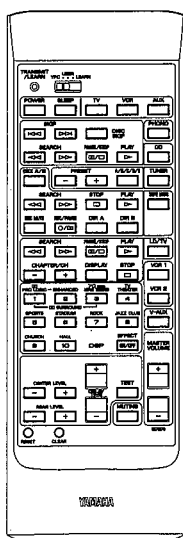
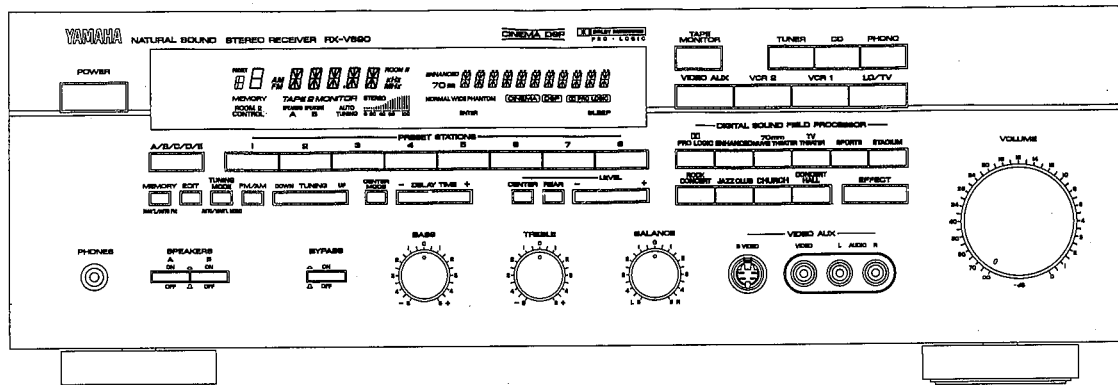


STEREO RECEIVER

RX-V690

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 any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

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

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

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

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

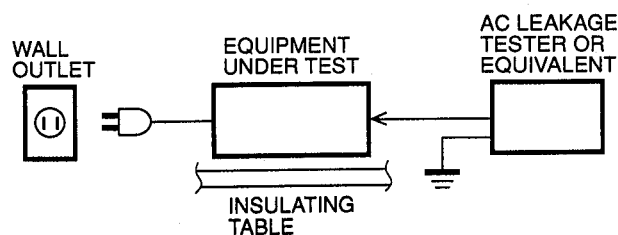
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■ TO SERVICE PERSONNEL

1. Critical Components Information.
Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only).
When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.
 - Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F.
 - Leakage current must not exceed 0.5mA.
 - Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

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

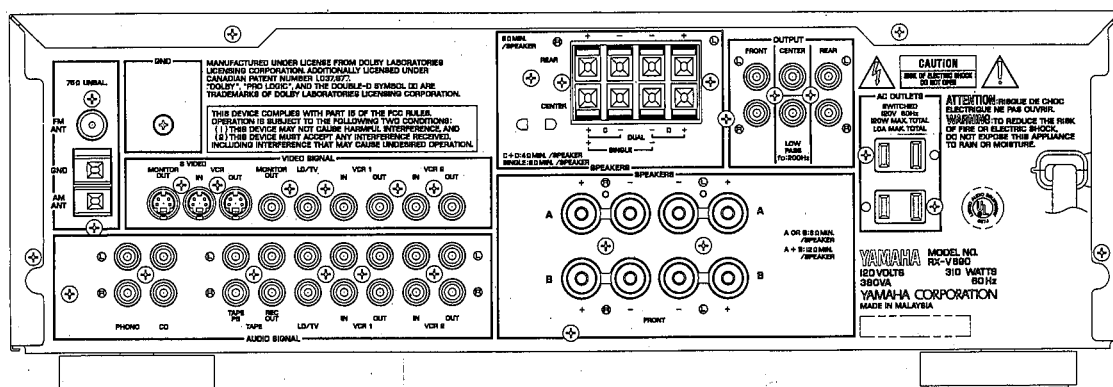
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

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

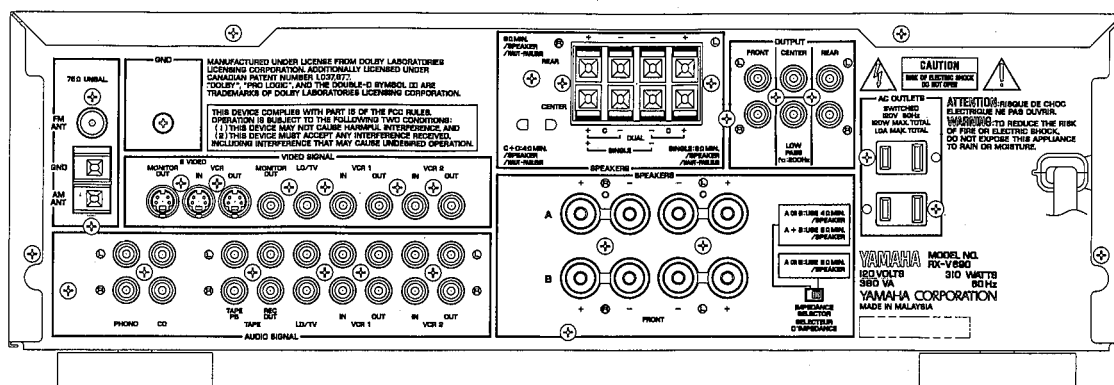
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REAR PANELS

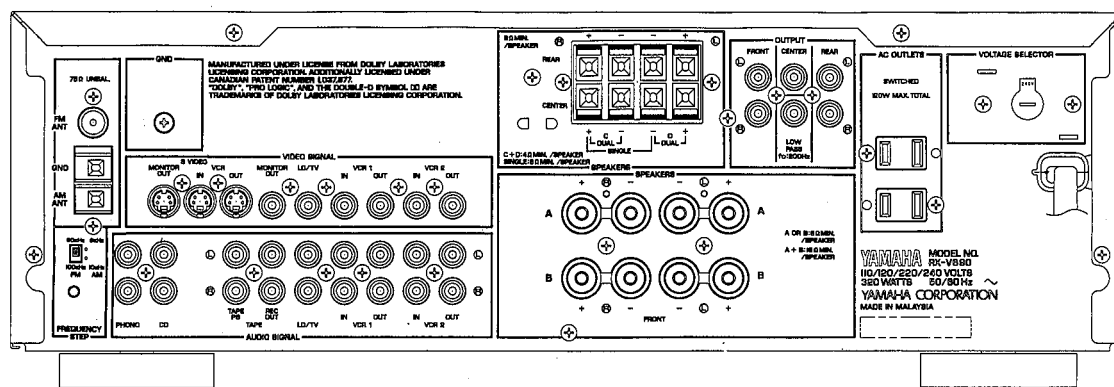
▼ U model



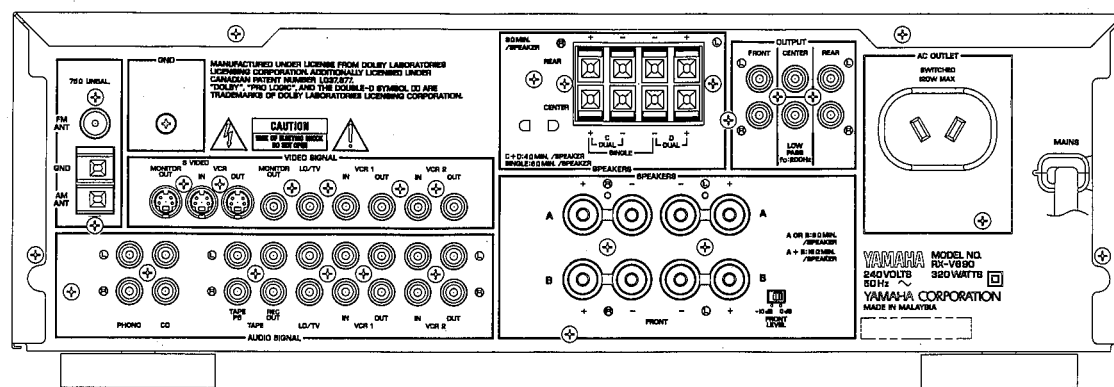
▼ C model



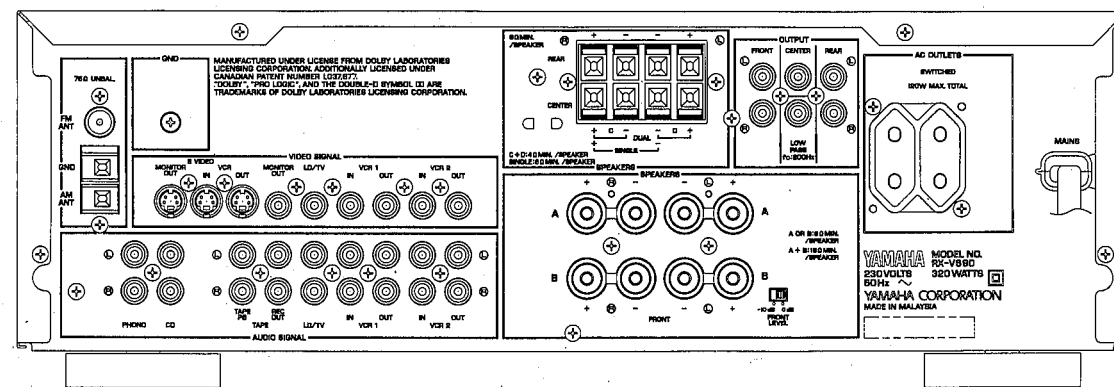
▼ R model



▼ A model



▼ L model



SPECIFICATIONS

AUDIO SECTION

Minimum RMS Output Power per Channel	
FRONT, 20Hz to 20kHz, 0.04% THD, 8Ω	
U, C models	80W
A, L, R models	75W
CENTER, 1kHz, 0.07% THD, 8Ω	
U, C models	80W
A, L, R models	75W
REAR, 1kHz, 0.3% THD, 8Ω	25W
Maximum Power per Channel	
FRONT, 1kHz, 10% THD, 8Ω	
R model	115W
Dynamic Power per Channel (IHF)	
8/6/4/2Ω	115/140/170/210W
Dynamic Headroom (8Ω)	
U, C, models	1.58dB
Power Band Width	
0.08% THD, 40W, 8Ω	10Hz to 50kHz
Damping Factor	
20Hz to 20kHz, 8Ω	80 or more
Input Sensitivity/Impedance	
PHONO MM	2.5mV/47kΩ
CD etc	150mV/47kΩ
Maximum Input Signal Level	
PHONO MM, 1kHz, 0.04% THD	110mV
CD etc, 1kHz, 0.5% THD	2.2V
Output Level/Impedance	
REC OUT	150mV/1.0kΩ
PRE OUT	2.2V/1.2kΩ
LPF (EFFECT OFF)	3.5V/1.5kΩ
Headphone Jack Rated Output/Impedance	
Input 1kHz, 150mV, 8Ω	0.5V/390Ω
Frequency Response (20Hz to 20kHz)	
CD etc, FRONT	0±0.5dB
RIAA Equalization Deviation (20Hz to 20kHz)	
PHONO MM	0±0.5dB
Total Harmonic Distortion (20Hz to 20kHz)	
PHONO MM to REC OUT (1V)	0.02%
CD etc to FRONT SP OUT (40W/8Ω), EFFECT OFF	0.02%
CD etc to REAR SP OUT, 1kHz (10W/8Ω)	0.3%
Signal-to-Noise Ratio (IHF-A-Network)	
PHONO MM, Input Shorted (5mV) REC OUT	86dB
CD etc, Input Shorted (150mV) SP OUT, EFFECT OFF	98dB
Residual Noise (IHF-A-Network)	
FRONT, SP OUT	140μV
Channel Separation (Vol. -30dB, EFFECT OFF)	
PHONO MM, Input Shorted, 1kHz/10kHz	60dB/50dB
CD etc, Input 5.1kΩ Shorted, 1kHz/10kHz	60dB/45dB
Tone Control Characteristics	
BASS : Boost/cut	±10dB (50Hz)
Turnover Frequency	350Hz
TREBLE : Boost/cut	±10dB (20kHz)
Turnover Frequency	3.5kHz
Filter Characteristics	
LPF	fc=200Hz, 6dB/oct
Gain Tracking Error (0dB to -60dB)	
	3dB
Tuner Output Level/Impedance	
FM (100% mod., 1kHz)	500mV/2.2kΩ
AM (30% mod., 1kHz)	150mV/2.2kΩ
Muting	
	- ∞

FM SECTION

Tuning Range	
U, C models	87.5 to 107.9MHz
A, L models	87.50 to 108.00MHz
R model	87.5 to 108.0/87.50 to 108.00MHz
50dB Quieting Sensitivity (IHF, 75 Ω)	
Mono	1.55μV (15.1dBf)
Stereo	21μV (37.7dBf)
Usable Sensitivity (75 Ω)	
30dB S/N Quieting, 1kHz, 100% mod.	0.8μV (9.3dBf)
Image Response Ratio	
	45dB
IF Response Ratio	
	80dB
Spurious Response Ratio	
	70dB
AM Suppression Ratio	
	55dB
Capture Ratio	
	1.5dB
Alternate Channel Selectivity	
	85dB
Signal-to-Noise Ratio (IHF)	
Mono/Stereo	80/75dB
Harmonic Distortion (1kHz)	
Mono/Stereo	0.1/0.2%
Frequency Response	
20Hz to 15kHz	0 ± 1.5dB
Stereo Separation (1kHz)	
	50dB

AM SECTION

Tuning Range	
U, C models	530 to 1710kHz
A, L models	531 to 1611kHz
R model	530 to 1710/531 to 1611kHz
Usable Sensitivity	
	100μV/m
Selectivity	
	32dB
Signal-to-Noise Ratio	
	50dB
Image Response Ratio	
	40dB
Spurious Response Ratio	
	50dB
Harmonic Distortion (1kHz)	
	0.3%

VIDEO SECTION

Video Signal Level	
	1Vp-p/75Ω
S-Video Signal Level	
Y	1Vp-p/75Ω
C	0.286Vp-p/75Ω
Maximum Input Level	
	1.5Vp-p
Signal-to-Noise Ratio	
	50dB
Monitor Output Frequency Response	
	5Hz~10MHz, -3dB

■ GENERAL

Power Supply

U, C models	AC 120V, 60Hz
A model	AC 240V, 50Hz
L model	AC 230V, 50Hz
R model	AC 110/120/220/240V, 50/60Hz

Power Consumption

U, C models	310W/380VA
A, L, R models	320W

Maximum Power Consumption

R model	620W
---------	------

AC Outlets

U, C, L, R models, Switched x 2	120W max (Total)
A model, Switched x 1	120W max

Dimensions (W x H x D) 435 x 146 x 386mm
(17-1/8" x 5-3/4" x 15-3/16")

Weight 10.5 kg (23 lbs 2oz)

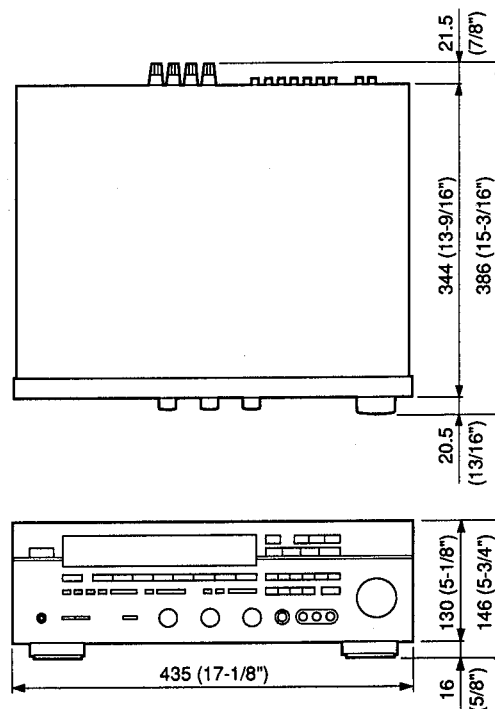
Accessories AM loop antenna x 1
Indoor FM antenna x 1
Remote Control Transmitter x 1
Battery (size "AA", "R06") x 2

* Specifications subject to change without notice.

U USA model
C Canadian model
A Australian model
L Singapore model
R General model

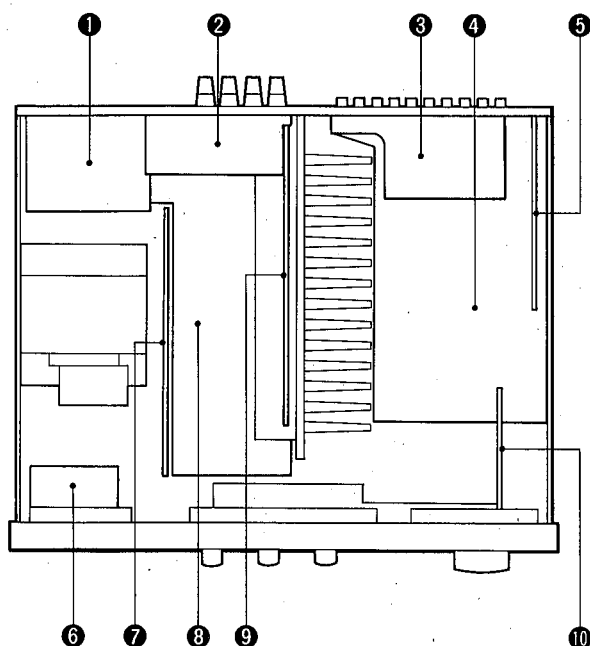
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● DIMENSIONS



Units : mm (inch)

■ INTERNAL VIEW



- ① P. C. B. MAIN (6)
- ② P. C. B. MAIN (5)
- ③ P. C. B. DSP (3)
- ④ P. C. B. DSP (1)
- ⑤ P. C. B. TUNER
- ⑥ P. C. B. MAIN (3)
- ⑦ P. C. B. MAIN (2)
- ⑧ P. C. B. MAIN (1)
- ⑨ P. C. B. MAIN (4)
- ⑩ P. C. B. DSP (2)

■ 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 Bottom Cover

- a. Remove 6 screws (③) in Fig. 1.

3. Removal of Front Panel

- a. Remove 4 knobs.
b. Remove 6 screws (④) in Fig. 1.

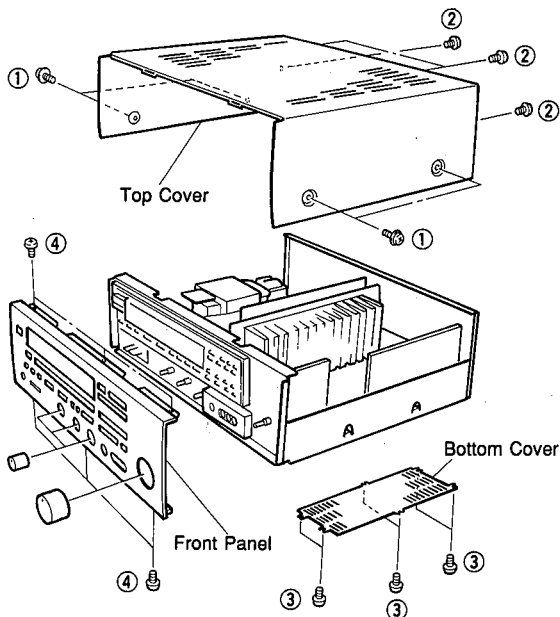


Fig. 1

4. Checking and Parts Replacement of MAIN Unit.

- a. Disconnect the power cord from the AC outlet.
b. Remove 8 screws (⑤) in Fig. 2.
c. Remove 4 screws (⑥) fixing the Main Unit in Fig. 3.
d. Detach 1 connector terminal (CB505) in Fig. 3.
e. Operating checks can be taken by shorting between following test points in Fig. 3.

Short Point
J537↔J741
J533↔J599
J600↔J606

- f. Place the Main Unit on its side as shown in Fig. 4.
g. Connect the power cord and turn ON the POWER switch.

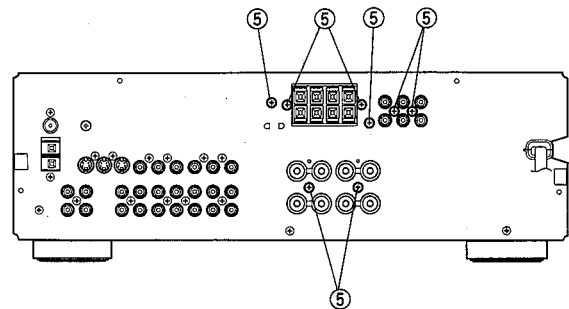


Fig. 2

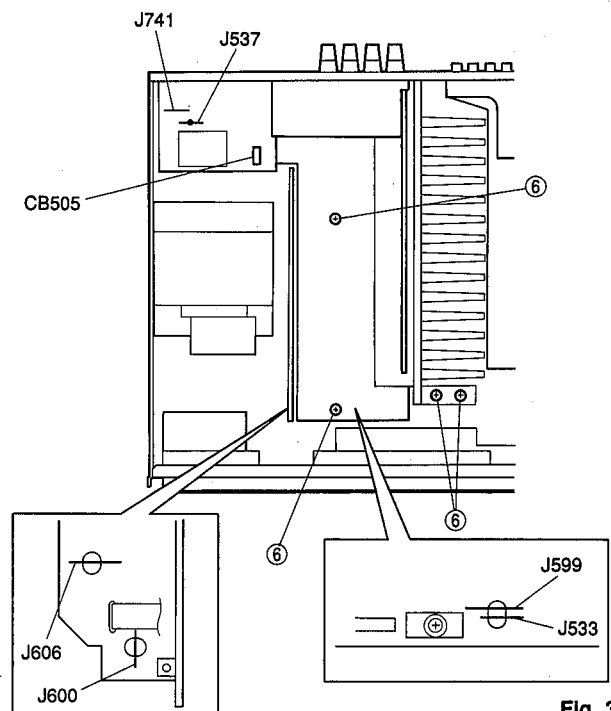


Fig. 3

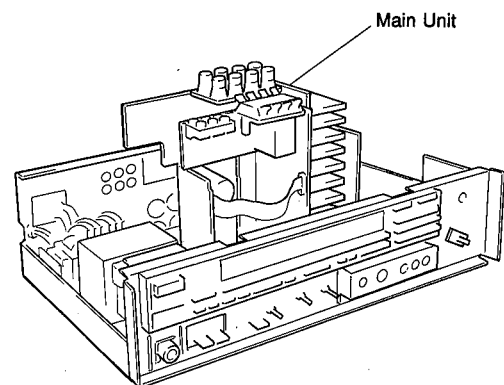


Fig. 4

■ DIAGNOSTIC MODE

PURPOSE OF DIAGNOSTIC MODE

- If the protection circuit operates to turn OFF the POWER when the POWER is turned ON, the cause can be found out by starting the DIAGNOSTIC mode. (Protection message)
- Some items of the DIAGNOSTIC menu facilitate operation check, inspection and measurement.

HOW TO START DIAGNOSTIC (DIAG.)

Turn on the POWER key while pressing **PRO LOGIC** and **70mm MOVIE THEATER** keys simultaneously, and then the DIAG. mode is started.

HOW TO CANCEL DIAG.

Turning off the POWER key of the front panel or remote control transmitter will restore the normal operation and DIAG. will be canceled.

* To keep the setting stored in the memory, be sure to check that DIAG. No. 7 is set to "KEEP DATA" before canceling DIAG. DIAG. No.7 is set to "KEEP DATA" when starting DIAG.

CONTENTS OF DIAG. OPERATIONS

- DIAG. MENU can be selected by pressing PRESET STATIONS key of the front panel or PROGRAM key of the remote control transmitter.
- Each DIAG. MENU has some SUB-MENU. Every time the same key, PRESET STATIONS key of the front panel or PROGRAM key of the remote control transmitter is pressed, another SUB-MENU is selected.
- While the diagnostic mode is set, function of power on/off, selecting an input source, adjusting master volume & effect level are available.
- The contents of each DIAG. MENU are as follows.

No.	DIAG. Menu	Sub Menu
1	MAIN BYPASS	EFFECT LEVEL 60 (-10dB)/80 (0dB)
2	FRONT RAM THR	EFFECT LEVEL 60 (-10dB)/80 (0dB)
3	MAIN DSP THR	EFFECT LEVEL 100 (+10dB)/60 (-10dB)/80 (0dB)
4	EFFECT OFF/DISP	EFFECT OFF/DISPLAY CHECK
5	MANUAL TEST	TEST : LEFT/CENTER/RIGHT/SUR
6	PRO LOGIC	CENTER NORMAL/CENTER WIDE/CENTER PHANTOM/BYPASS/CINE EQ. ON
7	FACTORY PRESET	KEEP DATA/FACTORY PRESET
8	AD CHECK MODE	KEY AD & OTHER AD CHECK

Note : CINE EQ ON appears but such function is not provided.

DISPLAY

When the DIAGNOSTIC mode is set, the initial display appears on the FL display followed by the DIAGNOSTIC display (No.1).

The initial display can be redisplayed by pressing the A/B/C/D/E key (but not when performing AD check by using DIAG. No.8).

● Components of initial display (Example)

3	DC	00	RXV690R **
Protection Message	AD value	Model & Market	ROM version

[Protection message]

When the protection function is at work, the protection message is displayed and the power is turned off.

Instantly → "1 I"

After about 0.5 seconds → "2 PS"

After about 2 seconds → "3 DC"

Correct the faulty part according to the protection message.

Protection message	Cause
1 I	An abnormal current flowed to the power amplifier.
2 PS	Abnormal condition occurred in the power section.
3 DC	DC is detected in the output of the power amplifier.

[AD value to Model & Market relation]

AD value (±3)	Model & Market	Remarks
00	RXV690 R **	R : General model
30	RXV690 U **	UC : USA & Canadian models
30	RXV690 A **	A : Australian model
60	RXV690 L **	L : Singapore model

● Components of DIAGNOSTIC display

1	CD	MAIN BYP 60
DIAG. menu No.	Input source	Operation display

*Supplement

When in the DIAG. mode, lighting of all segments of the turning meter for catalogue photographing can be reserved by using the EFFECT key. (Do not use this function as it is not intended for servicing.)

With such reservation made, all segments of the tuning meter light when the tuner function is selected in the normal mode. (This reservation is effective once only at the next POWER ON. After that, normal meter operation is provided.)

Content	FL display
Reservation of full scale	T-METER ON
Reservation of normal	T-METER OFF

HOW TO USE DIAG. MODE

In order to confirm characteristics (specifications) listed in the table below, use DIAG. No. 1, 3 and 4. (For specifications, refer to page 3.)

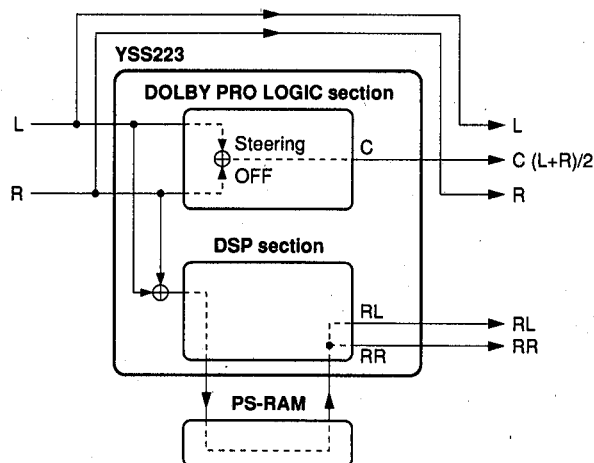
No.	Items
1	- Output Level/Impedance - Frequency Response - S/N
3	- Minimum RMS Output Power Per Channel (Center & Rear) - Total Harmonic Distortion (Center & Rear)
4	- Minimum RMS Output Power Per Channel (Front) - Dynamic Power - Power Bandwidth - Damping Factor - Input Sensitivity/Impedance - Headphone Jack Rated Output/Impedance - Channel Separation - Total Harmonic Distortion (Rec Out & Front) - Tone Control Characteristics

CONTENTS OF DIAGNOSIS

DIAG 1 MAIN BYPASS

- MAIN L/R is output through the bypass.
- CENTER is output with the steering off and at $(L + R)/2$.
- RL/RR is output by way of PS-RAM at DSP through.
- Electric volume of both the CENTER & REAR is changeable by changing the SUB-MENU.

