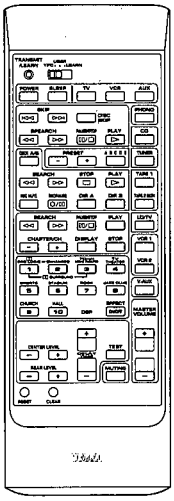
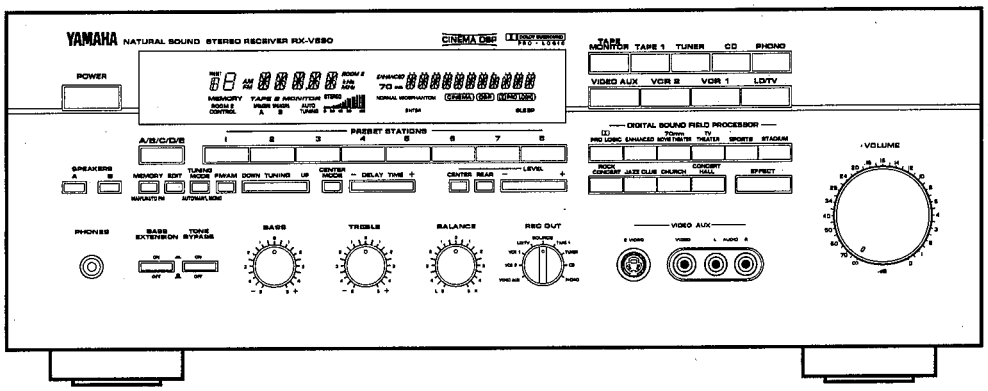
STEREO RECEIVER

RX-V890





IMPORTANT NOTICE

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

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

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

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

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

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

■ CONTENTS

100521

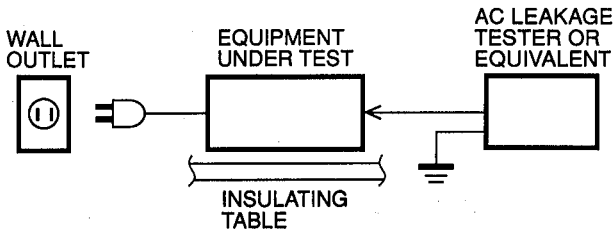
YAMAHA
YAMAHA CORPORATION
P.O.Box1,Hamamatsu,Japan
3.3K-784 Printed in Japan '95.6

RX-V890

■ TO SERVICE PERSONNEL

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

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



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.

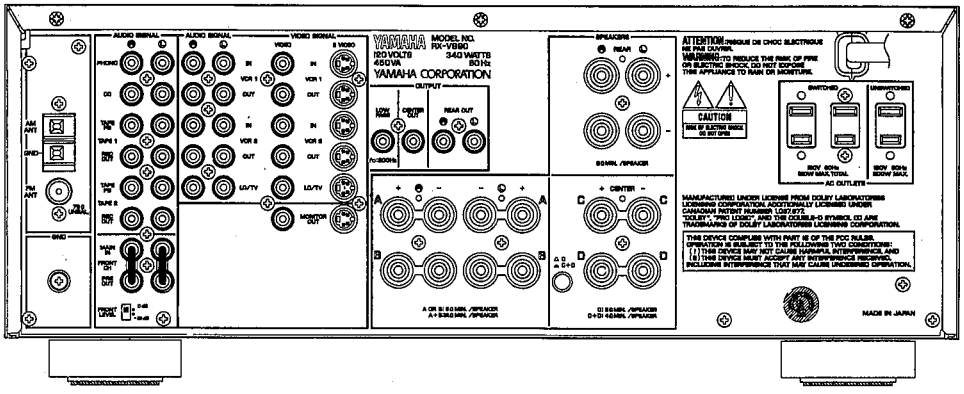
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

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

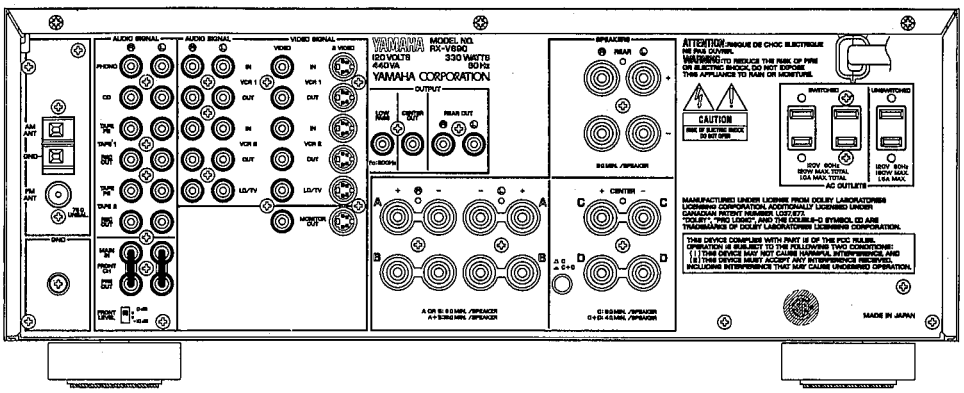
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REAR PANELS

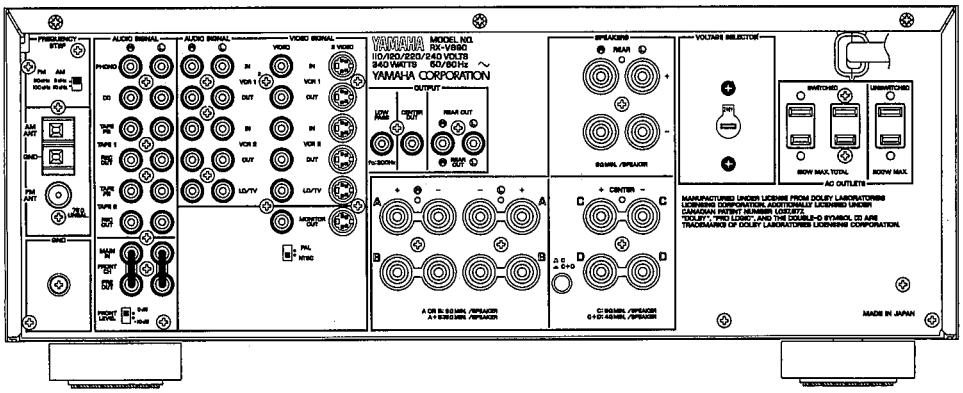
▼ U model



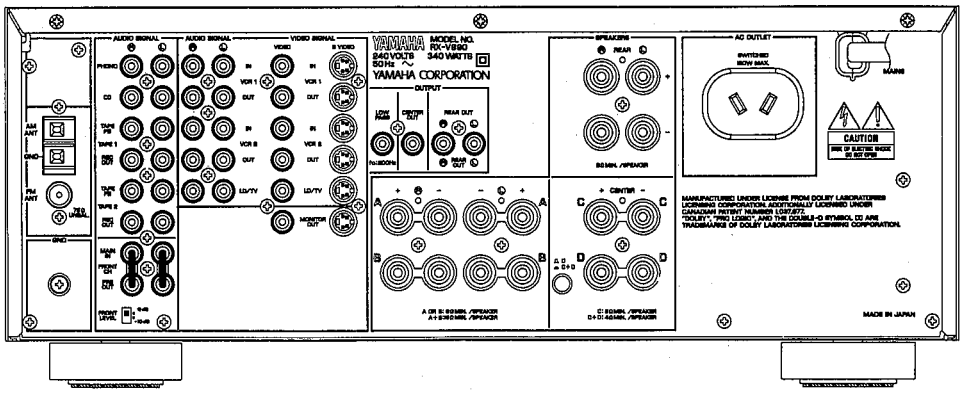
▼ C model



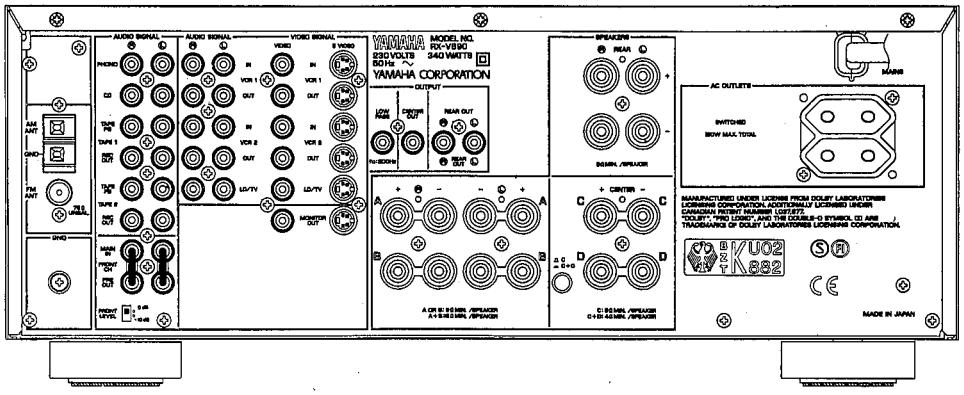
▼ R model



▼ A model



▼ G model



RX-V890

■ SPECIFICATIONS

■ AUDIO SECTION

Minimum RMS Output Power per Channel
FRONT, 20Hz to 20kHz, 0.015% THD, 8Ω 100W
CENTER, 1kHz, 0.015% THD, 8Ω 100W
REAR, 1kHz, 0.08% THD, 8Ω 25W
Maximum Power per Channel
FRONT, 1kHz, 10% THD, 8Ω
R model 135W
Dynamic Power per Channel (IHF)
8/6/4/2Ω 130/160/215/310W
Dynamic Headroom (8Ω)
U, C, models 1.14dB
Power Band Width
0.08% THD, 50W, 8Ω .....10Hz to 50kHz
Damping Factor
20Hz to 20kHz, 8Ω .....200 or more
Input Sensitivity/Impedance
PHONO MM 2.5mV/47kΩ
CD etc 150mV/47kΩ
MAIN IN 1.0V/47kΩ
Maximum Input Signal Level
PHONO MM, 1kHz, 0.02% THD 110mV
CD etc, 1kHz, 0.5% THD (EFFECT ON) 2.2V
Output Level/Impedance
REC OUT 150mV/1.0kΩ
PRE OUT 1.0V/1.5kΩ
LPF (EFFECT OFF) 3.5V/2.7kΩ
Headphone Jack Rated Output/Impedance
Input 1kHz, 150mV, 8Ω 0.55V/390Ω
Frequency Response (20Hz to 20kHz)
MAIN IN, FRONT .....0±0.2dB
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) 0.01%
CD etc to FRONT SP OUT (50W/8Ω), EFFECT OFF 0.015%
CD etc to REAR SP OUT, 1kHz (12.5W/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 170μV
Channel Separation (Vol. –30dB, EFFECT OFF)
PHONO MM, Input Shorted, 1kHz/10kHz 60dB/55dB
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
Bass Extension .....50Hz, +6dB
Filter Characteristics
LPF .....fc=200Hz, 6dB/oct
Gain Tracking Error (0dB to –70dB) 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, G 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 (± 400kHz) 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, G 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 Type
U, C models .....NTSC
A, G models .....PAL
R model .....NTSC/PAL
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

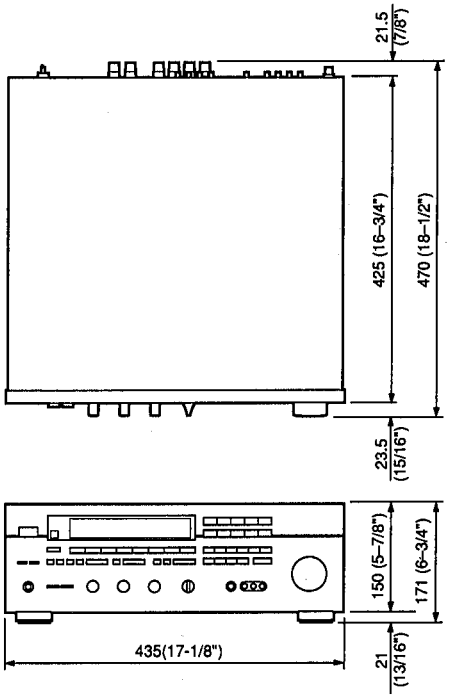
■ GENERAL

Power Supply
U, C models .....AC 120V, 60Hz
A model .....AC 240V, 50Hz
G model .....AC 230V, 50Hz
R model .....AC 110/120/220/240V, 50/60Hz
Power Consumption
C model 330W/440VA
U, A, G, R models 340W
Maximum Power Consumption
R model 700W
AC Outlets
2 Switched Outlets
U, C, G, R models .....120W max (Total)
1 Switched Outlet
A model .....120W max
1 Unswitched
U, R models .....200W max
C model .....180W max
Dimensions (W x H x D) .....435 x 171 x 470mm
(17-1/8" x 6-3/4" x 18-1/2")
Weight .....15.0 kg (33 lbs 1oz)
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.*

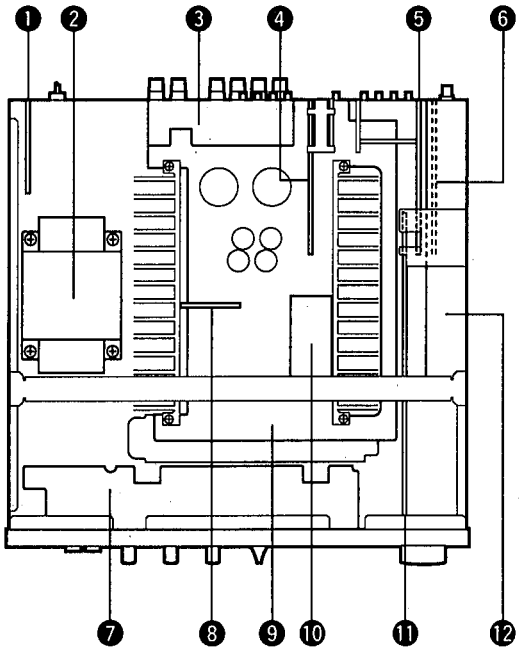
U .....USA model
C .....Canadian model
A .....Australian model
G .....European model
R .....General model

● DIMENSIONS



Units : mm (inch)

■ INTERNAL VIEW



❶ P. C. B. FUNCTION (6)
❷ POWER TRANSFORMER
❸ P. C. B. MAIN (2)
❹ P. C. B. FUNCTION (4)
❺ P. C. B. FUNCTION (1)
❻ P. C. B. TUNER
❼ P. C. B. DSP (3)
❽ P. C. B. MAIN (4)
❾ P. C. B. MAIN (1)
❿ P. C. B. MAIN (3)
⓫ P. C. B. DSP (1)
⓬ 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 3 screws (②) in Fig. 1.

2. Removal of Bottom Cover

a. Remove 11 screws (③) in Fig. 1.

3. Removal of Front Panel

a. Remove 5 knobs.

b. Remove 6 screws (④) in Fig. 1.

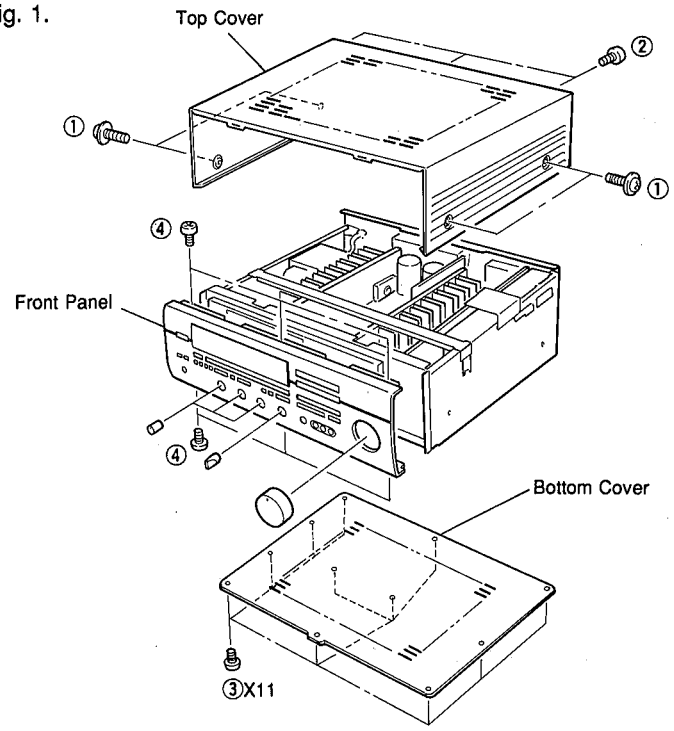


Fig. 1

■ 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 DD PRO LOGIC and 70mm MOVIE THEATER keys simultaneously, and then the DIAG. mode is started.

Monitor Display

DIAG VER. ** **
1. MAIN BYPASS
2. FRONT RAM THR
3. MAIN DSP THR
4. EFCT OFF/DISP
5. MANUAL TEST
6. PRO LOGIC
7. FACTORY PRESET
8. AD CHECK MODE**

The menu of the DIAGNOSTIC mode is displayed on the monitor display and kept as it is untill canceled.

HOW TO CANCEL DIAG.

Turning off the POWER key of the front panel or pressing the CHURCH key of the 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 the PRESET STATIONS key of the front panel or PROGRAM key of the remote control transmitter.
- Each DIAG. MENU has a 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 and 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 (Note 1)
7	FACTORY PRESET	KEEP DATA/FACTORY PRESET
8	AD CHECK MODE	KEY AD & OTHER AD CHECK
9	EXIT (Note 2)	—

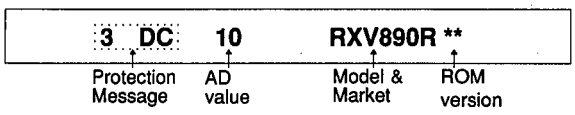
Note 1: CINE EQ ON appears but such function is not provided.

Note 2: No. 9 menu item is available only through the remote control.

FL 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)



[Protection message]

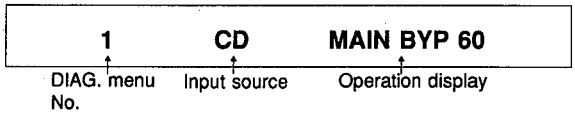
When the protection function activated, the protection message is displayed and the power is turned off.
Instantly → "1 I"
After about 0.5 seconds → "2 PS"
After about 2 seconds → "3 DC"
Correct the faulty part according to the protection message.

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
10	RXV890 R **	R : General model
40	RXV890 U **	UC : USA & Canadian models
40	RXV890 A **	A : Australian model
70	RXV890 L **	G : European model

● Components of DIAGNOSTIC display



*Supplement

When in the DIAG. mode, lighting of all segments of the tuning 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

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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.)

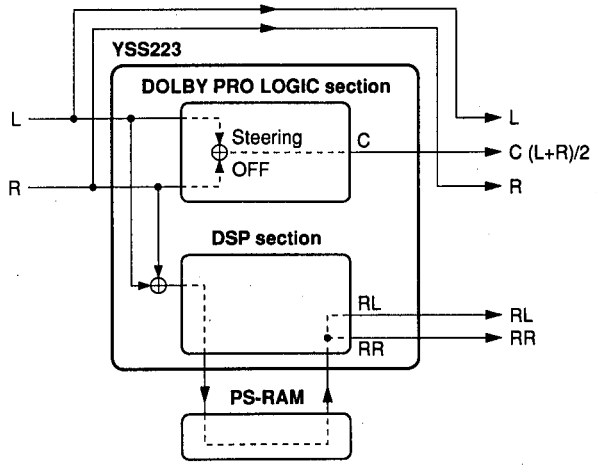
No.	Items
1	• Output Level/Impedance • Frequency Response • S/N
3	• Minimum RMS Output Power Per Channel (Center & Rear) • Total Harmonic Distortion (Center & Rear)
4	• Minimum RMS Output Power Per Channel (Front) • Dynamic Power • Power Bandwidth • Damping Factor • Input Sensitivity/Impedance • Headphone 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 for both the CENTER & REAR is changeable by changing the SUB-MENU.

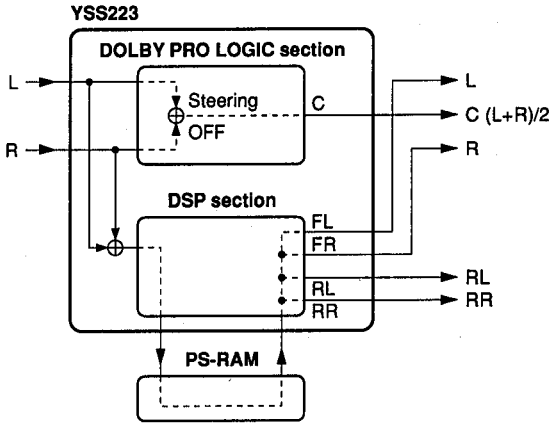
Sub-menu	FL display
Center & Rear E. Volume –10dB	1 (Input source) MAIN BYP 60
Center & Rear E. Volume 0dB	1 (Input source) MAIN BYP 80



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 for both the CENTER & REAR is changeable by changing the SUB-MENU.

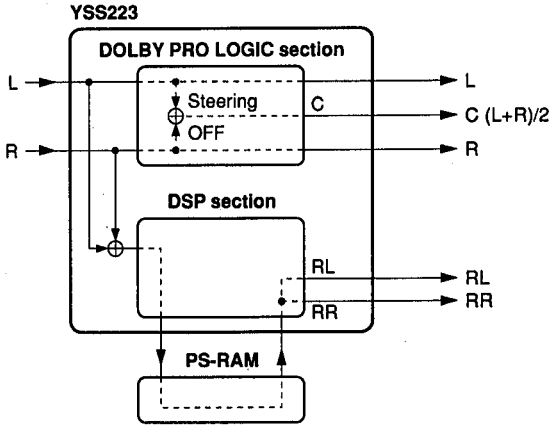
Sub-menu	FL display
Center & Rear E. Volume –10dB	2 (Input source) FRNT THR 60
Center & Rear E. Volume 0dB	2 (Input source) FRNT THR 80



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 for 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

- Effects always off in this menu.
- All segments of the FL are 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 for both the CENTER & REAR is 60 (–10dB).

