL 68uH
L652	GE901970	COIL 68uH
L653	GE901970	COIL 68uH
* PJ401	V5634800	JACK.PIN 6P
* PJ402	V5634800	JACK.PIN 6P
* PJ403	V5634800	JACK.PIN 6P
PJ601	VV852500	JACK.PIN 3P
PJ602	VV852500	JACK.PIN 3P
PJ651	VZ537500	JACK.PIN 2P
PJ652	V4199200	JACK.PIN 6P
PN401	V3750200	PIN L=70
PN651	V3750200	PIN L=70
Q401	iC287820	TR 2SC2878 A,B
Q402	VG721700	TR.DGT DTA144ES
Q403	iC287820	TR 2SC2878 A,B
Q404	iC287820	TR 2SC2878 A,B
Q405	iC287820	TR 2SC2878 A,B
Q406	iC287820	TR 2SC2878 A,B
Q407	iC287820	TR 2SC2878 A,B
Q408	iC287820	TR 2SC2878 A,B
Q409	iC287820	TR 2SC2878 A,B
Q410	iC287820	TR 2SC2878 A,B
Q411	iC287820	TR 2SC2878 A,B
Q412	iC287820	TR 2SC2878 A,B
R433	VP940200	R.MTL.OXD 47Ω 1W
R434	VP940200	R.MTL.OXD 47Ω 1W
R489	VP940200	R.MTL.OXD 47Ω 1W
R490	VP940200	R.MTL.OXD 47Ω 1W

* New Parts

Schm Ref.	PART NO.	Description
R491	VP940200	R.MTL.OXD 47Ω 1W
R492	VP940200	R.MTL.OXD 47Ω 1W
R501	HV753220	R.CAR.FP 2.2Ω 1/4W
R502	HV753220	R.CAR.FP 2.2Ω 1/4W
R678	HV753220	R.CAR.FP 2.2Ω 1/4W
SW651	VS602600	SW.SLIDE SS070-P022 A
* V5841100	P.C.B.	OPERATION(BG)
CB701	VU272900	CN 29P
CB702	Vi878700	CN.BS.PIN 9P
CB703	VU270800	CN 8P
CB801	VP798200	CN.BS.PIN 24P
CB901	VQ961200	CN.BS.PIN 9P
CB902	VF982200	CN.BS.PIN 14P
CB903	VQ960800	CN.BS.PIN 5P
C701	UR866220	C.EL 2.2uF 50V
C702	VJ599100	C.CE.TUBLR 0.1uF 50V
C703	VG278900	C.CE.TUBLR 680pF 50V
C704	VG278900	C.CE.TUBLR 680pF 50V
C705	VJ599100	C.CE.TUBLR 0.1uF 50V
C706	VJ599100	C.CE.TUBLR 0.1uF 50V
C707	VJ599100	C.CE.TUBLR 0.1uF 50V
C708	VJ599100	C.CE.TUBLR 0.1uF 50V
C709	UR866100	C.EL 1uF 50V
C710	UR819100	C.EL 1000uF 6.3V
C711	UR819100	C.EL 1000uF 6.3V
C712	VS672200	C.EL 4700uF 5.5V
C713	VJ599100	C.CE.TUBLR 0.1uF 50V
C714	UR847100	C.EL 10uF 25V
C715	VJ599100	C.CE.TUBLR 0.1uF 50V
C716	UR847470	C.EL 47uF 25V
C717	VG280100	C.CE.TUBLR 0.022uF 25V
C801	UT652100	C.PP 100pF 100V
C802	UT652100	C.PP 100pF 100V
C803	VG290600	C.EL 2.2uF 50V
C804	VG277000	C.CE.TUBLR 33pF 50V
C805	VG277000	C.CE.TUBLR 33pF 50V
C806	VG290600	C.EL 2.2uF 50V
C807	VG290600	C.EL 2.2uF 50V
C808	VG277000	C.CE.TUBLR 33pF 50V
C809	VG286200	C.EL 100uF 10V
C810	VG286200	C.EL 100uF 10V
C811	VG277000	C.CE.TUBLR 33pF 50V
C812	VG290600	C.EL 2.2uF 50V
C813	VG290600	C.EL 2.2uF 50V
C814	VG277000	C.CE.TUBLR 33pF 50V
C815	VG286200	C.EL 100uF 10V
C816	VG286200	C.EL 100uF 10V
C817	VG277000	C.CE.TUBLR 33pF 50V
C818	VG290600	C.EL 2.2uF 50V
C819	UN866100	C.EL 1uF 50V