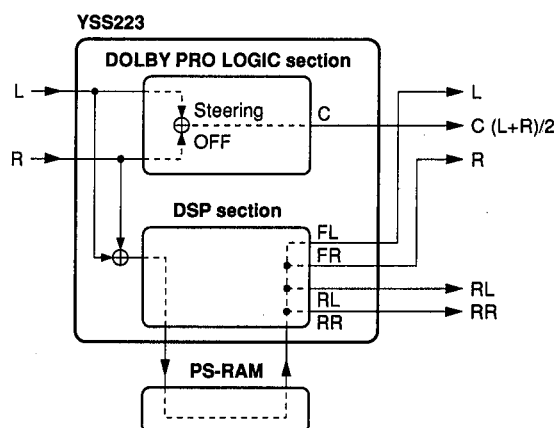
Sub-menu	FL display
Center & Rear E. Volume -10dB	1 (Input source) MAIN BYP 60
Center & Rear E. Volume 0dB	1 (Input source) MAIN BYP 80



DIAG 2 FRONT RAM THR

- CENTER is output with the steering off and at $(L + R)/2$.
- RL/RR is output by way of PS-RAM at DSP through.
- FL/FR is output by way of PS-RAM to MAIN L/R at DSP through.
- Electric volume of both the CENTER & REAR is changeable by changing the SUB-MENU.

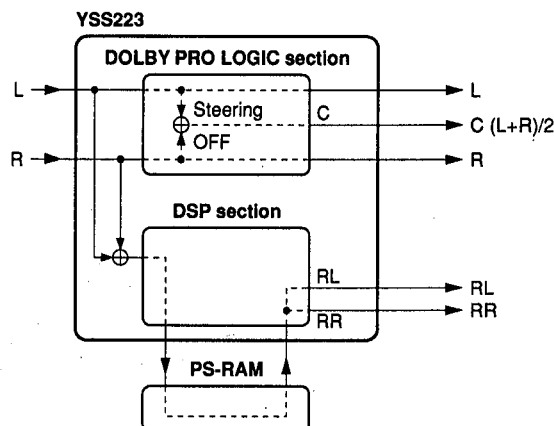
Sub-menu	FL display
Center & Rear E. Volume -10dB	2 (Input source) FRNT THR 60
Center & Rear E. Volume 0dB	2 (Input source) FRNT THR 80



DIAG 3 MAIN DSP THROUGH

- MAIN L/R is output through the PRO LOGIC.
- CENTER is output with the steering off and at $(L + R)/2$.
- RL/RR is output by way of PS-RAM at DSP through.
- Electric volume of both the CENTER & REAR is changeable by changing the SUB-MENU.

Sub-menu	FL display
Center & Rear E. Volume +10dB	3 (Input source) MAIN DSP100
Center & Rear E. Volume -10dB	3 (Input source) MAIN DSP60
Center & Rear E. Volume 0dB	3 (Input source) MAIN DSP80



DIAG 4 EFFECT OFF & DISPLAY CHECK

- Always effect off in this menu.
- The full segment of the FL is displayed.

Sub-menu	FL display
EFFECT OFF	4 (Input source) EFFECT OFF
FULL SEGMENT DISPLAY	—FULL SEGMENT DISPLAY—

DIAG 5 MANUAL TEST TONE

- Every time PRESET key No. 5 is pressed, the TEST TONE shifts and is output.
- CENTER MODE is WIDE.
- Electric volume of both the CENTER & REAR is 60 (–10dB).

Sub-menu	FL display
Noise LEFT	5 (Input source) TEST LEFT
Noise CENTER	5 (Input source) TEST CENTER
Noise RIGHT	5 (Input source) TEST RIGHT
Noise SUR	5 (Input source) TEST SUR

DIAG 6 PRO LOGIC

- The auto input balance which is on in the normal mode is turned off (PRO LOGIC).
- Electric volume of both of CENTER and REAR is 60 (–10dB).
- In the SUB-MENU of CINEMA EQ ON, CENTER MODE is WIDE.

Sub-menu	FL display
Center Mode NORMAL	6 (Input source) PRO LOGIC
Center mode WIDE	6 (Input source) PRO LOGIC
Center mode PHANTOM	6 (Input source) PRO LOGIC
EFFECT OFF	6 (Input source) BYPASS
CINEMA EQ ON	6 (Input source) CINE EQ ON

Note : CINE EQ ON appears but such function is not provided.

DIAG 7 FACTORY PRESET

- Reservation of the initializing DATA of the BACK-UP RAM.
- Then with the POWER key turned off after selecting the SUB-MENU, FACTORY PST, all RAM DATA is initialized.

Sub-menu	FL display
Keeping on RAM DATA	7 (Input source) KEEP DATA
Initializing RAM DATA	7 (Input source) FACTORY PST

CAUTION : Before setting to the FACTORY PRESET, write down the existing preset memory content of the Tuner in a table as shown below. (This is because setting to the FACTORY PRESET will cause the memory content to be as factory set, i.e., all the preset memory by the user will be erased.)

Preset group	P1	P2	P3	P4
A				
B				
C				
D				
E				

Preset group	P5	P6	P7	P8
A				
B				
C				
D				
E				

● Factory Preset**1) SURROUND section**

DELAY TIME	: ☒ PRO LOGIC	20ms
	: ENHANCED	20ms
	: MOVIE THEATER	17ms
	: TV THEATER	28ms
	: SPORTS	20ms
	: STADIUM	45ms
	: ROCK CONCERT	22ms
	: JAZZ CLUB	26ms
	: CHURCH	40ms
	: CONCERT HALL	30ms
CENTER MODE	: NORMAL	
EFFECT LEVEL	: CENTER	80
	: REAR	80

2) SELECTOR section

INPUT	: CD
VIDEO (BGV)	: LD/TV

3) TUNER section

Preset group	P1	P2	P3	P4
A / C / E	87.5MHz	90.1MHz	95.1MHz	98.1MHz
B / D	630kHz	1080kHz	1440kHz	530kHz (U, C, R) 531kHz (R, A, L)

Preset group	P5	P6	P7	P8
A / C / E	107.9MHz (U, C, R) 108.0MHz (R, A, L)	88.1MHz	106.1MHz	107.9MHz (U, C, R) 108.0MHz (R, A, L)
B / D	1710kHz (U, C, R) 1611kHz (R, A, L)	900kHz	1350kHz	1400kHz (U, C, R) 1404kHz (R, A, L)

For all the above, AUTO TUNING and AUTO STEREO are selected as the TUNING mode.

DIAG 8 AD DATA CHECK

- In this MENU, it is possible to check the several AD data.
- The AD data is percent unit, about 2.8V equal to 100% only for tuning meter, about 5V equal to 100% for the other.

Sub-menu	FL display					
Normal DIAG. mode	8 (Input source)		AD CHK MODE			
PAGE 1 : KEY AD DATA	P 1 AD check page No.	0 0 CH 0	0 0 CH 1	0 0 CH 2	0 0 CH 3	0 0 CH 4
PAGE 2 : OTHER AD DATA	P 2 AD check page No.	9 9 DATA FIXED 9 9	0 0 TUNING METER	0 7 PROTECTION 1	2 1 PROTECTION 2	0 0 FREQUENCY STEP

- In the PAGE1, it display AD data of keys, in the PAGE2, the other.
- * When in the PAGE1 or PAGE2 sub-menu, it is not possible to operate the menu of DIAG. No. 1~7.

● Table for checking AD DATA.

AD Data % (±3)	Key channel (Page1)					Frequency step (Page2)
	CH0	CH1	CH2	CH3	CH4	
00	PRESET ST. 8	CENTER MODE	PRO LOGIC	70mm MOVIE	AUX	AM/FM = 9/50kHz step
10	PRESET ST. 7	TUNING UP	ENHANCED	TV THEATER	VCR2	—
20	PRESET ST. 6	TUNING DOWN	LEVEL UP	SPORTS	VCR1	—
30	PRESET ST. 5	FM/AM	LEVEL DOWN	STADIUM	LD/TV	—
40	PRESET ST. 4	AUTO/MAN'L	LEVEL REAR	EFFECT	PHONO	—
50	PRESET ST. 3	EDIT	LEVEL CENTER	CONCERT HALL	CD	—
60	PRESET ST. 2	MEMORY	—	CHURCH	TUNER	—
70	PRESET ST. 1	—	DELAY UP	JAZZ CLUB	—	—
80	PRESET PAGE	—	DELAY DOWN	ROCK CONCERT	TAPE MONITOR	—
90	—	—	—	—	—	—
99	KEY OFF STATE					AM/FM = 10/100kHz step

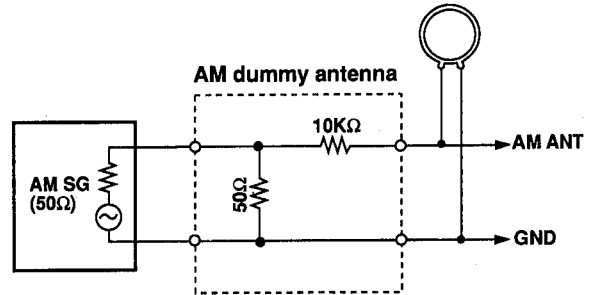
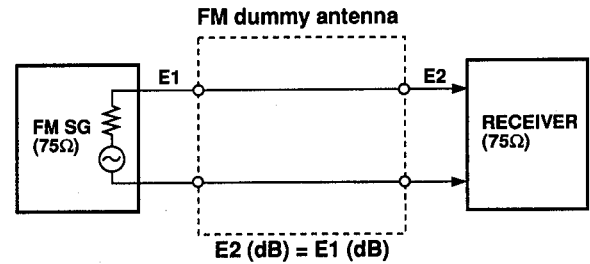
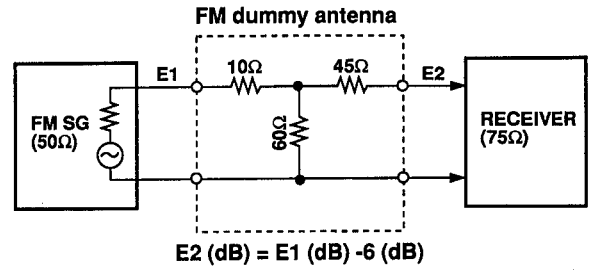
Kind of the protection (Page2)	AD DATA of normal
Protection 1 (DC is detected in power amp)	1~13
Protection 2 (Abnormal condition in power section)	15~29

TUNER ADJUSTMENTS

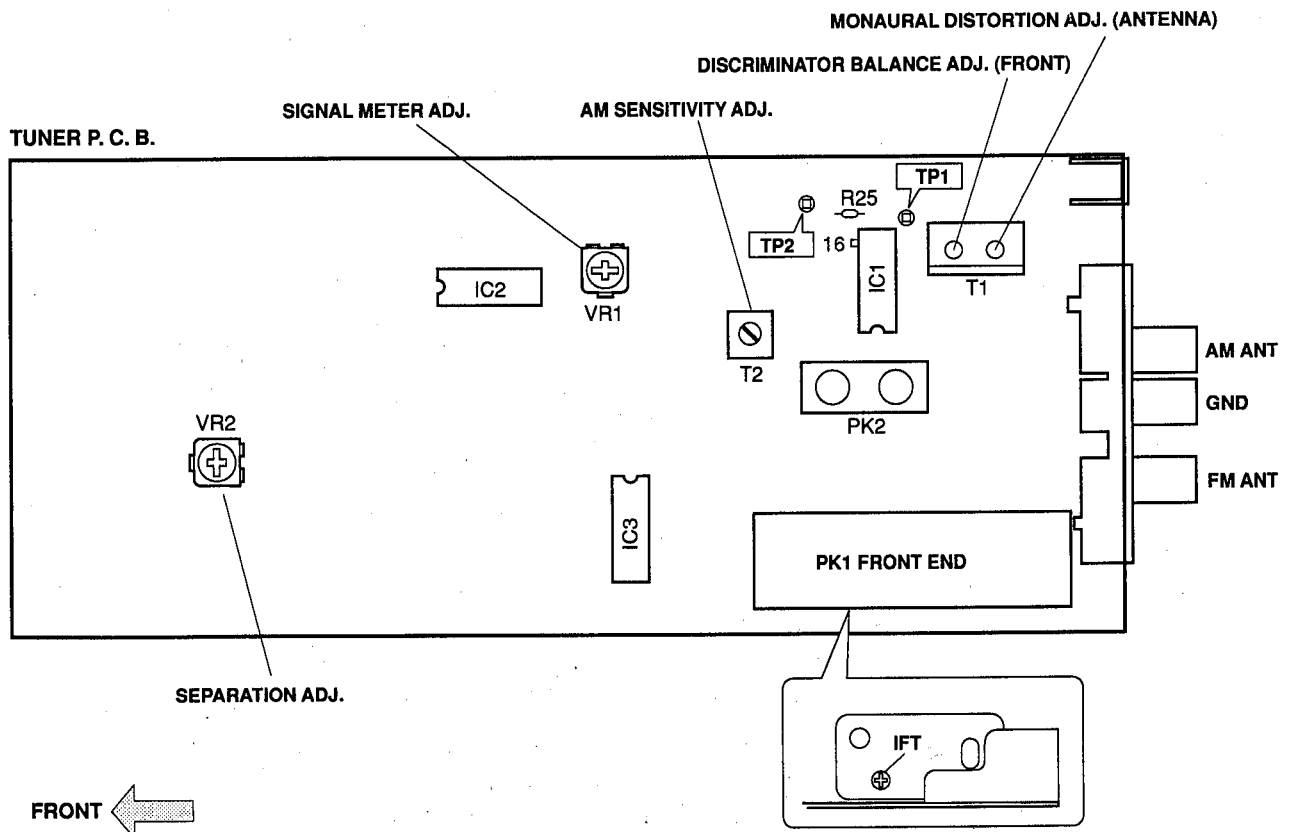
Measuring Instruments

FM signal generator (FM SG)
 Stereo signal generator (SSG)
 AM signal generator (AM SG)
 Distortion meter (DIST. M)
 AC voltmeter (ACVM)
 DC voltmeter (DCVM)
 Oscilloscope
 Low pass filter (YLF-15, $f_c=15\text{kHz}$)
 Oscillator

Dummy antenna



Test point



FM Adjustment

● Before Adjustment

- 1) For dB, $1\mu V = 0dB\mu$ applies.

Example : $60dB\mu = 1mV$

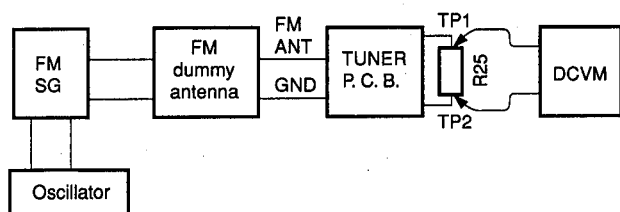
- 2) 100% modulation means that the frequency deviation is 75kHz.

- 3) Install the Matching Transformer and connect FM SG.
4) Set each switch to the following position unless otherwise specified.

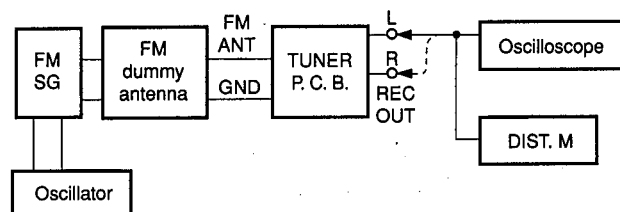
INPUT SELECTOR..... TUNER
TUNING MODE AUTO

● Connection diagram (Measuring instruments)

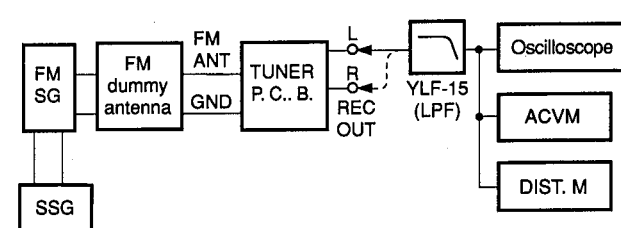
1) Discriminator balance adjustment



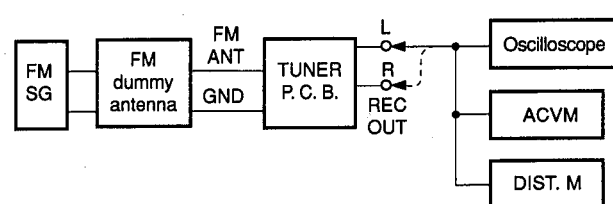
2) Monaural distortion adjustment



3) Stereo distortion adjustment/separation adjustment



4) Sensitivity Verification



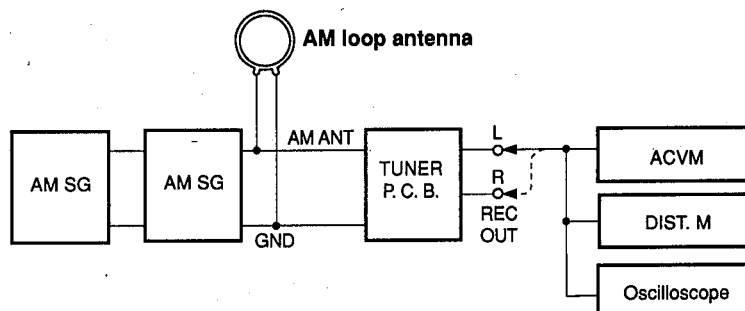
See page 10 for TP locations & adjustment points.

Step	Adjustment item	Signal (ANT IN)	Reception frequency	Adjustment point	Test point	Rating
1	Rough adjustment of discriminator balance	FM ANT (75Ω) 98.1MHz 70dBμ MONO 1kHz 100% modulation	98.1MHz * (A-4)	T1 (Front side core)	Both ends of R25 (Between TP1 and TP2)	DC 0V±100mV
2	Rough adjustment of monaural distortion	Same as Step 1.	98.1MHz * (A-4)	T1 (Antenna side core)	REC OUT L, R	Minimize the distortion.
3	Fine adjustment of discriminator balance	Same as Step 1.	98.1MHz * (A-4)	T1 (Front side core)	Both ends of R25 (Between TP1 and TP2)	DC 0V±50mV
4	Fine adjustment of monaural distortion	Same as Step 1.	98.1MHz * (A-4)	T1 (Antenna side core)	REC OUT L, R	Minimize the distortion (to 0.25% or less).
5	Verification of discriminator balance	Same as Step 1.	98.1MHz * (A-4)	T1 (Front side core)	Both ends of R25 (Between TP1 and TP2)	DC 0V±50mV

* : Execution of FACTORY PRESET (Refer to page 8.) will facilitate setting reception frequency for adjustment.

Step	Adjustment Item	Signal (ANT IN)	Reception frequency	Adjusted point	Test point	Rating
6	Adjustment of front end IFT	FM ANT (75Ω) 98.1MHz 30dBμ MONO 1kHz, 100% modulation	98.1MHz * (A-4)	Front end IFT	Pin 16 of IC1	Adjust so that the DC voltage is maximum. CAUTION : Over-adjustment of the IFT core will reduce the sensitivity. Maximum ±90°
7	Verification of monaural distortion	FM ANT (75Ω) 98.1MHz 70dBμ MONO 1kHz, 100% modulation	98.1MHz * (A-4)		REC OUT L, R	0.4% or less
8	Verification of stereo distortion	FM ANT (75Ω) 98.1MHz 70dBμ Stereo L or R 1kHz, 100% modulation	98.1MHz * (A-4) * Tuning mode should be AUTO.		REC OUT L, R	1% or less • STEREO indicator should light.
9	Verification of sensitivity	FM ANT (75Ω) 88.1MHz 98.1MHz 106.1MHz	88.1MHz * (A-6) 98.1MHz * (A-4) 106.1MHz * (A-7)		ANT (75Ω)	1) Set the tuning mode to MAN'L MONO. 2) S/N should be 30dB at each frequency of 88.1MHz, 98.1MHz, and 106.1MHz. 3) Check to ensure that the voltage at the ANT terminal is 3dBμ (14.25dBf) or less.
10	Adjustment of Separation	FM ANT (75Ω) 98.1MHz 70dBμ Stereo L or R 1kHz, 100% modulation	98.1MHz * (A-4)	VR2	REC OUT L, R	With SSG output at L or R, the signal leakage level at the other channel should be minimized. 36dB or more
11	Adjustment of Signal meter	FM ANT (75Ω) 98.1MHz 45dBμ MONO 1kHz 30% modulation	98.1MHz * (A-4)	VR1		Adjust so that all signal meters light.
		-10dBμ or less				Check to ensure that signal meters turn OFF.
12	Verification of auto tuning	FM ANT (75Ω) 98.1MHz 23dBμ Stereo L or R 1kHz, 30% modulation	98.1MHz			• Automatic reception should be available when the tuning key is moved UP and DOWN. • The stereo indicator should light. • Audio muting should be applied during tuning.

* : Execution of FACTORY PRESET (Refer to page8.) will facilitate setting reception frequency for adjustment.

AM Adjustment (This should be done after FM adjustment.)
● Connection Diagram (Measuring instruments)
1) Adjustment of sensitivity


See page 10 for TP locations & adjustment points.

Step	Adjustment item	Signal (ANT IN)	Reception frequency	Adjustment point	Test point	Rating
1	Adjustment of sensitivity (1440Hz)	AM ANT 1440kHz 50dBμ 1kHz 30% modulation	1440kHz * (B-3)	T2	REC OUT	Audio output should be maximized.
2	Verification of sensitivity (630kHz)	AM ANT 630kHz 50dBμ 1kHz 30% modulation	630kHz * (B-1)	T2	REC OUT	Audio output should be maximized. Repeat the Step 1 and 2.
3	Verification of sensitivity	AM ANT 630kHz 1080kHz 1440kHz 30% modulation	630kHz * (B-1) 1080kHz * (B-2) 1440kHz * (B-3)		AM ANT	Distortion should be 10% or less at each frequency. Check to ensure that the voltage at the ANT terminal is 54dBμ or less.
4	Verification of auto tuning	AM ANT 60dBμ				Auto reception should be available when the tuning key is moved UP and DOWN.

* : Execution of FACTORY PRESET (Refer to page 8.) will facilitate setting reception frequency for adjustment.

■ AMP ADJUSTMENTS

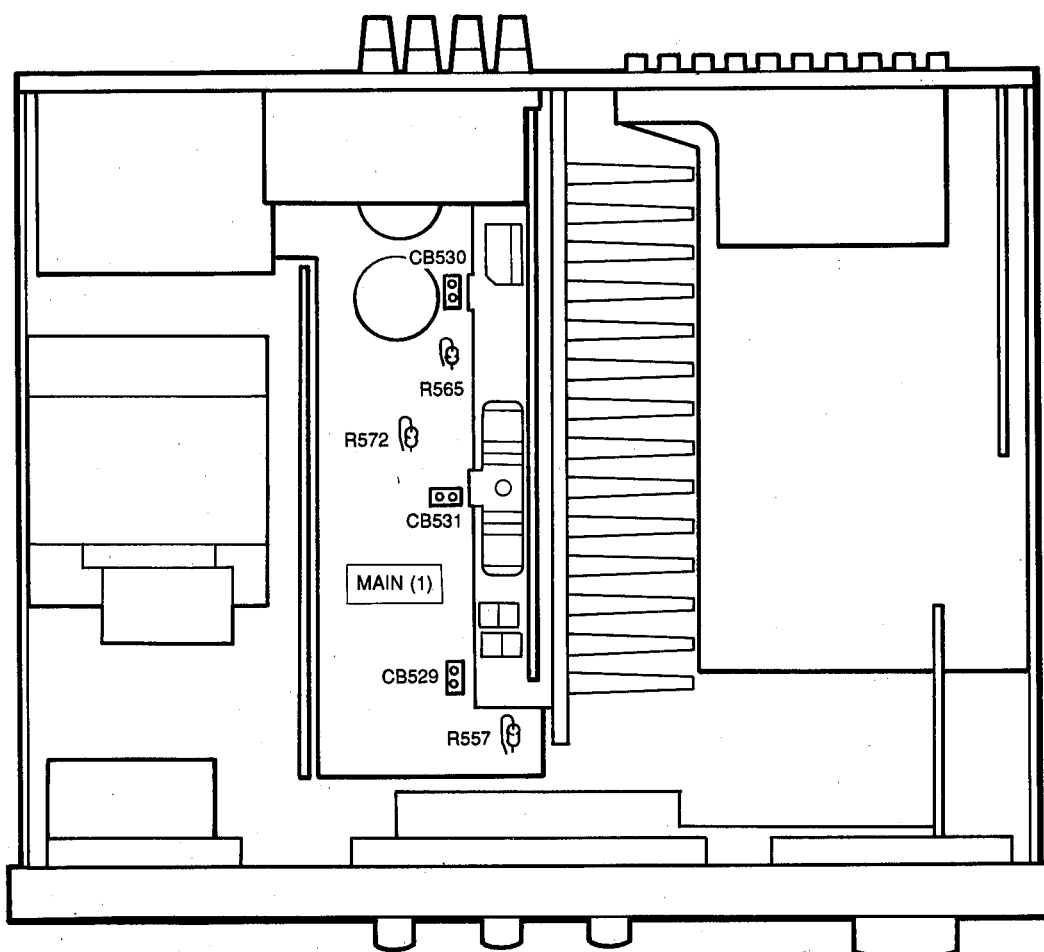
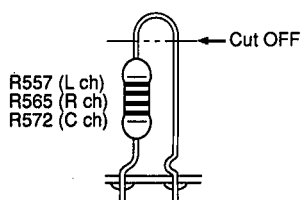
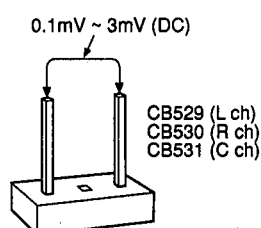
● Confirmation of Idling Current

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

Item	Test Point	Rating (DC)	Note
FRONT L	CB529	0.3mV~3mV	If the measured voltage exceeds 3.1mV, cut the lead wires of R557(L ch), R565(R ch) and R572(C ch) and then check again if each measured value satisfies the rating.
FRONT R	CB530		
CENTER	CB531		

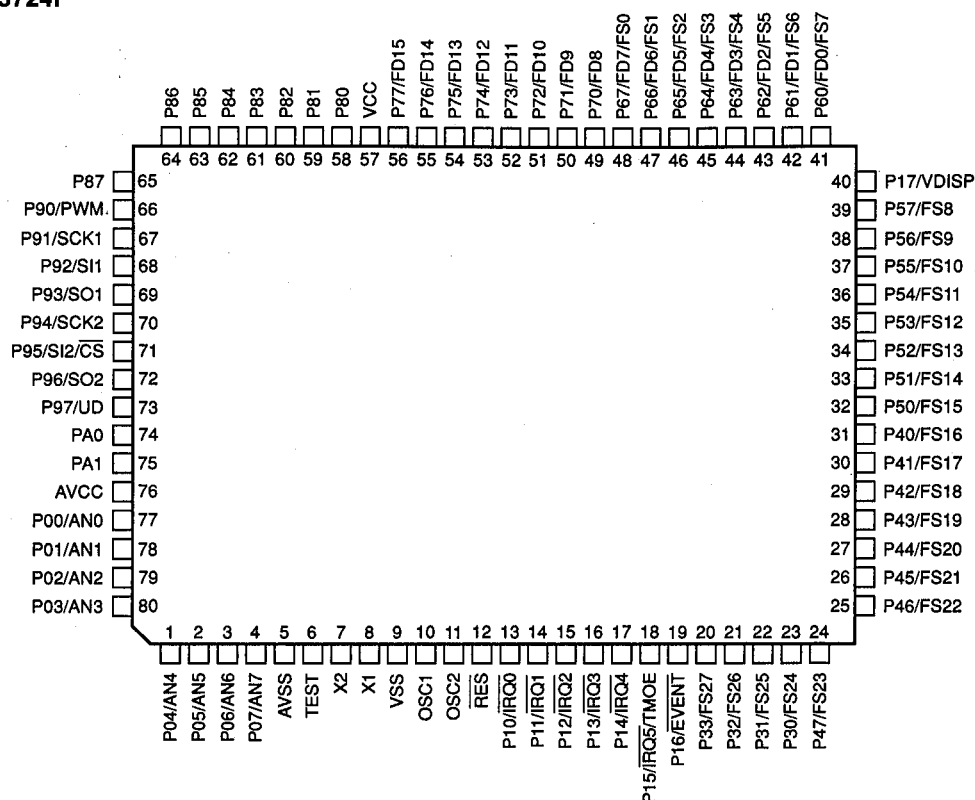
Note)

- If R557(L ch), R565(R ch) and R572(C ch) have already been cut off and idling current does not flow, reconnect R557(L ch), R565(R ch) and R572(C ch).
- Q514, Q516 and Q518 are transistors for temperature correction. Apply silicone grease to contact surface with the heat sink.