Sub-menu	FL display
LEFT	5 (Input source) TEST LEFT
CENTER	5 (Input source) TEST CENTER
RIGHT	5 (Input source) TEST RIGHT
SURROUND	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 for both the 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 user memory content to 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	: DD 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
SURROUND PROGRAM	: DD PRO LOGIC

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, G)

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

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

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DIAG 8 AD DATA CHECK

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

Sub-menu	FL display
Normal DIAG. mode	8 (Input source) AD CHK MODE
PAGE 1 : KEY AD DATA	P 1 (AD check page No.) 9 9 (CH 0) 9 9 (CH 1) 9 9 (CH 2) 9 9 (CH 3) 9 9 (CH 4)
PAGE 2 : OTHER AD DATA	P 2 (AD check page No.) 4 0 (REC OUT) 5 2 (TUNING METER) 0 7 (PROTECTION 1) 2 1 (PROTECTION 2) 7 0 (OTHER SWITCH)

- In PAGE1, it displays the AD data of the keys, in PAGE2, the others.

* 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 AD Data (Page1)					Other AD Data (Page2)		
	CH0	CH1	CH2	CH3	CH4	REC OUT	Other switch	
							VIDEO TYPE	FREQUENCY STEP
00	PRESET ST. 8	CENTER MODE	PRO LOGIC	70mm MOVIE	AUX	AUX	S1	100/10kHz
10	PRESET ST. 7	TUNING UP	ENHANCED	TV THEATER	VCR2	VCR2		50/9kHz
20	PRESET ST. 6	TUNING DOWN	LEVEL UP	SPORTS	VCR1	VCR1	S2	100/10kHz
30	PRESET ST. 5	FM/AM	LEVEL DOWN	STADIUM	LD/TV	LD/TV		50/9kHz
40	PRESET ST. 4	AUTO/MAN'L	LEVEL REAR	EFFECT	PHONO	SOURCE	S1	100/10kHz
50	PRESET ST. 3	EDIT	LEVEL CENTER	CONCERT HALL	CD	TAPE 1		50/9kHz
60	PRESET ST. 2	MEMORY	—	CHURCH	TUNER	TUNER	S2	100/10kHz
70	PRESET ST. 1	SPEAKER B	DELAY UP	JAZZ CLUB	TAPE 1	CD		50/9kHz
80	PRESET PAGE	SPEAKER A	DELAY DOWN	ROCK CONCERT	TAPE 2 MONITOR	PHONO	—	—
90	KEY OFF STATE					—	—	—
99	KEY OFF STATE					—	—	—

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

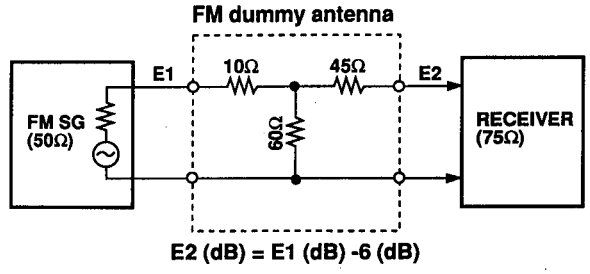
Note)
- There is no U, C or A model for S1/S2.
- S1 : R model (internal synchronization is NTSC type.)
  G model (internal synchronization is PAL type.)
- S2 : R model (internal synchronization is prohibited.)
  G model (internal synchronization is PAL type.)

■ TUNER ADJUSTMENTS

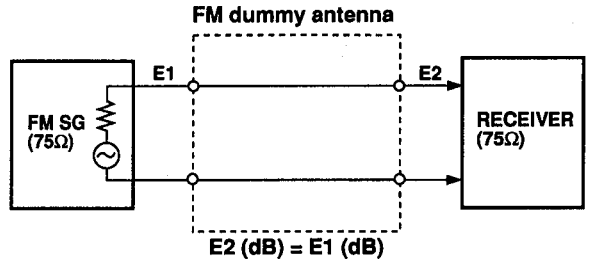
● Measuring Instruments

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, fc=15kHz)
Oscillator

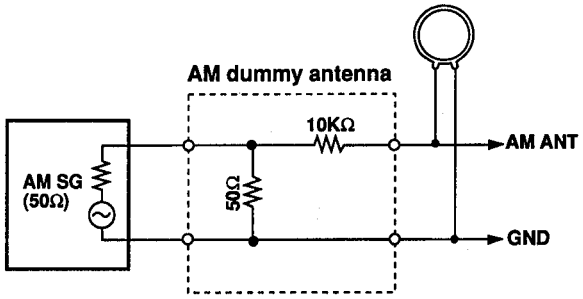
● Dummy antenna



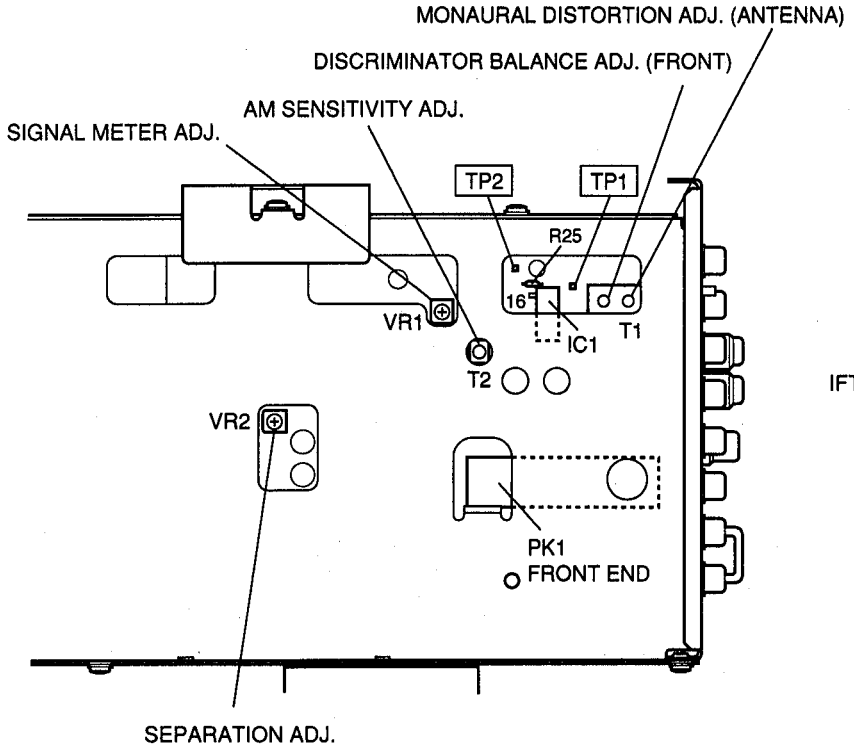
E2 (dB) = E1 (dB) -6 (dB)

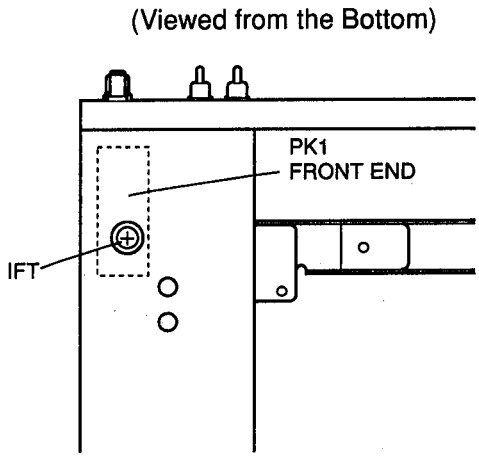


E2 (dB) = E1 (dB)



● Test point





FM Adjustment

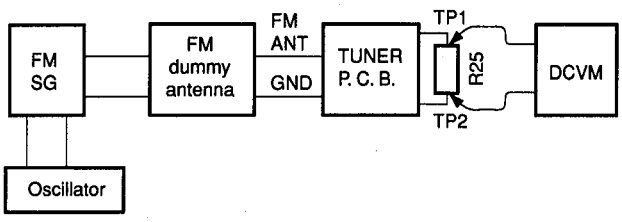
● Before Adjustment

1) For dB, 1μV=0dBμ applies.
Example : 60dBμ=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.

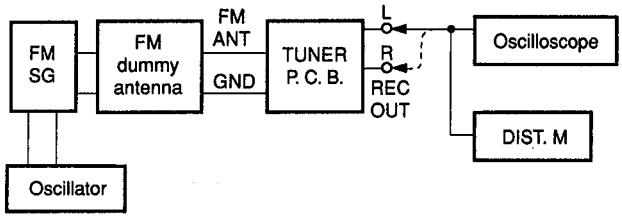
INPUT SELECTOR ..... TUNER
TUNING MODE ..... AUTO

● Connection diagram (Measuring instruments)

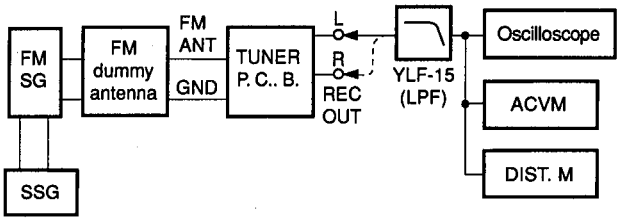
1) Discriminator balance adjustment



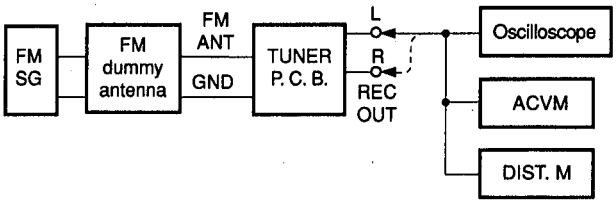
2) Monaural distortion adjustment



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 (Muting OFF). 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.

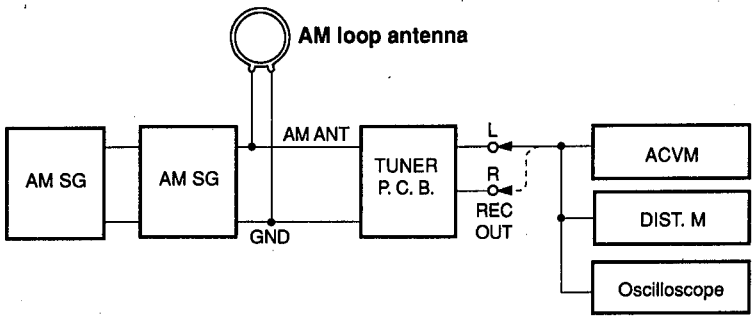
* : Execution of FACTORY PRESET (Refer to page8.) will facilitate setting reception frequency for adjustment.

RX-V890

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 steps 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

● Idling Current Adjustment (FRONT)

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

Item	Test Point	Adjusted points	Rating (DC)
FRONT L	R694 or R695	VR601	3.0mV~3.5mV
FRONT R	R707 or R708	VR602	

*Confirm that the idling current (FRONT) is 6mV~12mV after 60 minutes.

Note)

- Q617 and Q626 are transistors(2SC1846S) for temperature correction. Apply silicone grease to contact surface with the heat sink.

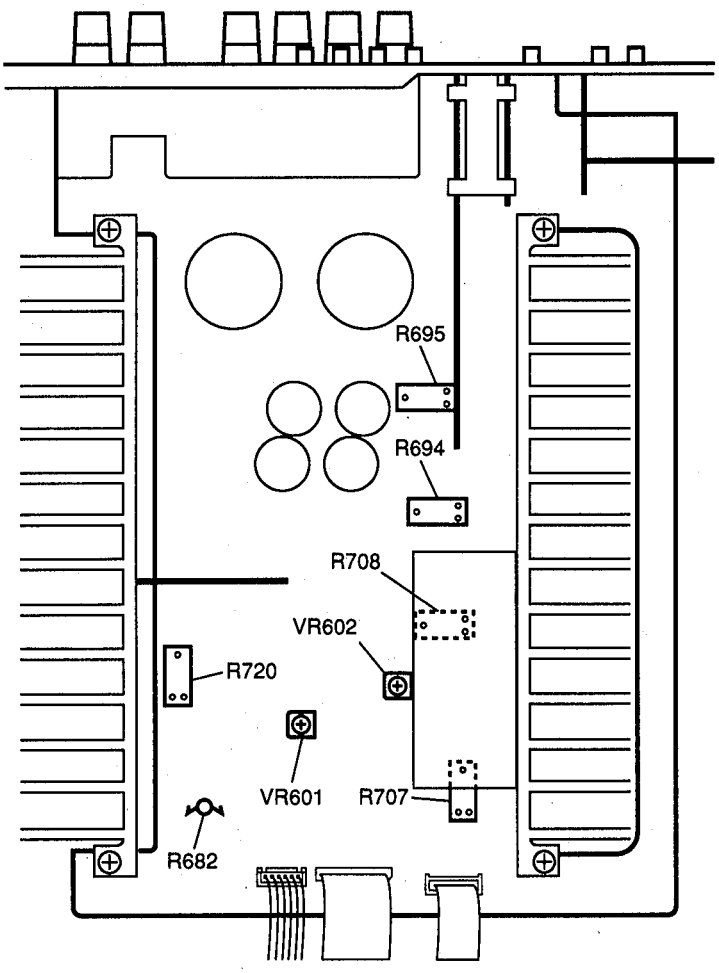
● Confirmation of Idling Current (CENTER)

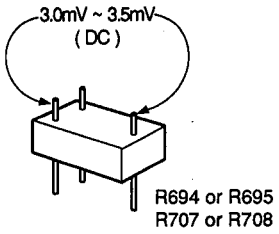
1) No signal applied.
2) Non-loaded condition.
3) Aging is not neccessary.

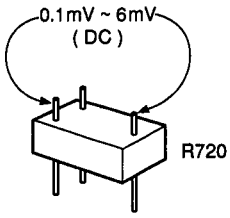
Item	Test Point	Rating (DC)	Note
CENTER	R720	0.1mV~6mV	If the measured voltage exceeds 6.1mV, cut the lead wires of R682 and then check again if each measured value satisfies the rating.

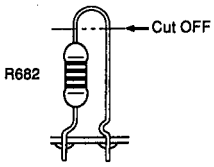
Note)

- If R682 has already been cut off and idling current does not flow, reconnect R682.
- Q633 is the transistor(2SC1846S) for temperature correction. Apply silicone grease to contact surface with the heat sink.



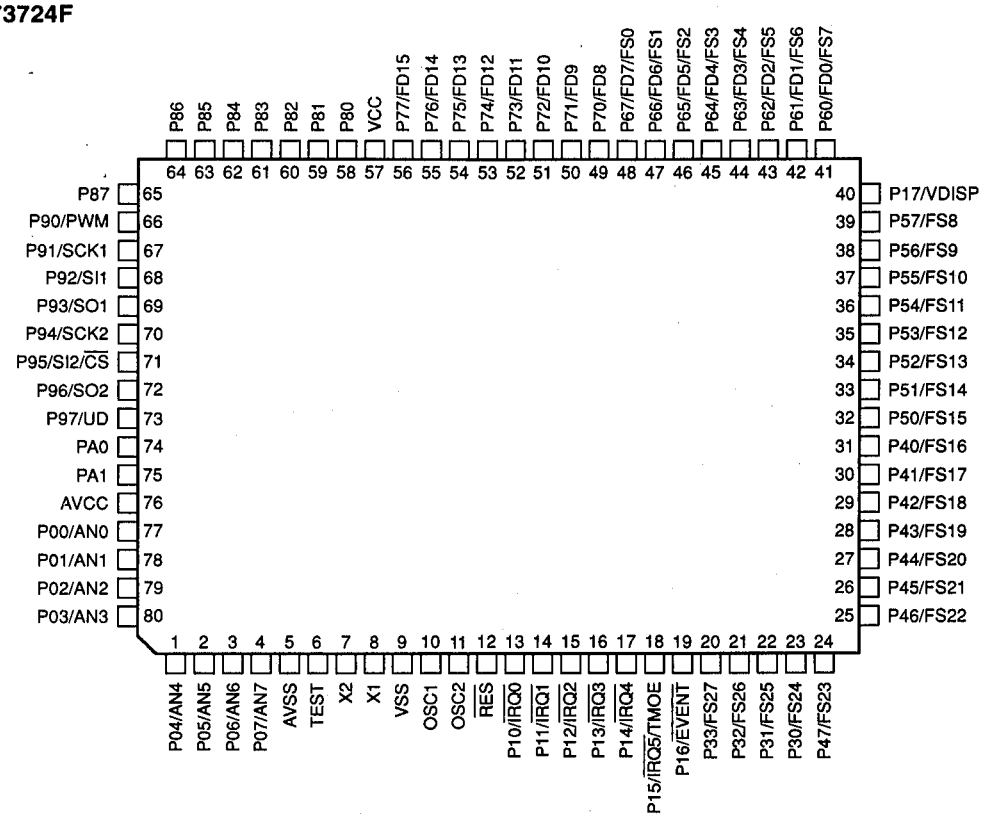






■ IC DATA

IC801 : HD6473724F
8 bit μ-COM

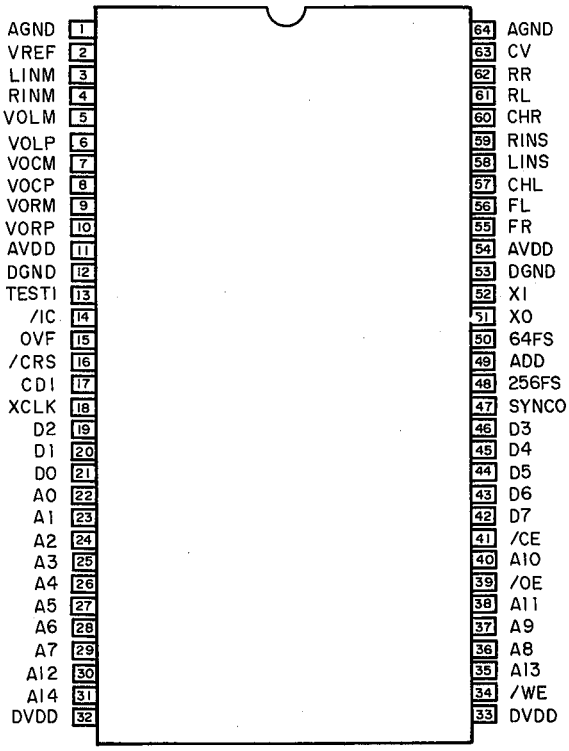


No.	Port	Name	I/O	Function
1	P04/AN4	V1	I	Market Select (A-D)
2	P05	STOUT	I	Stop request (Tuner)
3	P06	/STSIG	I	Signal in (Tuner)
4	P07	/ST	I	Stereo in (Tuner)
5	AVSS	AVSS	—	GND for A-D
6	TEST			GND
7	X2			N. C.
8	X1			+5V
9	VSS	VSS	—	GND
10	OSC1	OC1		Clock (8MHz)
11	OSC2	OC2		
12	/RES	RES	I	Reset
13	P10/IRQ0	DET	I	Power down detect
14	P11/IRQ1	REM	I	Remote control
15	P12/IRQ2	RM2		N.C.
16	P13/IRQ3	VSY	I	Superimpose Vertical Sync In
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 (Note)
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	

Note) Input port when the power is ON.
H : Stand-by mode is not available (U, C, R, A)
L : Stand-by mode is available (G) →Then changed to output port. (H : Stand-by LED light ON. L : Stand-by LED light OFF.)

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 (CENTER, REAR & PHONES)
62	P84	SPA	O	Speaker relay (MAIN A/B)
63	P85	SPB	O	
64	P86	PRY	O	Power relay
65	P87	FMC	O	Full MUTE
66	P90	I/E	O	Video Type Select (Internal synchronization)
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 switch, Rec out switch & 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 switch & PAL/NTSC switch (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	$\overline{\text{CRS}}$	Its	Microprocessor interface reset terminal
17	CDI	Its	Microprocessor interface data input terminal
18	XCLK	Its	Microprocessor interface clock input terminal
19	D2	I/Ot	External delay RAM data terminal
20	D1	I/Ot	
21	D0	I/Ot	

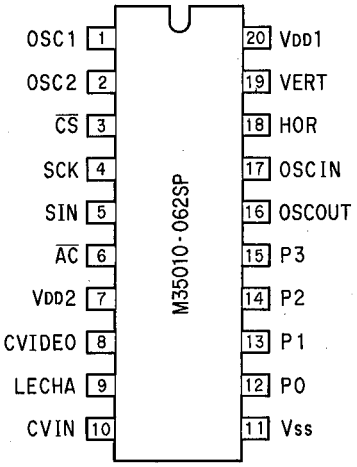
No.	Name	I/O	Function
22	A0	O	External data RAM address terminal
23	A1	O	
24	A2	O	
25	A3	O	
26	A4	O	
27	A5	O	
28	A6	O	
29	A7	O	
30	A12	O	
31	A14	O	
32	DVDD	—	+5V power supply (digital section)
33	DVDD	—	
34	/WE	O	External delay RAM write enable terminal
35	A13	O	External delay RAM address terminal
36	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)

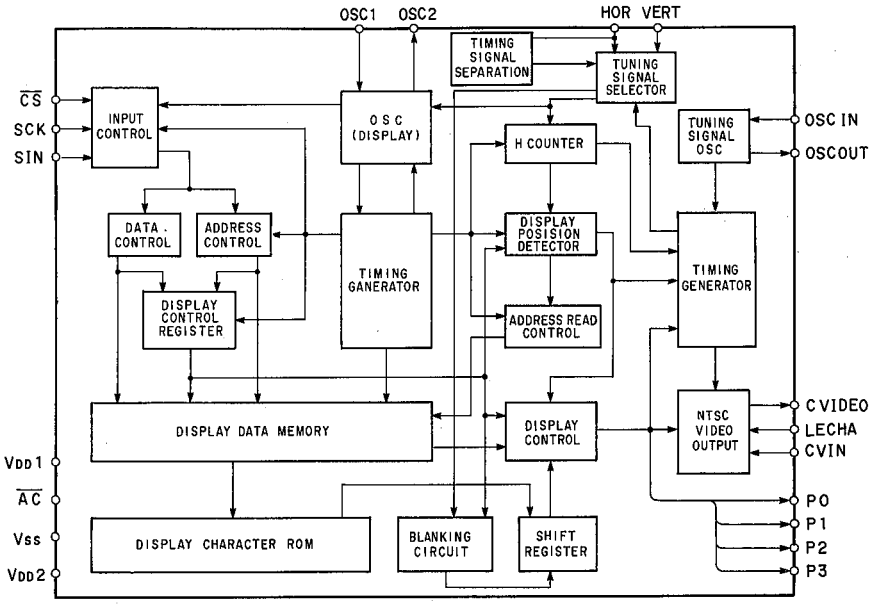
Note : Letters used in the above I/O column represent as follows.