* New Parts

P.C.B. OPERATION & CHIP RESISTOR

Schm Ref.	PART NO.	Description		
C820	VJ599100	C.CE.TUBLR	0.1uF	50V
C821	Vi578700	C.EL	10uF	50V
* C822	UT652150	C.PP	150pF	100V
C823	UT652150	C.PP	150pF	100V
C824	Vi578700	C.EL	10uF	50V
C825	Vi578700	C.EL	10uF	50V
C826	VN011900	C.EL	100uF	35V
C827	UT652100	C.PP	100pF	100V
C828	UA952100	C.MYLAR	100pF	50V
C829	VN011900	C.EL	100uF	35V
C830	Vi578700	C.EL	10uF	50V
C831	Vi578700	C.EL	10uF	50V
C832	UA952100	C.MYLAR	100pF	50V
C833	UA952100	C.MYLAR	100pF	50V
C834	Vi578700	C.EL	10uF	50V
C835	VG286200	C.EL	100uF	10V
C836	VG286200	C.EL	100uF	10V
D701	VD631600	DIODE	1SS133,176	
D702	VD631600	DIODE	1SS133,176	
D703	VD631600	DIODE	1SS133,176	
D704	VD631600	DIODE	1SS133,176	
D705	VM974100	DIODE.ZENR	HZS5B2TD	5.0V
D706	VM974100	DIODE.ZENR	HZS5B2TD	5.0V
D707	VD631600	DIODE	1SS133,176	
D708	VM974700	DIODE.ZENR	HZS7B2TD	7.0V
D709	VD631600	DIODE	1SS133,176	
D710	VD631600	DIODE	1SS133,176	
D711	VM974600	DIODE.ZENR	HZS7A2TD	7.0V
D712	VD631600	DIODE	1SS133,176	
D801	VM974200	DIODE.ZENR	HZS5C2TD	5.0V
* IC701	XY652A00	IC.CPU	M30217MA-A204FP	
IC702	XJ757A00	IC	NJM78L05A-T3	
IC801	XA987A00	IC	NJM2068D-D	
IC802	XA987A00	IC	NJM2068D-D	
IC803	XA987A00	IC	NJM2068D-D	
IC804	XF494A00	IC	LB1641	
Q701	VR948600	TR	2SC4038 Q,R,S	
Q702	VR948600	TR	2SC4038 Q,R,S	
Q703	iA093320	TR	2SA933S Q,R	
Q704	iA093320	TR	2SA933S Q,R	
Q705	VG722000	TR.DGT	DTC144ES	
Q706	iA093320	TR	2SA933S Q,R	
R803	VP940200	R.MTL.OXD	47Ω	1W
R804	VP940200	R.MTL.OXD	47Ω	1W
R837	HV754100	R.CAR.FP	10Ω	1/4W
ST901	BB071360	SCR.TERM	8.3x13	
SW701	V4586200	SW.RT.ENC	REB161PVB20F	
SW702	VG392900	SW.TACT	SKHVAA	
SW703	VG392900	SW.TACT	SKHVAA	
SW704	VG392900	SW.TACT	SKHVAA	
SW705	VG392900	SW.TACT	SKHVAA	
SW706	VG392900	SW.TACT	SKHVAA	
SW707	VG392900	SW.TACT	SKHVAA	