■ IC DATA

IC801 : HD6473724F

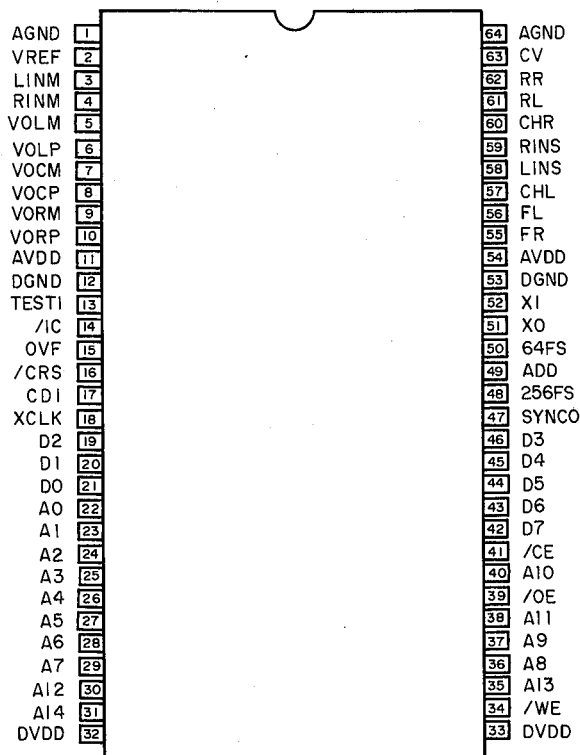
8 bit μ -COM

No.	Port	Name	I/O	Function
1	P04/AN4	V1	I	Market Select (A-D)
2	P05	STOUT	I	Stop request (Tuner)
3	P06	/STSIG	I	Signal in (Tuner)
4	P07	/ST	I	Stereo in (Tuner)
5	AVSS	AVSS	—	GND for A-D
6	TEST			GND
7	X2			N. C.
8	X1			+5V
9	VSS	VSS	—	GND
10	OSC1	OC1		] Clock (8MHz)
11	OSC2	OC2		
12	/RES	RES	I	Reset
13	P10/IRQ0	DET	I	Power down detect
14	P11/IRQ1	REM	I	Remote control
15	P12/IRQ2	RM2		N.C.
16	P13/IRQ3	VSY		Not used
17	P14	/PRI	I	Speaker protection detect
18	P15			N. C.
19	P16	PSW	I	Power Switch
20	P33/FS27	STBY	I/O	*Standby In : H (G model) L : LED ON
21	P32/FS26			N. C.
22	P31/FS25	P18	O	] Fluorescent character display tube anode drive signal
23	P30/FS24	P17	O	
24	P47/FS23	P16	O	
25	P46/FS22	P15	O	
26	P45/FS21	P14	O	
27	P44/FS20	P13	O	

No.	Port	Name	I/O	Function
28	P43/FS19	P12	O	Fluorescent character display tube anode drive signal
29	P42/FS18	P11	O	
30	P41/FS17	P10	O	
31	P40/FS16	P9	O	
32	P50/FS15	P8	O	
33	P51/FS14	P7	O	
34	P52/FS13	P6	O	
35	P53/FS12	P5	O	
36	P54/FS11	P4	O	
37	P55/FS10	P3	O	
38	P56/FS9	P2	O	
39	P57/FS8	P1	O	
40	P17/VDISP	VP		VP (-25V)
41	P60/FD0	16G	O	Fluorescent character display tube grid drive signal
42	P61/FD1	15G	O	
43	P62/FD2	14G	O	
44	P63/FD3	13G	O	
45	P64/FD4	12G	O	
46	P65/FD5	11G	O	
47	P66/FD6	10G	O	
48	P67/FD7	9G	O	
49	P70/FD8	8G	O	
50	P71/FD9	7G	O	
51	P72/FD10	6G	O	
52	P73/FD11	5G	O	
53	P74/FD12	4G	O	
54	P75/FD13	3G	O	
55	P76/FD14	2G	O	
56	P77/FD15	1G	O	
57	VCC	VCC		+5V
58	P80	ASA	O	A-D select (4051)
59	P81	ASB	O	
60	P82	ASC	O	
61	P83	SPR	O	Speaker relay
62	P84	SPA		N. C.
63	P85	SPB		
64	P86	PRY	O	Power relay
65	P87	FMC	O	Full MUTE
66	P90			N. C.
67	P91/SCK1	SCK	O	LC78213, TC9273N, LC7535, LM7000N Serial clock
68	P92	CKB	O	BU2090 Serial clock
69	P93/SO1	SDT	O	LC78213, TC9273N, LC7535, LM7000N Serial data
70	P94/SCK2	XCK	O	YSS223 Serial clock
71	P95	DTB	O	BU2090 Serial data
72	P96/SO2	XDT	O	YSS223 Serial data
73	P97			N.C.
74	PA0	VUP	O	Volume up
75	PA1	VDN	O	Volume down
76	AVCC	AVCC		+5V for A-D
77	P00/AN0	4051	I	Key & Signal meter in (A-D)
78	P01/AN1	PRD	I	Protection 1 (A-D)
79	P02/AN2	PRV	I	Protection 2 (A-D)
80	P03/AN3	V2	I	Frequency step select (A-D)

IC7 : YSS223

Digital Dolby Pro Logic Decoder with Auto Input Balance



No.	Name	I/O	Function
1	AGND	A—	Ground (Analog section)
2	VREF	AI	Multiplying DAC reference voltage input
3	LINM	AI	L channel Multiplying DAC input
4	RINM	AI	R channel Multiplying DAC input
5	VOLM	AO	L channel operation amplifier, connected to (–) terminal
6	VOLP	AO	L channel operation amplifier, connected to (+) terminal
7	VOCM	AO	C channel operation amplifier, connected to (–) terminal
8	VOCP	AO	C channel operation amplifier, connected to (+) terminal
9	VORM	AO	R channel operation amplifier, connected to (–) terminal
10	VORP	AO	R channel operation amplifier, connected to (+) terminal
11	AVDD	A—	+5V power supply (Analog section)
12	DGND	—	Ground (digital section)
13	TESTI	Ic	LSI test terminal Normally connected to DGND
14	/IC	Ics	Initial clear terminal (Power ON resetting is necessary)
15	OVF	O	A/D Converter, Overflow detect terminal
16	CRS	I _{ts}	Microprocessor interface reset terminal
17	CDI	I _{ts}	Microprocessor interface data input terminal
18	XCLK	I _{ts}	Microprocessor interface clock input terminal
19	D2	I/O _t	External delay RAM data terminal
20	D1	I/O _t	
21	D0	I/O _t	

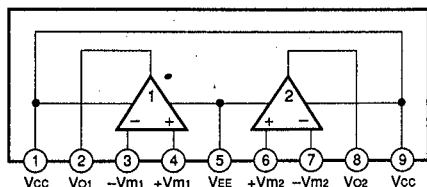
No.	Name	I/O	Function
22	A0	O	External data RAM address terminal
23	A1	O	
24	A2	O	
25	A3	O	
26	A4	O	
27	A5	O	
28	A6	O	
29	A7	O	
30	A12	O	
31	A14	O	
32	DVDD	—	+5V power supply (digital section)
33	DVDD	—	
34	/WE	O	External delay RAM write enable terminal
35	A13	O	External delay RAM address terminal
36	A8	O	
37	A9	O	
38	A11	O	
39	/OE	O	External delay RAM output enable terminal
40	A10	O	External delay RAM address terminal
41	/CE	O	External delay RAM chip enable terminal
42	D7	I/Ot	External delay RAM data terminal
43	D6	I/Ot	
44	D5	I/Ot	
45	D4	I/Ot	
46	D3	I/Ot	
47	SYNCO	O	External A/D converter word clock terminal
48	256FS	O	External A/D converter 256fs clock terminal
49	ADD	It	External A/D converter data input terminal
50	64FS	O	External A/D converter 64fs clock terminal
51	XO	O	Crystal oscillator connecting terminal
52	XI	I	
53	DGND	—	Ground (digital section)
54	AVDD	A—	+5V power supply (Analog section)
55	FR	AO	FR channel D/A input
56	FL	AO	FL channel D/A output
57	CHL	A—	LINS input Sample/hold Capacitor external terminal
58	LINS	AI	L channel A/D input
59	RINS	AI	R channel A/D input
60	CHR	A—	RINS input Sample/hold Capacitor external terminal
61	RL	AO	RL channel D/A output
62	RR	AO	RR channel D/A input
63	CV	AO	A/D, multiplying DAC center voltage
64	AGND	A—	Ground (Analog section)

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

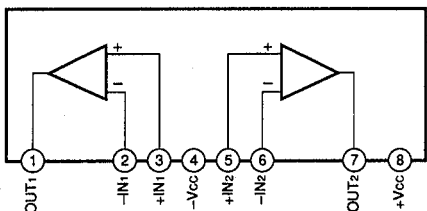
I : Input terminal O : Output terminal t : TTL level C : CMOS level S : Schmitt input A : Analog

IC BLOCKS

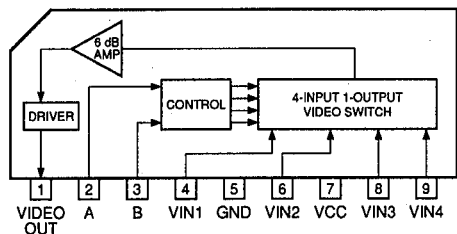
IC1, 4~6, 10~14, 16, 18, 19, 22~25 : μ PC4570HA
 IC301, 302 : μ PC4570HA
 Dual OP-Amp



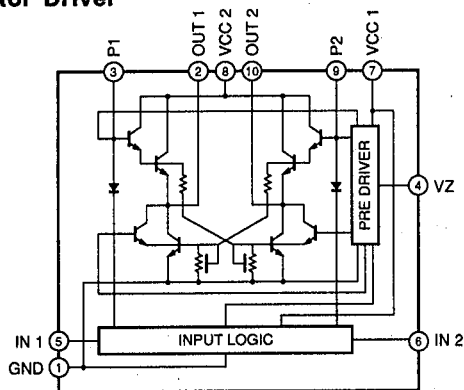
IC15, 17 : NJM4558L
 IC501 : M5220L
 Dual OP-Amp



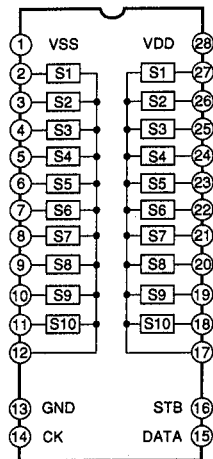
IC29, 31, 32 : LA7956
 Video Switch



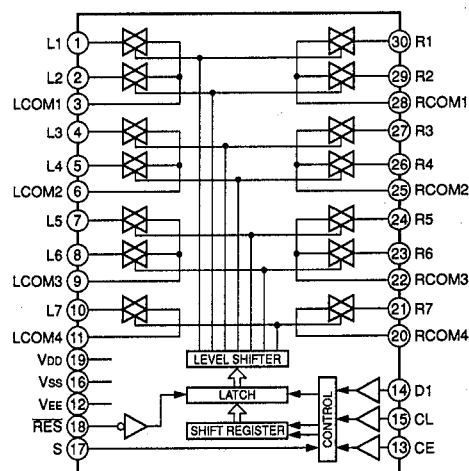
IC28 : LB1641
 Motor Driver



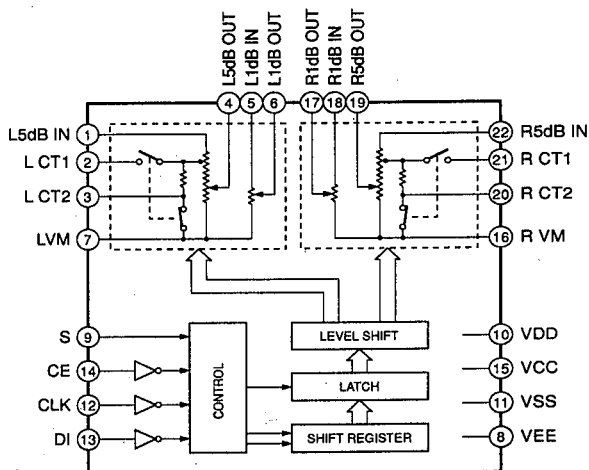
IC2 : TC9273N
 Analog Function Switch

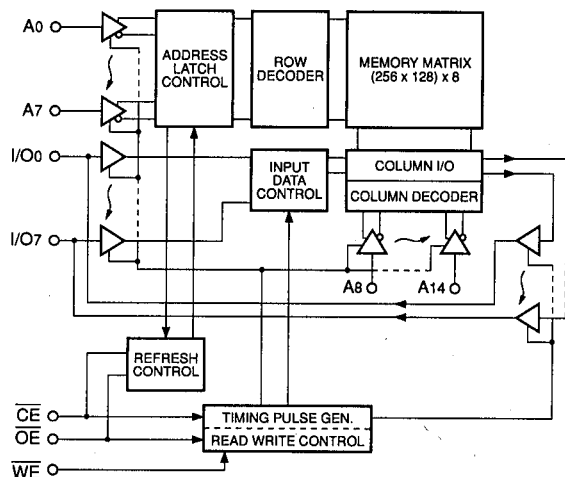
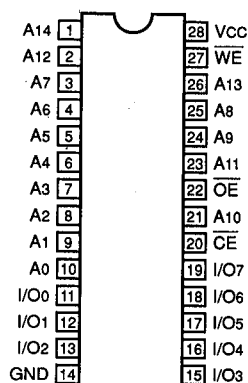
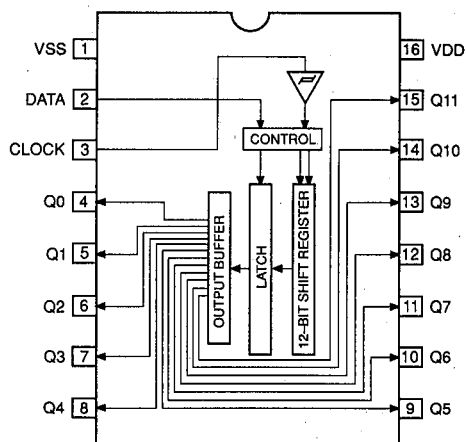
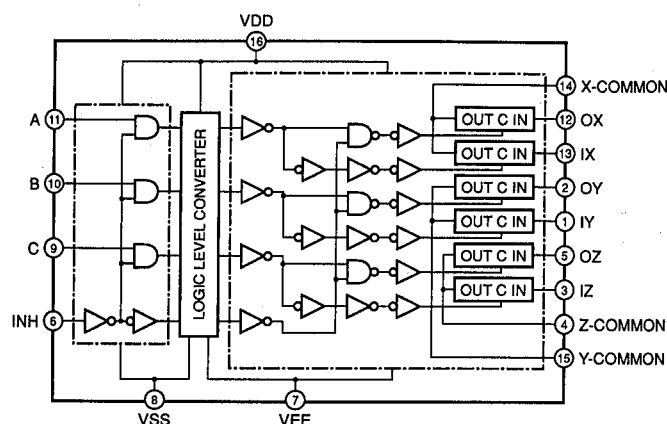


IC3 : LC78213
 Analog Function Switch



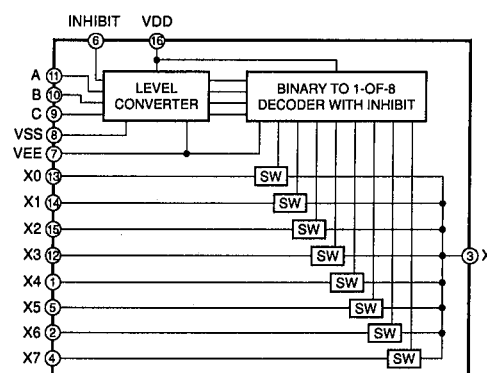
IC26, 27 : LC7535
 Electric Controlled Volume



IC8 : TC51832ASPL-10**32768-word x 8 bit High Speed Pseudo Static RAM****IC20 : BU2090****Serial In/Parallel Out Driver****IC30 : TC4053BP****Triple 2-Channel Multiplexer/Demultiplexer**

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

* Don't Care

IC802 : TC74HC4051AP**Analog Multiplexers/Demultiplexers**

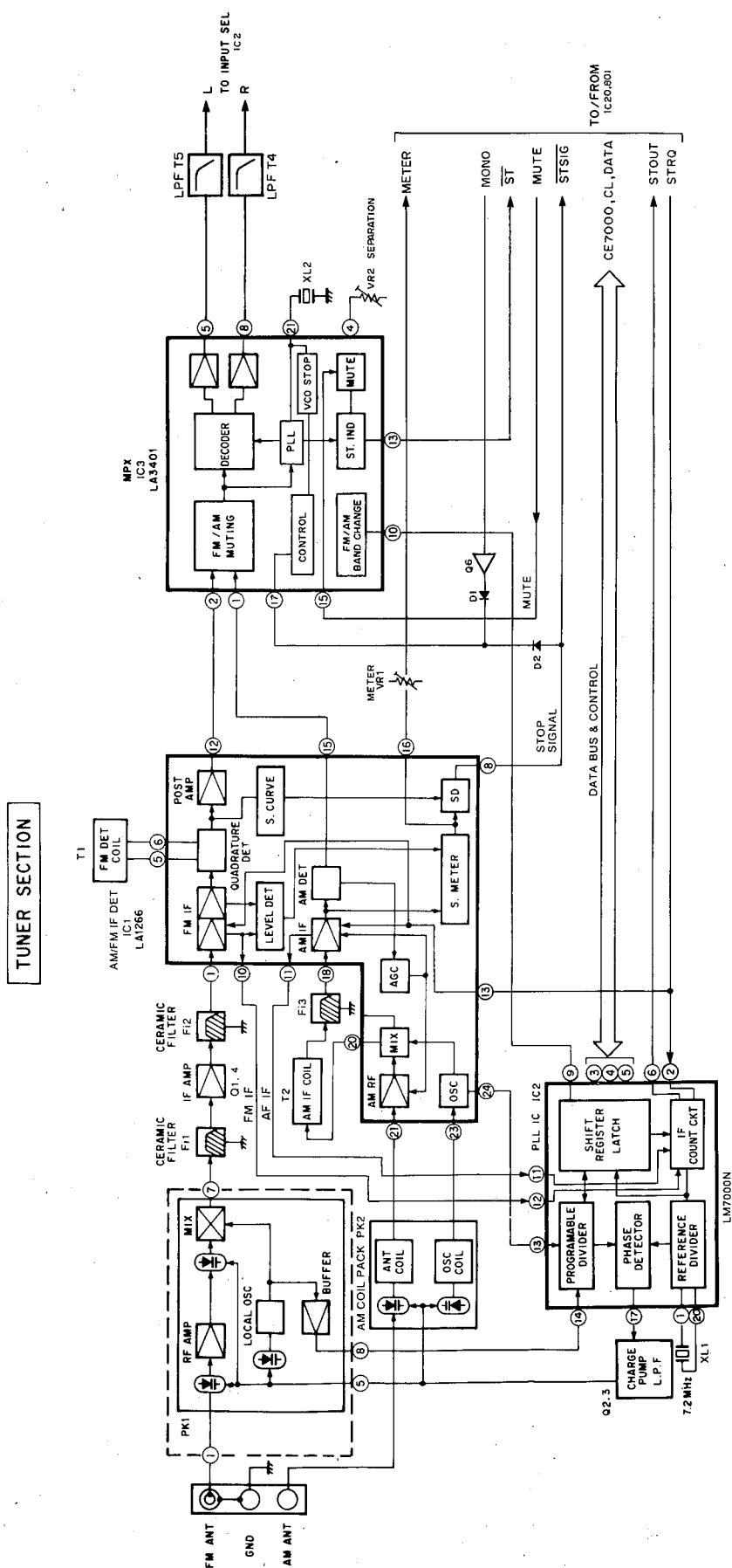
INPUT STATES				"ON" CHANNEL (S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

Other ICs

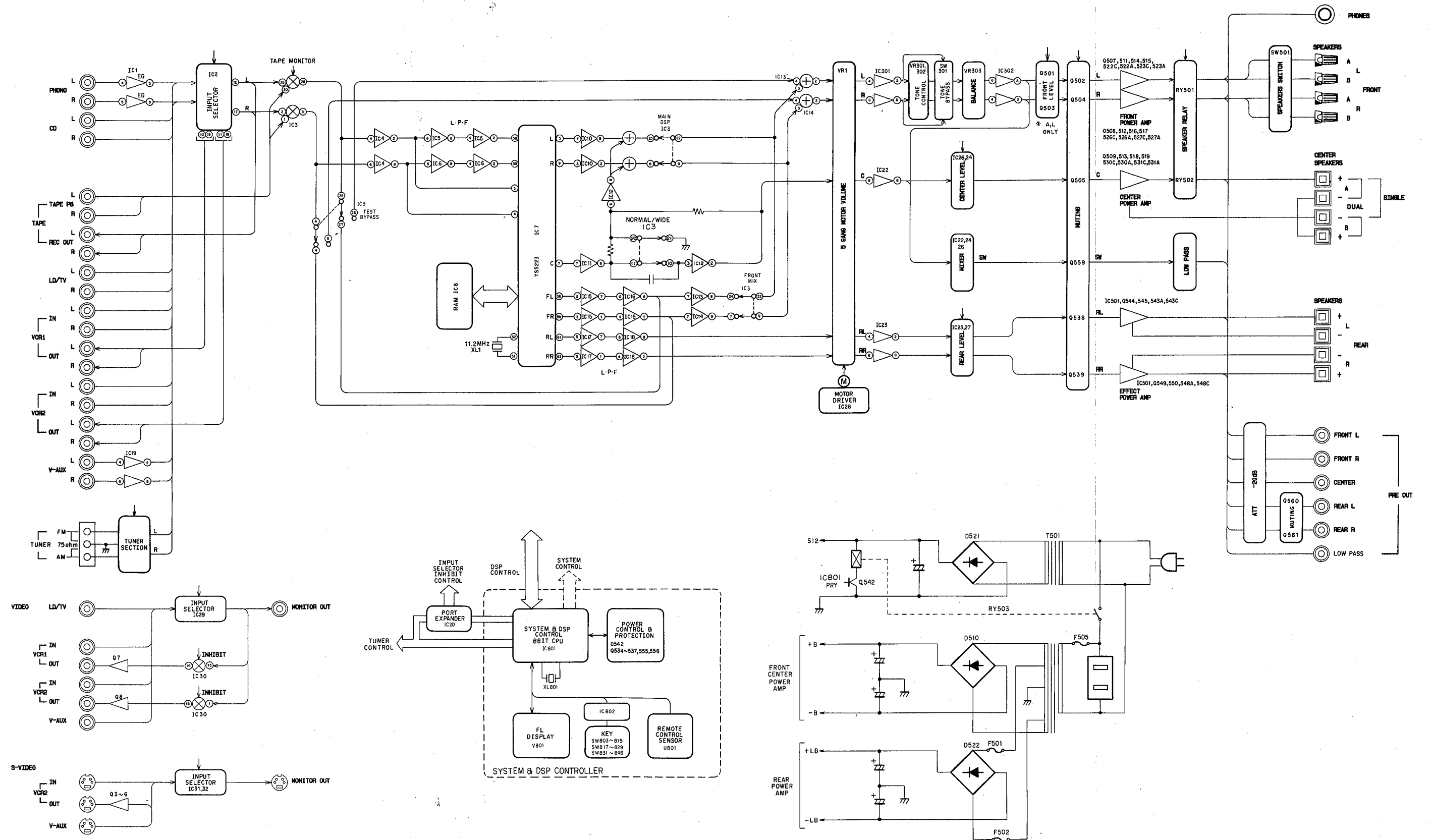
● IC801 : HD6473724F→See page 15

● IC7 : YSS223→See page 17

■ BLOCK DIAGRAM



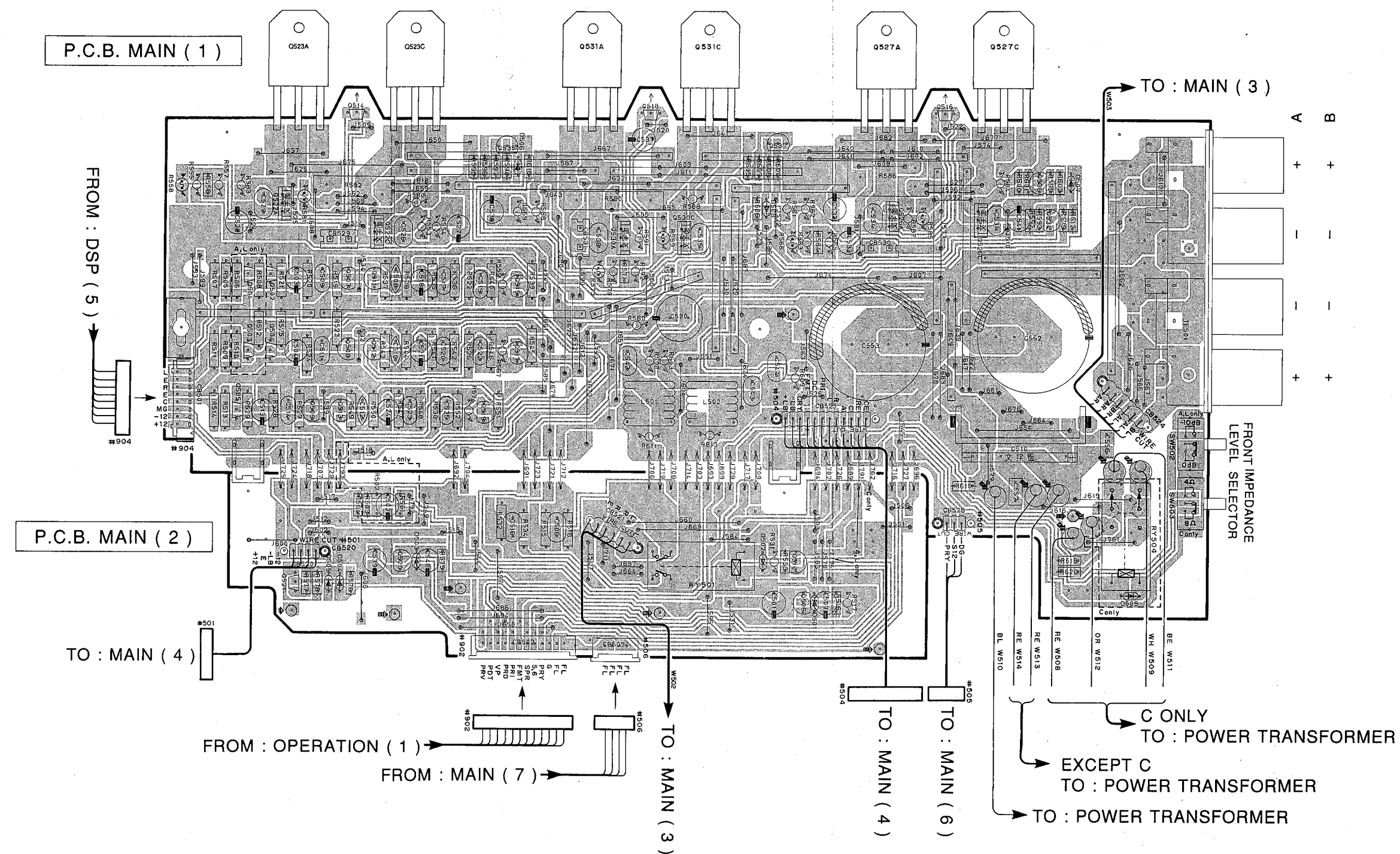
■ BLOCK DIAGRAM



PRINTED CIRCUIT BOARD (Foil side)