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

RX-V890

IC508 : M35010-062SP
Superimpose

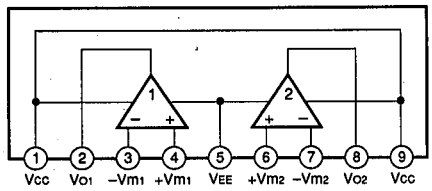




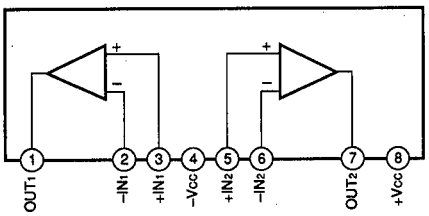
Pin No.	Symbol	Terminal name	Function
1	OSC1	External terminal for oscillation circuit	External terminal of oscillation circuit for display. The standard oscillation frequency is about 7MHz. The display position in the horizontal direction and width of characters on the TV screen are determined according to this oscillation frequency.
2	OSC2		
3	$\overline{CS}$	Chip select input	Chip select terminal "L" is set when the serial data is transferred. Hysteresis input. A pull-up resistor is built in.
4	SCK	Serial clock input	When $\overline{CS}$ terminal is "L", the SIN serial data is taken in at the SCK rise. Hysteresis input. A pull-up resistor is built in.
5	SIN	Serial data input	The data and addresses for the display control register and display data memory are input in serial form. Hysteresis input. A pull-up resistor is built in.
6	$\overline{AC}$	Auto clear input	The IC internal circuit is reset when in "L" state. Hysteresis input. A pull-up resistor is built in.
7	VDD2	Power supply terminal	Analog type power supply terminal that should be connected to +5V.
8	CVIDEO	Composite video signal output	Output terminal for composite video signal 2Vp-p composite video signal is output. When making a superimposition, the character output and other features are superimposed on the composite video signals inputted through the CVIN terminal.
9	LECHA	Character level input	Input terminal to determine the output level for the characters in the composite video signals. The color of characters is white.
10	CVIN	Video input	Input terminal for external composite video signals. When making a superimposition, the character output and other features are superimposed on these composite video signals.
11	VSS	Ground terminal	Connection to GND.
12	P0	Port 0 output	Port terminal output or character background signals (BLNK1) are output. The polarity can be selected when determining the font ROM.
13	P1	Port 1 output	Port terminal output or character background signals (CO1) are output. The polarity can be selected when determining the font ROM.
14	P2	Port 2 output	Port terminal output or character background signals (BLNK2) are output. The polarity can be selected when determining the font ROM.
15	P3	Port 3 output	Port terminal output or character background signals (CO2) are output. The polarity can be selected when determining the font ROM.
16	OSCOUT	Oscillation circuit for generation of synchronous signals	External terminal of the oscillation circuit for generation of synchronous signals. The oscillation frequency is 14.32MHz when the NTSC system is used and 17.73MHz when the PAL system is used.
17	OSCIN		
18	HOR	Horizontal synchronous signal input	Horizontal synchronous signal input. Hysteresis input The polarity can be selected when determining the font ROM.
19	VERT	Vertical synchronous signal input	Vertical synchronous signal input. Hysteresis input The polarity can be selected when determining the font ROM.
20	VDD1	Power supply terminal	Digital type power supply terminal that should be connected to +5V.

■ IC BLOCKS

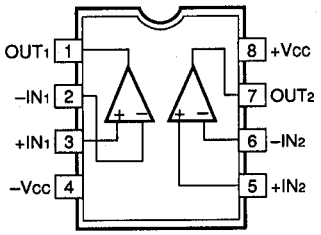
IC4~6, 10~14, 16, 18 : μPC4570HA
IC201~205, 308, 702, 703 : μPC4570HA
Dual OP-Amp



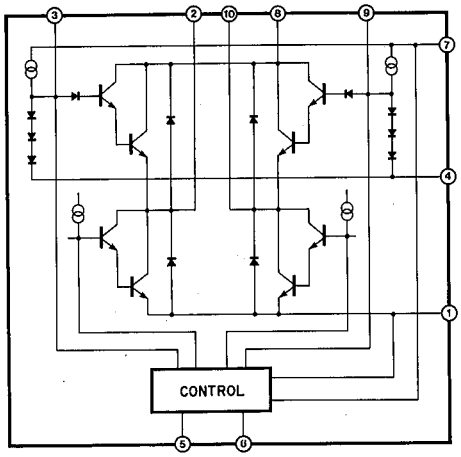
IC304, 701 : NJM2068L-D
IC704 : NJM4558L
Dual OP-Amp



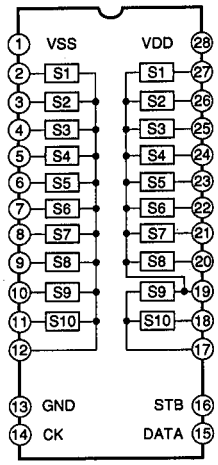
IC505~507, 574 : MC14576CP
Dual Video Amp



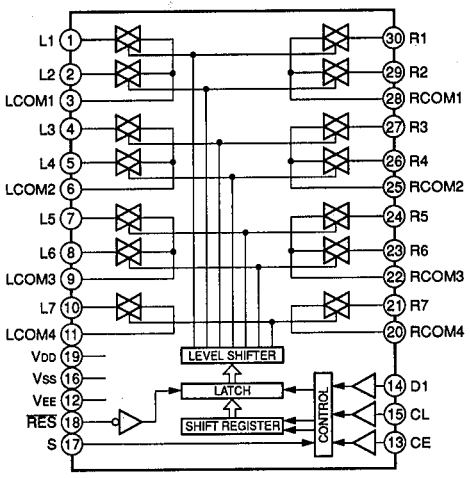
IC208 : BA6229
Motor Driver



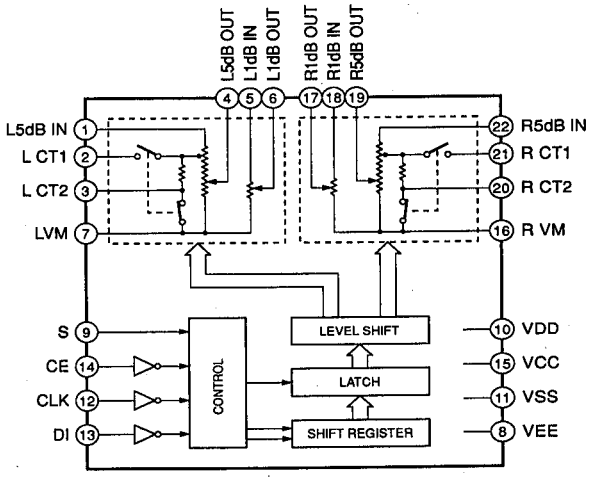
IC301, 303 : TC9273N-009
Analog Function Switch



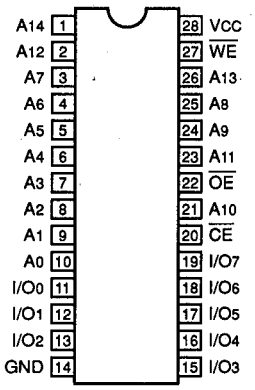
IC3 : LC78213
Analog Function Switch

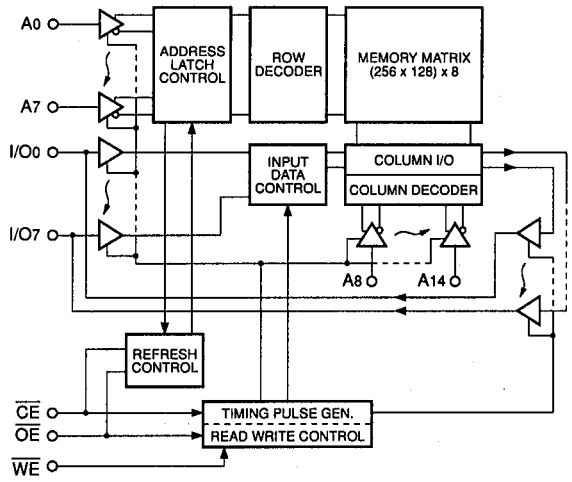


IC206, 207 : LC7535
Electric Controlled Volume

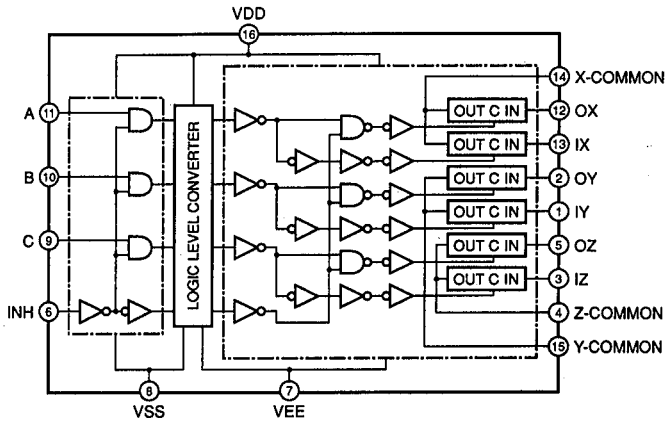


IC8 : TC51832ASPL-10
32768-word x 8 bit High Speed Pseudo Static RAM





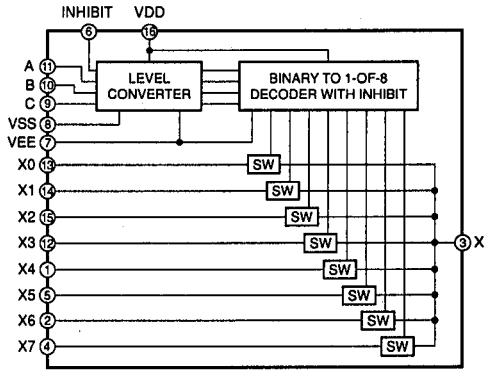
IC504 : TC4053BP
Triple 2-Channel Multiplexer/Demultiplexer



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
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NOTE

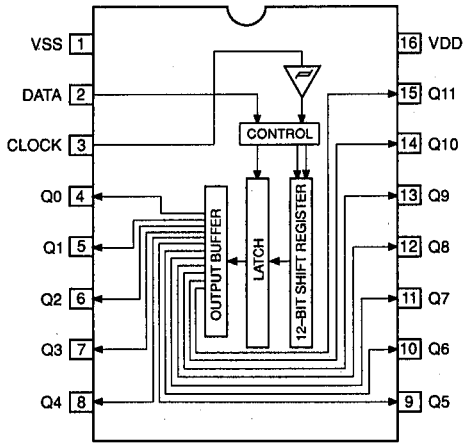
* Don't Care

IC802 : TC74HC4051AP
Analog Multiplexers/Demultiplexers

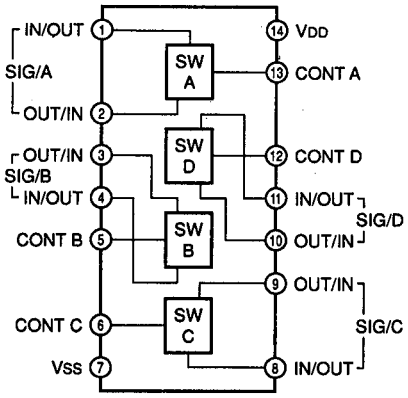


INPUT STATES				"ON" CHANNEL (S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

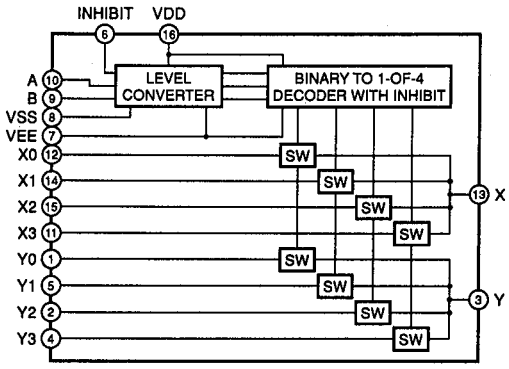
IC451 : BU2090
Serial In/Parallel Out Driver



IC212 : μPD4066BC
Quad Analog Switch/Multiplexer

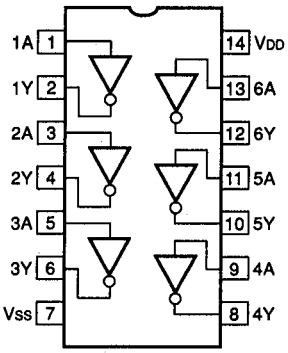


IC501~503, 571, 572 : TC4052BP
Dual 4-Channel Analog Multiplexers/Demultiplexers

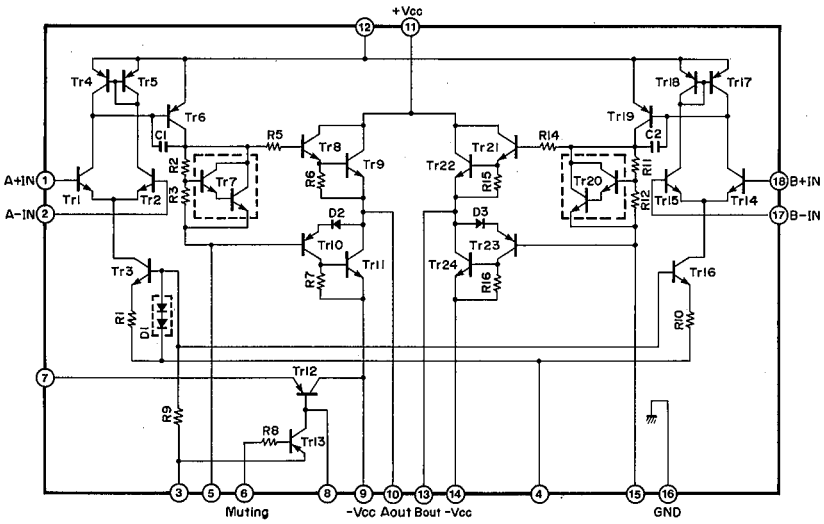


INHIBIT	B	A	
0	0	0	0x, 0y
0	0	1	1x, 1y
0	1	0	2x, 2y
0	1	1	3x, 3y
1	X	X	NONE

IC509 : TC74HCUO4AP
IC510 : TC4069UBP
Hex Inverters



IC602 : STK4141V
2 Channel AF Power Amp

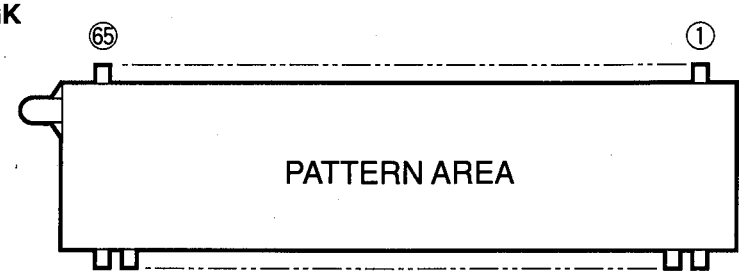


Other ICs

- **IC801 : HD6473724F**→See page 15
- **IC7 : YSS223**→See page 17
- **IC508 : M35010-062SP**→See page 19

■ 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

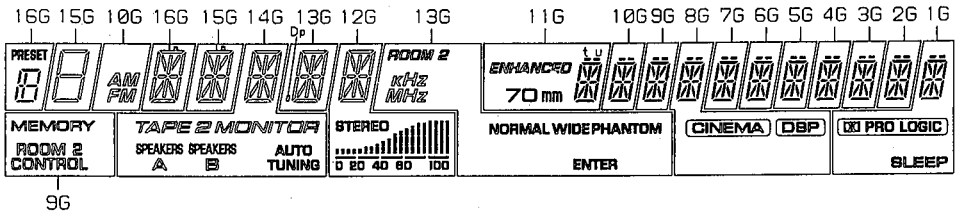
Pin No.	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28
Connection	P4	P3	P2	P1	P19	16G	15G	14G	13G	12G	IC	NP	Fd	Fd	NP	IC	11G	10G	9G

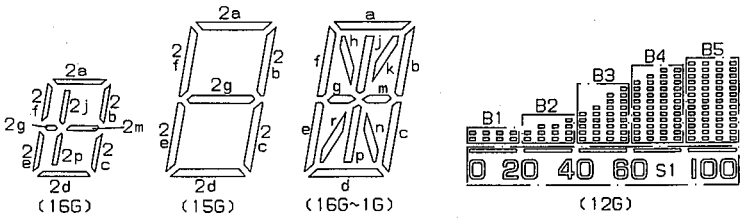
Pin No.	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
Connection	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

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 ASSIGMENT





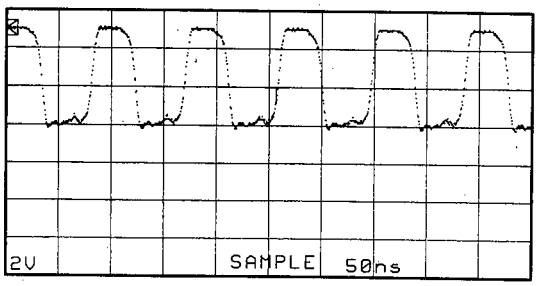
● ANODE CONNECTION

	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	kHz	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	—	—	—	—	—	—	—

■ TEST POINT WAVEFORMS

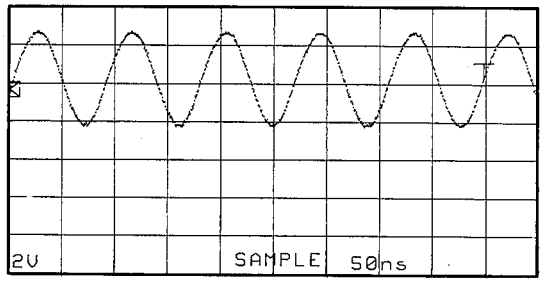
Point ① (Pin 1 of IC2)

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



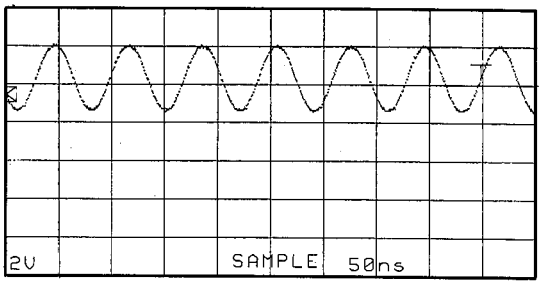
Point ② (Pin 52 of IC7)

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



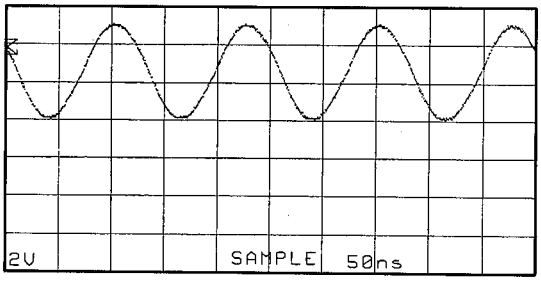
Point ③ (Pin 17 of IC508)

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



Point ④ (Pin 11 of IC801)

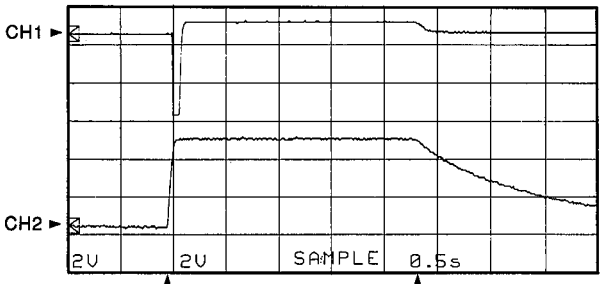
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe



Point ⑤

[CH 1 : Pin 12 of IC801
CH 2 : Pin 8 of IC801]

V : 2V/div (CH1) V : 2V/div (CH2)
H : 0.5sec/div
DC range 1 : 1 probe



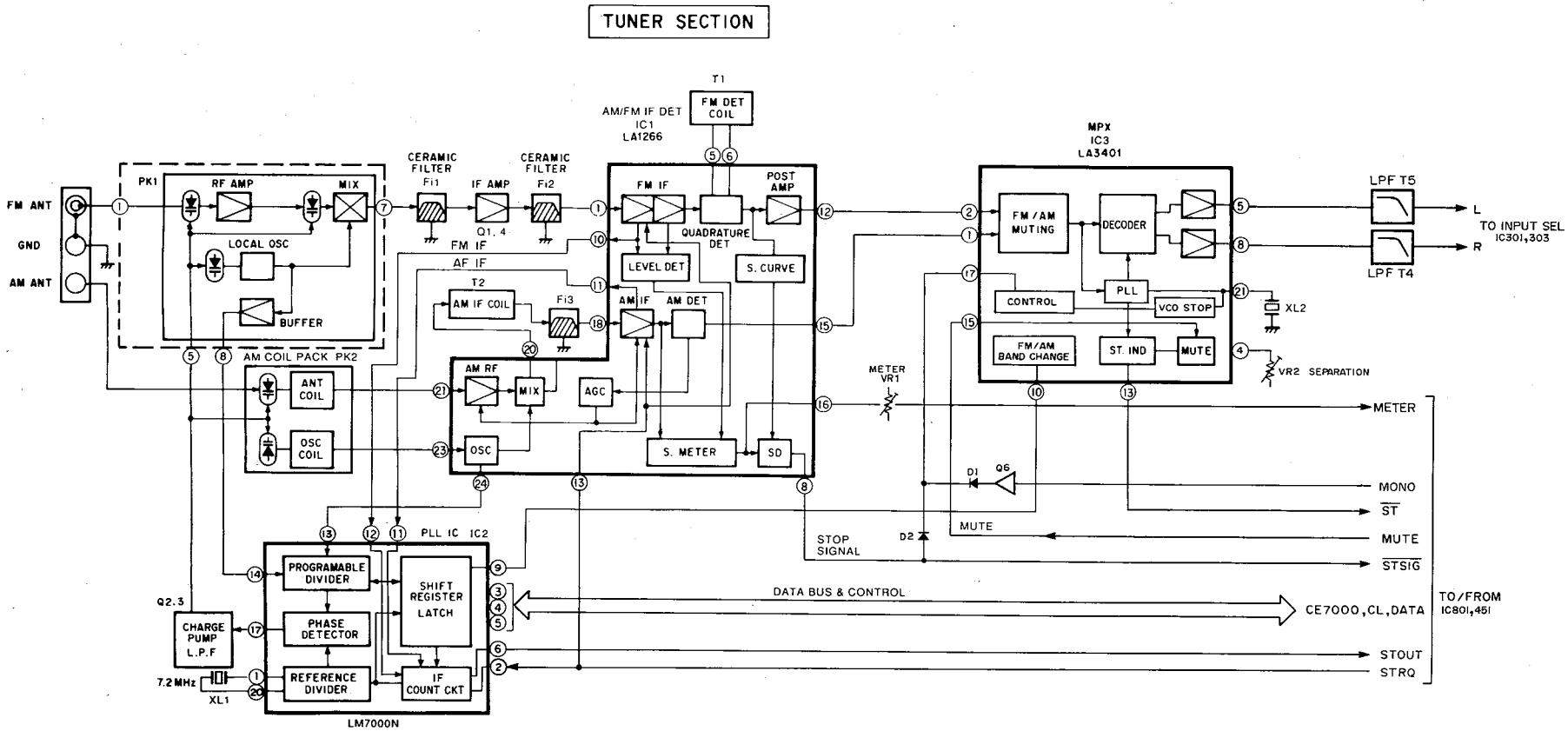
With the power ON, disconnect the A/C power cord. Reconnect the A/C power cord and the above waveforms will start.