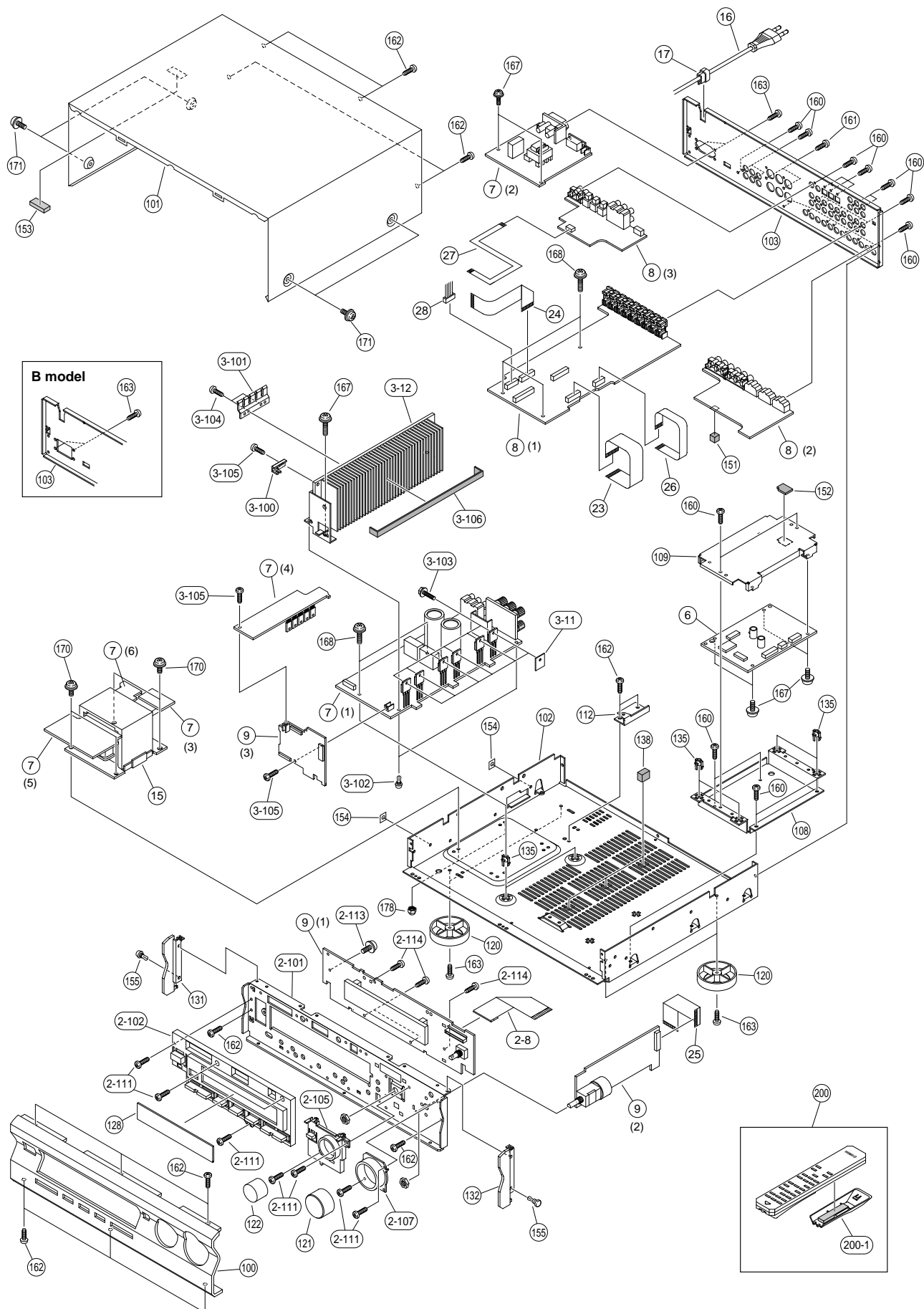
* New Parts

Schm Ref.	PART NO.	Description		
SW708	VG392900	SW.TACT	SKHVAA	
SW709	VG392900	SW.TACT	SKHVAA	
SW710	VG392900	SW.TACT	SKHVAA	
U701	V3872300	L.DTCT	PIC-28143TH5	
* V701	V5938300	FL.DSPLY	16-BT-76GK	
VR801	VV613500	VR	A100KΩ	
XL701	V4610100	RSNR.CE	10MHz	
	VS588900	SHEET		
	V4186900	SPACER	FL-WIDE	
	RD254470	R.CAR.CHP	47Ω	1/10W
	RD255100	R.CAR.CHP	100Ω	1/10W
	RD255330	R.CAR.CHP	330Ω	1/10W
	RD256100	R.CAR.CHP	1KΩ	1/10W
	RD256120	R.CAR.CHP	1.2KΩ	1/10W
	RD256150	R.CAR.CHP	1.5KΩ	1/10W
	RD256220	R.CAR.CHP	2.2KΩ	1/10W
	RD256330	R.CAR.CHP	3.3KΩ	1/10W
	RD256360	R.CAR.CHP	3.6KΩ	1/10W
	RD256390	R.CAR.CHP	3.9KΩ	1/10W
	RD256470	R.CAR.CHP	4.7KΩ	1/10W
	RD256680	R.CAR.CHP	6.8KΩ	1/10W
	RD256820	R.CAR.CHP	8.2KΩ	1/10W
	RD256910	R.CAR.CHP	9.1KΩ	1/10W
	RD257100	R.CAR.CHP	10KΩ	1/10W
	RD257160	R.CAR.CHP	16KΩ	1/10W
	RD257470	R.CAR.CHP	47KΩ	1/10W
	RD258100	R.CAR.CHP	100KΩ	1/10W
	RD258470	R.CAR.CHP	470KΩ	1/10W
	RD259100	R.CAR.CHP	1MΩ	1/10W