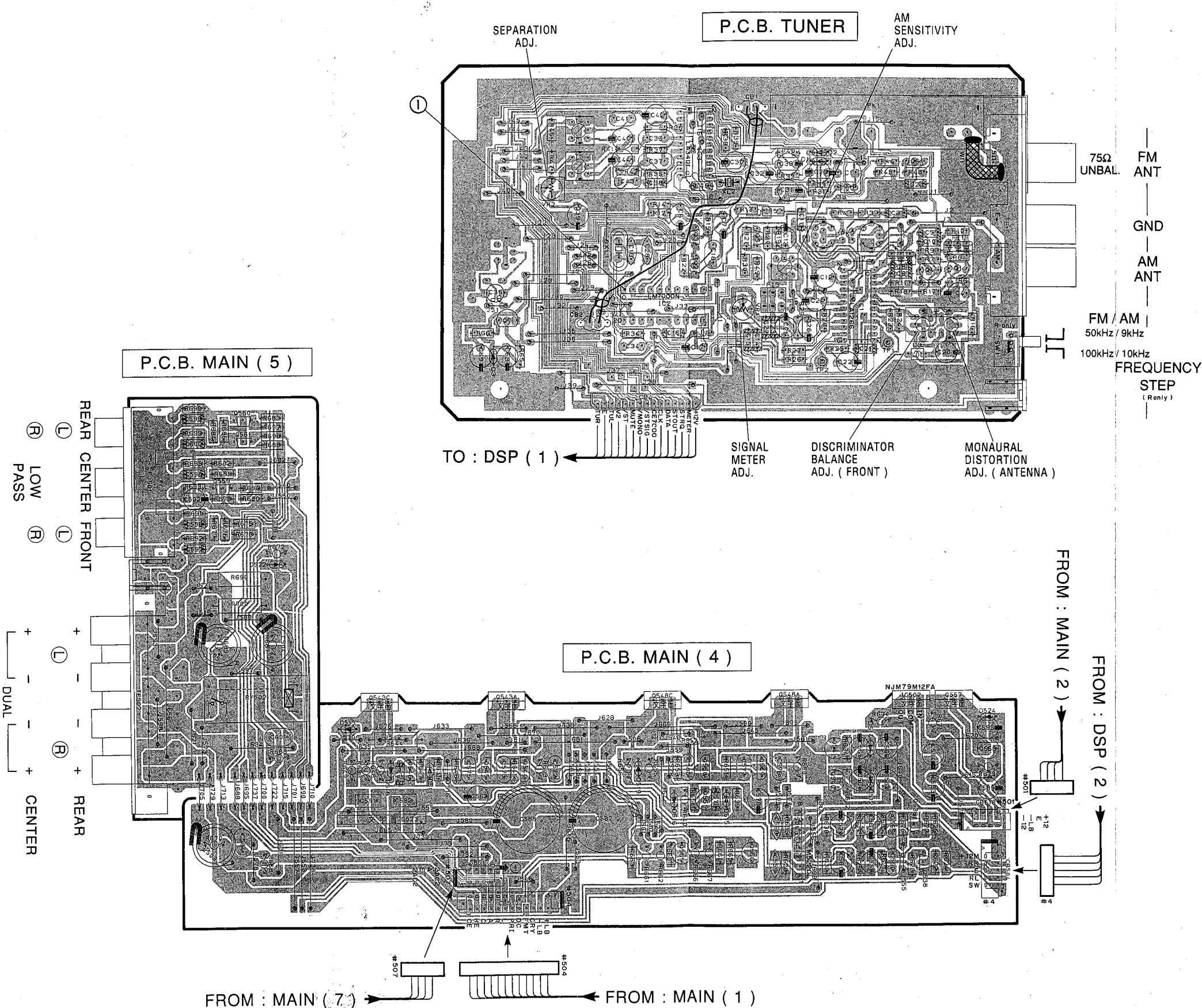
Semiconductor Location

Ref. No.	Location
Q501	B3
Q502	B3
Q503	B3
Q504	B3
Q505	B3
Q506	D4
Q507	B3
Q508	B3
Q509	B3
Q510	D4
Q511	B3
Q512	B3
Q513	B3
Q514	B2
Q515	C3
Q516	E2
Q517	C3
Q518	D2
Q519	C3
Q520	C4
Q521	B4
Q522A	B2
Q522C	B2
Q523A	B2
Q523C	C2
Q526A	E2
Q526C	E2
Q527A	E2
Q527C	E2
Q530A	D2
Q530C	D2
Q531A	C2
Q531C	D2
Q534	E2
Q535	C2
Q536	E2
Q537	D2



PRINTED CIRCUIT BOARD (Foil side)

① : TEST POINT WAVEFORMS (See page 35)

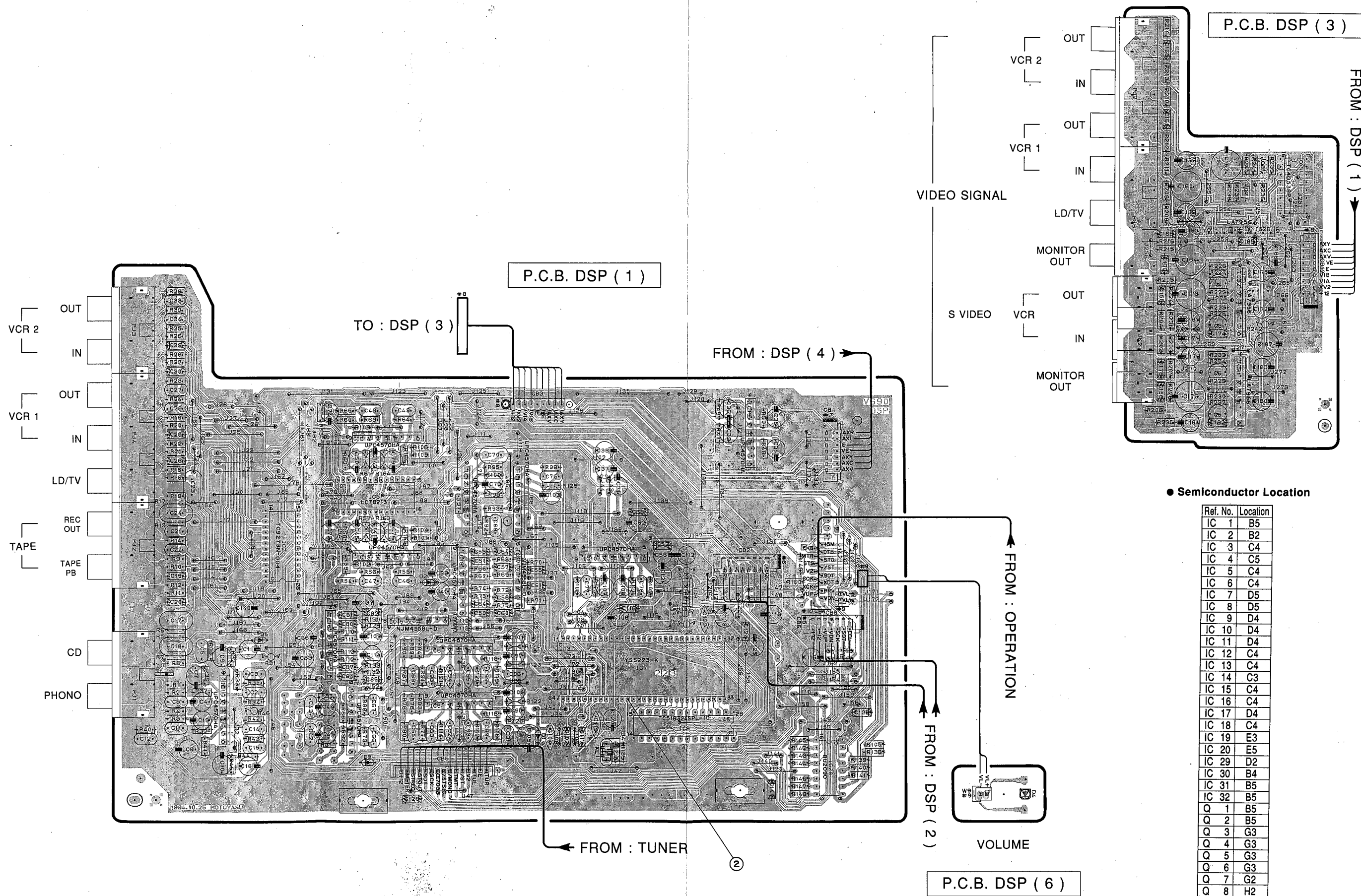


● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
IC 501	E5	IC 1	E2
IC 502	E4	IC 2	D2
Q538	E5	IC 3	D2
Q539	E5	Q 1	E2
Q540	E5	Q 2	D2
Q541	E5	Q 3	D2
Q543A	C4	Q 4	E2
Q543C	C4	Q 5	E2
Q544	C5	Q 6	E2
Q545	C5	Q 7	C3
Q546	C5		
Q548A	E4		
Q548C	D4		
Q549	E5		
Q550	D5		
Q551	D5		
Q555	D5		
Q556	D5		
Q557	E4		
Q558	F5		
Q559	B3		
Q560	B3		
Q561	B3		

■ PRINTED CIRCUIT BOARD (Foil side)

② : TEST POINT WAVEFORMS (See page 35)



● Semiconductor Location

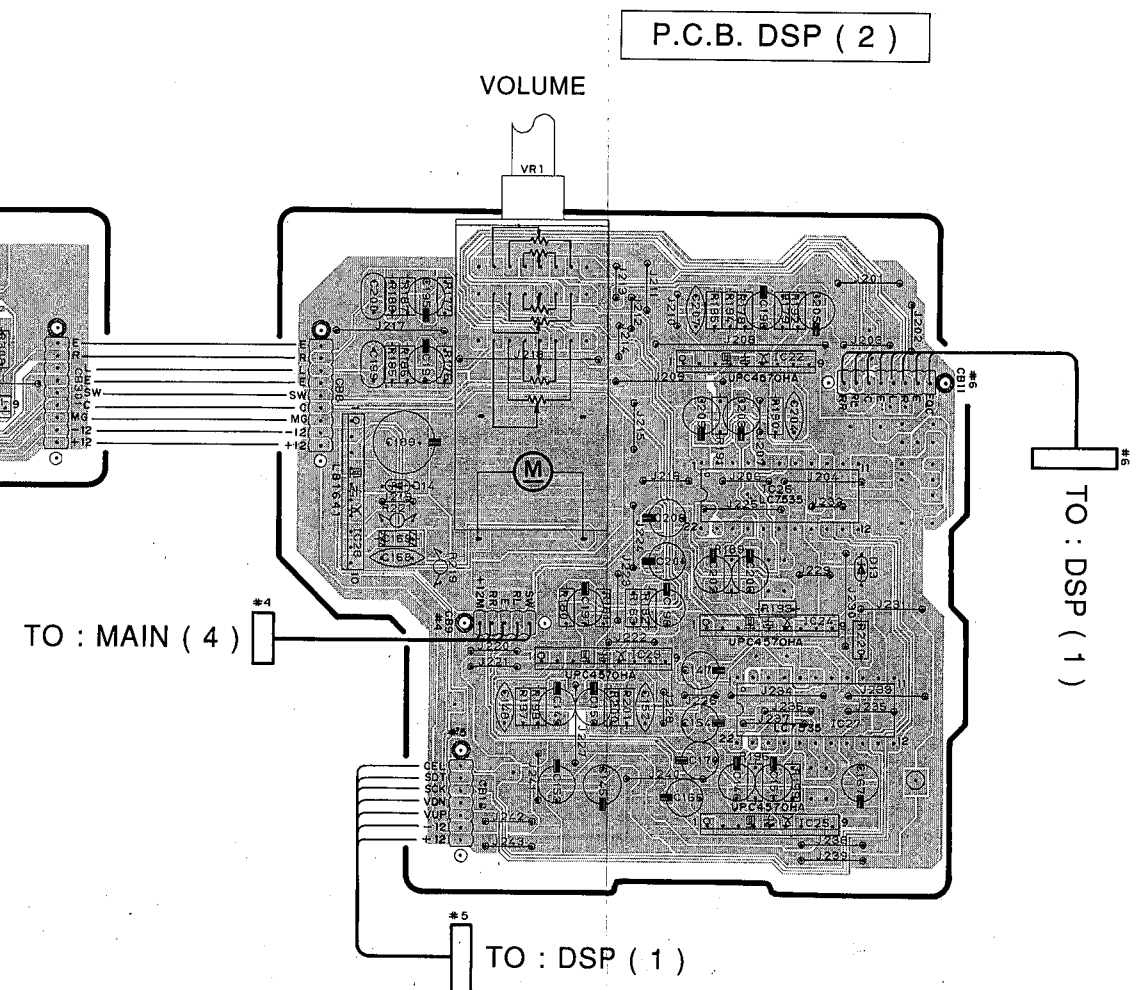
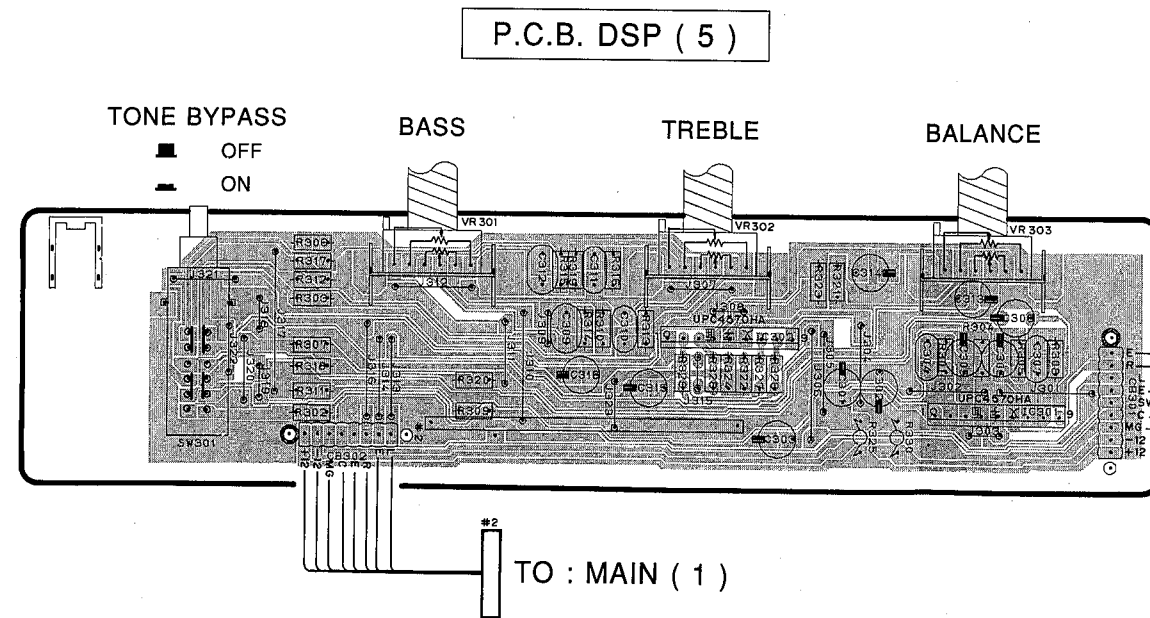
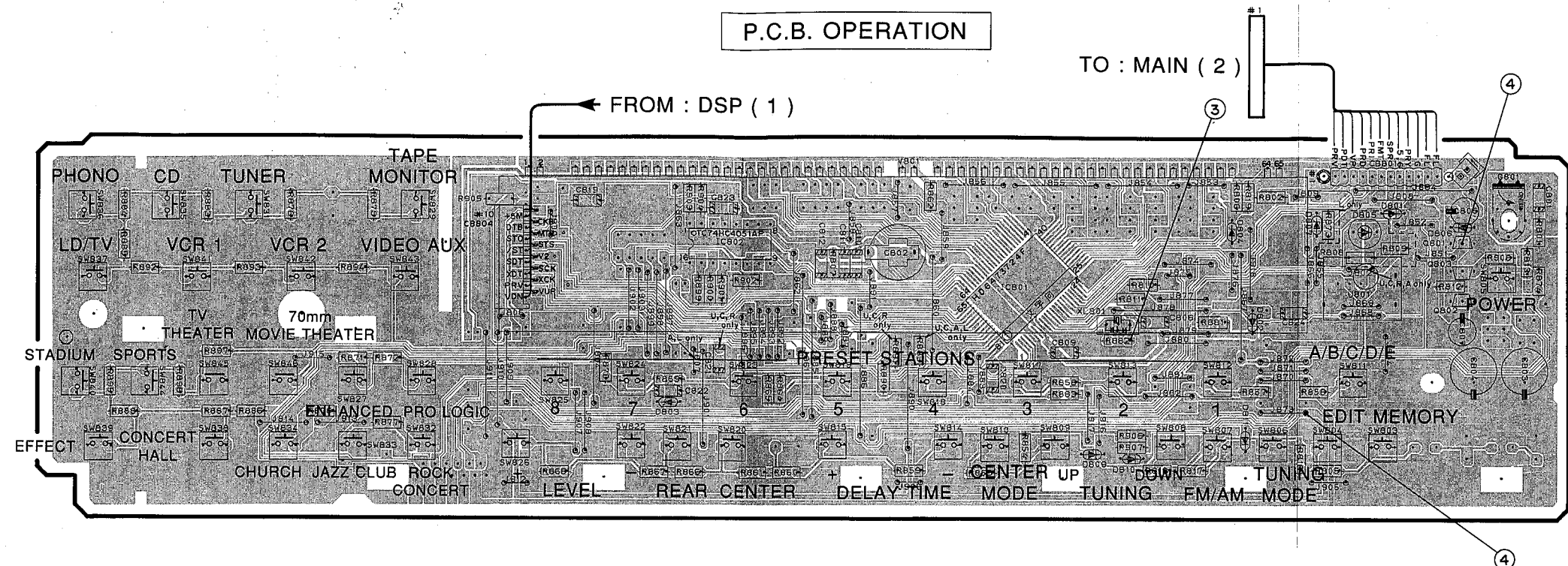
Ref. No.	Location
IC 1	B5
IC 2	B2
IC 3	C4
IC 4	C5
IC 5	C4
IC 6	C4
IC 7	D5
IC 8	D5
IC 9	D4
IC 10	D4
IC 11	D4
IC 12	C4
IC 13	C4
IC 14	C3
IC 15	C4
IC 16	C4
IC 17	D4
IC 18	C4
IC 19	E3
IC 20	E5
IC 29	D2
IC 30	B4
IC 31	B5
IC 32	B5
Q 1	B5
Q 2	B5
Q 3	G3
Q 4	G3
Q 5	G3
Q 6	G3
Q 7	G2
Q 8	H2

PRINTED CIRCUIT BOARD (Foil side)

③ and ④ : TEST POINT WAVEFORMS (See page 35)

● Semiconductor Location

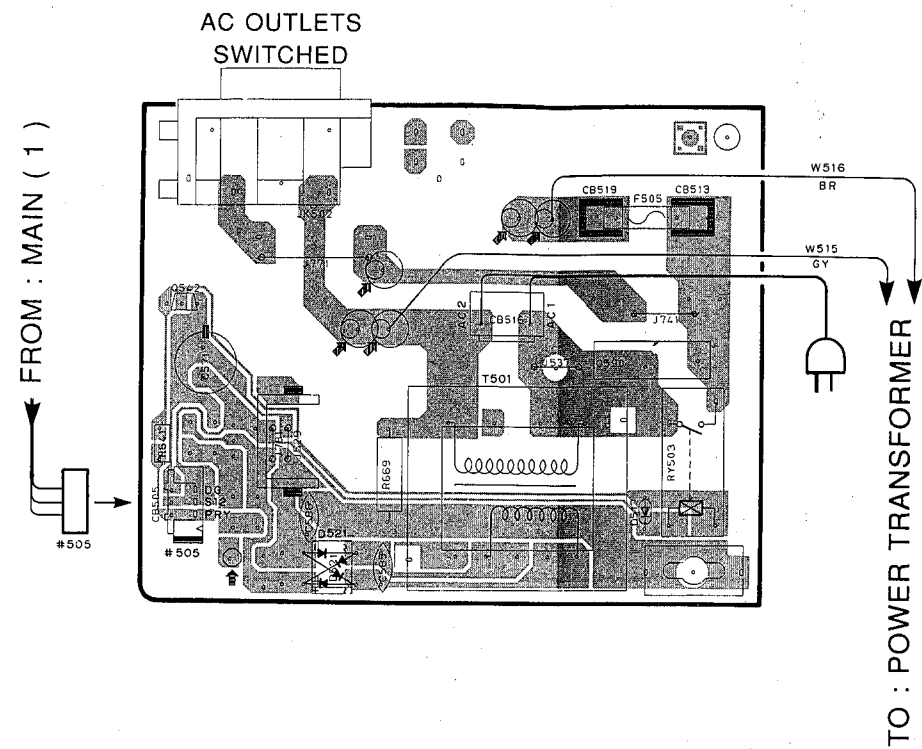
Ref. No.	Location
IC 22	G4
IC 23	F5
IC 24	G5
IC 25	G5
IC 26	G4
IC 27	G5
IC 28	F4
IC301	D4
IC801	E2
IC802	D2
Q 9	G4
Q 801	G2
Q 802	G2
Q 803	G2



■ PRINTED CIRCUIT BOARD (Foil side)

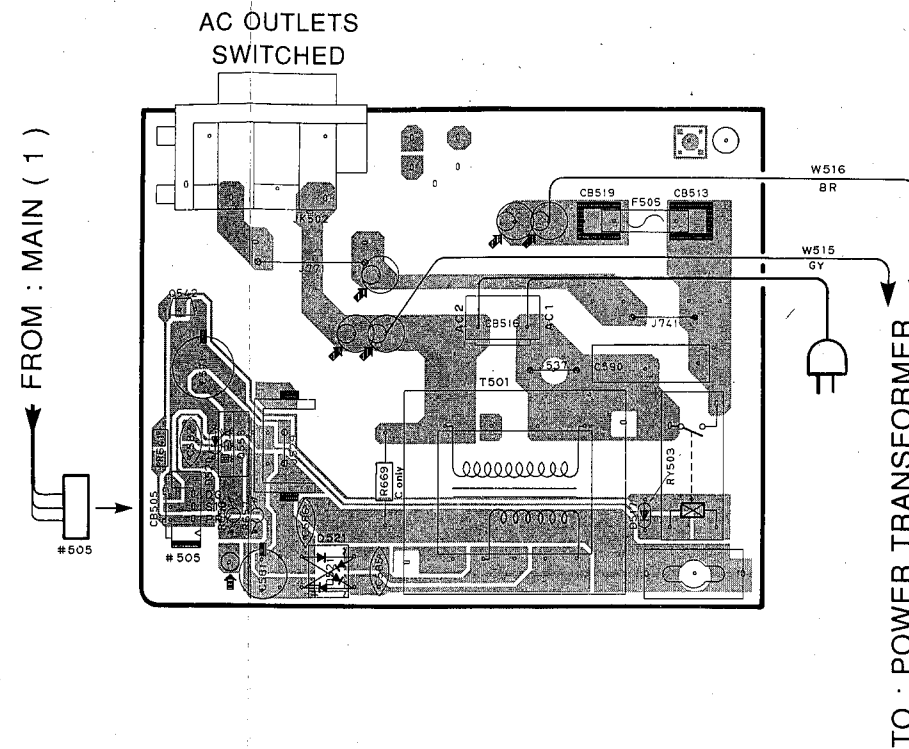
● U model

P.C.B. MAIN (6)



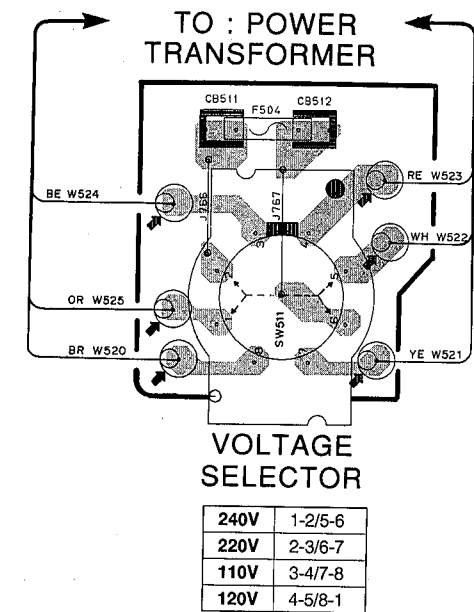
● R,C models

P.C.B. MAIN (6)



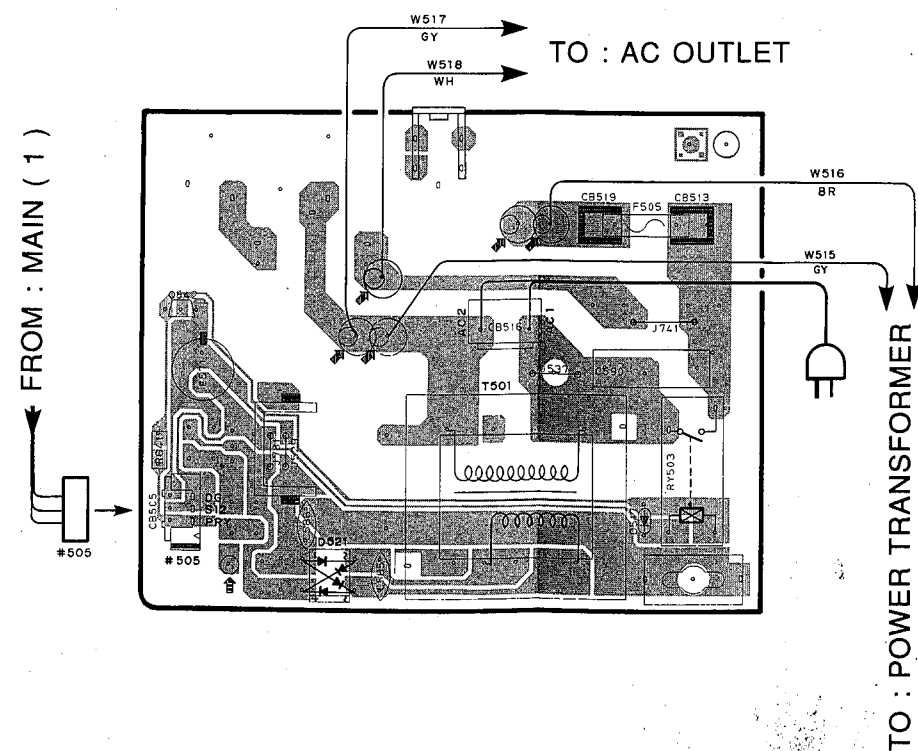
● R only

P.C.B. MAIN (8)