Disconnect the power cord from the AC outlet.

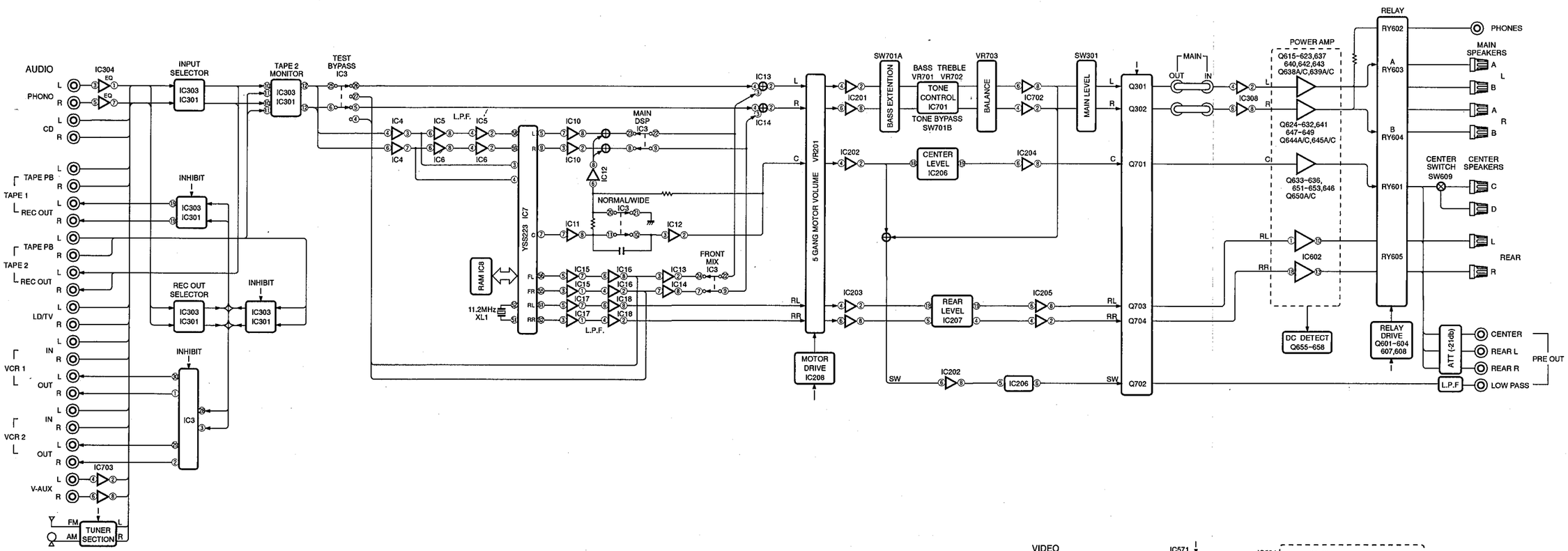
* This waveform is not available by pushing the power switch ON and OFF.

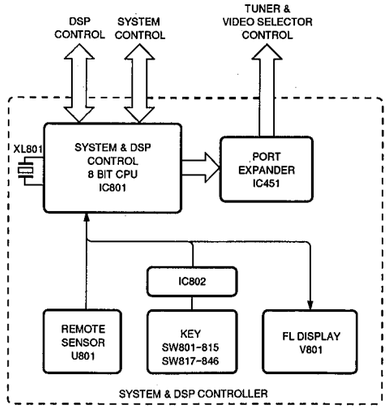
■ BLOCK DIAGRAM

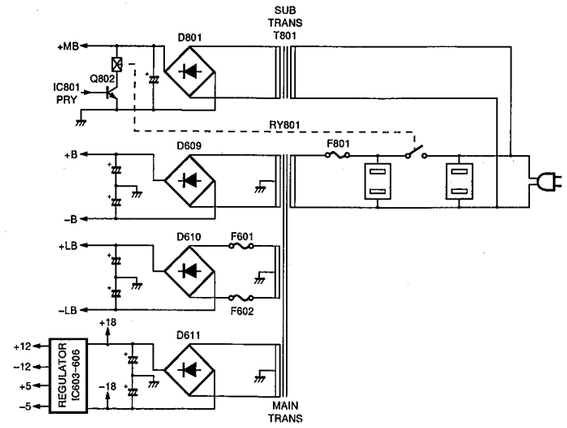
RX-V890

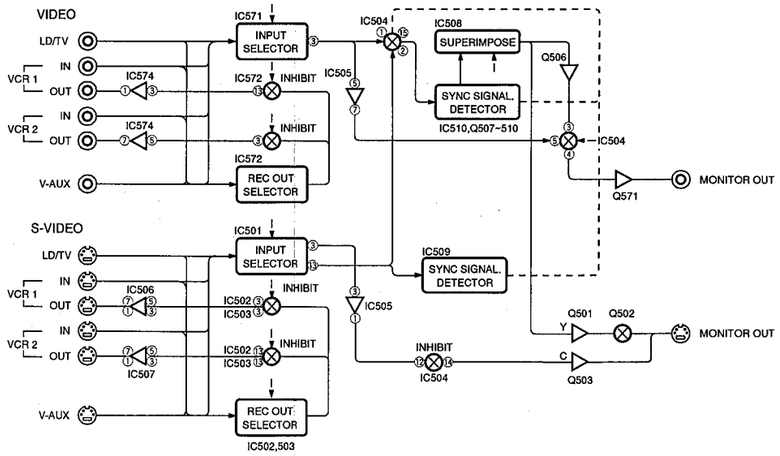


■ BLOCK DIAGRAM





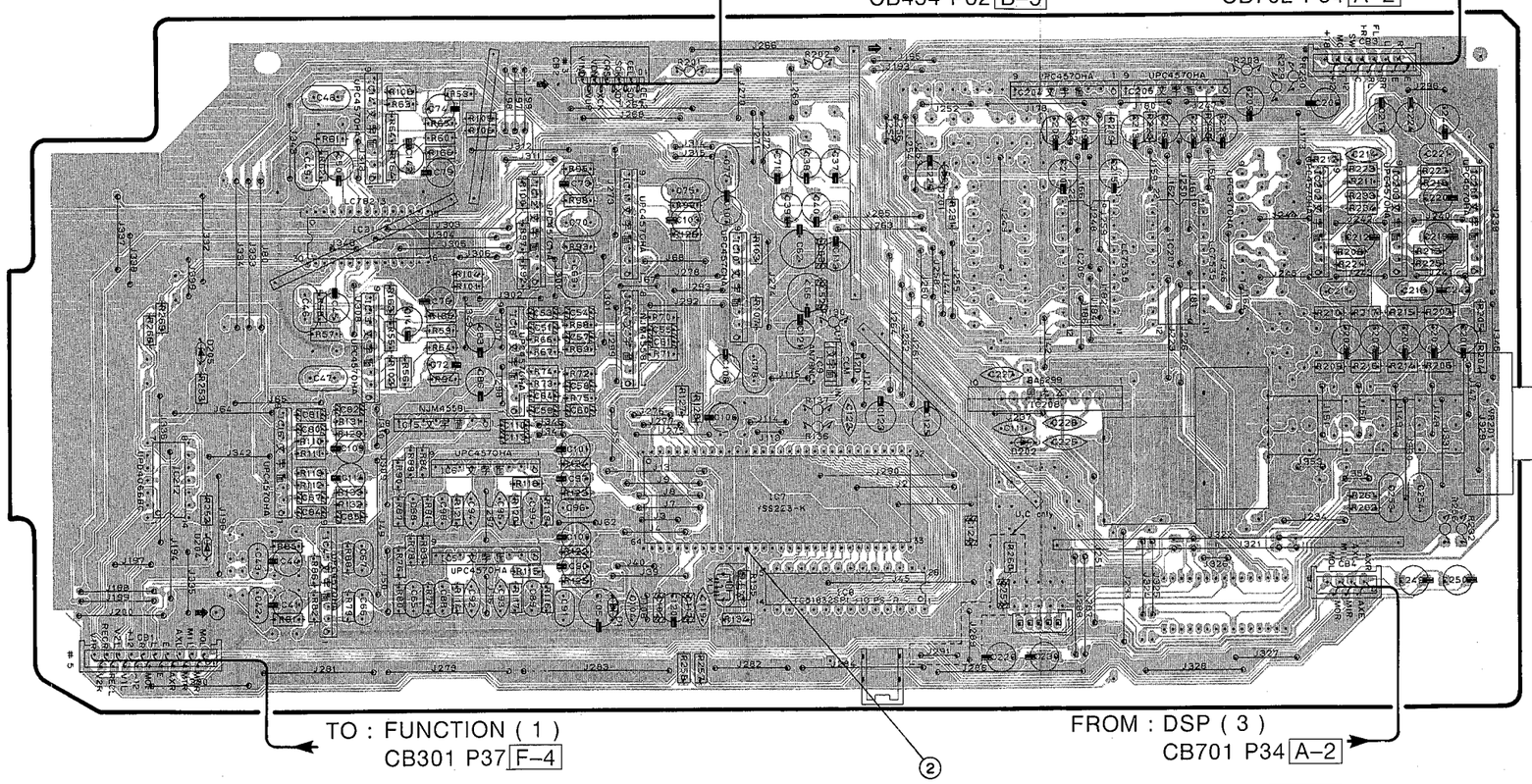


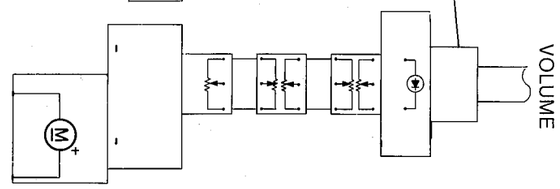


■ PRINTED CIRCUIT BOARD (Foil side)

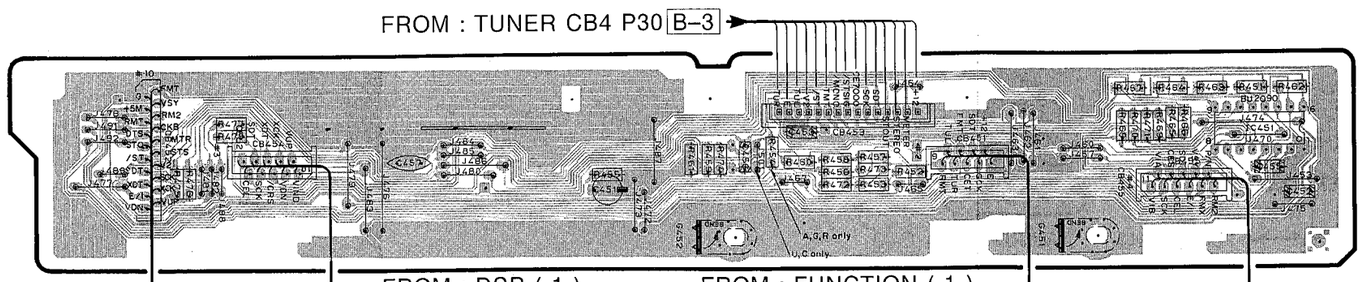
② : TEST POINT WAVEFORMS (See page 24)

P.C.B. DSP (1)





P.C.B. DSP (2)

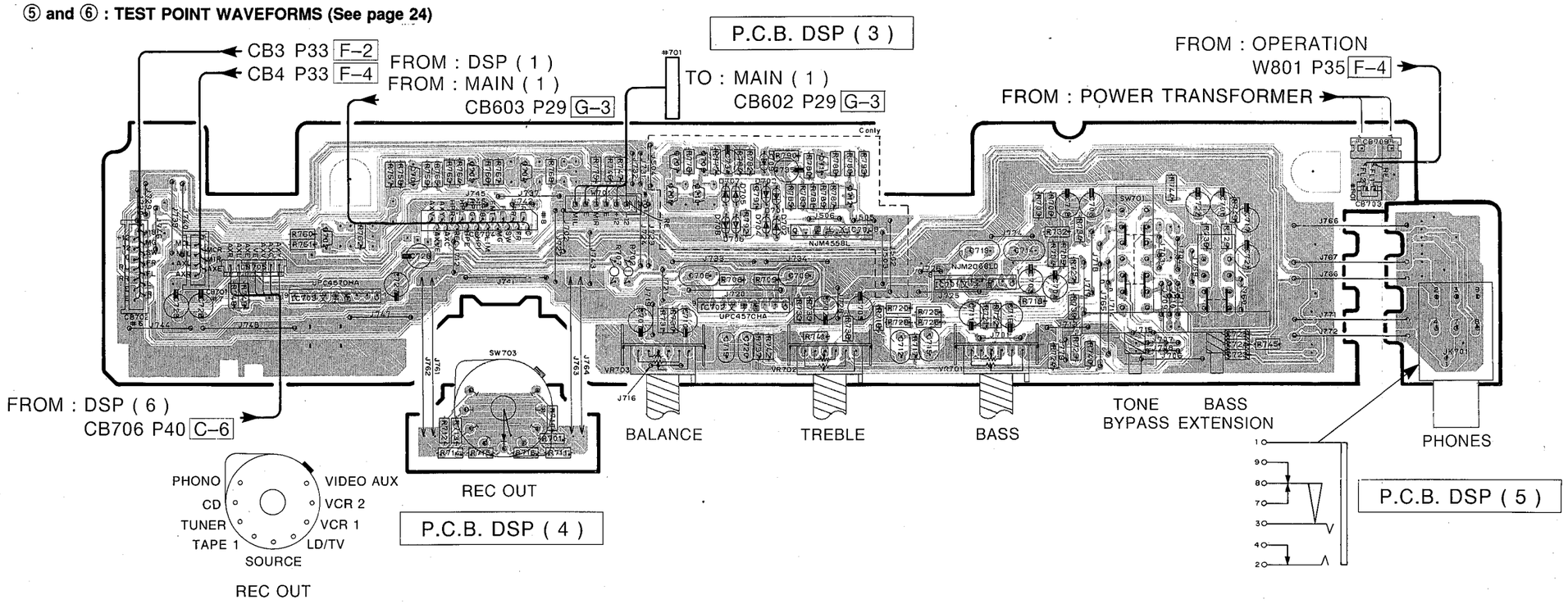


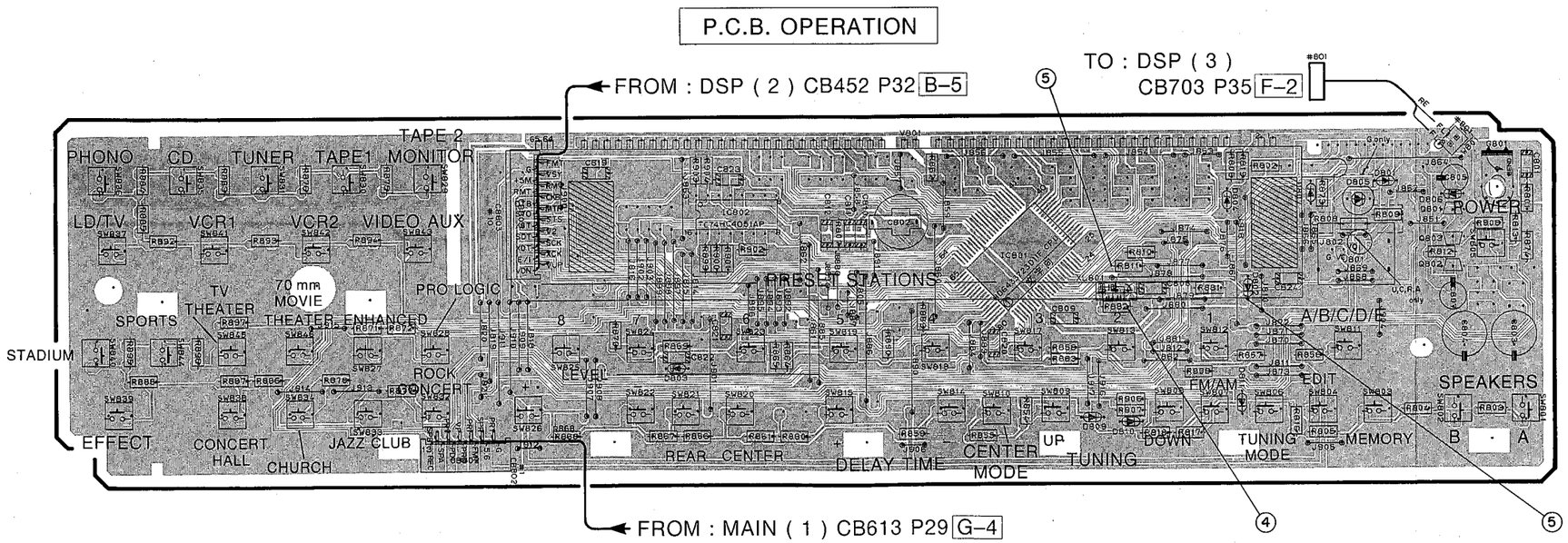
● Semiconductor Locations

Ref. No.	Location
IC 3	B2
IC 4	B3
IC 5	C3
IC 6	C3
IC 7	D3
IC 8	D3
IC 9	D3
IC 10	D2
IC 11	C2
IC 12	C2
IC 13	B3
IC 14	B2
IC 15	C3
IC 16	B3
IC 17	C3
IC 18	C3
IC201	F2
IC202	E2
IC203	F2
IC204	E2
IC205	E2
IC206	E2
IC207	E2
IC208	E3
IC212	B3
IC451	F5

■ PRINTED CIRCUIT BOARD (Foil side)

⑤ and ⑥ : TEST POINT WAVEFORMS (See page 24)