* New Parts

DSP-E800

1 ■ EXPLODED VIEW



■ MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
	2- 8	MF229160 S FLEXIBLE FLAT CABLE C&C	29P 160mm	
*	2-101	V5168300 SUB CHASSIS		
	2-102	V4170900 BUTTON CASE		BL
	2-102	V4171000 BUTTON CASE		TI
	2-102	V4171100 BUTTON CASE		GD
*	2-105	V5167400 BUTTON, INPUT		BL
*	2-105	V5167500 BUTTON, INPUT		GD
*	2-105	V5167600 BUTTON, INPUT		TI
	2-107	V2467900 ESCUTCHEON, VOL		BL
	2-107	V2468000 ESCUTCHEON, VOL		TI
	2-107	V2468100 ESCUTCHEON, VOL		GD
	2-111	EP600830 BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
	2-113	VT669300 PW HEAD B-TITE SCREW	3x8-8 MFC2	
	2-114	EP630220 BIND HEAD P-TITE SCREW	3x8 ZMC2-BL	
	3- 11	VV849300 SHEET	19x24	
*	3- 12	V5168700 HEAT SINK		
	3-100	V4169000 SUPPORT, PCB		
	3-101	V2461000 SUPPORT, TR		
	3-102	VQ368600 PUSH RIVET	P3555-B	
	3-103	VK173200 SCREW, TRANSISTOR	3x15 SP FCM3	
	3-104	VT669300 PW HEAD B-TITE SCREW	3x8-8 MFC2	
	3-105	EP600830 BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
	3-106	V5454200 DAMPER	2/10/260	
	6	V4800100 P.C.B. ASS'Y	DSP	
*	7	V5840900 P.C.B. ASS'Y	MAIN	(B)
*	7	V5841000 P.C.B. ASS'Y	MAIN	(G)
*	8	V5841300 P.C.B. ASS'Y	INPUT	
*	9	V5841100 P.C.B. ASS'Y	OPERATION	
*	15	XY838A00 POWER TRANSFORMER		
	16	VN363700 POWER CORD ASS'Y		(G)
	16	VV437300 POWER CORD ASS'Y		(B)
	17	V2438700 CORD STOPPER	10P1	
*	23	MF219120 FLEXIBLE FLAT CABLE	19P 120mm	
*	24	MF114180 FLEXIBLE FLAT CABLE	14P 180mm P=1.25	
*	25	MF124120 FLEXIBLE FLAT CABLE	24P 120mm	
*	26	MF113120 FLEXIBLE FLAT CABLE	13P 120mm	
*	27	MF207250 FLEXIBLE FLAT CABLE	7P 250mm	
*	28	V6221400 CONNECTOR ASS'Y	5P 550mm C&C 2mm	
*	100	V5166800 FRONT PANEL		BL
*	100	V5166900 FRONT PANEL		GD
*	100	V5167000 FRONT PANEL		TI
*	101	V5168600 TOP COVER		GD
	101	VV121100 TOP COVER		BL
	101	VV121200 TOP COVER		TI
	102	V2460600 CHASSIS		
*	103	V5165900 REAR PANEL		(G)
*	103	V5166300 REAR PANEL		(B)
*	108	V5168500 SHIELD CASE	BOTTOM	
*	109	V5168400 SHIELD CASE	TOP	
	112	V4168900 FRAME, PCB		
	120	V0049900 LEG	D60xH16	GD
	120	VQ780300 LEG	D60xH16	BL, TI
	121	V4172900 KNOB D40		BL

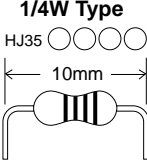
* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
121	V4173000	KNOB D40		TI
121	V4173100	KNOB D40		GD
122	V4172600	KNOB D30 ENC		BL
122	V4172700	KNOB D30 ENC		TI
122	V4172800	KNOB D30 ENC		GD
128	V2469400	SHEET, WINDOW		
* 131	V5167700	PLATE SIDE L		BL
* 131	V5167800	PLATE SIDE L		GD
* 131	V5167900	PLATE SIDE L		TI
* 132	V5168000	PLATE SIDE R		BL
* 132	V5168100	PLATE SIDE R		GD
* 132	V5168200	PLATE SIDE R		TI
135	VR264400	SPACER	H8	
138	V2879500	SPACER PCB-M		
151	VZ679700	DAMPER	T8/PCB	
* 152	V5881000	DAMPER	2x15x20	
* 153	V5881100	CUSHION	5x8x25	
* 154	V6217300	DAMPER	SIDE	
155	VQ368600	PUSH RIVET	P3555-B	
160	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL	
161	VY731200	BONDING HEAD TAPPING SCREW	3x10 MFNI33	
162	EP600830	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
163	EP600250	BIND HEAD B-TITE SCREW	3x8 ZMC2-Y	
167	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
168	VT669400	PW HEAD B-TITE SCREW	3x15-8 MFC2	
170	21991500	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
171	21991500	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL
171	VD069600	PW HEAD S-TITE SCREW	4x8-10 MFNI-33	GD
171	VH313200	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI
178	03700480	HEXAGONAL CAP NUT	4.0 MFNI33	
		ACCESSORIES		
* 200	V5667200	REMOTE CONTROL TRANSMITTER	RC7060-XX RAV13	
200-1	AAX13340	LID	BLJYE 60050001	
		BATTERY, MANGANESE	SUM-3,AA,R06	

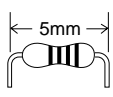
* New Parts

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			



1/4W Type
HJ35 ○○○○



1/6W Type
HF85 ○○○○