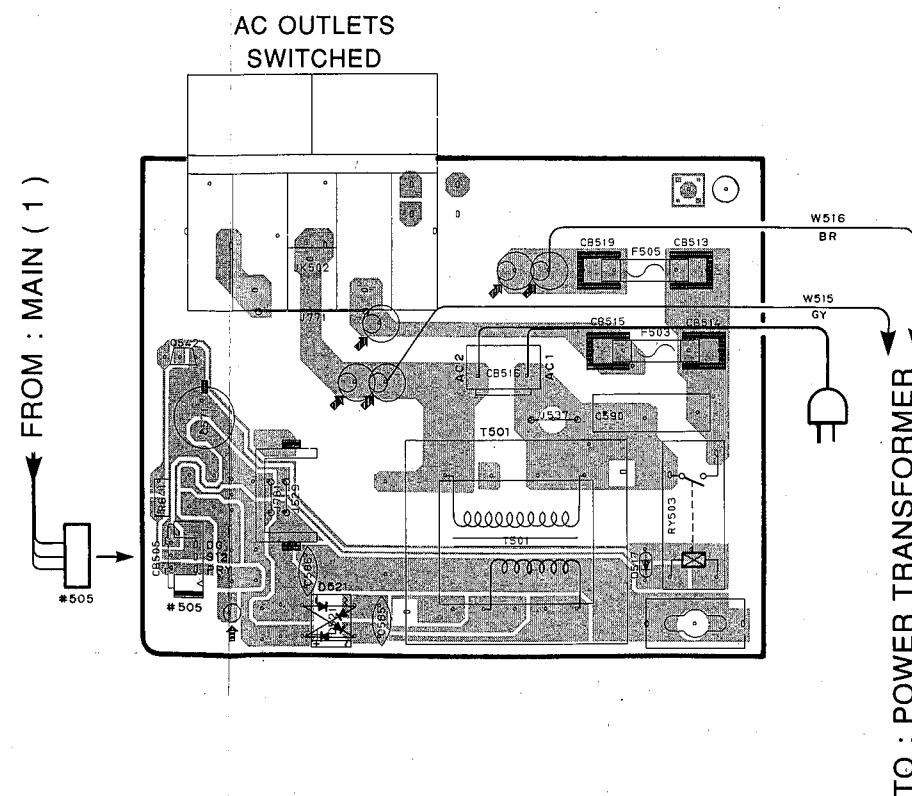
● A model

P.C.B. MAIN (6)

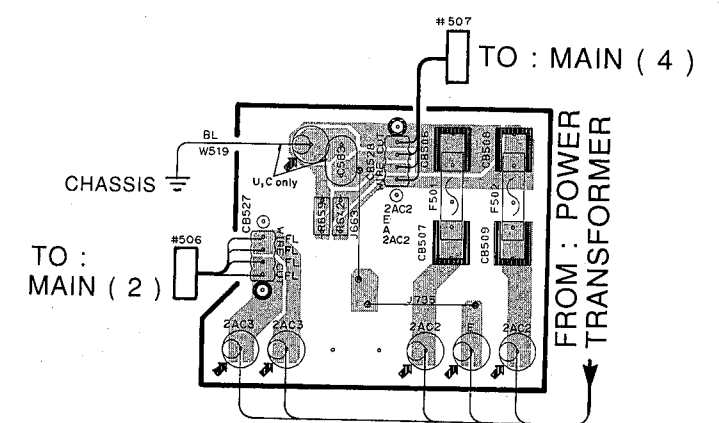


● L model

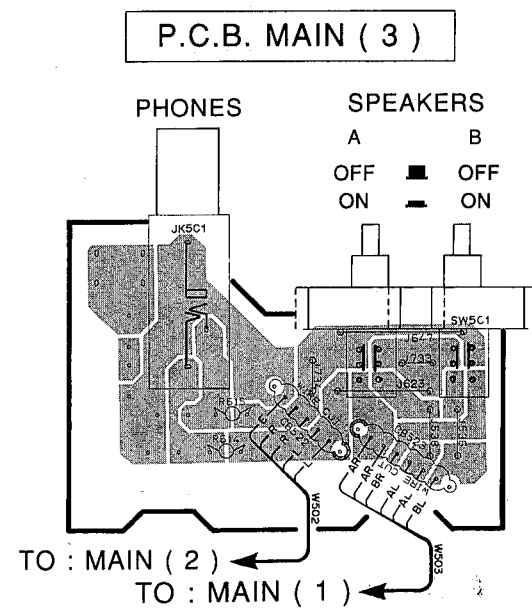
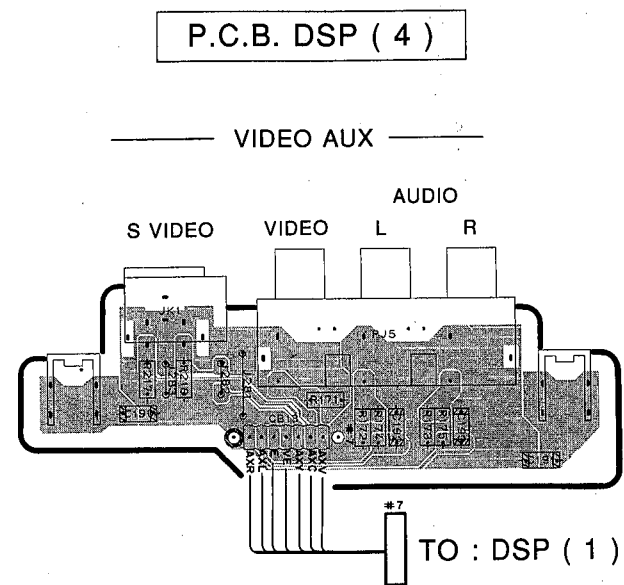
P.C.B. MAIN (6)



P.C.B. MAIN (7)



■ **PRINTED CIRCUIT BOARD (Foil side)**

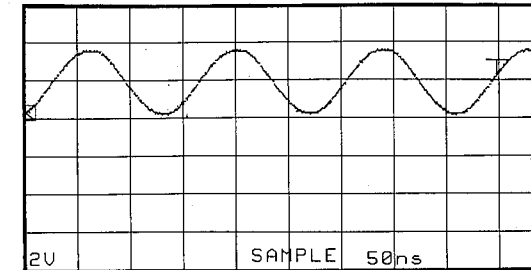


■ TEST POINT WAVEFORMS

Point ① (Pin 1 of IC2)

V : 2V/div H : 50nsec/div

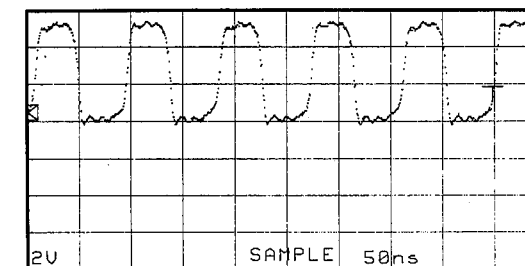
DC range 1 : 1 probe



Point ② (Pin 51 of IC7)

V : 2V/div H : 50nsec/div

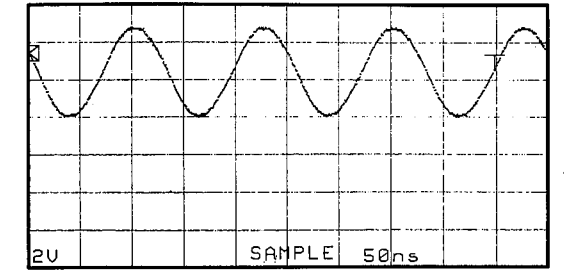
DC range 1 : 1 probe



Point ③ (Pin 11 of IC801)

V : 2V/div H : 50nsec/div

DC range 1 : 1 probe



Point ④

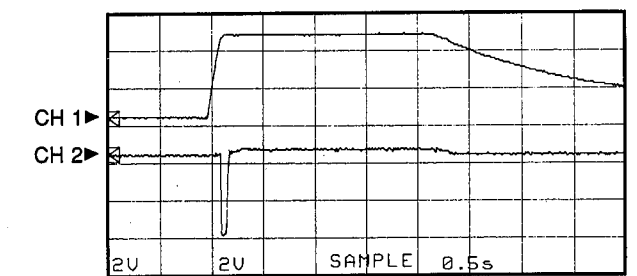
[CH 1 : Pin 76 of IC801]

[CH 2 : Pin 12 of IC801]

V : 2V/div (CH1) V : 2V/div (CH2)

H : 0.5sec/div

DC range 1 : 1 probe



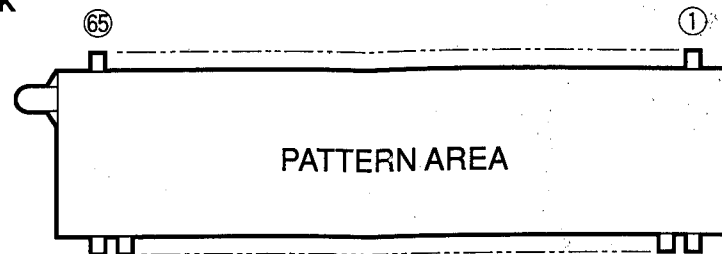
With the POWER switch turned ON, connect the power cord to the AC outlet.

Disconnect the power cord from the AC outlet.

* This waveform is not available by pushing the power switch ON and OFF.

■ DISPLAY DATA (VS599400)

● V801 : 16-BT-29GK



● PIN CONNECTION

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

Note 1) F1, F2 Filament

2) NP No Pin

3) NC No Connection

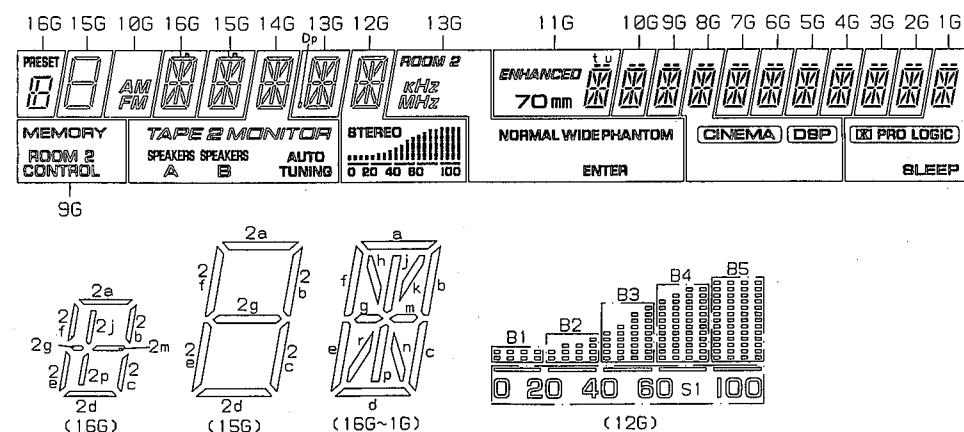
4) P1~P19 Datum Line

5) 1G~16G Grid

6) IC Internal connection

7) Fd terminals are to be supplied through 3kΩ from Ec.

● GRID ASSIGNMENT

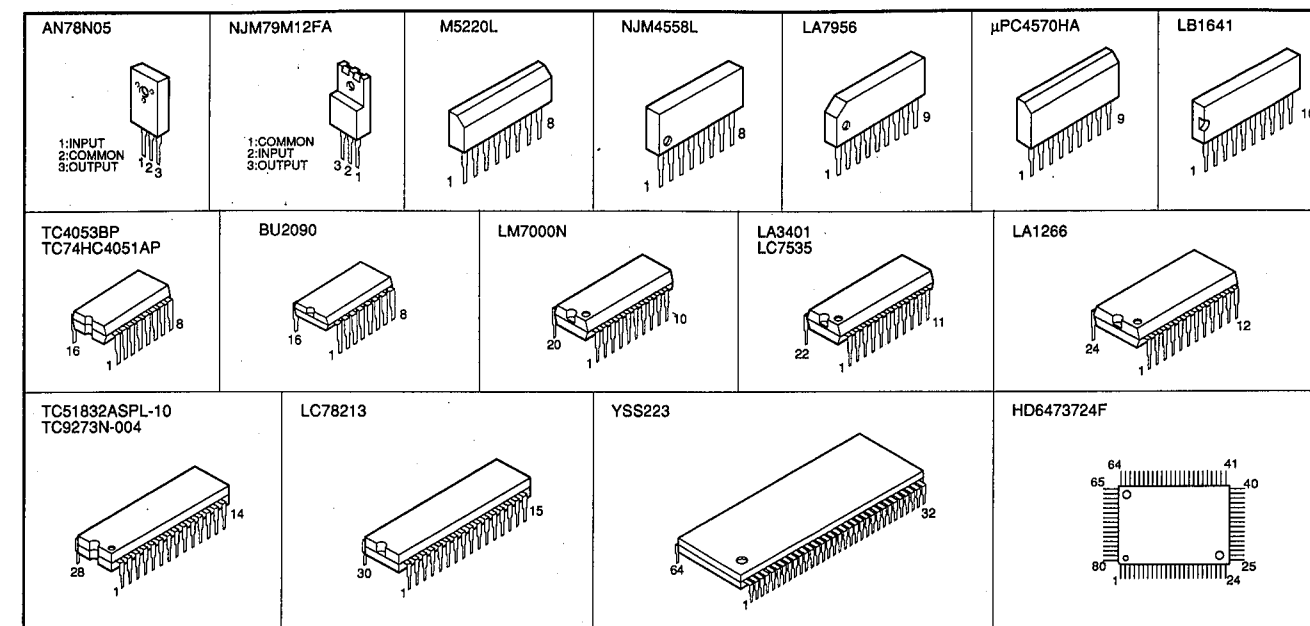


● ANODE CONNECTION

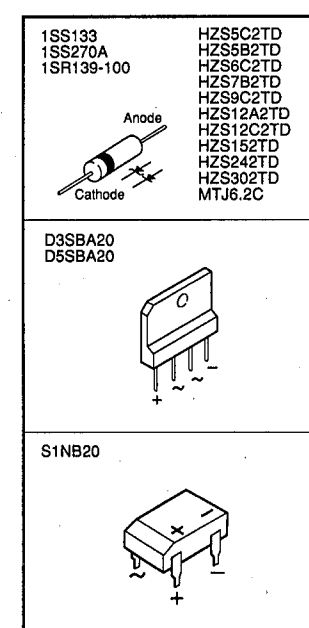
	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G~2G	1G
P1	1a	1a	a	a	a	a	a	a	a	a	a
P2	1b	1b	b	b	b	b	b	b	b	b	b
P3	1c	1c	c	c	c	c	c	c	c	c	c
P4	1d	1d	d	d	d	d	d	d	d	d	d
P5	1e	1e	e	e	e	e	e	e	e	e	e
P6	1f	1f	f	f	f	f	f	f	f	f	f
P7	1g	1g	g	g	g, m	g	g	g	g	g	g
P8	1m	1m	m	m	n	h	h	h	h	h	h
P9	1j, 1p	1j, 1p	j, p	j, p	j, p	j	j	j	j	j	j
P10	1k, 1r	1k, 1r	k, r	h, n	k, r	k	k	k	k	k	k
P11	PRESET	1h, 1n	h	Dp	h	m	m	m	m	m	m
P12	2a	2a	n	MHz	STEREO	n	n	n	n	n	n
P13	2b, 2c	2b	TAPE MONITOR	MHz	B1	p	p	p	p	p	p
P14	2d	2c	2	NORMAL	B2	r	r	r	r	r	r
P15	2e, 2f	2d	SPEAKERS A	WIDE	B3	t	t	t	t	t	t
P16	2g	2e	SPEAKERS B	PHANTOM	B4	u	u	u	u	u	u
P17	2j, 2p	2f	AUTO TUNING	ROOM 2	B5	ENHANCED	AM	MEMORY	CINEMA	—	PRO LOGIC
P18	2m	2g	—	ENTER	S1	70mm	FM	ROOM 2 CONTROL	DSP	—	SLEEP
P19	1h, 1n	—	—	k, r	—	—	—	—	—	—	—

■ PIN CONNECTION DIAGRAM

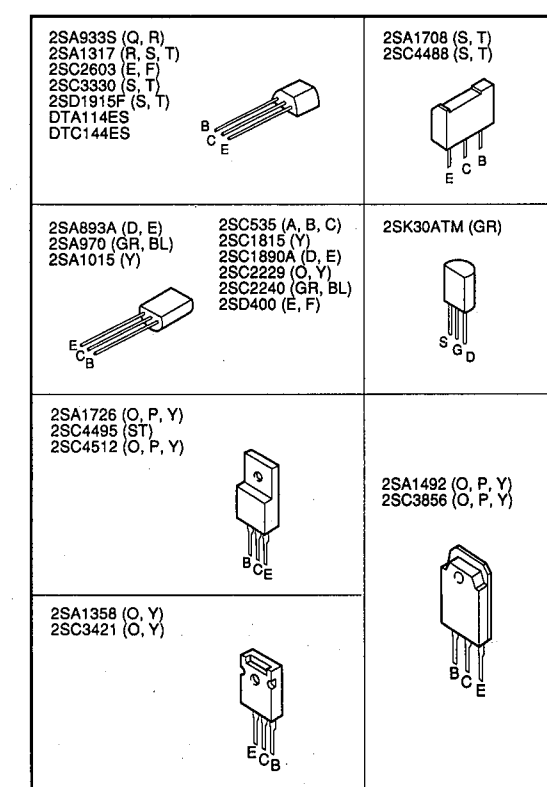
● ICs



● Diodes



● Transistors



■ SCHEMATIC DIAGRAM (TUNER)

Each voltage given here represents that in the FM (98.1MHz, STEREO) reception mode but the one in the parentheses () is that in the AM (1080kHz, MAN'L) reception mode.

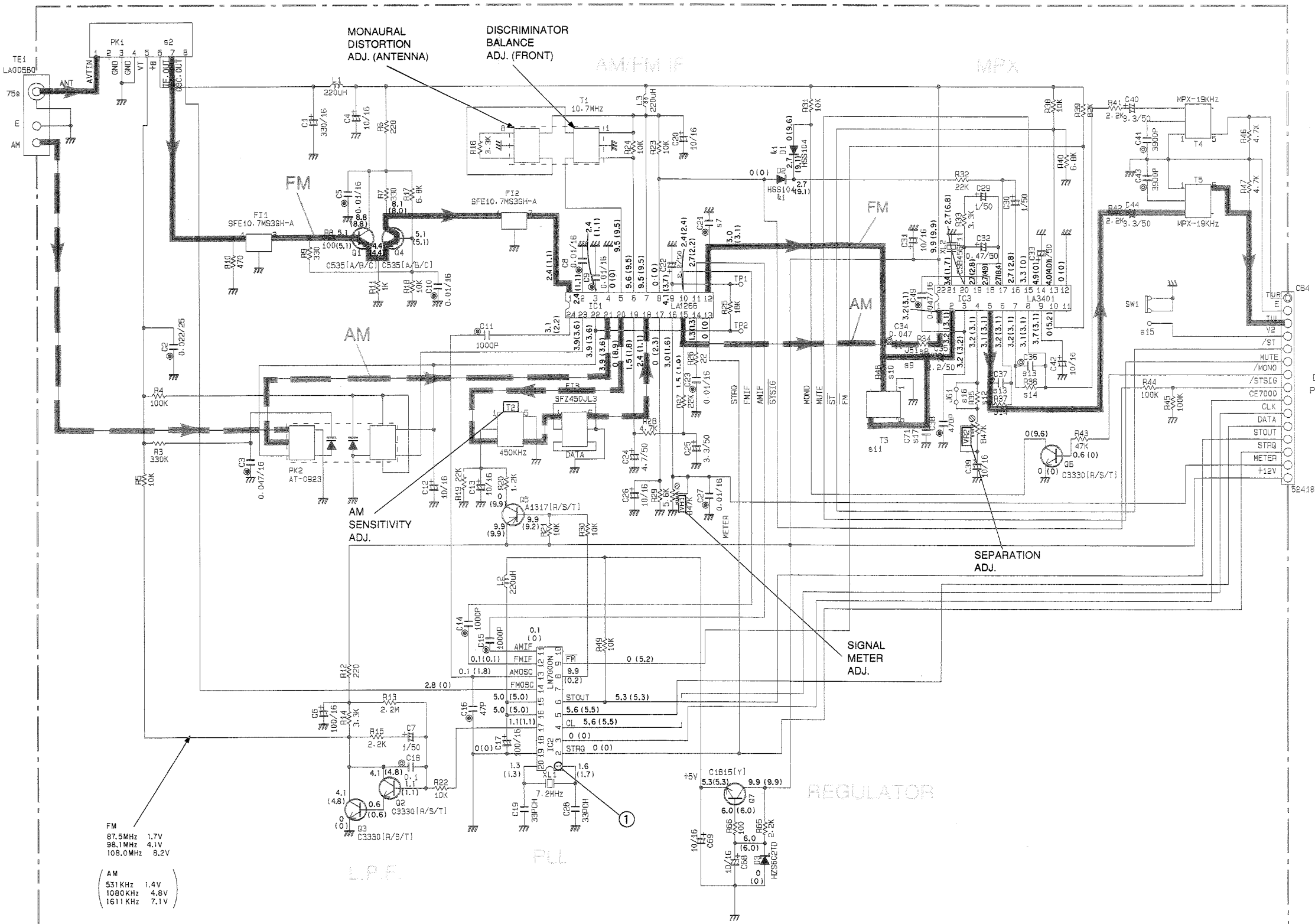
① : TEST POINT WAVEFORMS (See page 35)

CAPACITOR	PARTS NAME	REMARKS
NO MARK	ELECTROLYTIC CAPACITOR	ZZ
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
⊙	CERAMIC TUBULAR CAPACITOR	
⊖	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	11
○	MICA CAPACITOR	
⊖	POLYPROPYLENE FILM CAPACITOR	
⊖	SEMICONDUCTIVE CERAMIC CAPACITOR	

RESISTOR	PARTS NAME	REMARKS
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

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

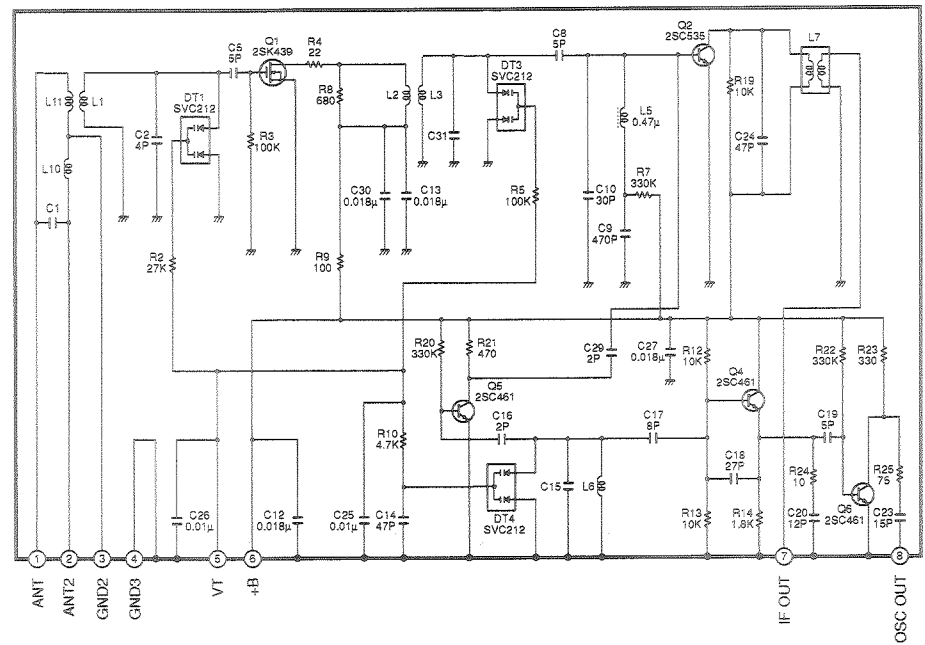


	U.C	R	A-B	S
1				
2	VR24220	VR24220	VR24220	VR24220
3				
4				
5				
6				
7	C21	100P	100P	X
8	R34	10K	10K	27K
9	J51	○	○	X
10	R48	X	X	4.7K
11	T3	X	X	VR24220
12	R35	22K	22K	X
13	C36, 37	680P	680P	470P
14	R38, 37	100K	100K	100K
15	SV1	X	VF54120	X
16	J61	X	X	○
17	C71	X	X	120PCH

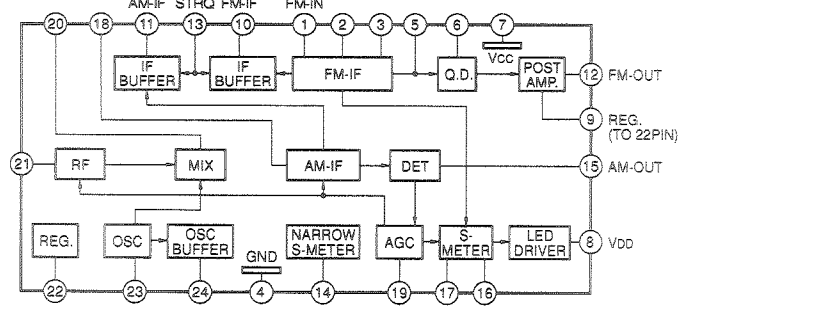
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
1	01-2	HS9104
		1SS103
		1SS176

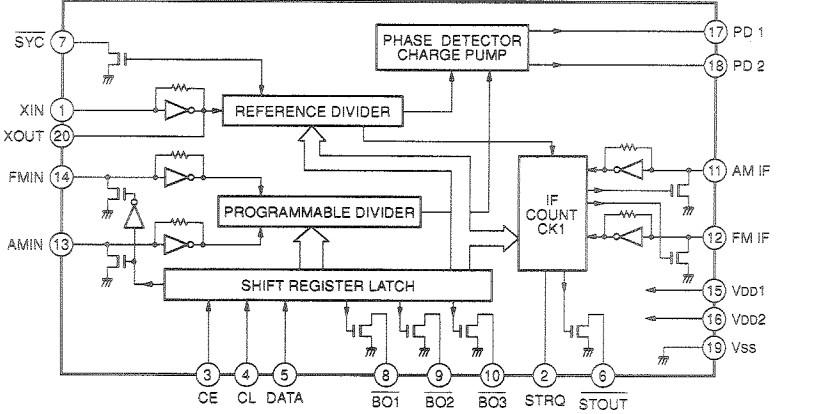
PK1 : ENV-17298GI (VR242200)



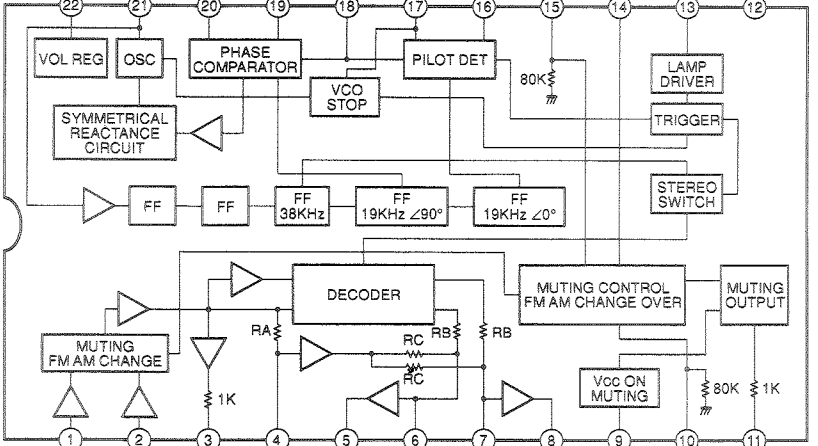
IC1 : LA1266
AM/FM IF



IC2 : LM7000N
PLL Controller



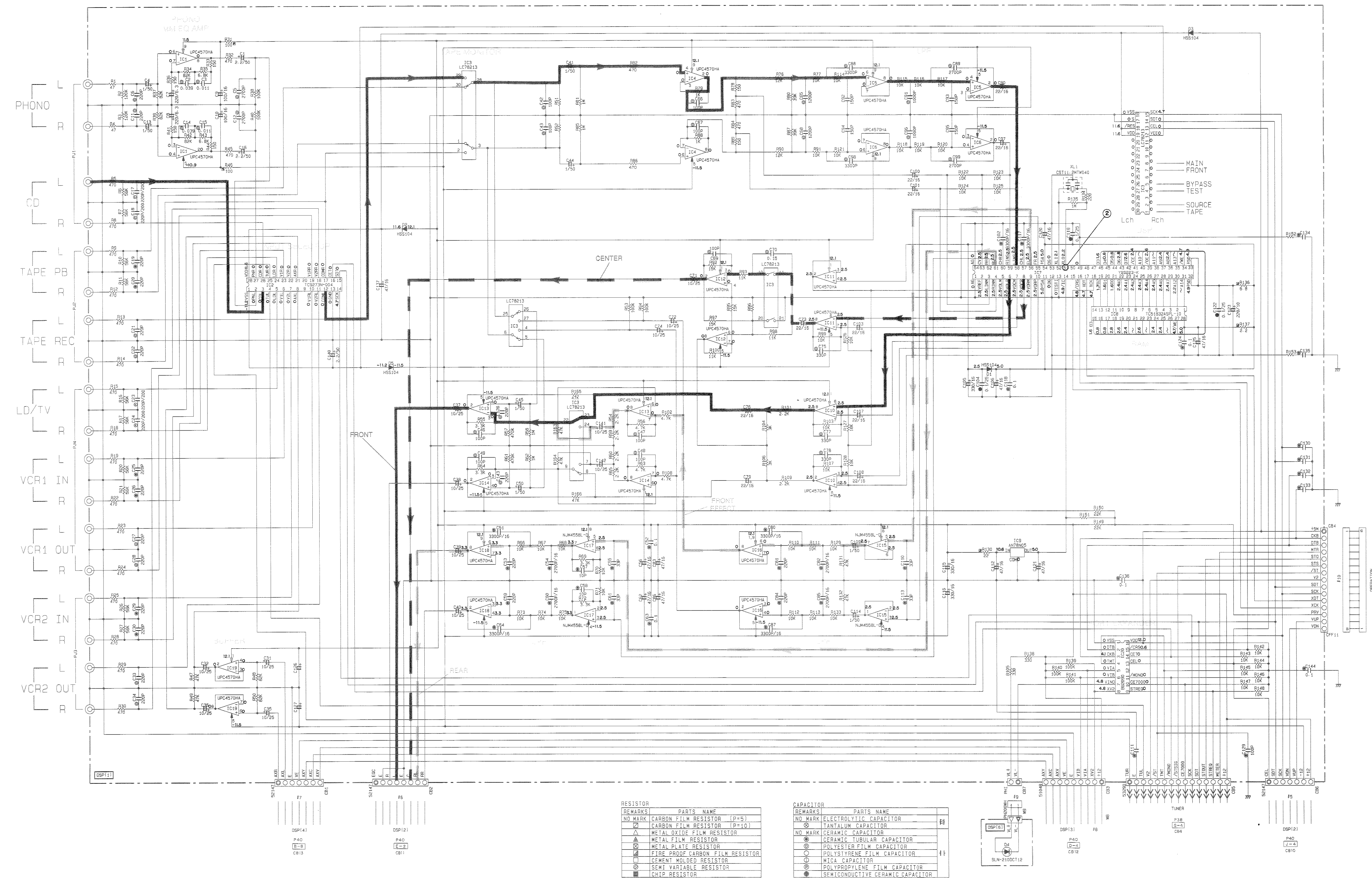
IC3 : LA3401
MPX



* All voltage 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.