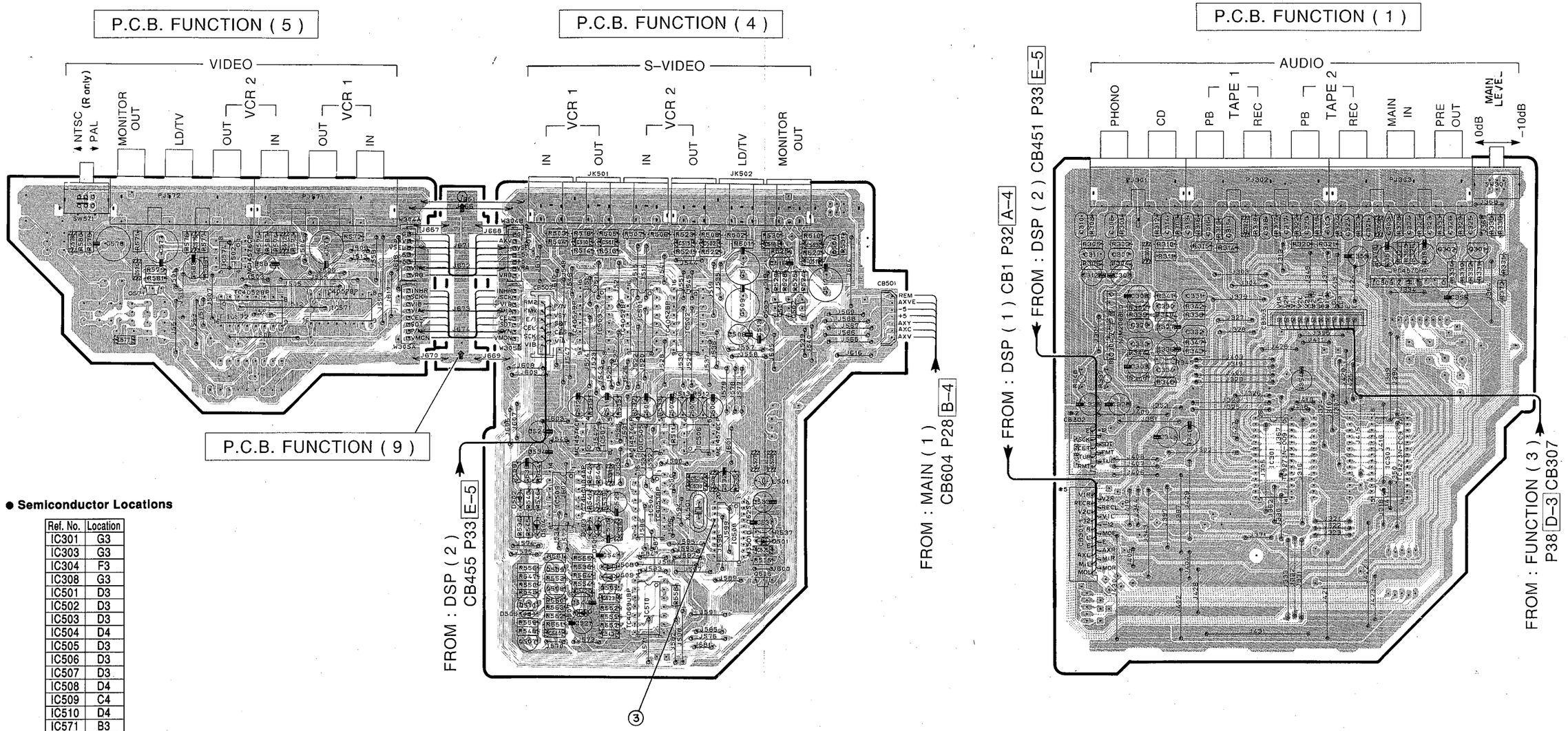
● Semiconductor Locations

Ref. No.	Location
IC701	E2
IC702	D2
IC703	B2
IC704	D2
Q701	B2
Q702	B2
Q703	B2
Q704	C2
Q707	C2
Q708	C2
Q709	C2
Q710	C2
Q711	D2
Q712	D2

Ref. No.	Location
IC801	E5
IC802	D2
Q801	F4
Q802	F5
Q803	F5

■ PRINTED CIRCUIT BOARD (Foil side)

④ : TEST POINT WAVEFORMS (See page 24)



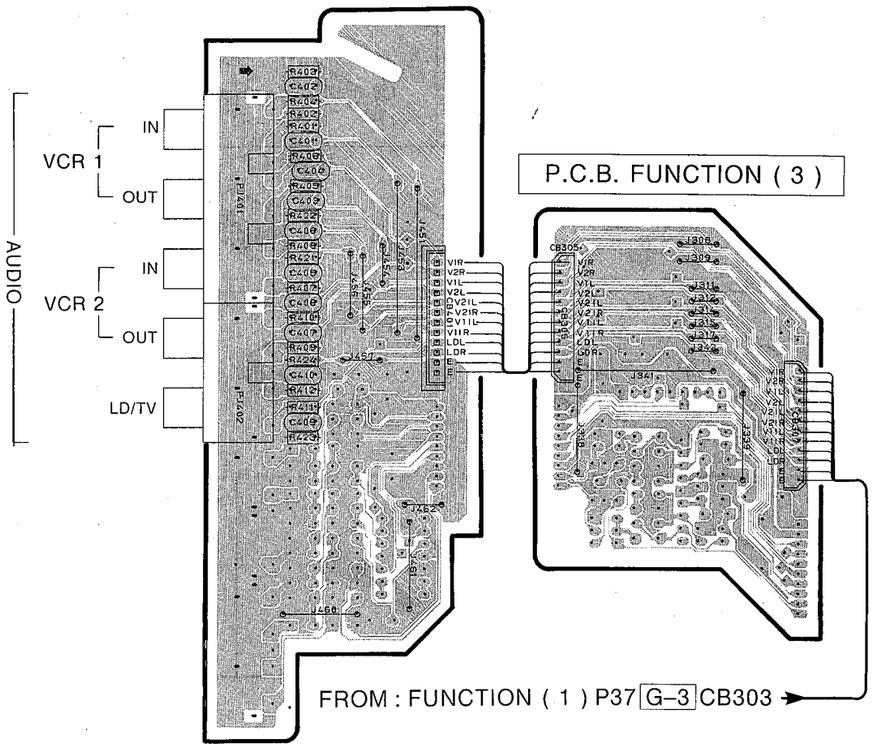
● Semiconductor Locations

Ref. No.	Location
IC301	G3
IC303	G3
IC304	F3
IC308	G3
IC501	D3
IC502	D3
IC503	D3
IC504	D4
IC505	D3
IC506	D3
IC507	D3
IC508	D4
IC509	C4
IC510	D4
IC571	B3
IC572	B3
IC574	B2
Q301	H2
Q302	H2
Q501	E3
Q502	E3
Q503	D3
Q504	E2
Q505	D4
Q506	D4
Q507	C4
Q508	C4
Q509	C4
Q510	C4
Q571	B3

Note : There is an expansion P.C.B. to connect with MAIN (1) for voltage check of FUNCTION (4). It is included in P.C.B. Ass'y FUNCTION and identified by "RX-V890" printed on it. Use it by mounting connectors(VQ96100, VB69970, VQ96280).

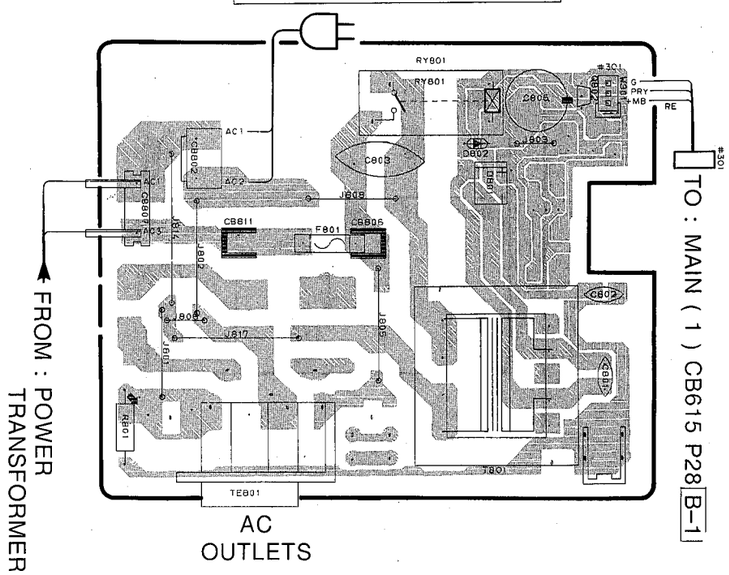
■ PRINTED CIRCUIT BOARD (Foil side)

P.C.B. FUNCTION (2)



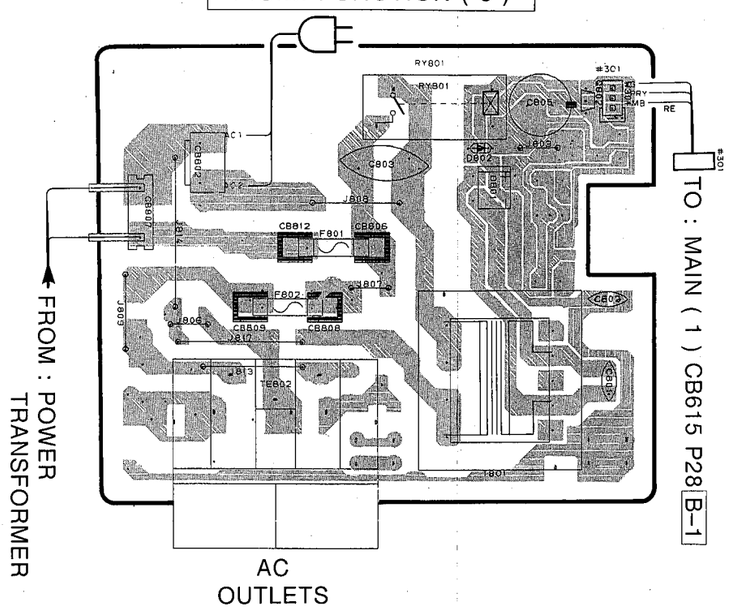
● U,C models

P.C.B. FUNCTION (6)



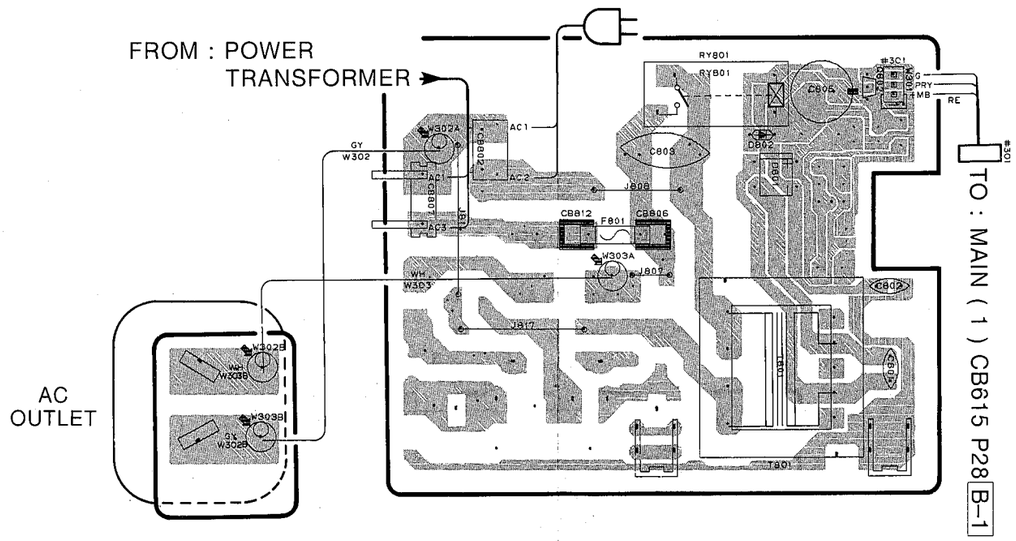
● G model

P.C.B. FUNCTION (6)



● A model

P.C.B. FUNCTION (6)

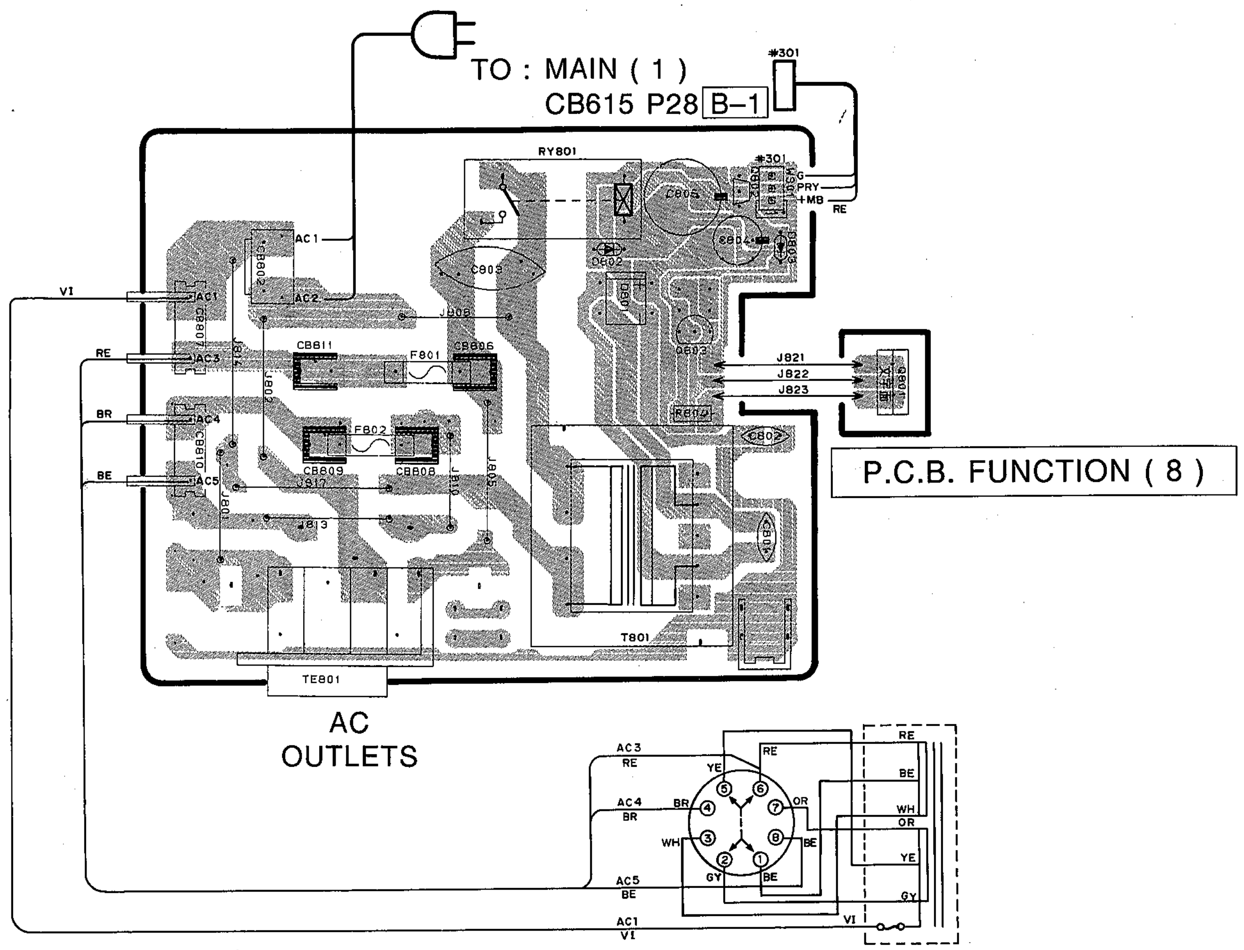


P.C.B. FUNCTION (7)

■ PRINTED CIRCUIT BOARD (Foil side)

● R model

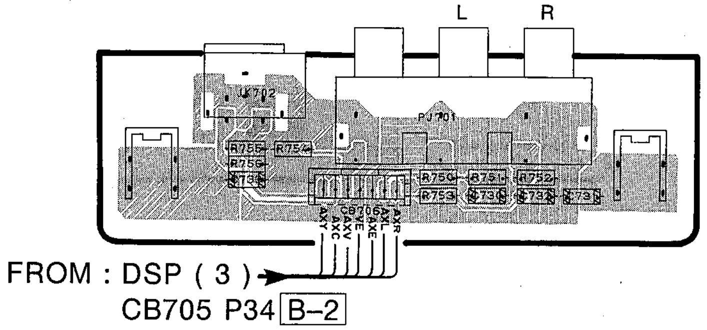
P.C.B. FUNCTION (6)



VOLTAGE SELECTOR

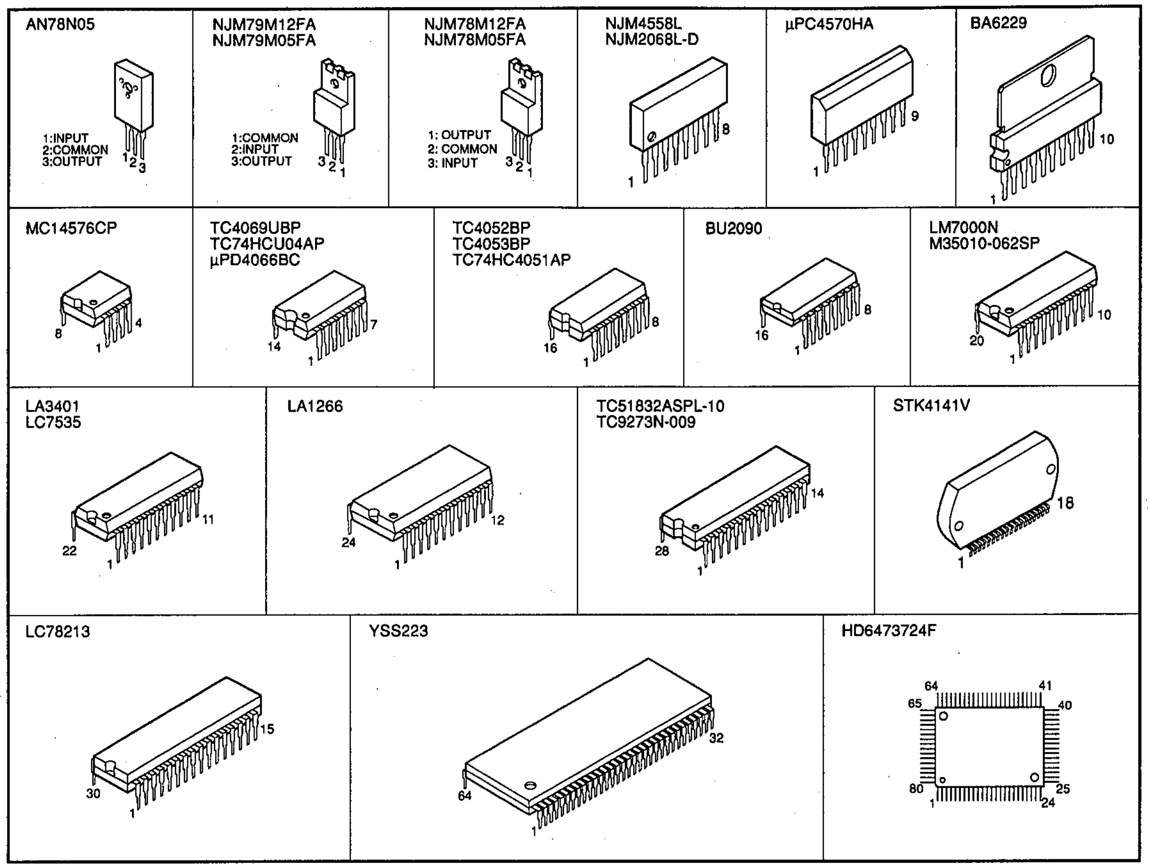
110V	1-2/5-6
120V	2-3/6-7
240V	3-4/7-8
220V	4-5/8-1

P.C.B. DSP (6)

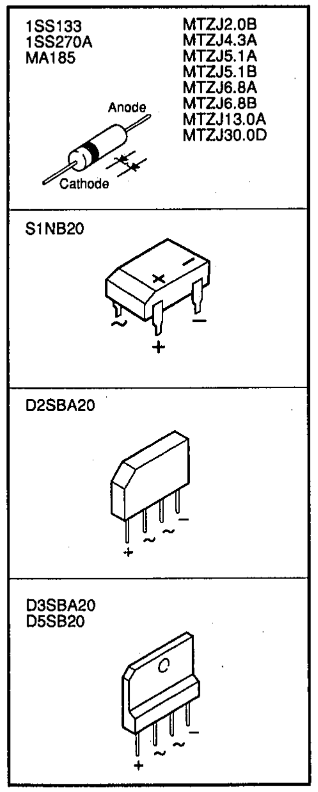


■ PIN CONNECTION DIAGRAM

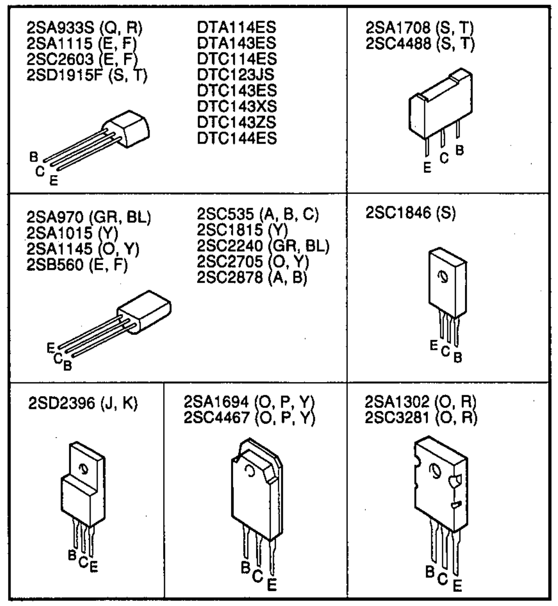
● ICs



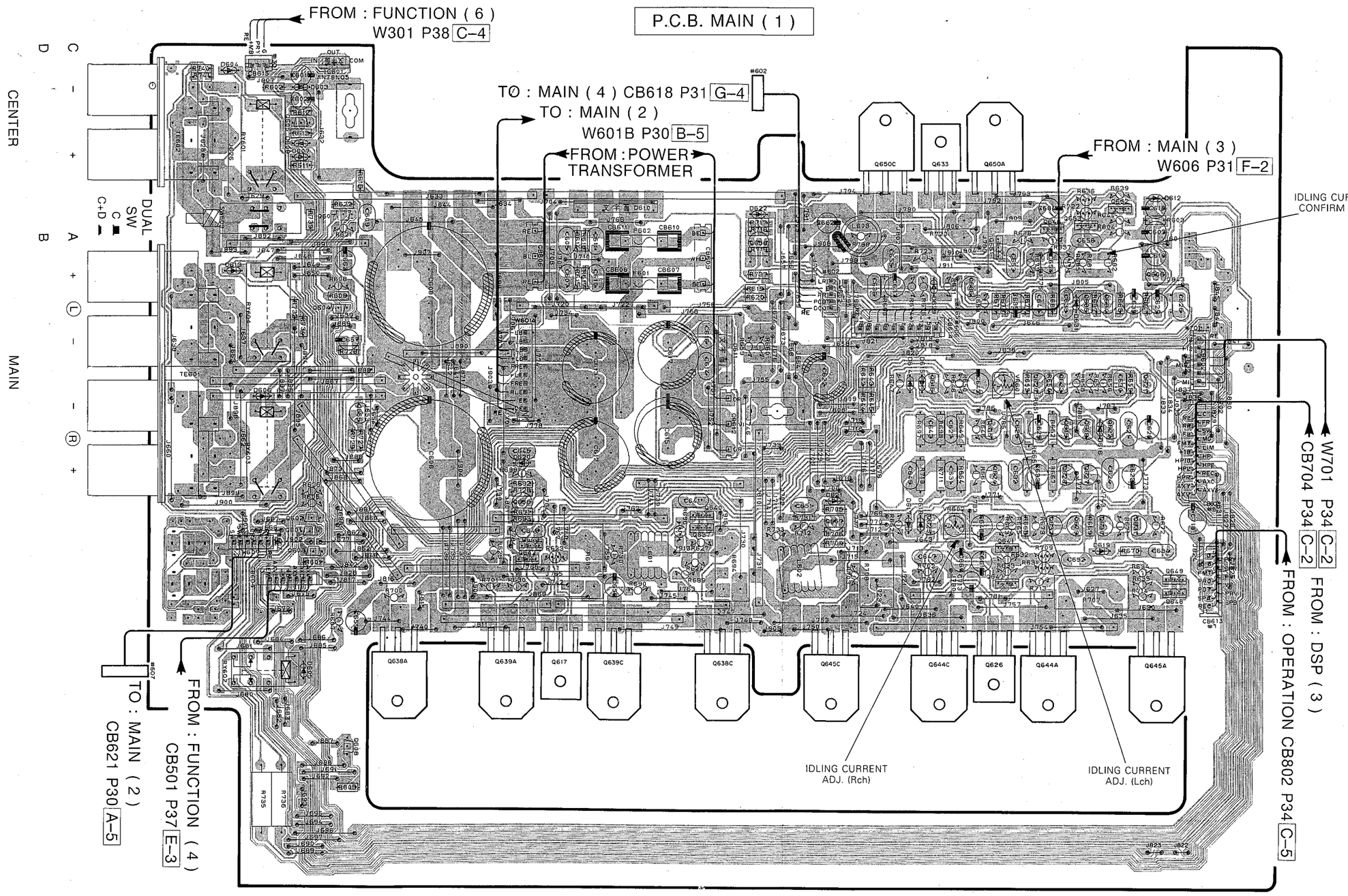
● Diodes



● Transistors



■ PRINTED CIRCUIT BOARD (Foil side)



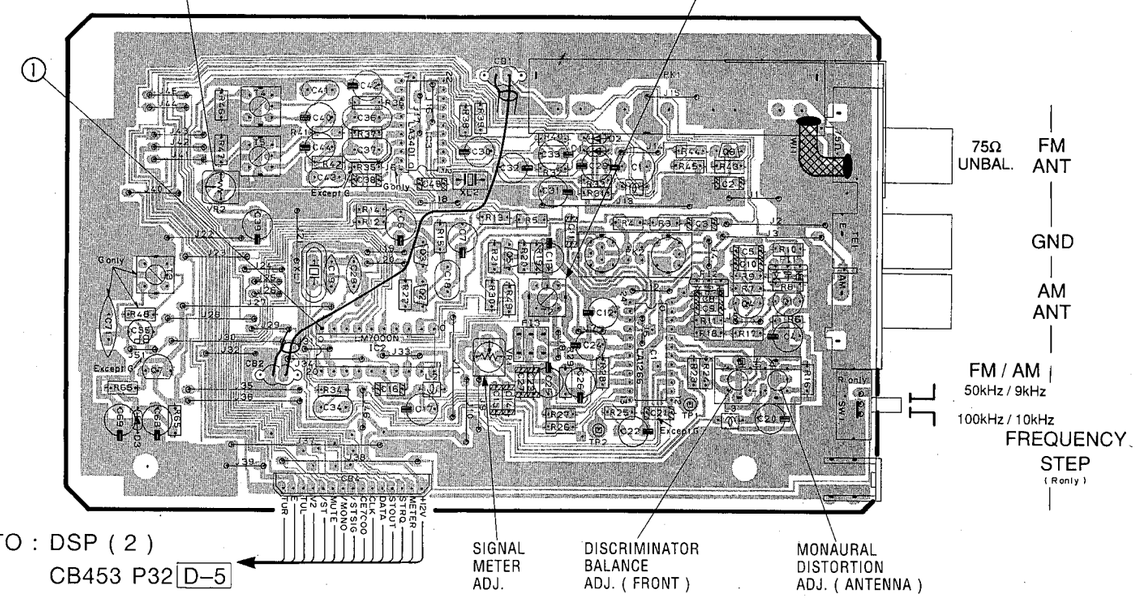
● **Semiconductor Locations**

Ref. No.	Location
IC601	B1
Q601	B4
Q602	B4
Q603	B4
Q604	B3
Q605	B2
Q606	F2
Q607	B2
Q608	B5
Q615	F3
Q616	E3
Q617	D4
Q618	F3
Q619	F3
Q620	F3
Q621	F3
Q622	F3
Q623	F3
Q624	F3
Q625	E4
Q626	F4
Q627	F3
Q628	F3
Q629	F4
Q630	F4
Q631	F4
Q632	F4
Q633	E2
Q634	F3
Q635	F3
Q636	F2
Q637	D4
Q638A	C4
Q638C	D4
Q639A	C4
Q639C	D4
Q640	D4
Q641	F4
Q642	C4
Q643	C4
Q644A	F4
Q644C	E4
Q645A	F4
Q645C	E4
Q646	F2
Q647	F4
Q648	G4
Q649	G4
Q650A	F2
Q650C	E2
Q651	F2
Q652	F2
Q653	F2
Q655	C3
Q656	C3
Q657	E4
Q658	D2

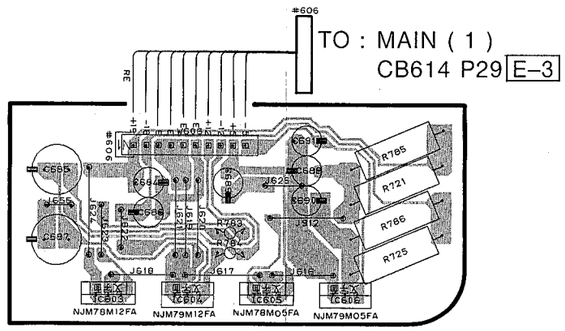
■ PRINTED CIRCUIT BOARD (Foil side)

① : TEST POINT WAVEFORMS (See page 24)

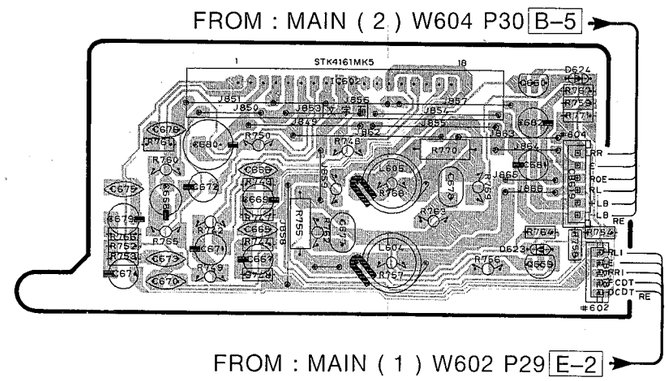
P.C.B. TUNER



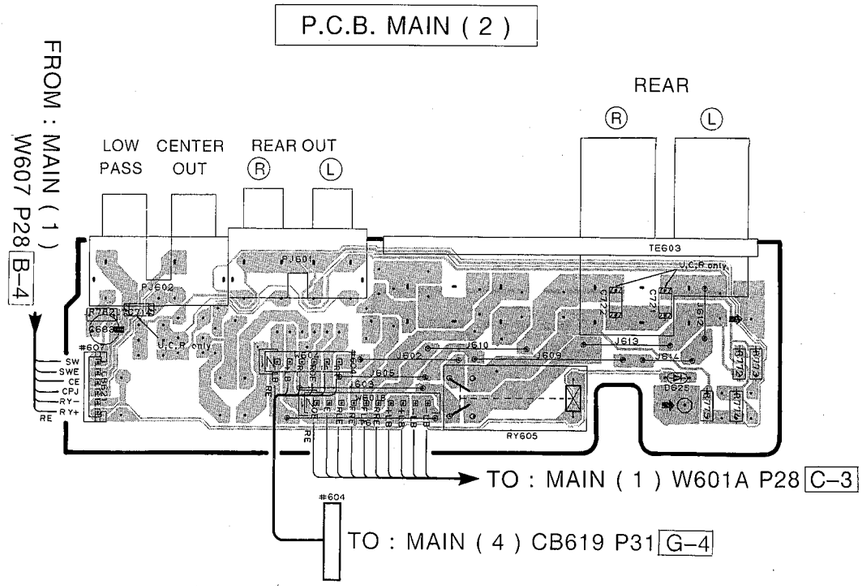
P.C.B. MAIN (3)



P.C.B. MAIN (4)



P.C.B. MAIN (2)



● Semiconductor Locations

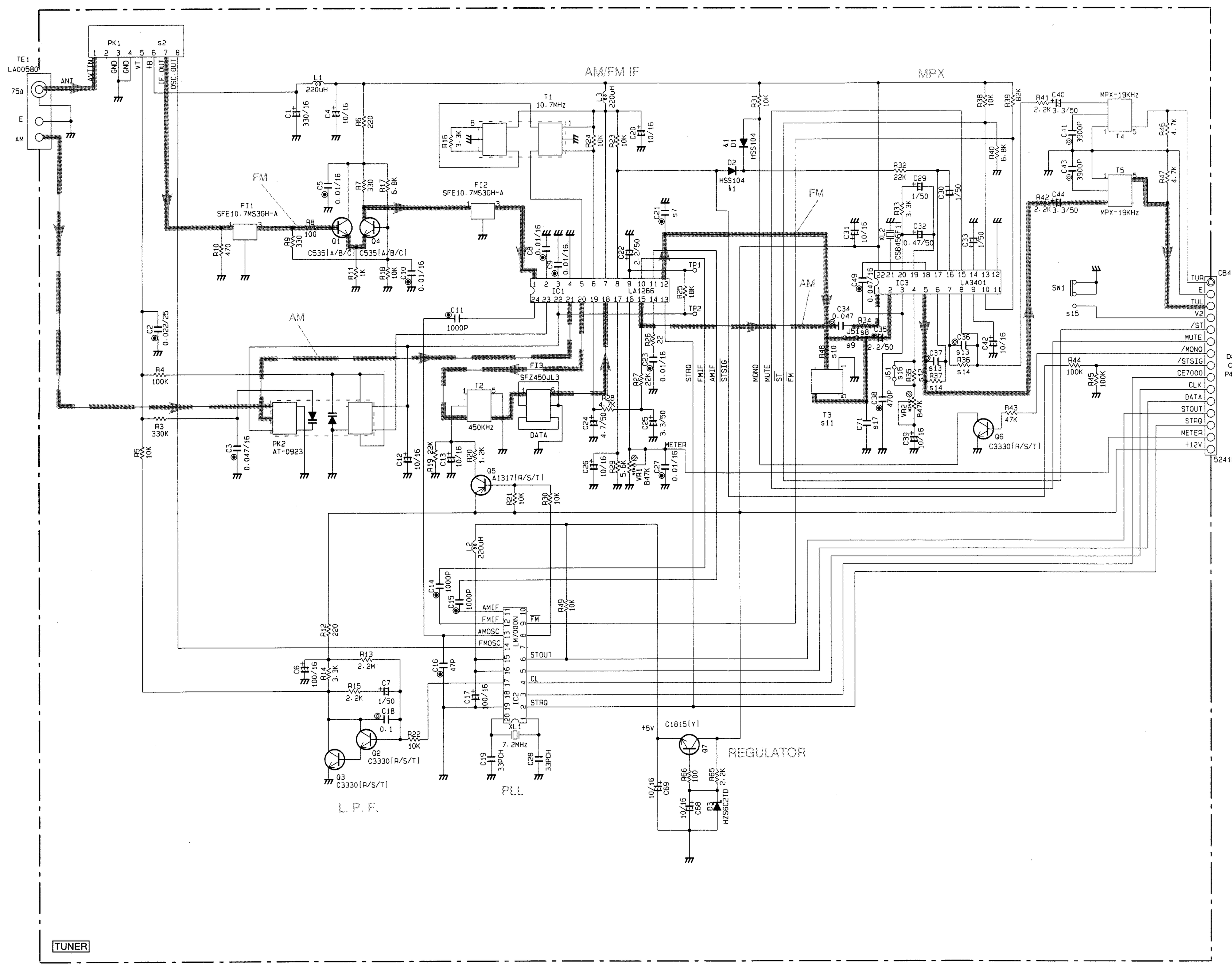
Ref. No.	Location
IC602	F3
IC603	E2
IC604	F2
IC605	F2
IC606	F2
Q659	F4
Q660	F3

Ref. No.	Location
IC 1	C3
IC 2	B3
IC 3	B2
Q 1	C2
Q 2	B2
Q 3	B2
Q 4	C2
Q 5	B2
Q 6	C2
Q 7	A3

■ SCHEMATIC DIAGRAM (TUNER & OPERATION)

①, ④ and ⑤: TEST POINT WAVEFORMS (See page 24)

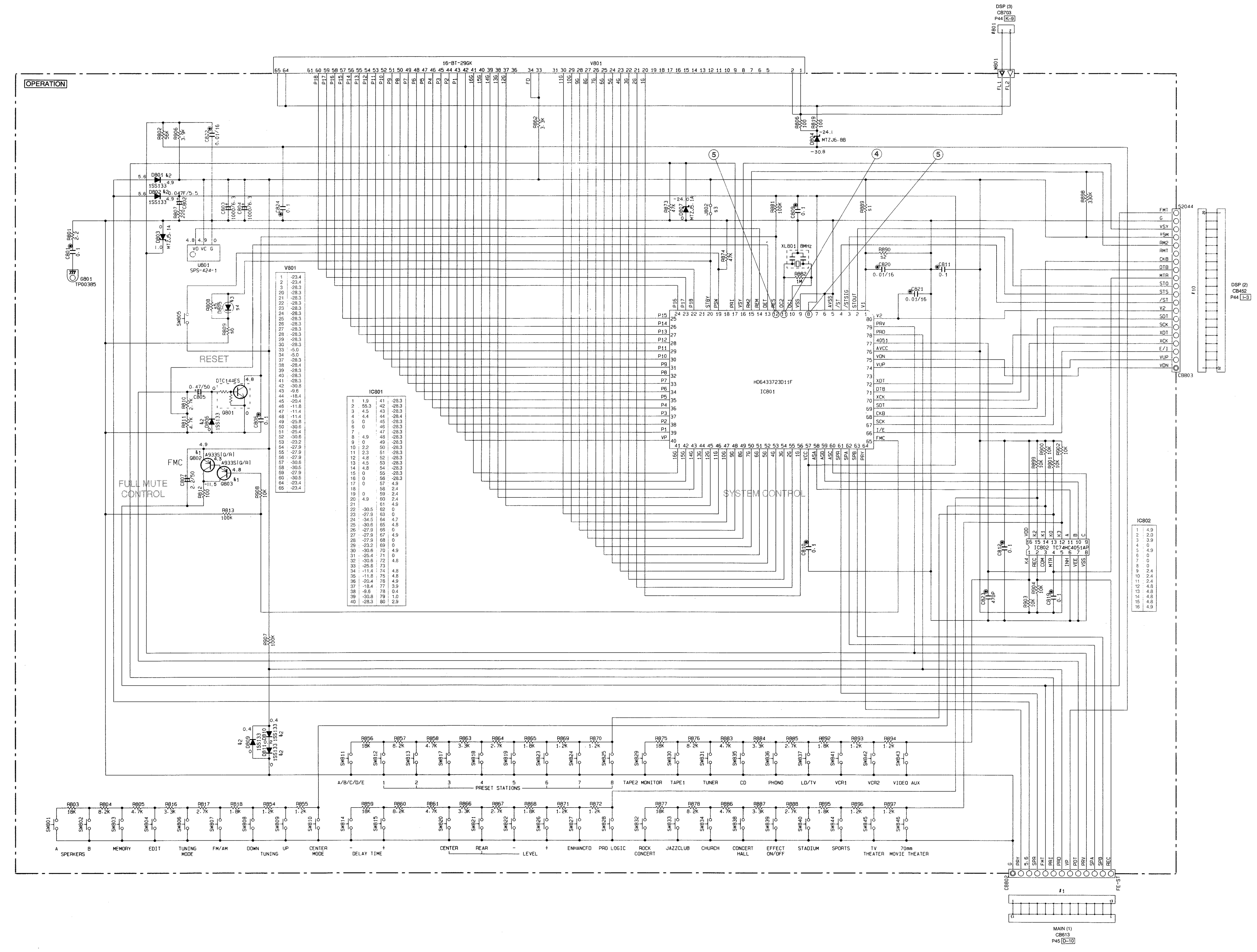
Each voltage given here represents that in the FM (98. 1MHz, STEREO) reception mode but the one in the parentheses ( ) is that in the AM (1080kHz, MAN'L) reception mode.



S		U.C	R	A.B	G
1					
2	PK1	VR24220	VR24220	VR24220	VQ98760
3					
4					
5					
6					
7	C21	100P	100P	100P	×
8	R34	10K	10K	10K	27K
9	J51	○	○	○	×
10	R48	×	×	×	4.7K
11	T3	×	×	×	VQ36570
12	R35	22K	22K	22K	×
13	C36.37	680P	680P	470P	390P
14	R36.37	100K	100K	100K	120K
15	SW1	×	VF54120	×	×
16	J61	×	×	×	○
17	C71	×	×	×	120PCH

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D1.2	HSS104 1SS133 1SS176



CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	(electrolytic symbol)
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	(capacitor symbol)
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⦶	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
(shaded circle)	SEMICONDUCTIVE CERAMIC CAPACITOR	

RESISTOR

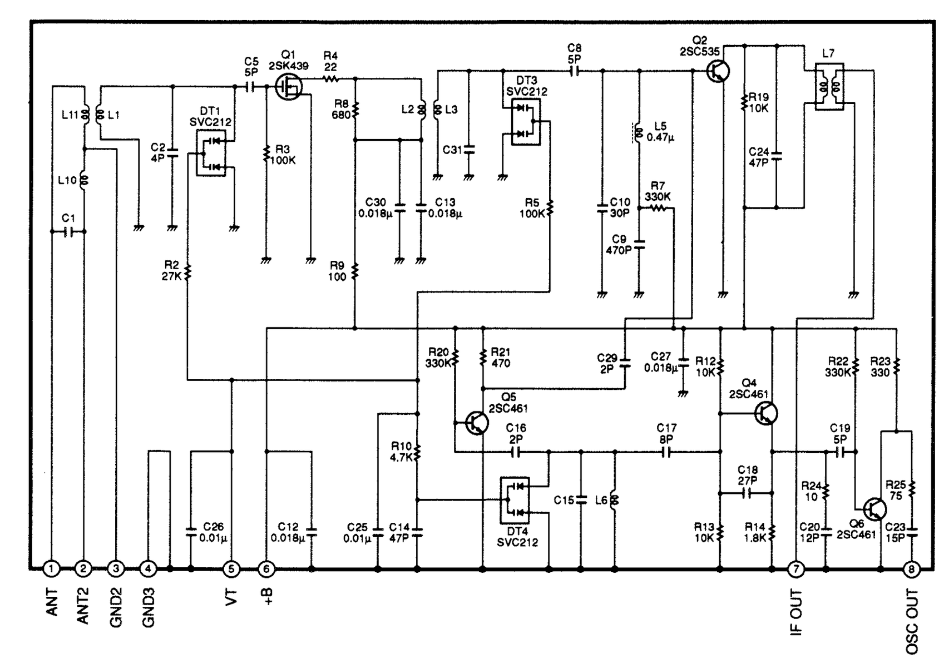
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◪	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
(shaded triangle)	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
(shaded square)	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

Interchangeable Parts at Manufacture-Stage

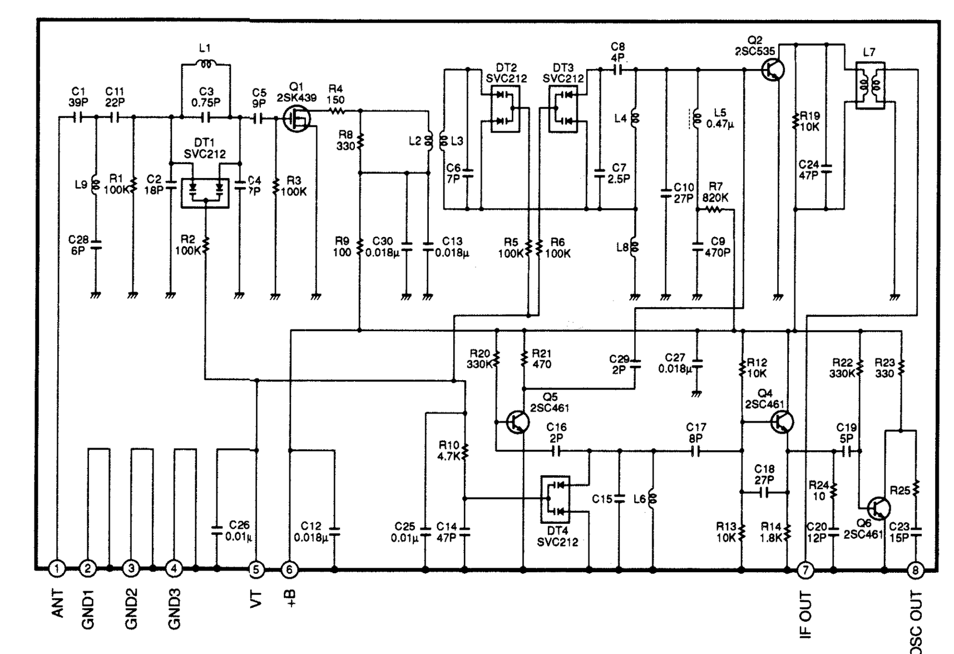
Mark	Reference Parts Number	Parts Name
&1	Q802.803	2SA933S(Q/R) 2SA1115(E/F) 2SA1309A(Q/R/S)
&2	D801.802.806.809-811	1SS133 HSS104TD
&3	D805	SLR-305VCA47 SLR-325VCT31