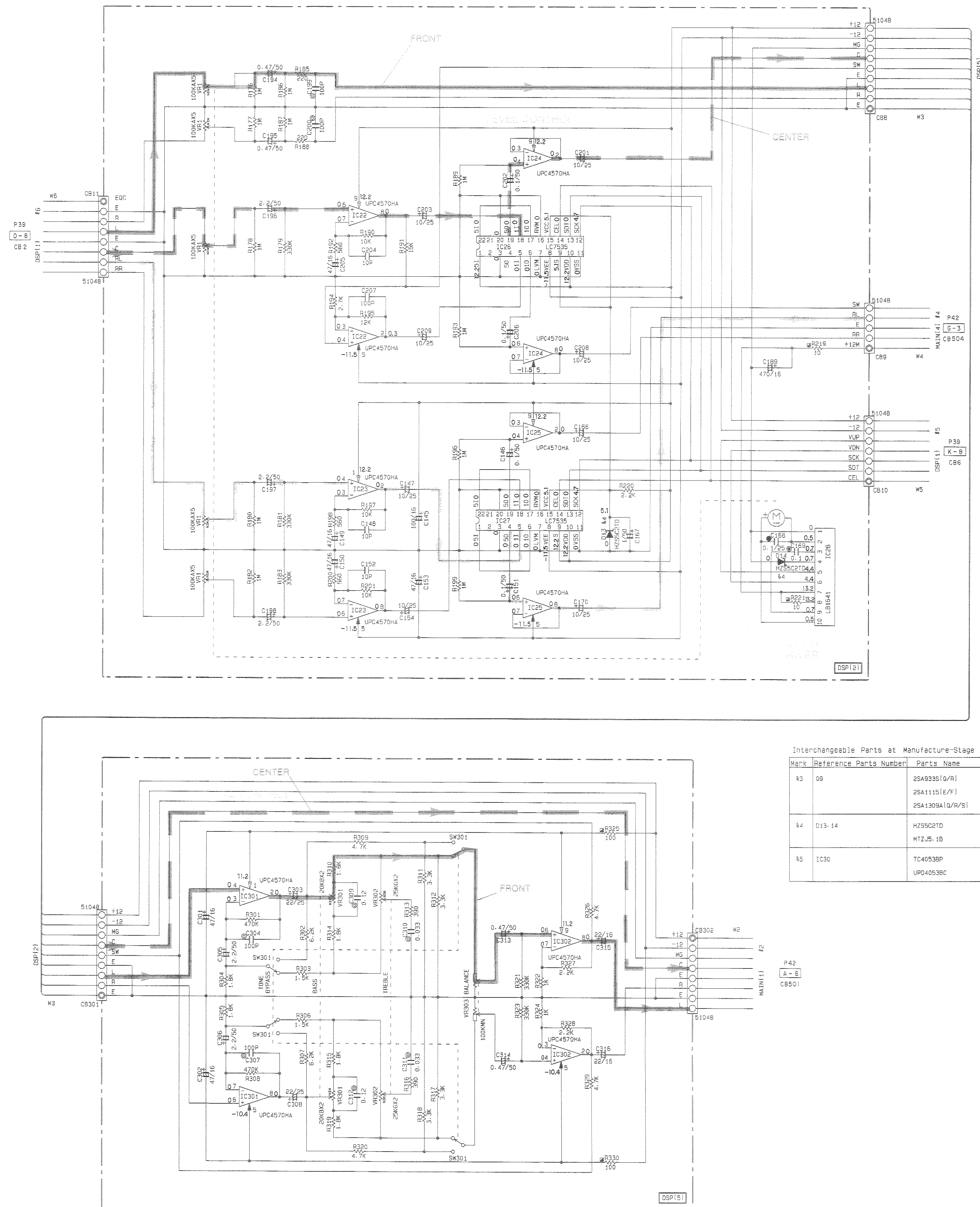
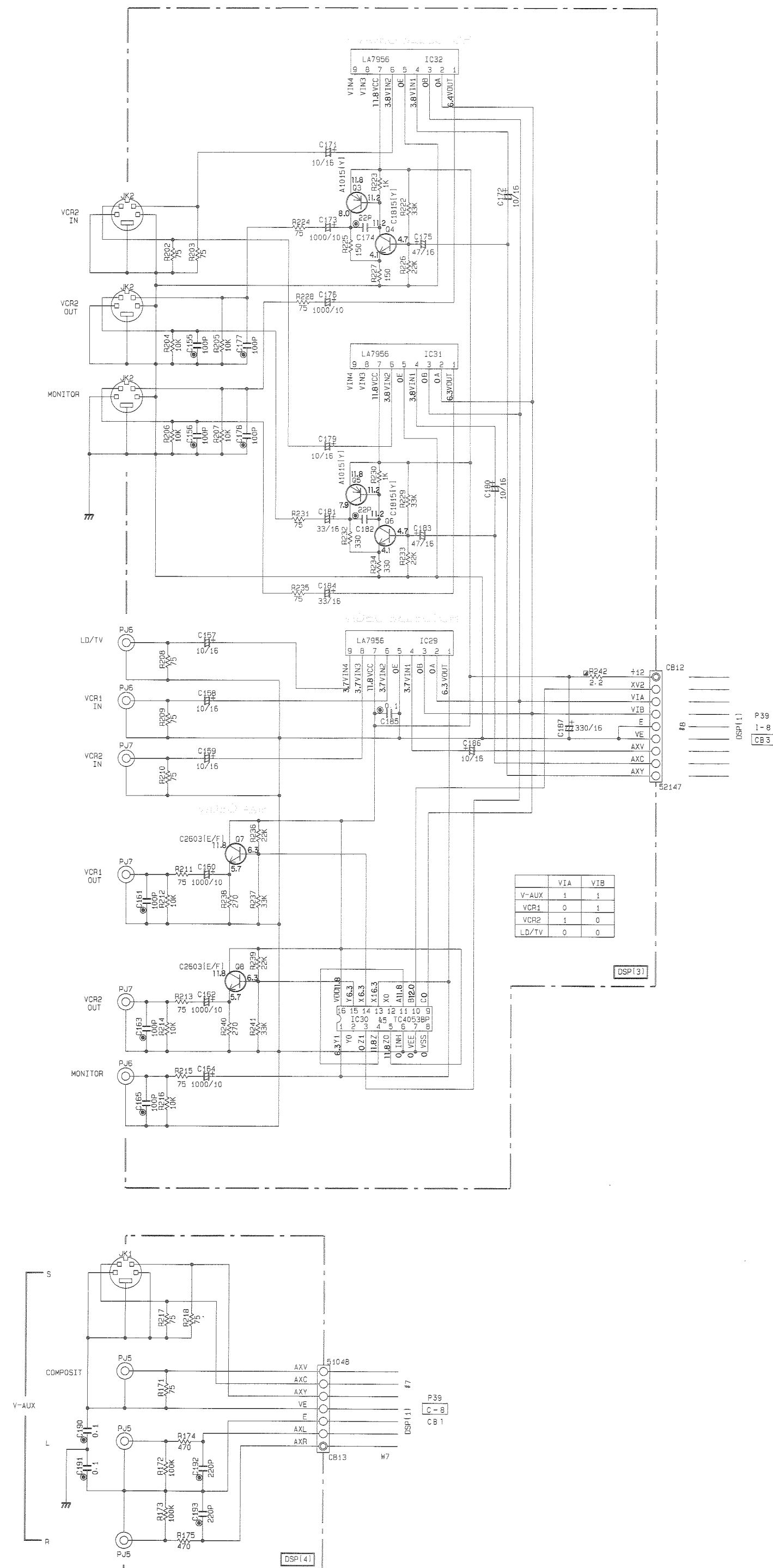
■ SCHEMATIC DIAGRAM (DSP 1/2)

② : TEST POINT WAVEFORMS (See page 35)



* All voltage 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.

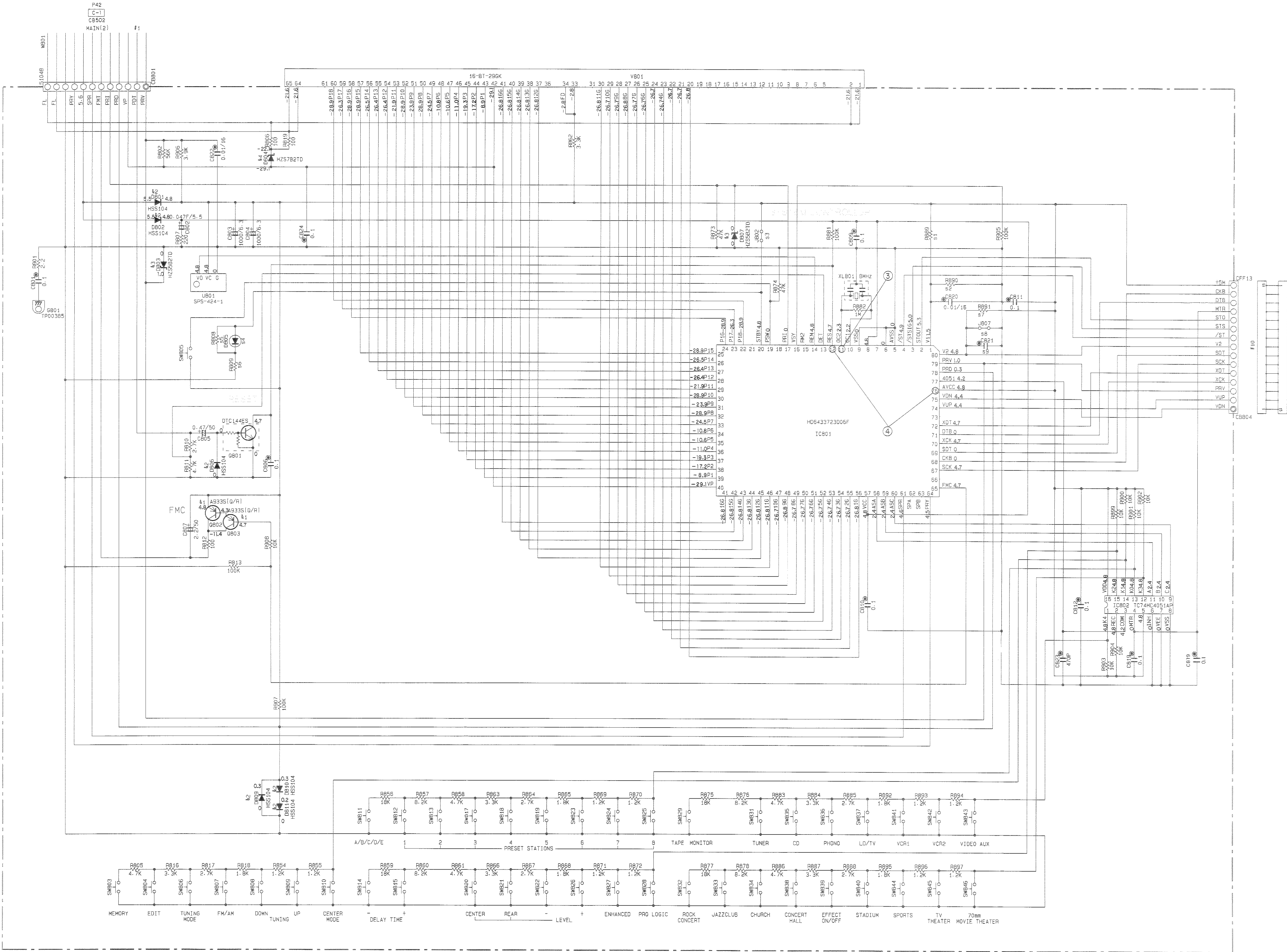
■ SCHEMATIC DIAGRAM (DSP 2/2)



* All voltage are measured with a 10MQ/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 (OPERATION)

③, ④ : TEST POINT WAVEFORMS (See page 35)



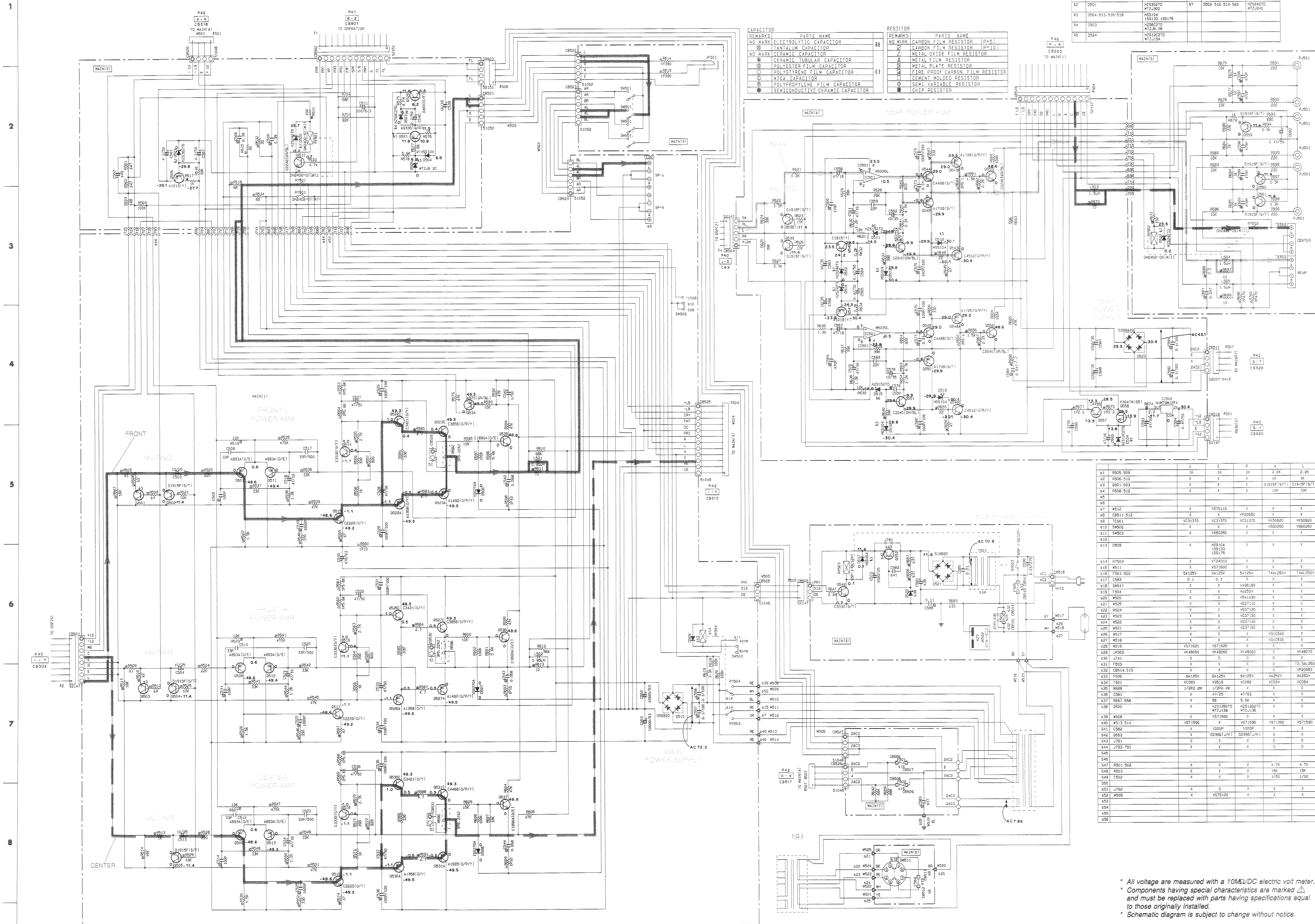
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	ZZ
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
⊙	CERAMIC TUBULAR CAPACITOR	
⊖	POLYESTER FILM CAPACITOR	11
○	POLYSTYRENE FILM CAPACITOR	
⊕	MICA CAPACITOR	
⊖	POLYPROPYLENE FILM CAPACITOR	
⊖	SEMICONDUCTIVE CERAMIC CAPACITOR	

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	

Mark	Reference Parts Number	Parts Name
k1	Q802-803	2SA933S[G/R] 2SA1115[E/F] 2SA1303A[G/R/S]
k2	DB01-802-805-809-811	HSS104 1SS133 1SS176
k3	DB03-807	HZ57B2TD WTZJ47C
k4	DB04	HZ57B2TD WTZJ7-5A

MODEL No.	RX-V690ML			
5	Circuit No.	U.C	R	L
1	R889	27K	×	27K 12K
2	R890	12K	×	12K 18K
3	JB02	○	○	×
4	DB05	×	×	SLP-305VCA47
5	R808	×	×	100K
6	R809	×	×	270
7	R891	10K	10K	×
8	JB07	×	×	○
9	CB21	0.01/16	0.01/16	×
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
PCB	XQ252	XQ252	XQ252	XQ252
PWB	V594140	V594150	V594160	V594170

* All voltage 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 parts No. of the carbon resistors, refer to last page.

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
* CB1	VS941800	P.C.B.
		DSP
CB1	VK025100	CN. BS. PIN 7P
CB2	VK025200	CN. BS. PIN 8P
CB3	Vi878700	CN. BS. PIN 9P
* CB4	VR358600	CN. BS. PIN 15P
* CB5	VQ963600	CN. BS. PIN 15P
CB6	VK025100	CN. BS. PIN 7P
CB7	VD004500	CN. BS. PIN 2P
CB8	Vi878700	CN. BS. PIN 9P
CB9	Vi878300	CN. BS. PIN 5P
CB10	Vi878500	CN. BS. PIN 7P
CB11	Vi878600	CN. BS. PIN 8P
CB12	VK025300	CN. BS. PIN 9P
CB13	Vi878500	CN. BS. PIN 7P
CB301	Vi878700	CN. BS. PIN 9P
CB302	Vi878600	CN. BS. PIN 8P
C1	VJ839200	C. EL 2.2uF 50V
C2	UA654390	C. MYLAR 0.039uF 50V
C3	UA654110	C. MYLAR 0.011uF 50V
C4	VJ839100	C. EL 1uF 50V
C5	UA653270	C. MYLAR 2700pF 50V
C6	UA652220	C. MYLAR 220pF 50V
C7	VC815000	C. EL 220uF 6.3V
C8	VC815000	C. EL 220uF 6.3V
C9	VF964800	C. EL 100uF 16V
C10	VF964800	C. EL 100uF 16V
C11	UA652220	C. MYLAR 220pF 50V
C12	UA653270	C. MYLAR 2700pF 50V
C13	VJ839100	C. EL 1uF 50V
C14	UA654390	C. MYLAR 0.039uF 50V
C15	UA654110	C. MYLAR 0.011uF 50V
C16	VJ839200	C. EL 2.2uF 50V
C17	VK534000	C. PP 220pF 200V
C18	VK534000	C. PP 220pF 200V
C19	VG278400	C. CE. TUBLR 220pF 50V
C20	VG278400	C. CE. TUBLR 220pF 50V
C21	UA652220	C. MYLAR 220pF 50V
C22	UA652220	C. MYLAR 220pF 50V
C23	VK534000	C. PP 220pF 200V
C24	VK534000	C. PP 220pF 200V
C25	VG278400	C. CE. TUBLR 220pF 50V
C26	VG278400	C. CE. TUBLR 220pF 50V
C27	UA652220	C. MYLAR 220pF 50V
C28	UA652220	C. MYLAR 220pF 50V
C29	VG278400	C. CE. TUBLR 220pF 50V
C30	VG278400	C. CE. TUBLR 220pF 50V
C31	UM417100	C. EL 10uF 50V
C32	UM417100	C. EL 10uF 50V
C33	UA652220	C. MYLAR 220pF 50V
C34	UA652220	C. MYLAR 220pF 50V
C35	UM417100	C. EL 10uF 50V
C36	UM417100	C. EL 10uF 50V
C37	UM417100	C. EL 10uF 50V

* New Parts

Schm Ref.	PART NO.	Description
C38	UM417100	C. EL 10uF 50V
C39	UM417100	C. EL 10uF 50V
C40	UM417100	C. EL 10uF 50V
C41	VJ839100	C. EL 1uF 50V
C42	UA652100	C. MYLAR 100pF 50V
C43	UA652100	C. MYLAR 100pF 50V
C44	VJ839100	C. EL 1uF 50V
C45	VJ839100	C. EL 1uF 50V
C46	UA652100	C. MYLAR 100pF 50V
C47	UA652100	C. MYLAR 100pF 50V
C48	UA652100	C. MYLAR 100pF 50V
C49	UA652100	C. MYLAR 100pF 50V
C50	VJ839100	C. EL 1uF 50V
C51	VG279600	C. CE. TUBLR 3300pF 16V
C52	VH053100	C. CE. TUBLR 0.1uF 50V
C53	VG278400	C. CE. TUBLR 220pF 50V
C54	VG279500	C. CE. TUBLR 2700pF 16V
C55	VG277000	C. CE. TUBLR 33pF 50V
C56	VJ837200	C. EL 47uF 16V
C57	VF466600	C. CE. TUBLR 10pF 50V
C58	VF466600	C. CE. TUBLR 10pF 50V
C59	VG278400	C. CE. TUBLR 220pF 50V
C60	VG279500	C. CE. TUBLR 2700pF 16V
C61	VG277000	C. CE. TUBLR 33pF 50V
C62	VJ837200	C. EL 47uF 16V
C63	VH053100	C. CE. TUBLR 0.1uF 50V
C64	VG279600	C. CE. TUBLR 3300pF 16V
* C65	UA253120	C. MYLAR 1200pF 50V
C66	UA652100	C. MYLAR 100pF 50V
C67	UA652100	C. MYLAR 100pF 50V
* C68	UA253120	C. MYLAR 1200pF 50V
C69	UA652100	C. MYLAR 100pF 50V
C70	UA655150	C. MYLAR 0.15uF 50V
C71	UM417100	C. EL 10uF 50V
C72	UM417100	C. EL 10uF 50V
C73	UM407220	C. EL 22uF 25V
C74	UM417100	C. EL 10uF 50V
C75	UA652330	C. MYLAR 330pF 50V
C76	UM407220	C. EL 22uF 25V
C77	UA652330	C. MYLAR 330pF 50V
C78	UA652330	C. MYLAR 330pF 50V
C79	UM407220	C. EL 22uF 25V
C80	VG279600	C. CE. TUBLR 3300pF 16V
C81	VG278400	C. CE. TUBLR 220pF 50V
C82	VG279500	C. CE. TUBLR 2700pF 16V
C83	VJ837200	C. EL 47uF 16V
C84	VG278400	C. CE. TUBLR 220pF 50V
C85	VG279500	C. CE. TUBLR 2700pF 16V
C86	VJ837200	C. EL 47uF 16V
C87	VG279600	C. CE. TUBLR 3300pF 16V
* C88	UA253330	C. MYLAR 3300pF 50V
C89	UA653270	C. MYLAR 2700pF 50V
C90	UM407220	C. EL 22uF 25V

* New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description		
* C91	UA253100	C. MYLAR	1000pF	50V
C92	FG212150	C. CE	150pF	50V
C93	FG212150	C. CE	150pF	50V
C94	FG212150	C. CE	150pF	50V
C95	FG212150	C. CE	150pF	50V
* C96	UA253100	C. MYLAR	1000pF	50V
C97	UM407220	C. EL	22uF	25V
* C98	UA253330	C. MYLAR	3300pF	50V
C99	UA653270	C. MYLAR	2700pF	50V
C100	UM407220	C. EL	22uF	25V
C101	UM407220	C. EL	22uF	25V
C102	VG279600	C. CE. TUBLR	3300pF	16V
C103	UM407220	C. EL	22uF	25V
C104	VD930900	C. CE. SMI	0.1uF	25V
C105	UJ638330	C. EL	330uF	16V
C106	VJ837200	C. EL	47uF	16V
C107	UM407220	C. EL	22uF	25V
C108	UM407220	C. EL	22uF	25V
C109	VJ839100	C. EL	1uF	50V
C110	VG277000	C. CE. TUBLR	33pF	50V
C112	VJ837200	C. EL	47uF	16V
C113	VG277000	C. CE. TUBLR	33pF	50V
C114	VJ839100	C. EL	1uF	50V
C115	VG287800	C. EL	330uF	16V
C116	VG287800	C. EL	330uF	16V
C117	VG279600	C. CE. TUBLR	3300pF	16V
C118	VH053100	C. CE. TUBLR	0.1uF	50V
C119	VD930900	C. CE. SMI	0.1uF	25V
C120	VJ837200	C. EL	47uF	16V
C121	VJ837200	C. EL	47uF	16V
C122	VD930900	C. CE. SMI	0.1uF	25V
C123	VE117600	C. EL	220uF	10V
C124	VH053100	C. CE. TUBLR	0.1uF	50V
C125	VJ837200	C. EL	47uF	16V
C129	VF466800	C. CE. TUBLR	100pF	50V
C136	VH053100	C. CE. TUBLR	0.1uF	50V
C137	VJ837200	C. EL	47uF	16V
C140	VJ839200	C. EL	2.2uF	50V
C141	UM417100	C. EL	10uF	50V
C142	UM417100	C. EL	10uF	50V
C144	VH053100	C. CE. TUBLR	0.1uF	50V
C145	VF964800	C. EL	100uF	16V
C146	UM215100	C. EL	0.1uF	50V
C147	UM417100	C. EL	10uF	50V
C148	FG211100	C. CE	10pF	50V
C149	VJ837200	C. EL	47uF	16V
C150	VJ837200	C. EL	47uF	16V
C151	UM215100	C. EL	0.1uF	50V
C152	FG211100	C. CE	10pF	50V
C153	VJ837200	C. EL	47uF	16V
C154	UM417100	C. EL	10uF	50V
C155	VF466800	C. CE. TUBLR	100pF	50V
C156	VF466800	C. CE. TUBLR	100pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C157	VJ836900	C. EL	10uF	16V
C158	VJ836900	C. EL	10uF	16V
C159	VJ836900	C. EL	10uF	16V
C160	VF637900	C. EL	1000uF	10V
C161	VF466800	C. CE. TUBLR	100pF	50V
C162	VF637900	C. EL	1000uF	10V
C163	VF466800	C. CE. TUBLR	100pF	50V
C164	VF637900	C. EL	1000uF	10V
C165	VF466800	C. CE. TUBLR	100pF	50V
C166	UM417100	C. EL	10uF	50V
C167	VJ839100	C. EL	1uF	50V
C168	VD930900	C. CE. SMI	0.1uF	25V
C169	VH053100	C. CE. TUBLR	0.1uF	50V
C170	UM417100	C. EL	10uF	50V
C171	VJ836900	C. EL	10uF	16V
C172	VJ836900	C. EL	10uF	16V
C173	VF637900	C. EL	1000uF	10V
C174	VG276600	C. CE. TUBLR	22pF	50V
C175	VJ837200	C. EL	47uF	16V
C176	VF637900	C. EL	1000uF	10V
C177	VF466800	C. CE. TUBLR	100pF	50V
C178	VF466800	C. CE. TUBLR	100pF	50V
C179	VJ836900	C. EL	10uF	16V
C180	VJ836900	C. EL	10uF	16V
C181	UM397330	C. EL	33uF	16V
C182	VG276600	C. CE. TUBLR	22pF	50V
C183	VJ837200	C. EL	47uF	16V
C184	UM397330	C. EL	33uF	16V
C185	VH053100	C. CE. TUBLR	0.1uF	50V
C186	VJ836900	C. EL	10uF	16V
C187	UJ638330	C. EL	330uF	16V
C189	UJ638470	C. EL	470uF	16V
C190	VH053100	C. CE. TUBLR	0.1uF	50V
C191	VH053100	C. CE. TUBLR	0.1uF	50V
C192	VG278400	C. CE. TUBLR	220pF	50V
C193	VG278400	C. CE. TUBLR	220pF	50V
C194	VJ839000	C. EL	0.47uF	50V
C195	VJ839000	C. EL	0.47uF	50V
C196	VJ839200	C. EL	2.2uF	50V
C197	VJ839200	C. EL	2.2uF	50V
C198	VJ839200	C. EL	2.2uF	50V
C199	UA652100	C. MYLAR	100pF	50V
C200	UA652100	C. MYLAR	100pF	50V
C201	UM417100	C. EL	10uF	50V
C202	UM215100	C. EL	0.1uF	50V
C203	UM417100	C. EL	10uF	50V
C204	FG211100	C. CE	10pF	50V
C205	VJ837200	C. EL	47uF	16V
C206	UM215100	C. EL	0.1uF	50V
C207	FG212100	C. CE	100pF	50V
C208	UM417100	C. EL	10uF	50V
C209	UM417100	C. EL	10uF	50V
C301	VG291200	C. EL	47uF	50V

* New Parts

P.C.B. DSP & MAIN

Schm Ref.	PART NO.	Description
C302	VG291200	C. EL 47uF 50V
C303	VE020300	C. EL 22uF 50V
C304	UA652100	C. MYLAR 100pF 50V
C305	VJ839200	C. EL 2.2uF 50V
C306	VJ839200	C. EL 2.2uF 50V
C307	UA652100	C. MYLAR 100pF 50V
C308	VE020300	C. EL 22uF 50V
C309	UA655120	C. MYLAR 0.12uF 50V
C310	UA654330	C. MYLAR 0.033uF 50V
C311	UA654330	C. MYLAR 0.033uF 50V
C312	UA655120	C. MYLAR 0.12uF 50V
C313	VJ839000	C. EL 0.47uF 50V
C314	VJ839000	C. EL 0.47uF 50V
C315	UM407220	C. EL 22uF 25V
C316	UM407220	C. EL 22uF 25V
D1	VD631600	DIODE 1SS133, 176, HSS104
D2	VD631600	DIODE 1SS133, 176, HSS104
D3	VD631600	DIODE 1SS133, 176, HSS104
D4	VP976900	LED(or) SLN-210DCT12
D5	VD631600	DIODE 1SS133, 176, HSS104
D13	VM974200	DIODE. ZENR HZS5C2TD 5.0V
D14	VM974200	DIODE. ZENR HZS5C2TD 5.0V
IC1	XB247301	IC uPC4570HA
* IC2	XP580A00	IC TC9273N-004
IC3	XP896A00	IC LC78213
IC4	XB247301	IC uPC4570HA
IC5	XB247301	IC uPC4570HA
IC6	XB247301	IC uPC4570HA
IC7	XL816A00	IC YSS223-K
IC8	XN667A00	IC TC51832SPL-10 PS-R
IC9	XA507A00	IC AN78N05
IC10	XB247301	IC uPC4570HA
IC11	XB247301	IC uPC4570HA
IC12	XB247301	IC uPC4570HA
IC13	XB247301	IC uPC4570HA
IC14	XB247301	IC uPC4570HA
* IC15	XQ212A00	IC NJM4558LD
* IC16	XB247301	IC uPC4570HA
* IC17	XQ212A00	IC NJM4558LD
IC18	XB247301	IC uPC4570HA
IC19	XB247301	IC uPC4570HA
* IC20	XP265A00	IC BU2090
IC22	XB247301	IC uPC4570HA
IC23	XB247301	IC uPC4570HA
IC24	XB247301	IC uPC4570HA
IC25	XB247301	IC uPC4570HA
IC26	XE536001	IC LC7535
IC27	XE536001	IC LC7535
IC28	XF494A00	IC LB1641
IC29	XH436A00	IC LA7956
IC30	iG055100	IC TC4053BP
IC31	XH436A00	IC LA7956
IC32	XH436A00	IC LA7956

* New Parts

Schm Ref.	PART NO.	Description
IC301	XB247301	IC uPC4570HA
IC302	XB247301	IC uPC4570HA
* JK1	VS867300	CN 4P
JK2	VN938100	CN. DIN 3P S
PJ1	VK421600	JACK. PIN 4P
PJ2	VT029100	JACK. PIN 4P
PJ3	VT029100	JACK. PIN 4P
PJ4	VJ794600	JACK. PIN 6P
* PJ5	VS549000	JACK. PIN 3P
PJ6	VJ695900	JACK. PIN 3P
PJ7	VJ695900	JACK. PIN 3P
Q3	iA101521	TR 2SA1015 Y
Q4	iC1815C0	TR 2SC1815 Y
Q5	iA101521	TR 2SA1015 Y
Q6	iC1815C0	TR 2SC1815 Y
Q7	iC260320	TR 2SC2603 E, F
Q8	iC260320	TR 2SC2603 E, F
R31	HV455100	R. CAR. FP 100Ω 1/4W
R46	HV455100	R. CAR. FP 100Ω 1/4W
R130	HV454220	R. CAR. FP 22Ω 1/4W
R136	HV453680	R. CAR. FP 6.8Ω 1/4W
R137	HV453220	R. CAR. FP 2.2Ω 1/4W
R219	HV454100	R. CAR. FP 10Ω 1/4W
R221	HV454100	R. CAR. FP 10Ω 1/4W
R242	HV453220	R. CAR. FP 2.2Ω 1/4W
R325	HV455100	R. CAR. FP 100Ω 1/4W
R330	HV455100	R. CAR. FP 100Ω 1/4W
SW301	VN010700	SW. PUSH PSE4/2 S
* VR1	VS868300	VR. MTR A100KΩ
* VR301	VP741800	VR B20KΩ
* VR302	VP741900	VR G25KΩ
* VR303	VP742000	VR MN100KΩ
XL1	VK175200	RSNR. CE 11.28MHz
	VB966900	CN IMSA-6024
	BB071360	SCR. TERM 8.3x13
* VR264300		PLATE. GND
* VS710100		P. C. B. MAIN(U)
* VS710200		P. C. B. MAIN(C)
* VS710300		P. C. B. MAIN(R)
* VS710400		P. C. B. MAIN(A)
* VS710500		P. C. B. MAIN(L)
CB501	VK025200	CN. BS. PIN 8P
CB502	VK027100	CN. BS. PIN 12P
* CB503	VK026300	CN. BS. PIN 4P
CB504	VK024900	CN. BS. PIN 5P
CB505	VK024700	CN. BS. PIN 3P
CB506	VP206500	HOLDER. FUS EYF-52BC
CB507	VP206500	HOLDER. FUS EYF-52BC
CB508	VP206500	HOLDER. FUS EYF-52BC
CB509	VP206500	HOLDER. FUS EYF-52BC

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
CB510	VK025600	CN. BS. PIN	12P	
CB511	VP206500	HOLDER. FUS	EYF-52BC(R)	
CB512	VP206500	HOLDER. FUS	EYF-52BC(R)	
CB513	VP206500	HOLDER. FUS	EYF-52BC	
CB514	VP206500	HOLDER. FUS	EYF-52BC(L)	
CB515	VP206500	HOLDER. FUS	EYF-52BC(L)	
CB516	VG879900	CN. BS. PIN	2P	
* CB517	VL766100	CN. JUMPER	4P	
CB518	VK024800	CN. BS. PIN	4P	
CB519	VP206500	HOLDER. FUS	EYF-52BC	
CB520	Vi878200	CN. BS. PIN	4P	
* CB521	VQ584700	CN. BS. PIN	5P	
* CB522	VQ584700	CN. BS. PIN	5P	
* CB523	VQ584800	CN. BS. PIN	6P	
* CB524	VQ584800	CN. BS. PIN	6P	
CB525	Vi879000	CN. BS. PIN	12P	
CB526	Vi878100	CN. BS. PIN	3P	
CB527	Vi878200	CN. BS. PIN	4P	
CB528	Vi878200	CN. BS. PIN	4P	
CB529	LA002110	TERM. WRAP	2P	
CB530	LA002110	TERM. WRAP	2P	
CB531	LA002110	TERM. WRAP	2P	
C501	UM416470	C. EL	4.7uF	50V
C502	VJ839100	C. EL	1uF	50V(AL)
C503	UM417100	C. EL	10uF	50V
C504	UM417100	C. EL	10uF	50V
C506	VK399200	C. MYLAR. ML	0.39uF	50V
C507	UM416470	C. EL	4.7uF	50V
C508	FG251330	C. CE	33pF	50V
C509	UA652100	C. MYLAR	100pF	50V
C510	FG251330	C. CE	33pF	50V
C511	UA652100	C. MYLAR	100pF	50V
C512	FG251330	C. CE	33pF	50V
C513	UM417100	C. EL	10uF	50V
C514	UA652100	C. MYLAR	100pF	50V
C516	VK399200	C. MYLAR. ML	0.39uF	50V
C517	VS696700	C. CE	33pF	500V
C518	VJ837200	C. EL	47uF	16V
* C519	UA253100	C. MYLAR	1000pF	50V
C520	VS696700	C. CE	33pF	500V
C521	VJ837200	C. EL	47uF	16V
* C522	UA253100	C. MYLAR	1000pF	50V
C523	VS696700	C. CE	33pF	500V
C524	VJ837200	C. EL	47uF	16V
* C525	UA253100	C. MYLAR	1000pF	50V
* C526	VR325000	C. MYLAR	100pF	100V
C527	UJ667470	C. EL	47uF	50V
C528	UJ667470	C. EL	47uF	50V
* C529	VR325000	C. MYLAR	100pF	100V
C530	VK347900	C. EL	470uF	63V
* C531	VR325000	C. MYLAR	100pF	100V
C532	UJ667470	C. EL	47uF	50V
C533	UJ667470	C. EL	47uF	50V

* New Parts

Schm Ref.	PART NO.	Description		
* C534	VR325000	C. MYLAR	100pF	100V
* C535	VR325000	C. MYLAR	100pF	100V
C536	UJ667470	C. EL	47uF	50V
C537	UJ667470	C. EL	47uF	50V
* C538	VR325000	C. MYLAR	100pF	100V
C539	VJ836900	C. EL	10uF	16V
C540	VJ839200	C. EL	2.2uF	50V
C541	VJ839100	C. EL	1uF	50V
C542	UA654680	C. MYLAR	0.068uF	50V
C543	UA654680	C. MYLAR	0.068uF	50V
C544	UA654680	C. MYLAR	0.068uF	50V
* C552	VS578300	C. EL	10000uF	63V
* C553	VS578300	C. EL	10000uF	63V
* C556	VS745400	C. POL. MT	0.1uF	100V
* C557	VS745400	C. POL. MT	0.1uF	100V
C558	VJ837200	C. EL	47uF	16V
C559	FG251220	C. CE	22pF	50V
C560	UA652470	C. MYLAR	470pF	50V
C561	VJ837200	C. EL	47uF	16V
C562	UM417100	C. EL	10uF	50V
C563	UM417100	C. EL	10uF	50V
C564	VJ839000	C. EL	0.47uF	50V
C565	VJ839000	C. EL	0.47uF	50V
C566	UM417100	C. EL	10uF	50V
C567	VJ837200	C. EL	47uF	16V
C568	FG251220	C. CE	22pF	50V
C569	UA652470	C. MYLAR	470pF	50V
C570	VJ837200	C. EL	47uF	16V
C571	VF606700	C. EL	1000uF	25V
* C572	VR325000	C. MYLAR	100pF	100V
* C573	UA654100	C. MYLAR	0.01uF	50V
C574	VF466800	C. CE. TUBLR	100pF	50V
* C575	VR325000	C. MYLAR	100pF	100V
* C576	VR325000	C. MYLAR	100pF	100V
* C577	UA654100	C. MYLAR	0.01uF	50V
C578	UM417100	C. EL	10uF	50V
C579	VF466800	C. CE. TUBLR	100pF	50V
* C580	VR325000	C. MYLAR	100pF	100V
C581	Ui377470	C. EL	47uF	63V(R)
C581	UJ667470	C. EL	47uF	50V(C)
C582	FG213100	C. CE	1000pF	50V(CR)
C583	UA655100	C. MYLAR	0.1uF	50V(UC)
C584	UA654470	C. MYLAR	0.047uF	50V
C585	FG214100	C. CE	0.01uF	50V
* C586	UA654100	C. MYLAR	0.01uF	50V
C587	VL544800	C. EL	3300uF	35V
C588	VG289900	C. EL	2200uF	35V
C589	UM416470	C. EL	4.7uF	50V
* C590	VS741700	C. CE. SAFTY	0.01uF	275V
* C591	VS745400	C. POL. MT	0.1uF	100V
* C592	VS745400	C. POL. MT	0.1uF	100V
C593	UJ667470	C. EL	47uF	50V
C594	VJ839000	C. EL	0.47uF	50V

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description
C595	VJ837200	C. EL 47uF 16V
C596	VF466900	C. CE. TUBLR 470pF 50V
C597	VF466900	C. CE. TUBLR 470pF 50V
C598	VF466900	C. CE. TUBLR 470pF 50V
C599	VF466900	C. CE. TUBLR 470pF 50V
C600	VF466900	C. CE. TUBLR 470pF 50V
C601	UA654470	C. MYLAR 0.047uF 50V
C602	VJ839000	C. EL 0.47uF 50V
C611	VF760000	C. EL 100uF 10V
* D501	VM976500	DIODE. ZENR HZS302TD 30V
D502	VM976300	DIODE. ZENR HZS242TD 24V
D503	VM974500	DIODE. ZENR HZS6C2TD 6.0V
D504	VD631600	DIODE 1SS133, 176, HSS104
D505	VG438100	DIODE. ZENR MTZJ6.2C 6.2V
D506	VN008700	DIODE 1SS270A
D507	VN008700	DIODE 1SS270A
D508	VN008700	DIODE 1SS270A
D509	VD631600	DIODE 1SS133, 176, (C)
△ D510	VN011400	DIODE. BRG D5SB20 5A 200V
D511	VM975800	DIODE. ZENR HZS152TD 15V
D512	VM976300	DIODE. ZENR HZS242TD 24V
D513	VD631600	DIODE 1SS133, 176, HSS104
D514	VM976300	DIODE. ZENR HZS242TD 24V
D515	VM975800	DIODE. ZENR HZS152TD 15V
D516	VD631600	DIODE 1SS133, 176, HSS104
D517	VD631600	DIODE 1SS133, 176, HSS104
D518	VD631600	DIODE 1SS133, 176, HSS104
D519	VD631600	DIODE 1SS133, 176, HSS104
* D520	VM975600	DIODE. ZENR HZS12B2TD 12V (CR)
△ D521	VR253700	DIODE. BRG S1NB20 1.0A 200V
△ D522	VM976300	DIODE. ZENR HZS242TD 24V
△ D523	VN011300	DIODE. BRG D3SBA20 4A 200V
D524	VM975700	DIODE. ZENR HZS12C2TD 12V
△ F501	KB000790	FUSE T4.0A 250V (AL)
△ * F501	VS823000	FUSE T5.0A 125V (UCR)
△ F502	KB000790	FUSE T4.0A 250V (AL)
△ * F502	VS823000	FUSE T5.0A 125V (UCR)
△ F503	KB002980	FUSE T2.5A 250V (L)
△ F504	KB000790	FUSE T4.0A 250V (R)
△ F505	KB000790	FUSE T4.0A 250V (AL)
△ * F505	VS823300	FUSE T8.0A 125V (UCR)
IC501	iG092000	IC M5220L
IC502	XD343A00	IC NJM79M12FA
JK501	LB301720	JACK. PHONE
△ JK502	VK480600	OUTLET. AC (UCR)
△ JK502	VK480700	OUTLET. AC (L)
* L501	VR906600	COIL 0.95uH
* L502	VR906600	COIL 0.95uH
* L503	VP575600	COIL 1.5uH
* L504	VP575600	COIL 1.5uH
* L505	VP575600	COIL 1.5uH
PJ501	VR245000	JACK. PIN 6P
Q501	VK432900	TR 2SD1915F S, T (AL)

* New Parts

Schm Ref.	PART NO.	Description
Q502	VK432900	TR 2SD1915F S, T
Q503	VK432900	TR 2SD1915F S, T (AL)
Q504	VK432900	TR 2SD1915F S, T
Q505	VK432900	TR 2SD1915F S, T
Q506	iA101521	TR 2SA1015 Y
* Q507	VP883000	TR 2SA893A D, E
* Q508	VP883000	TR 2SA893A D, E
* Q509	VP883000	TR 2SA893A D, E
Q510	iC224030	TR 2SC2240 GR, BL
* Q511	VP883000	TR 2SA893A D, E
* Q512	VP883000	TR 2SA893A D, E
* Q513	VP883000	TR 2SA893A D, E
Q514	VC218900	TR 2SC3330 R, S, T
* Q515	VR325600	TR 2SC2229 O, Y
Q516	VC218900	TR 2SC3330 R, S, T
* Q517	VR325600	TR 2SC2229 O, Y
Q518	VC218900	TR 2SC3330 R, S, T
* Q519	VR325600	TR 2SC2229 O, Y
Q520	iD040040	TR 2SD400
Q521	iA093320	TR 2SA933S Q, R
Q522	iX603580	TR 2SA1358
Q522	iX603590	TR 2SC3421
# Q523	iX606460	TR 2SA1492 O, P, Y
# Q523	iX606470	TR 2SC3856 O, P, Y
Q526	iX603580	TR 2SA1358
Q526	iX603590	TR 2SC3421
# Q527	iX606460	TR 2SA1492 O, P, Y
# Q527	iX606470	TR 2SC3856 O, P, Y
Q530	iX603580	TR 2SA1358
Q530	iX603590	TR 2SC3421
# Q531	iX633340	TR 2SA1695 O, P, Y
# Q531	iX633350	TR 2SC4468 O, P, Y
Q534	iA097000	TR 2SA970 GR, BL
* Q535	VP883100	TR 2SC1890A D, E
* Q536	VP883100	TR 2SC1890A D, E
* Q537	VP883100	TR 2SC1890A D, E
Q538	VK432900	TR 2SD1915F S, T
Q539	VK432900	TR 2SD1915F S, T
Q540	iC1815C0	TR 2SC1815 Y
Q541	iA101521	TR 2SA1015 Y
Q542	VC218900	TR 2SC3330 R, S, T
Q543	iX619590	TR 2SA1726 O, P, Y
Q543	iX619600	TR 2SC4512 O, P, Y
* Q544	VP872700	TR 2SC4488 S, T
* Q545	VP872600	TR 2SA1708 S, T
Q546	iC224030	TR 2SC2240 GR, BL
Q548	iX619590	TR 2SA1726 O, P, Y
Q548	iX619600	TR 2SC4512 O, P, Y
* Q549	VP872700	TR 2SC4488 S, T
* Q550	VP872600	TR 2SA1708 S, T
Q551	iC224030	TR 2SC2240 GR, BL
Q553	VR510800	TR 2SD2396 J, K (CR)
Q555	iC224030	TR 2SC2240 GR, BL

* New Parts

P.C.B. MAIN & OPERATION

Schm Ref.	PART NO.	Description
Q556	iC224030	TR 2SC2240 GR, BL
Q557	VN996900	TR 2SC4495
Q558	iE000020	FET 2SK30ATM GR
Q559	VK432900	TR 2SD1915F S, T
Q560	VK432900	TR 2SD1915F S, T
Q561	VK432900	TR 2SD1915F S, T
R517	HV456100	R. CAR. FP 1K Ω 1/4W
R531	HV455150	R. CAR. FP 150 Ω 1/4W
* R553	HL316560	R. MTL. OXD 5.6K Ω 1W
* R554	HL316560	R. MTL. OXD 5.6K Ω 1W
R555	HV456270	R. CAR. FP 2.7K Ω 1/4W
R557	HV455820	R. CAR. FP 820 Ω 1/4W
R558	VK189000	R. FUS 1K Ω 1/4W
R559	HV454470	R. CAR. FP 47 Ω 1/4W
R560	HL314100	R. MTL. OXD 10 Ω 1W
* R561	HL316560	R. MTL. OXD 5.6K Ω 1W
* R562	HL316560	R. MTL. OXD 5.6K Ω 1W
R563	HV456270	R. CAR. FP 2.7K Ω 1/4W
R565	HV455820	R. CAR. FP 820 Ω 1/4W
R566	VK189000	R. FUS 1K Ω 1/4W
R567	HV454470	R. CAR. FP 47 Ω 1/4W
* R568	HL316560	R. MTL. OXD 5.6K Ω 1W
* R569	HL316560	R. MTL. OXD 5.6K Ω 1W
R570	HV456270	R. CAR. FP 2.7K Ω 1/4W
R572	HV455820	R. CAR. FP 820 Ω 1/4W
R573	VK189000	R. FUS 1K Ω 1/4W
R574	HV454470	R. CAR. FP 47 Ω 1/4W
R580	HV453470	R. CAR. FP 4.7 Ω 1/4W
R581	VK188400	R. FUS 330 Ω 1/4W
R582	VJ695400	R. WW 0.22 Ω x2 3W
R583	HV453470	R. CAR. FP 4.7 Ω 1/4W
R584	HV453470	R. CAR. FP 4.7 Ω 1/4W
R585	VK188400	R. FUS 330 Ω 1/4W
R586	VJ695400	R. WW 0.22 Ω x2 3W
R587	HV453470	R. CAR. FP 4.7 Ω 1/4W
R588	HV453470	R. CAR. FP 4.7 Ω 1/4W
R589	VK188400	R. FUS 330 Ω 1/4W
* R590	HZ003780	R. MTL. PLAT 0.22 Ω +0.22 5W
R591	HV453470	R. CAR. FP 4.7 Ω 1/4W
R598	HL314100	R. MTL. OXD 10 Ω 1W
R603	HL314100	R. MTL. OXD 10 Ω 1W
R609	HL314100	R. MTL. OXD 10 Ω 1W
R611	HV454100	R. CAR. FP 10 Ω 1/4W
R613	HV454100	R. CAR. FP 10 Ω 1/4W
R614	VP944500	R. MTL. OXD 390 Ω 1W
R615	VP944500	R. MTL. OXD 390 Ω 1W
R633	HV455390	R. CAR. FP 390 Ω 1/4W
R640	HV455390	R. CAR. FP 390 Ω 1/4W
R643	HV455330	R. CAR. FP 330 Ω 1/4W
R644	VE869300	R. MTL. OXD 0.1 Ω 2W
R648	HV454220	R. CAR. FP 22 Ω 1/4W
R649	HV454470	R. CAR. FP 47 Ω 1/4W
R650	HV455330	R. CAR. FP 330 Ω 1/4W