S	Circuit No.	U.C.A	R	L
1	R889	18K	33K	12K
2	R890	12K	3.9K	27K
3	J802	○	○	×
4	D805	×	×	SLR-305VCA47
5	R808	×	×	100K
6	R809	×	×	270
7				
8				
9				
10				
	PWB	XQ534	XQ534	XQ534
	PCB	VT26510	VT26520	VT26530

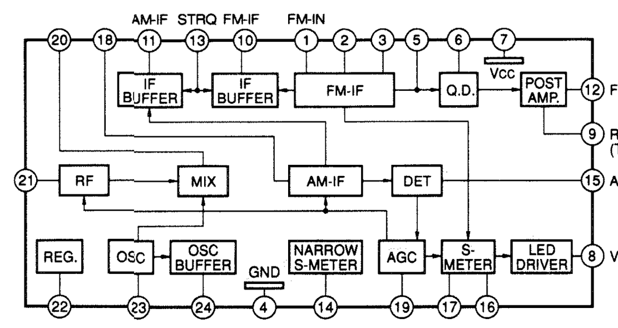
● Except G model
PK1 : ENV-17298GI (VR242200)



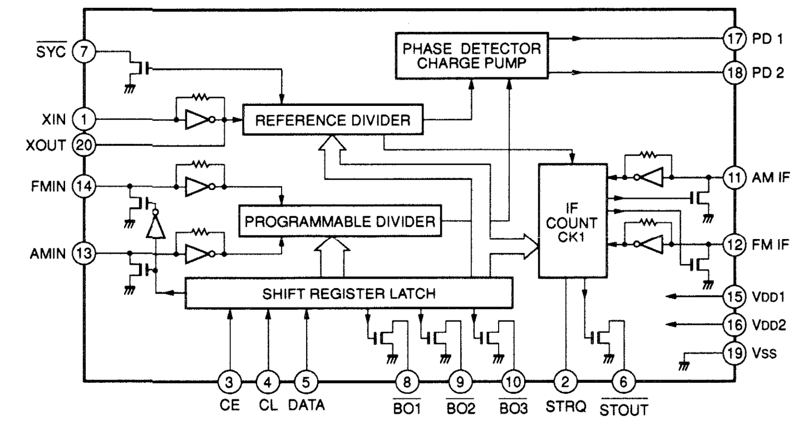
● G model
PK1 : ENV-17297GI (VQ987600)



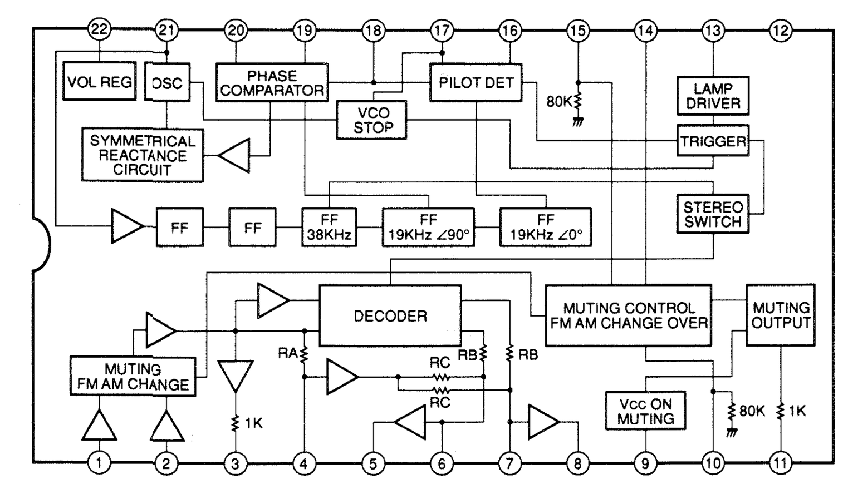
IC1 : LA1266
AM/FM IF



IC2 : LM7000N
PLL Controller



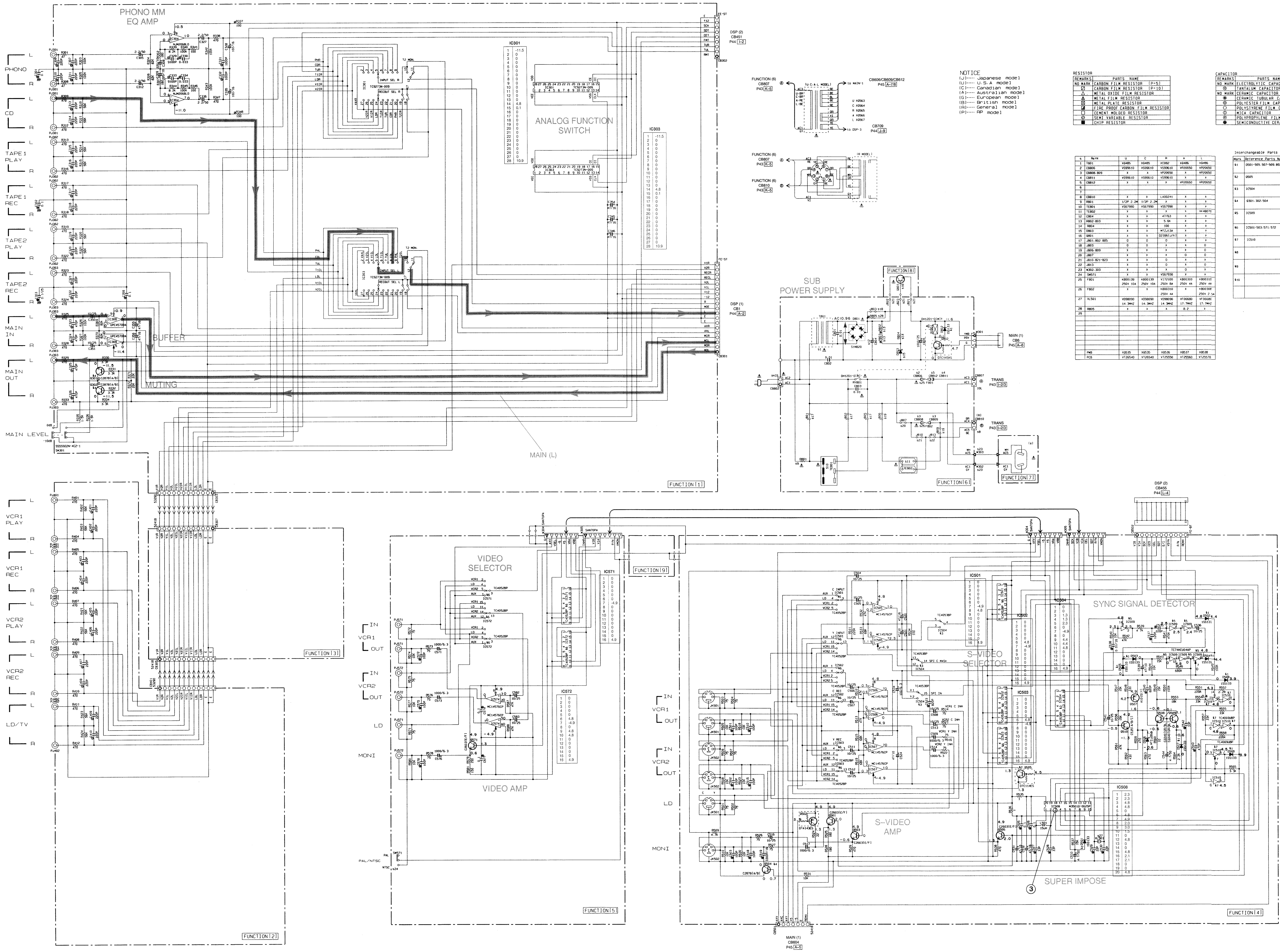
IC3 : LA3401
MPX



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

■ SCHEMATIC DIAGRAM (FUNCTION)

③ : TEST POINT WAVEFORMS (See page 24)



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

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	

s	RefN	U	C	R	A	L
1	TB01	XQ485	XQ485	XC082	XQ486	XQ486
2	CB806	VS99610	VS99610	VS99610	VP20650	VP20650
3	CB808. 809	X	X	VP20650	X	VP20650
4	CB811	VS99610	VS99610	VS99610	X	X
5	CB812	X	X	X	VP20650	VP20650
6						
7						
8	CB810	X	X	LA00241	X	X
9	R801	1/2P 2.2M	1/2P 2.2M	X	X	X
10	TE801	VS67990	VS67990	VS67990	X	X
11	TE802	X	X	X	X	VK48070
12	C804	X	X	47/63	X	X
13	R802. 803	X	X	5.6K	X	X
14	R804	X	X	100	X	X
15	D803	X	X	MTZJ13A	X	X
16	Q801	X	X	D2396(J/K)	X	X
17	JB01. 802. 805	0	0	0	X	X
18	JB03	0	0	X	X	0
19	JB06. 809	X	X	X	X	0
20	JB07	X	X	X	0	0
21	JB10. 821~823	X	X	0	X	X
22	JB13	X	X	0	X	0
23	W302. 303	X	X	X	0	X
24	SW571	X	X	VS67930	X	X
25	F801	KB00139 250V 10A	KB00139 250V 10A	VI72100 250V 8A	KB00310 250V 4A	KB00310 250V 4A
26	F802	X	X	KB00310 250V 4A	X	KB00308 250V 2.5A
27	XL501	VD98090 14.3MHZ	VD98090 14.3MHZ	VD98090 14.3MHZ	VF06680 17.7MHZ	VF06680 17.7MHZ
28	R805	X	X	X	8.2	X
29						
	PWB	XQ535	XQ535	XQ536	XQ537	XQ538
	PCB	VT26540	VT26540	VT25550	VT25560	VT25570

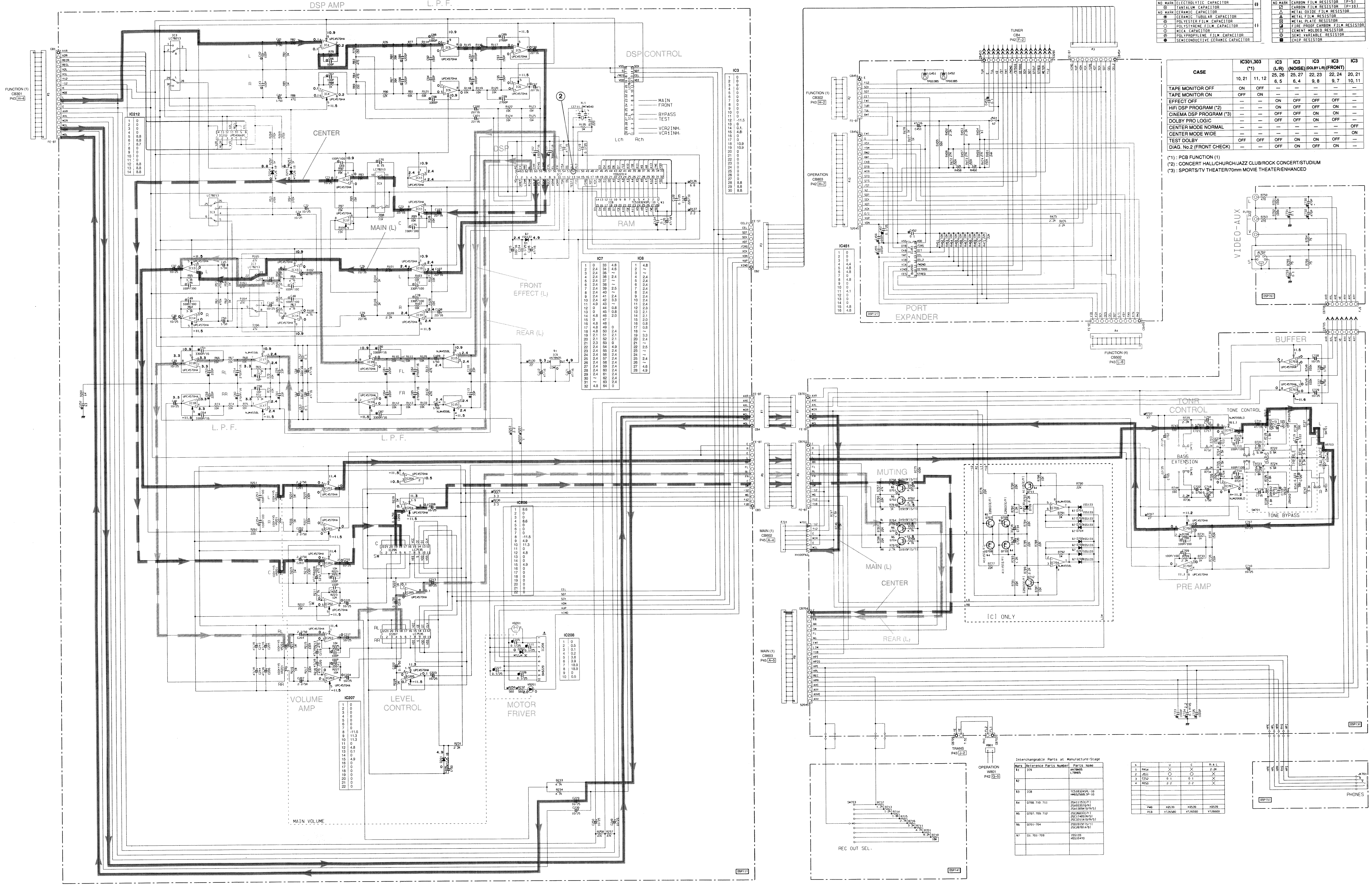
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D501-505. 507-509. 802	1SS133 HSS104TD
&2	Q505	DTC114ES UN4211
&3	IC504	TC4053BP UPD4053BC
&4	Q301. 302. 504	2SC2878(A/B) 2SD1915F(S/T)
&5	IC509	TC74HCU04AP SN74HCU04N NC74HCU04N
&6	IC501-503. 571. 572	TC4052BP UPD4052BC
&7	IC510	TC4069UBP UPD4069C
&8		
&9		
&10		

* *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: TEST POINT WAVEFORMS (See page 24)



CAPACITOR

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

RESISTOR

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

CASE	IC301,303 (*1)		IC3 (L/R)	IC3 (NOISE)	IC3 (DOLBY L/R)	IC3 (FRONT)	IC3
	10, 21	11, 12	25, 26 6, 5	25, 27 6, 4	22, 23 9, 8	22, 24 9, 7	20, 21 10, 11
TAPE MONITOR OFF	ON	OFF	—	—	—	—	—
TAPE MONITOR ON	OFF	ON	—	—	—	—	—
EFFECT OFF	—	—	ON	OFF	OFF	OFF	—
HiFi DSP PROGRAM (*2)	—	—	ON	OFF	OFF	ON	—
CINEMA DSP PROGRAM (*3)	—	—	OFF	OFF	ON	ON	—
DOLBY PRO LOGIC	—	—	OFF	OFF	ON	OFF	—
CENTER MODE NORMAL	—	—	—	—	—	—	OFF
CENTER MODE WIDE	—	—	—	—	—	—	ON
TEST DOLBY	OFF	OFF	OFF	ON	ON	OFF	—
DIAG. No.2 (FRONT CHECK)	—	—	OFF	ON	OFF	ON	—

(*1) : PCB FUNCTION (1)
(*2) : CONCERT HALL/CHURCH/JAZZ CLUB/ROCK CONCERT/STUDIUM
(*3) : SPORTS/TV THEATER/70mm MOVIE THEATER/ENHANCED

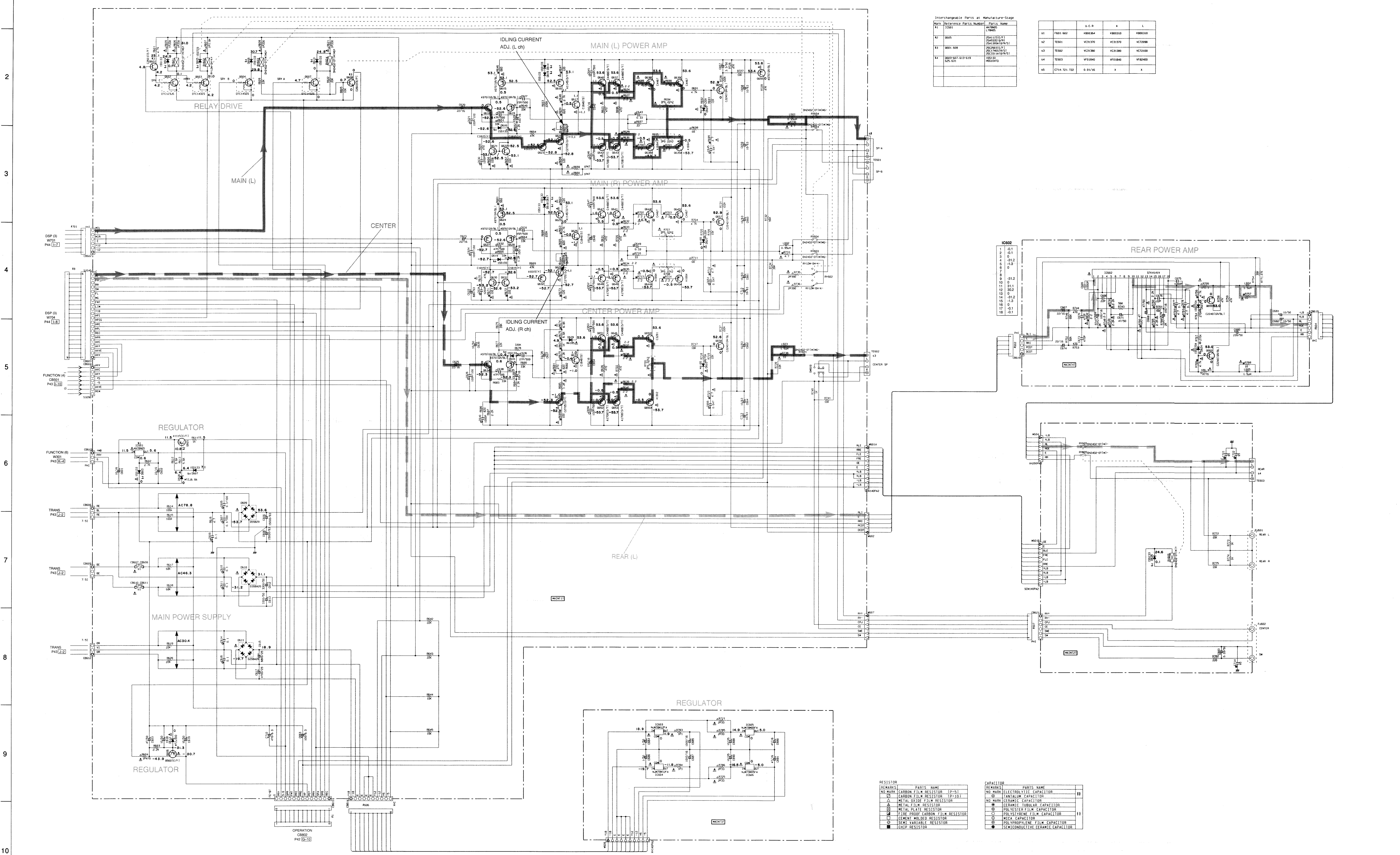
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
1	IC9	AN78N05 L78N05
2		
3	IC8	TC51832ASPL-10 HM65256BLSP-10
4	Q708. 710. 711	2SA1115[E/F] 2SA933S[Q/R] 2SA1309A[Q/R/S]
5	Q707. 709. 712	2SC2603[E/F] 2SC1740S[R/S] 2SC3311A[Q/R/S]
6	Q701-704	2SD1915F[S/T] 2SC2878[A/B]
7	D1. 701-709	1SS133 HSS104TD

S		U	C	R. A. L
1	R454	×	×	2.2K
2	J501	○	○	×
3	C252	0.1	0.1	×
4	R250	2.2	2.2	×
	PWB	X0539	X0539	X0539
	PCB	VT26580	VT26590	VT26600

* *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 (MAIN)



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	IC601	AN78N05 L78N05
&2	Q605	2SA1115[E/F] 2SA933S[Q/R] 2SA1309A[Q/R/S]
&3	Q601.608	2SC2603[E/F] 2SC1740S[R/S] 2SC3311A[Q/R/S]
&4	D603-607.613-619 625.631	1SS133 HSS104TD

		U.C.R	A	L
s1	F601.602	KB00364	KB00310	KB00310
s2	TE601	VC31370	VC31370	VC72090
s3	TE602	VC31380	VC31380	VC72100
s4	TE603	VF01840	VF01840	VF82400
s5	C714.721.722	0.01/16	X	X

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	

* 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.