* New Parts

Schm Ref.	PART NO.	Description
R652	VE869300	R. MTL. OXD 0.1 Ω 2W
R655	HV454220	R. CAR. FP 22 Ω 1/4W
R656	HV454470	R. CAR. FP 47 Ω 1/4W
R657	HV454560	R. CAR. FP 56 Ω 1/4W(C)
R657	HV456560	R. CAR. FP 5.6K Ω 1/4W(R)
R658	HV454560	R. CAR. FP 56 Ω 1/4W(C)
R658	HV456560	R. CAR. FP 5.6K Ω 1/4W(R)
R661	HV456150	R. CAR. FP 1.5K Ω 1/4W
R662	HV456220	R. CAR. FP 2.2K Ω 1/4W
R666	HV456150	R. CAR. FP 1.5K Ω 1/4W
R667	HV456220	R. CAR. FP 2.2K Ω 1/4W
R668	HV453220	R. CAR. FP 2.2 Ω 1/4W
R670	HV454100	R. CAR. FP 10 Ω 1/4W
R671	HL313220	R. MTL. FLM 2.2 Ω 1W
R672	HV455150	R. CAR. FP 150 Ω 1/4W
R673	HL313220	R. MTL. FLM 2.2 Ω 1W
R674	HV453220	R. CAR. FP 2.2 Ω 1/4W
R687	HV454100	R. CAR. FP 10 Ω 1/4W
R688	HV453220	R. CAR. FP 2.2 Ω 1/4W
R689	HV454100	R. CAR. FP 10 Ω 1/4W
R690	HL325470	R. MTL. OXD 470 Ω 2W
R700	HL325470	R. MTL. OXD 470 Ω 2W
RY501	VK438300	RELAY DH24D2-OTM-
RY502	VS533600	RELAY DC DH24D2-OS(M) II
RY503	VH230800	RELAY G5P-1-DC12V
RY504	VT243100	RELAY DC DH12D2-0(C)
SW501	VJ850200	SW. PUSH PSE021A2KP 2
* SW502	VS602600	SW. SLIDE SS070-P022 A(AL)
* SW503	VS602600	SW. SLIDE SS070-P022 A(C)
△ SW511	VA961800	VOLT. SELECT ESE-37247-F(R)
△ T501	XC082A00	TRANS. PWR (R)
△ T501	XC083A00	TRANS. PWR (U)
△ T501	XC084A00	TRANS. PWR (AL)
△ T501	XQ519A00	TRANS. PWR (C)
TE501	VC313700	TERM. SP 8P(UCR)
TE501	VK506200	TERM. SP 8P(AL)
* TE502	VS578600	TERM. SP 8P
	VJ828000	PIN IMSA-6024-03E
	VS605900	HEAT. SINK DPS15-45(R)
	VS606000	HEAT. SINK DPS35-45
	BB071360	SCR. TERM 8.3x13
* VR264300	PLATE. GND	
EP630280	SCR. BND. HD	3x10 FCRM3-BL
* VS941400	P. C. B.	OPERATION(UC)
* VS941500	P. C. B.	OPERATION(R)
* VS941600	P. C. B.	OPERATION(A)
* VS941700	P. C. B.	OPERATION(L)
CB801	Vi879000	CN. BS. PIN 12P
* CB804	VR362200	CN. BS. PIN 15P
C801	VH053100	C. CE. TUBLR 0.1 μ F 50V

* New Parts

P.C.B. OPERATION & TUNER

Schm Ref.	PART NO.	Description
C802	VE632800	C. EL 0.047F 5.5V
C803	VF637900	C. EL 1000uF 10V
C804	VF637900	C. EL 1000uF 10V
C805	VJ839000	C. EL 0.47uF 50V
C806	VH053100	C. CE. TUBLR 0.1uF 50V
C807	VJ839200	C. EL 2.2uF 50V
C809	VH053100	C. CE. TUBLR 0.1uF 50V
C810	VH053100	C. CE. TUBLR 0.1uF 50V
C811	VH053100	C. CE. TUBLR 0.1uF 50V
C812	VH053100	C. CE. TUBLR 0.1uF 50V
C819	VH053100	C. CE. TUBLR 0.1uF 50V
C820	VF467300	C. CE. TUBLR 0.01uF 16V
C821	VF467300	C. CE. TUBLR 0.01uF 16V(UCR)
C822	VF467300	C. CE. TUBLR 0.01uF 16V
C823	VF466900	C. CE. TUBLR 470pF 50V
C824	VH053100	C. CE. TUBLR 0.1uF 50V
D801	VD631600	DIODE 1SS133, 176, HSS104
D802	VD631600	DIODE 1SS133, 176, HSS104
D803	VM974100	DIODE. ZENR HZS5B2TD 5.0V
D804	VM974700	DIODE. ZENR HZS7B2TD 7.0V
D805	VP594000	LED(re) SLR-305VCA47(L)
D806	VD631600	DIODE 1SS133, 176, HSS104
D807	VM974100	DIODE. ZENR HZS5B2TD 5.0V
D809	VD631600	DIODE 1SS133, 176, HSS104
D810	VD631600	DIODE 1SS133, 176, HSS104
D811	VD631600	DIODE 1SS133, 176, HSS104
G801	VR463400	TERM. GND D3.5 TP00385
IC801	XQ329B00	IC HD6433723D06F
IC802	XL493A00	IC TC74HC4051AP
Q801	VG722000	TR. DGT DTC144ES
Q802	iA093320	TR 2SA933S Q, R
Q803	iA093320	TR 2SA933S Q, R
SW803	VG392900	SW. TACT SKHVAA
SW804	VG392900	SW. TACT SKHVAA
SW805	VG392900	SW. TACT SKHVAA
SW806	VG392900	SW. TACT SKHVAA
SW807	VG392900	SW. TACT SKHVAA
SW808	VG392900	SW. TACT SKHVAA
SW809	VG392900	SW. TACT SKHVAA
SW810	VG392900	SW. TACT SKHVAA
SW811	VG392900	SW. TACT SKHVAA
SW812	VG392900	SW. TACT SKHVAA
SW813	VG392900	SW. TACT SKHVAA
SW814	VG392900	SW. TACT SKHVAA
SW815	VG392900	SW. TACT SKHVAA
SW817	VG392900	SW. TACT SKHVAA
SW818	VG392900	SW. TACT SKHVAA
SW819	VG392900	SW. TACT SKHVAA
SW820	VG392900	SW. TACT SKHVAA
SW821	VG392900	SW. TACT SKHVAA
SW822	VG392900	SW. TACT SKHVAA
SW823	VG392900	SW. TACT SKHVAA
SW824	VG392900	SW. TACT SKHVAA

* New Parts

Schm Ref.	PART NO.	Description
SW825	VG392900	SW. TACT SKHVAA
SW826	VG392900	SW. TACT SKHVAA
SW827	VG392900	SW. TACT SKHVAA
SW828	VG392900	SW. TACT SKHVAA
SW829	VG392900	SW. TACT SKHVAA
SW831	VG392900	SW. TACT SKHVAA
SW832	VG392900	SW. TACT SKHVAA
SW833	VG392900	SW. TACT SKHVAA
SW834	VG392900	SW. TACT SKHVAA
SW835	VG392900	SW. TACT SKHVAA
SW836	VG392900	SW. TACT SKHVAA
SW837	VG392900	SW. TACT SKHVAA
SW838	VG392900	SW. TACT SKHVAA
SW839	VG392900	SW. TACT SKHVAA
SW840	VG392900	SW. TACT SKHVAA
SW841	VG392900	SW. TACT SKHVAA
SW842	VG392900	SW. TACT SKHVAA
SW843	VG392900	SW. TACT SKHVAA
SW844	VG392900	SW. TACT SKHVAA
SW845	VG392900	SW. TACT SKHVAA
SW846	VG392900	SW. TACT SKHVAA
* U801	VR023400	L. DETCT SPS-424-1
* V801	VS599400	FL. DSPLY 16-BT-29GK
XL801	VE222400	RSNR. CE 8MHz
	VJ828000	PIN IMSA-6024-03E
	VR380100	SPACER FL-T6
	VS588900	SHEET
	VR341800	P. C. B. TUNER (UC)
	VR341900	P. C. B. TUNER (R)
	VR342000	P. C. B. TUNER (AL)
CB1	VR428700	CN. BS. PIN 2P
CB2	VR428700	CN. BS. PIN 2P
* CB4	VQ961800	CN. BS. PIN 15P
C1	UJ638330	C. EL 330uF 16V
C2	VG280100	C. CE. TUBLR 0.022uF 25V
C3	VJ599000	C. CE. TUBLR 0.047uF 16V
C4	VJ836900	C. EL 10uF 16V
C5	VF467300	C. CE. TUBLR 0.01uF 16V
C6	VF964800	C. EL 100uF 16V
C7	VJ839100	C. EL 1uF 50V
C8	VF467300	C. CE. TUBLR 0.01uF 16V
C9	VF467300	C. CE. TUBLR 0.01uF 16V
C10	VF467300	C. CE. TUBLR 0.01uF 16V
C11	VF467000	C. CE. TUBLR 1000pF 50V
C12	VJ836900	C. EL 10uF 16V
C13	VJ836900	C. EL 10uF 16V
C14	VF467000	C. CE. TUBLR 1000pF 50V
C15	VF467000	C. CE. TUBLR 1000pF 50V
C16	VF466700	C. CE. TUBLR 47pF 50V
C17	VF964800	C. EL 100uF 16V

* New Parts

P.C.B. TUNER

Schm Ref.	PART NO.	Description
C18	UA655100	C. MYLAR 0.1uF 50V
C19	VA761200	C. CE 33pF 50V
C20	VJ836900	C. EL 10uF 16V
C21	VF466800	C. CE. TUBLR 100pF 50V
C22	VJ839200	C. EL 2.2uF 50V
C23	VF467300	C. CE. TUBLR 0.01uF 16V
C24	UM416470	C. EL 4.7uF 50V
C25	UM216330	C. EL 3.3uF 50V
C26	VJ836900	C. EL 10uF 16V
C27	VF467300	C. CE. TUBLR 0.01uF 16V
C28	VA761200	C. CE 33pF 50V
C29	VJ839100	C. EL 1uF 50V
C30	VJ839100	C. EL 1uF 50V
C31	VJ836900	C. EL 10uF 16V
C32	VJ839000	C. EL 0.47uF 50V
C33	VJ839100	C. EL 1uF 50V
* C34	UA654470	C. MYLAR 0.047uF 50V
C35	VD916400	C. EL 2.2uF 50V
C36	UA652470	C. MYLAR 470pF 50V (AL)
C36	UA652680	C. MYLAR 680pF 50V (UCR)
C37	UA652470	C. MYLAR 470pF 50V (AL)
C37	UA652680	C. MYLAR 680pF 50V (UCR)
C38	VF466900	C. CE. TUBLR 470pF 50V
C39	VJ836900	C. EL 10uF 16V
C40	UM216330	C. EL 3.3uF 50V
C41	UA653390	C. MYLAR 3900pF 50V
C42	VJ836900	C. EL 10uF 16V
C43	UA653390	C. MYLAR 3900pF 50V
C44	UM216330	C. EL 3.3uF 50V
C49	VJ599000	C. CE. TUBLR 0.047uF 16V
C68	VJ836900	C. EL 10uF 16V
C69	VJ836900	C. EL 10uF 16V
D1	VD631600	DIODE 1SS133, 176, HSS104
D2	VD631600	DIODE 1SS133, 176, HSS104
D3	VM974500	DIODE. ZENR HZS6C2TD 6.0V
Fi1	GG000560	FLTR. CE SFE10.7MS3GHY-A
Fi2	GG000560	FLTR. CE SFE10.7MS3GHY-A
Fi3	VC219000	FLTR. CE SFZ450JL3
IC1	XB760A00	IC LA1266
IC2	XB818A00	IC LM7000N
IC3	iG158100	IC LA3401
L1	Vi546100	COIL 220uH
L2	Vi546100	COIL 220uH
L3	Vi546100	COIL 220uH
* PK1	VR242200	TUNER. PK EXV-17296G1
PK2	Vi027300	COIL. AM
Q1	iC053540	TR 2SC535 A,B,C
Q2	VC218900	TR 2SC3330 R,S,T
Q3	VC218900	TR 2SC3330 R,S,T
Q4	iC053540	TR 2SC535 A,B,C
Q5	VC218700	TR 2SA1317 R,S,T
Q6	VC218900	TR 2SC3330 R,S,T
Q7	iC1815C0	TR 2SC1815 Y

* New Parts

Schm Ref.	PART NO.	Description
SW1	VF541200	SW. SLIDE SSSF11(R)
T1	VC218600	COIL. DT. FM 10.7MHz
T2	GE100470	COIL. IF. AM 450KHz
* T4	VQ138200	FLTR. LC 19KHz
* T5	VQ138200	FLTR. LC 19KHz
TE1	LA005800	TERM. ANT YKD31-0215
TP1	LA004120	PIN. TEST
TP2	LA004120	PIN. TEST
VR1	VJ694000	VR. TRIM B47KΩ
VR2	VJ694000	VR. TRIM B47KΩ
XL1	QU003800	RSNR. CRY 7.2MHz
XL2	GG000750	RSNR. CE 18.95MHz
	BB071360	SCR. TERM 8.3x13
	VR282500	PLATE ANT.

* New Parts

A

B

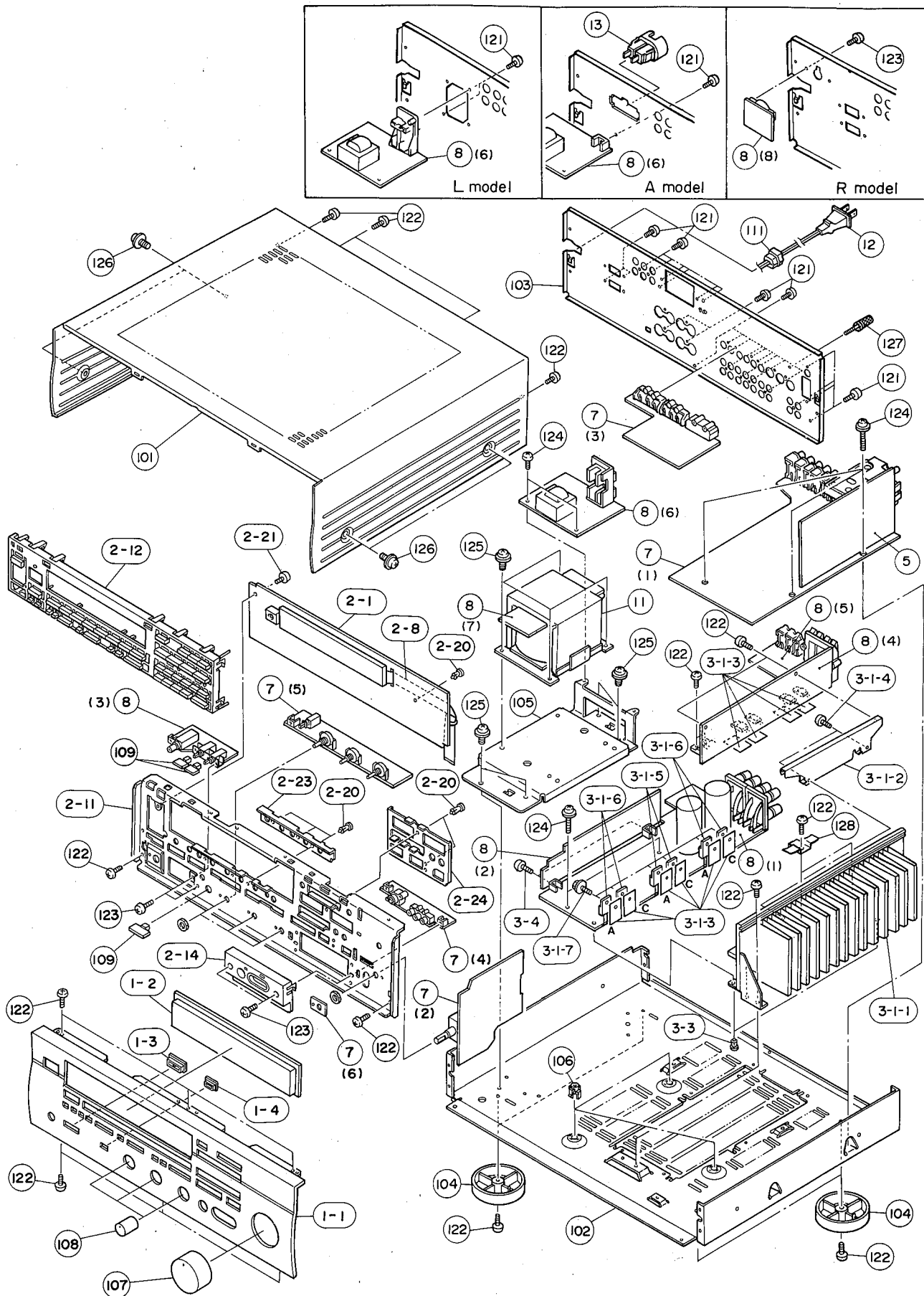
C

D

E

RX-V690

EXPLODED VIEW



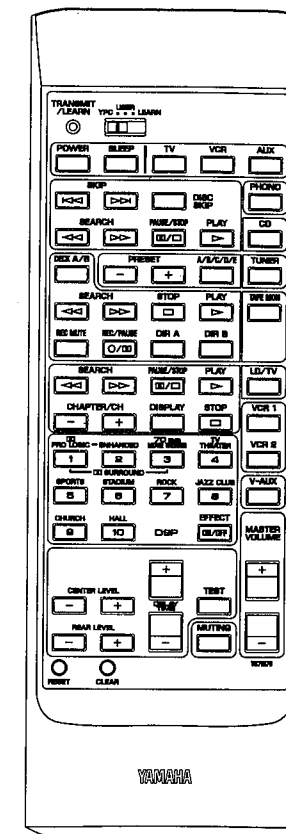
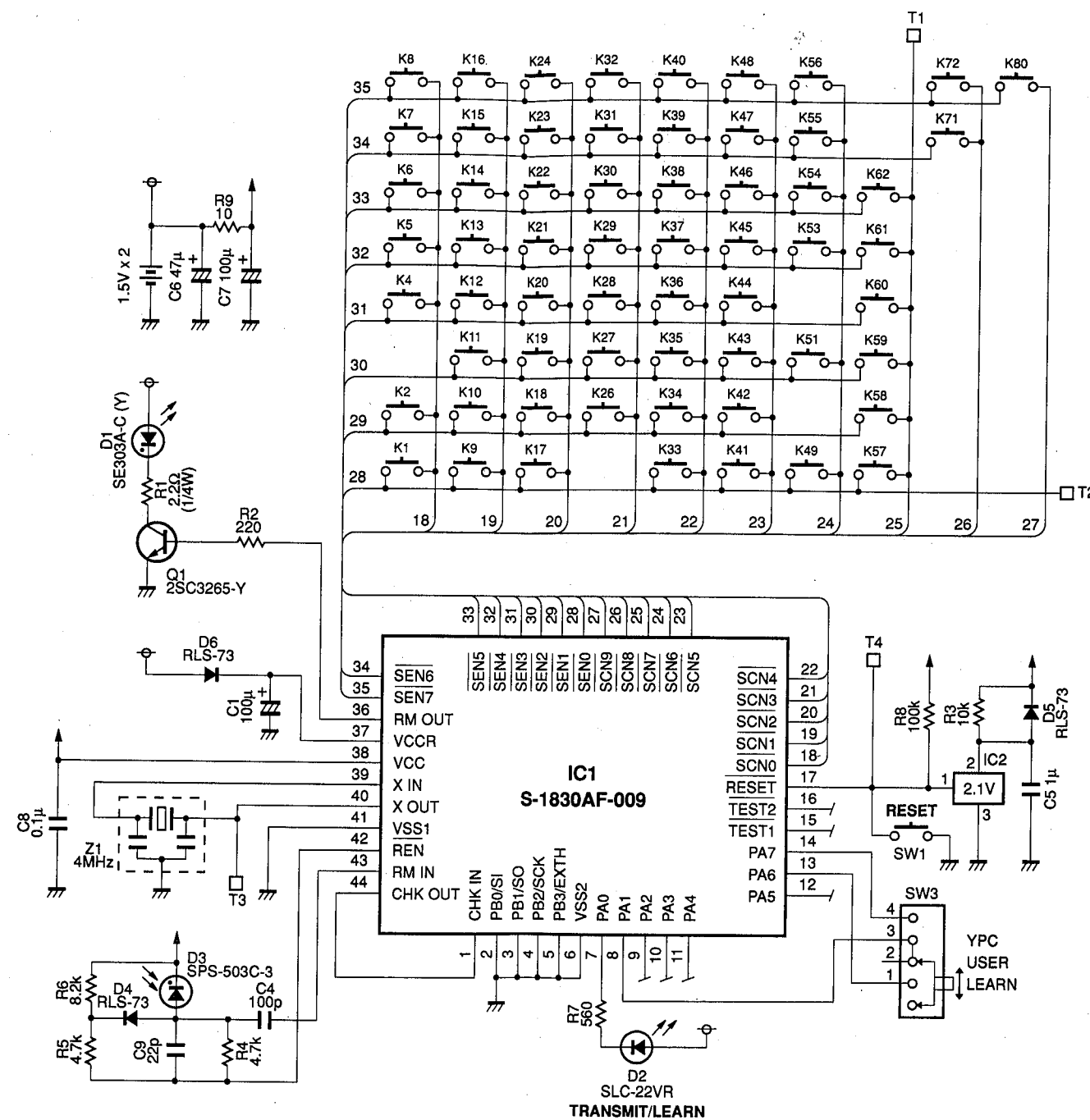
■ MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1- 1	VS588500	FRONT PANEL		
* 1- 2	VS588700	WINDOW PANEL		(UCRA)
* 1- 2	VS588800	WINDOW PANEL		(L)
* 1- 3	VQ793400	BUTTON GUIDE		
1- 4	CB660830	ESCUTCHEON	3x14	
* 2- 1	VS941400	P.C.B. ASS'Y	OPERATION	(UC)
* 2- 1	VS941500	P.C.B. ASS'Y	OPERATION	(R)
* 2- 1	VS941600	P.C.B. ASS'Y	OPERATION	(A)
* 2- 1	VS941700	P.C.B. ASS'Y	OPERATION	(L)
* 2- 8	VS756900	CONNECTOR, FLAT CABLE	15P 250mm	
* 2-11	VS588600	SUB CHASSIS		
* 2-12	VS588400	BUTTON, CASE		
* 2-14	VS195900	ESCUTCHEON		
* 2-20	VQ368600	PUSH RIVET	P3555-B	
2-21	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
* 2-23	VS738700	SUPPORT/BI		
* 2-24	VS738900	SUPPORT/BI		
* 3-1-1	VS002400	HEAT SINK ASS'Y		
* 3-1-2	VQ796100	SUPPORT, PCB		
3-1-3	VK195900	SHEET	19x24	
3-1-4	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
# 3-1-5	iX633340	TRANSISTOR	2SA1695 O,P,Y	Q531A
# 3-1-5	iX633350	TRANSISTOR	2SC4468 O,P,Y	Q531C
# 3-1-6	iX606460	TRANSISTOR	2SA1492 O,P,Y	Q523A, Q527A
# 3-1-6	iX606470	TRANSISTOR	2SC3856 O,P,Y	Q523C, Q527C
3-1-7	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3	
* 3-3	VQ368600	PUSH RIVET	P3555-B	
3-4	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	
5	VR341800	P.C.B. ASS'Y	TUNER	(UC)
5	VR341900	P.C.B. ASS'Y	TUNER	(R)
5	VR342000	P.C.B. ASS'Y	TUNER	(AL)
* 7	VS941800	P.C.B. ASS'Y	DSP	
* 8	VS710100	P.C.B. ASS'Y	MAIN	(U)
* 8	VS710200	P.C.B. ASS'Y	MAIN	(C)
* 8	VS710300	P.C.B. ASS'Y	MAIN	(R)
* 8	VS710400	P.C.B. ASS'Y	MAIN	(A)
* 8	VS710500	P.C.B. ASS'Y	MAIN	(L)
△ * 11	XQ253A00	POWER TRANSFORMER		(U)
△ * 11	XQ254A00	POWER TRANSFORMER		(C)
△ * 11	XQ255A00	POWER TRANSFORMER		(R)
△ * 11	XQ256A00	POWER TRANSFORMER		(A)
△ * 11	XQ257A00	POWER TRANSFORMER		(L)
△ * 12	VQ508500	POWER CORD ASS'Y		(R)
△ * 12	VQ508600	POWER CORD ASS'Y		(A)
△ * 12	VS168300	POWER CORD ASS'Y		(UC)
△ * 12	VS168400	POWER CORD ASS'Y		(L)
△ 13	VP418700	AC OUTLET	2P	(A)
15	CB069250	BINDING TIE	BK-1	
* 101	VS001200	TOP COVER		
* 102	VS001400	CHASSIS		
* 103	VS002700	REAR PANEL		(U)
* 103	VS002800	REAR PANEL		(C)
* 103	VS002900	REAR PANEL		(R)

* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
* 103	VS003000	REAR PANEL		(A)
* 103	VS221600	REAR PANEL		(L)
104	VQ780300	LEG	D60xH16	
* 105	VS001900	FRAME, PCB		
* 106	VR264400	SPACER, H8		
107	VQ945500	KNOB WITH LED	D42	
* 108	VS409600	KNOB	D18	
109	VQ779000	BUTTON	3x14	
111	VN158600	CORD STOPPER	No. 2104	
121	EN301010	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	
122	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL	
123	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	
124	VT669400	PW HEAD B-TITE SCREW	3x15-8 MFC2	
125	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
126	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
127	AA627310	GROUND TERMINAL		
* 128	VS349300	SUPPORT	TR	
ACCESSORIES				
* 200	VS713700	REMOTE CONTROL TRANSMITTER		
200-1	CX676010	LID		103RRC-031-01R
* VQ147100		ANTENNA, FM	1P 1.4m	
* VR248500		ANTENNA, AM LOOP	1P 1.0m	
		BATTERY, MANGANESE	SUM-3, AA, R06	

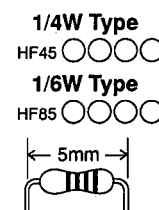
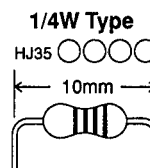
* New Parts



KEY No.	FUNCTION	CONTROL CODE	KEY No.	FUNCTION	CONTROL CODE	KEY No.	FUNCTION	CONTROL CODE
1	INPUT AUX	—	23	TUNER PRESET —	7A-11	45	DSP 7	7A-8C
2	INPUT PHONO	7A-14	24	TAPE DECK A/B	7A-06	46	DSP 3	7A-8A
4	INPUT VCR	—	26	INPUT LD/TV	7A-17	47	DSP 2	7A-89
5	INPUT TV	—	27	LD PLAY ►	7C-05	48	DSP 1	7A-88
6	CD DISC SKIP	7A-4F	28	TAPE DIR B	7A-40	49	MASTER VOL +	7A-1A
7	SLEEP	7A-57	29	TAPE DIR A	7A-07	51	EFFECT ON/OFF	7A-56
8	POWER	7A-1F	30	TAPE REC PAUSE	7A-04	53	DSP 10	7A-91
9	INPUT TUNER	7A-16	31	TAPE REC MUTE	7A-05	54	DSP 6	7A-8F
10	INPUT CD	7A-15	32	TAPE SEARCH ◀◀	7A-01	55	DSP 9	7A-90
11	CD PLAY ►	7A-08	33	INPUT VCR 1	7A-0F	56	DSP 5	7A-8E
12	CD PAUSE/STOP ■■/■	7A-09	34	LD STOP ■	7C-5B	57	MASTER VOL —	7A-1B
13	CD SEARCH ►►	7A-0C	35	LD DISPLAY	7C-13	58	TEST	7A-85
14	CD SEARCH ◀◀	7A-0D	36	LD PAUSE/STOP ■■/■	7C-04	59	MUTING	7A-1C
15	CD SKIP ►►	7A-0A	37	LD SEARCH ◀◀	7C-07	60	DELAY TIME —	7A-53
16	CD SKIP ◀◀	7A-0B	38	LD CHAPTER/CH +	7C-03	61	DELAY TIME +	7A-52
17	TAPE MON	7A-18	39	LD CHAPTER/CH —	7C-02	62	CENTER LEVEL +	7A-82
18	TUNER A/B/C/D/E	7A-12	40	LD SEARCH ►►	7C-06	68	REAR LEVEL +	7A-5E
19	TAPE PLAY ►	7A-00	41	INPUT VCR 2	7A-13	71	CENTER LEVEL —	7A-83
20	TUNER PRESET +	7A-10	42	INPUT V-AUX	7A-55	72	REAR LEVEL —	7A-5F
21	TAPE STOP ■	7A-03	43	DSP 4	7A-8B	80	CLEAR	
22	TAPE SEARCH ►►	7A-02	44	DSP 8	7A-8D			

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



RX-V690

YAMAHA