P.C.B. TUNER & OPERATION

Schm Ref.	PART NO.	Description		
	VR341800	P.C.B.	TUNER(UC)	
	VR341900	P.C.B.	TUNER(R)	
	VR342000	P.C.B.	TUNER(A)	
	VR342100	P.C.B.	TUNER(G)	
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
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(UCRA)
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	UA652390	C.MYLAR	390pF	50V(G)
C36	UA652470	C.MYLAR	470pF	50V(A)
C36	UA652680	C.MYLAR	680pF	50V(UCR)
C37	UA652390	C.MYLAR	390pF	50V(G)
C37	UA652470	C.MYLAR	470pF	50V(A)
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

* New Parts

Schm Ref.	PART NO.	Description		
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
C71	VA777400	C.CE	120pF	50V(G)
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	VQ987600	TUNER.PK	EXV-17296G1(G)	
PK1	VR242200	TUNER.PK	EXV-17296G1(UCRA)	
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	
SW1	VF541200	SW.SLIDE	SSSF11(R)	
T1	VC218600	COIL.DT.FM	10.7MHz	
T2	GE100470	COIL.IF.AM	450KHz	
T3	VQ365700	FLTR.LP	FB-7SG(G)	
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.CRYS	7.2MHz	
XL2	GG000750	RSNR.CE	18.95MHz	
	BB071360	SCR.TERM	8.3x13	
	VR282500	PLATE	ANT.	
*	VT265100	P.C.B.	OPERATION(UCA)	
*	VT265200	P.C.B.	OPERATION(R)	
*	VT265300	P.C.B.	OPERATION(G)	
CB802	VP360500	CN.BS.PIN	13P	
CB803	VQ045000	CN.BS.PIN	20P	
C801	VH053100	C.CE.TUBLR	0.1uF	50V
C802	VE632800	C.EL	0.047F	5.5V

* New Parts

P.C.B. OPERATION & FUNCTION

Schm Ref.	PART NO.	Description	
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
C822	VF467300	C.CE.TUBLR	0.01uF 16V
C823	VF466900	C.CE.TUBLR	470pF 50V
C824	VH053100	C.CE.TUBLR	0.1uF 50V
D801	iF004600	DIODE	1SS133
D802	iF004600	DIODE	1SS133
D803	VG437300	DIODE.ZENR	MTZJ5.1A 5.1V
D804	VG438300	DIODE.ZENR	MTZJ6.8B 6.8V
D805	VP594000	LED(re)	SLR-305VCA47(G)
D806	iF004600	DIODE	1SS133
D807	VG437300	DIODE.ZENR	MTZJ5.1A 5.1V
D809	iF004600	DIODE	1SS133
D810	iF004600	DIODE	1SS133
D811	iF004600	DIODE	1SS133
G801	VR463400	TERM.GND	D3.5 TP00385
* IC801	XQ800A00	IC	HD6433723D11F CPU
IC802	XL493A00	IC	TC74HC4051AP
Q801	VG722000	TR.DGT	DTC144ES
Q802	iA093320	TR	2SA933S Q,R
Q803	iA093320	TR	2SA933S Q,R
SW801	VG392900	SW.TACT	SKHVAA
SW802	VG392900	SW.TACT	SKHVAA
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

* New Parts

Schm Ref.	PART NO.	Description	
SW824	VG392900	SW.TACT	SKHVAA
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
SW830	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
	VS588900	SHEET	
*	VT279700	SPACER	/FL-T6
*	VT265400	P.C.B.	FUNCTION(UC)
*	VT265500	P.C.B.	FUNCTION(R)
*	VT265600	P.C.B.	FUNCTION(A)
*	VT265700	P.C.B.	FUNCTION(G)
* CB301	VP361100	CN.BS.PIN	19P
CB302	VP360100	CN.BS.PIN	9P
CB303	VQ963300	CN.BS.PIN	12P
CB305	VQ961500	CN.BS.PIN	12P
CB307	VQ961500	CN.BS.PIN	12P
CB401	VQ963300	CN.BS.PIN	12P
CB501	VQ961000	CN.BS.PIN	7P
CB502	VN923200	CN	11P
⚠ CB802	VG879900	CN.BS.PIN	2P
CB806	VP206500	HOLDER.FUS	EYF-52BC(AG)
* CB806	VS996100	CLIP.FUSE	EYF64BC(UCR)
CB807	LA002410	TERM.WRAP	2P
CB808	VP206500	HOLDER.FUS	EYF-52BC(RG)
CB809	VP206500	HOLDER.FUS	EYF-52BC(RG)
CB810	LA002410	TERM.WRAP	2P(R)
* CB811	VS996100	CLIP.FUSE	EYF64BC(UCR)
CB812	VP206500	HOLDER.FUS	EYF-52BC(AG9

* New Parts

P.C.B. FUNCTION

Schm Ref.	PART NO.	Description		
C301	VH053100	C. CE. TUBLR	0. 1uF	50V
C302	VH053100	C. CE. TUBLR	0. 1uF	50V
C303	VD930900	C. CE. SMI	0. 1uF	25V
C305	VJ839200	C. EL	2. 2uF	50V
C306	UA652220	C. MYLAR	220pF	50V
C307	UA652220	C. MYLAR	220pF	50V
C308	VE117600	C. EL	220uF	10V
C309	VE117600	C. EL	220uF	10V
C310	UA652220	C. MYLAR	220pF	50V
C311	UA652220	C. MYLAR	220pF	50V
C312	VJ839200	C. EL	2. 2uF	50V
C313	UA652220	C. MYLAR	220pF	50V
C314	UA652220	C. MYLAR	220pF	50V
C315	UA652220	C. MYLAR	220pF	50V
C316	UA652220	C. MYLAR	220pF	50V
C317	UA652220	C. MYLAR	220pF	50V
C318	UA652220	C. MYLAR	220pF	50V
C319	UA652220	C. MYLAR	220pF	50V
C320	UA652220	C. MYLAR	220pF	50V
C321	UA652220	C. MYLAR	220pF	50V
C322	UA652220	C. MYLAR	220pF	50V
C323	UA652470	C. MYLAR	470pF	50V
C324	UA652470	C. MYLAR	470pF	50V
C325	UA652470	C. MYLAR	470pF	50V
C326	UA652470	C. MYLAR	470pF	50V
C327	VJ839200	C. EL	2. 2uF	50V
C328	VF964800	C. EL	100uF	16V
C329	UA653910	C. MYLAR	9100pF	50V
C330	UA654330	C. MYLAR	0. 033uF	50V
C331	UA653100	C. MYLAR	1000pF	50V
C332	UA653100	C. MYLAR	1000pF	50V
C333	UA653910	C. MYLAR	9100pF	50V
C334	UA654330	C. MYLAR	0. 033uF	50V
C335	VF964800	C. EL	100uF	16V
C336	VJ839200	C. EL	2. 2uF	50V
C345	VJ837200	C. EL	47uF	16V
C346	VJ837200	C. EL	47uF	16V
C350	UM417100	C. EL	10uF	50V
C351	UM417100	C. EL	10uF	50V
C354	VJ837200	C. EL	47uF	16V
C355	VJ837200	C. EL	47uF	16V
C356	VJ837200	C. EL	47uF	16V
C359	VH053100	C. CE. TUBLR	0. 1uF	50V
C401	UA652220	C. MYLAR	220pF	50V
C402	UA652220	C. MYLAR	220pF	50V
C403	UA652220	C. MYLAR	220pF	50V
C404	UA652220	C. MYLAR	220pF	50V
C405	UA652220	C. MYLAR	220pF	50V
C406	UA652220	C. MYLAR	220pF	50V
C407	UA652220	C. MYLAR	220pF	50V
C408	UA652220	C. MYLAR	220pF	50V
C409	UA652220	C. MYLAR	220pF	50V
C410	UA652220	C. MYLAR	220pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C501	VF466800	C. CE. TUBLR	100pF	50V
C502	VF466800	C. CE. TUBLR	100pF	50V
C503	VF466800	C. CE. TUBLR	100pF	50V
C504	UM417100	C. EL	10uF	50V
C505	UM417100	C. EL	10uF	50V
C506	UM417100	C. EL	10uF	50V
C507	UM417100	C. EL	10uF	50V
C508	UM417100	C. EL	10uF	50V
C509	VF637900	C. EL	1000uF	10V
C510	VF466800	C. CE. TUBLR	100pF	50V
C511	UM417100	C. EL	10uF	50V
C512	UM417100	C. EL	10uF	50V
C513	UM417100	C. EL	10uF	50V
C514	VF637900	C. EL	1000uF	10V
C515	VF466800	C. CE. TUBLR	100pF	50V
C516	UM417100	C. EL	10uF	50V
C517	VF637900	C. EL	1000uF	10V
C518	VF466800	C. CE. TUBLR	100pF	50V
C519	VG279600	C. CE. TUBLR	3300pF	16V
C520	VJ837200	C. EL	47uF	16V
C521	VJ837200	C. EL	47uF	16V
C523	VG279000	C. CE. TUBLR	820pF	50V
C524	VJ837200	C. EL	47uF	16V
C525	VH053100	C. CE. TUBLR	0. 1uF	50V
C526	VH053100	C. CE. TUBLR	0. 1uF	50V
C527	VG277000	C. CE. TUBLR	33pF	50V
C528	VG277000	C. CE. TUBLR	33pF	50V
C529	VG276600	C. CE. TUBLR	22pF	50V
C530	VG276600	C. CE. TUBLR	22pF	50V
C531	VJ837200	C. EL	47uF	16V
C532	VJ837200	C. EL	47uF	16V
C533	UM416470	C. EL	4. 7uF	50V
C534	VF760000	C. EL	100uF	10V
C535	VG278400	C. CE. TUBLR	220pF	50V
C536	UM417100	C. EL	10uF	50V
C537	VG278100	C. CE. TUBLR	120pF	50V
C538	VF467300	C. CE. TUBLR	0. 01uF	16V
C539	VJ837200	C. EL	47uF	16V
C540	VG279000	C. CE. TUBLR	820pF	50V
C541	UM417100	C. EL	10uF	50V
C542	VG277000	C. CE. TUBLR	33pF	50V
C543	VF466900	C. CE. TUBLR	470pF	50V
C544	UM416470	C. EL	4. 7uF	50V
C571	VF637900	C. EL	1000uF	10V
C572	VF466800	C. CE. TUBLR	100pF	50V
C573	VF637900	C. EL	1000uF	10V
C574	VH053100	C. CE. TUBLR	0. 1uF	50V
C575	VF466800	C. CE. TUBLR	100pF	50V
C576	VF637900	C. EL	1000uF	10V
C577	VH053100	C. CE. TUBLR	0. 1uF	50V
C578	VF466800	C. CE. TUBLR	100pF	50V
C582	UM417100	C. EL	10uF	50V
C583	UM417100	C. EL	10uF	50V

* New Parts

RX-V890

P.C.B. FUNCTION & MAIN

	Schm Ref.	PART NO.	Description		
	C801	FG214100	C.CE	0.01uF	50V
	C802	FG214100	C.CE	0.01uF	50V
⚠	C803	Fi414100	C.CE.SAFTY	0.01uF	VA-1
	C804	Ui377470	C.EL	47uF	63V(R)
	C805	VF606700	C.EL	1000uF	25V
	D501	iF004600	DIODE	1SS133	
	D502	iF004600	DIODE	1SS133	
	D503	iF004600	DIODE	1SS133	
	D504	iF004600	DIODE	1SS133	
	D505	iF004600	DIODE	1SS133	
	D506	VG435100	DIODE.ZENR	MTZJ2B	2.0V
	D507	iF004600	DIODE	1SS133	
	D508	iF004600	DIODE	1SS133	
	D509	iF004600	DIODE	1SS133	
⚠	D801	VR253700	DIODE.BRG	S1NB20	1.0A 200V
	D802	iF004600	DIODE	1SS133	
	D803	VG440400	DIODE.ZENR	MTZJ13A	13V(R)
⚠	F801	KB001390	FUSE	10A	250V(UC)
⚠	F801	KB003100	FUSE	T4.0A	250V(AG)
⚠	F801	Vi721000	FUSE	8A	250V(R)
⚠	F802	KB002980	FUSE	T2.5A	250V(G)
⚠	F802	KB003100	FUSE	T4.0A	250V(R)
*	IC301	XP581A00	IC	TC9273N-009	
*	IC303	XP581A00	IC	TC9273N-009	
	IC304	XM356A00	IC	NJM2068LD	
	IC308	XB247301	IC	uPC4570HA	
	IC501	XA053A00	IC	TC4052BP	
	IC502	XA053A00	IC	TC4052BP	
	IC503	XA053A00	IC	TC4052BP	
	IC504	iG055100	IC	TC4053BP	
	IC505	Xi109D00	IC	MC14576CP	
	IC506	Xi109D00	IC	MC14576CP	
	IC507	Xi109D00	IC	MC14576CP	
	IC508	XL314A00	IC	M35010-062SP	
	IC509	iG142200	IC	TC74HCU04AP	
	IC510	iG001720	IC	TC4069UBP	
	IC571	XA053A00	IC	TC4052BP	
	IC572	XA053A00	IC	TC4052BP	
	IC574	Xi109D00	IC	MC14576CP	
	JK501	VN938100	CN.DIN	3P S	
	JK502	VN938200	JACK.DIN	3P S	
	L501	VM703900	COIL	15uH	
	PJ301	VN308200	JACK.PIN	4P	
	PJ302	VJ794600	JACK.PIN	6P	
	PJ303	VJ794600	JACK.PIN	6P	
	PJ401	VM726000	JACK.PIN	6P	
	PJ402	VM725900	JACK.PIN	4P	
	PJ571	VJ695900	JACK.PIN	3P	
	PJ572	VJ695900	JACK.PIN	3P	
	Q301	iC287820	TR	2SC2878 A,B	
	Q302	iC287820	TR	2SC2878 A,B	
	Q501	iC260320	TR	2SC2603 E,F	
	Q502	VH964100	TR.DGT	DTA143ES	

* New Parts

	Schm Ref.	PART NO.	Description		
	Q503	iC260320	TR	2SC2603 E,F	
	Q504	iC287820	TR	2SC2878 A,B	
	Q505	VD678700	TR.DGT	DTC114ES	
	Q506	iC260320	TR	2SC2603 E,F	
	Q507	iA101521	TR	2SA1015 Y	
	Q508	iC224030	TR	2SC2240 GR,BL	
	Q509	iC224030	TR	2SC2240 GR,BL	
	Q510	iC053540	TR	2SC535 A,B,C	
	Q571	iC260320	TR	2SC2603 E,F	
	Q801	VR510800	TR	2SD2396 J,K(R)	
	Q802	VD488500	TR.DGT	DTC143XS	
	R337	HV455100	R.CAR.FP	100Ω	1/4W
	R348	HV455100	R.CAR.FP	100Ω	1/4W
	R802	HV456560	R.CAR.FP	5.6KΩ	1/4W(R)
	R803	HV456560	R.CAR.FP	5.6KΩ	1/4W(R)
	R805	HV753820	R.CAR.FP	8.2Ω	1/4W(A)
⚠	RY801	VK539200	RELAY	DC DH12D1-OM	
*	SW301	VS679300	SW.SLIDE	SSSS92B20A	
*	SW571	VS679300	SW.SLIDE	SSSS92B20A(R)	
⚠	T801	XC082A00	TRANS.PWR	(R)	
⚠*	T801	XQ485A00	TRANS.PWR	(UC)	
⚠	T801	XQ486A00	TRANS.PWR	(AG)	
⚠*	TE801	VS679900	OUTLET.AC	3P(UCR)	
⚠	TE802	VK480700	OUTLET.AC	(G)	
	XL501	VD980900	RSNR.CRYS	14.3181MHz(UCR)	
	XL501	VF066800	RSNR.CRYS	17.7344MHz(AG)	
		BB071360	SCR.TERM	8.3x13	
*		VT266100	P.C.B.	MAIN(UCR)	
*		VT266200	P.C.B.	MAIN(A)	
*		VT266300	P.C.B.	MAIN(G)	
	CB602	VL845000	CN.BS.PIN	6P	
	CB603	VQ047500	CN.BS.PIN	20P	
	CB604	VQ962800	CN.BS.PIN	7P	
	CB606	LA002320	TERM.WRAP	3P	
	CB607	VP206500	HOLDER.FUS	EYF-52BC	
	CB608	VP206500	HOLDER.FUS	EYF-52BC	
	CB609	LA002320	TERM.WRAP	3P	
	CB610	VP206500	HOLDER.FUS	EYF-52BC	
	CB611	VP206500	HOLDER.FUS	EYF-52BC	
	CB612	LA002320	TERM.WRAP	3P	
	CB613	VN923400	CN	13P	
	CB614	VL845400	CN.BS.PIN	10P	
	CB615	VD004600	CN.BS.PIN	3P	
	CB618	VD004800	CN.BS.PIN	5P	
	CB619	VL845000	CN.BS.PIN	6P	
	CB621	VD004900	CN.BS.PIN	6P	
	C601	VJ836900	C.EL	10uF	16V
	C602	UM407220	C.EL	22uF	25V
	C603	UJ667470	C.EL	47uF	50V
	C605	VR325400	C.MYLAR	0.1uF	100V

* New Parts

P.C.B. MAIN

	Schm Ref.	PART NO.	Description		
*	C606	VT522100	C.EL	15000uF	63V
	C607	VR325400	C.MYLAR	0.1uF	100V
*	C608	VT522100	C.EL	15000uF	63V
	C609	UA655100	C.MYLAR	0.1uF	50V
	C610	UA655100	C.MYLAR	0.1uF	50V
	C611	UA655100	C.MYLAR	0.1uF	50V
	C612	UJ769330	C.EL	3300uF	50V
	C613	UJ769330	C.EL	3300uF	50V
	C614	UA655100	C.MYLAR	0.1uF	50V
	C615	VQ067300	C.EL	6800uF	25V
	C616	UA655100	C.MYLAR	0.1uF	50V
	C617	VK181300	C.EL	4700uF	25V
	C618	UM417100	C.EL	10uF	50V
	C619	UM417100	C.EL	10uF	50V
	C620	VG291000	C.EL	22uF	50V
	C621	UT452100	C.PP	100pF	100V
*	C622	VQ508200	C.EL	680uF	63V
	C623	VG291000	C.EL	22uF	50V
	C624	UT452100	C.PP	100pF	100V
	C625	VG291000	C.EL	22uF	50V
	C626	UT452100	C.PP	100pF	100V
	C627	FU451150	C.MICA	15pF	500V
	C628	FU451470	C.MICA	47pF	500V
	C629	VG288900	C.EL	100uF	25V
	C630	UA653120	C.MYLAR	1200pF	50V
	C631	FU451150	C.MICA	15pF	500V
	C632	FU451470	C.MICA	47pF	500V
	C633	VG288900	C.EL	100uF	25V
	C634	UA653120	C.MYLAR	1200pF	50V
	C635	UM417100	C.EL	10uF	50V
	C636	FU451180	C.MICA	18pF	500V
	C637	UJ167330	C.EL	33uF	50V
	C638	FU451470	C.MICA	47pF	500V
	C639	VG288900	C.EL	100uF	25V
	C640	UA653100	C.MYLAR	1000pF	50V
	C641	FU452100	C.MICA	100pF	500V
	C642	VG288900	C.EL	100uF	25V
	C643	UA655330	C.MYLAR	0.33uF	50V
	C645	UA654470	C.MYLAR	0.047uF	50V
	C646	FU452100	C.MICA	100pF	500V
	C647	FU452100	C.MICA	100pF	500V
	C648	VG288900	C.EL	100uF	25V
	C649	UA655330	C.MYLAR	0.33uF	50V
	C651	UA654470	C.MYLAR	0.047uF	50V
	C652	FU452100	C.MICA	100pF	500V
	C653	FU452100	C.MICA	100pF	500V
	C654	VG288900	C.EL	100uF	25V
	C655	UA654470	C.MYLAR	0.047uF	50V
	C656	FU452100	C.MICA	100pF	500V
	C657	UM216330	C.EL	3.3uF	50V
*	C658	UJ677100	C.EL	10uF	63V
*	C659	UJ677100	C.EL	10uF	63V
*	C660	UJ677100	C.EL	10uF	63V

* New Parts

	Schm Ref.	PART NO.	Description		
*	C661	UJ677100	C.EL	10uF	63V
*	C662	UJ677100	C.EL	10uF	63V
	C663	VF760000	C.EL	100uF	10V
*	C664	UJ677100	C.EL	10uF	63V
	C665	FG213100	C.CE	1000pF	50V
	C666	FG251220	C.CE	22pF	50V
	C667	UM407220	C.EL	22uF	25V
	C668	UJ667470	C.EL	47uF	50V
	C669	VF964800	C.EL	100uF	16V
	C670	FG212470	C.CE	470pF	50V
	C671	UJ667470	C.EL	47uF	50V
	C673	FG212470	C.CE	470pF	50V
	C674	UM407220	C.EL	22uF	25V
	C675	FG213100	C.CE	1000pF	50V
	C676	FG251220	C.CE	22pF	50V
	C677	UA655100	C.MYLAR	0.1uF	50V
	C678	UA655100	C.MYLAR	0.1uF	50V
	C679	VF964800	C.EL	100uF	16V
	C680	VT915300	C.EL	220uF	50V
	C681	UM417100	C.EL	10uF	50V
	C682	UM417100	C.EL	10uF	50V
	C683	VJ402700	C.EL	0.33uF	50V
	C684	VJ839100	C.EL	1uF	50V
	C685	VJ651100	C.EL	1000uF	16V
	C686	VJ839100	C.EL	1uF	50V
	C687	VJ651100	C.EL	1000uF	16V
	C688	UM417100	C.EL	10uF	50V
	C689	VJ837200	C.EL	47uF	16V
	C690	UM417100	C.EL	10uF	50V
	C691	VJ837200	C.EL	47uF	16V
	C710	UJ628470	C.EL	470uF	10V
*	C713	UJ677100	C.EL	10uF	63V
	C714	VF467300	C.CE.TUBLR	0.01uF	16V(UCR)
	C721	VF467300	C.CE.TUBLR	0.01uF	16V(UCR)
	C722	VF467300	C.CE.TUBLR	0.01uF	16V(UCR)
⚠	D603	iF004600	DIODE	1SS133	
	D604	iF004600	DIODE	1SS133	
	D605	iF004600	DIODE	1SS133	
	D606	iF004600	DIODE	1SS133	
	D607	iF004600	DIODE	1SS133	
⚠	D608	VG438200	DIODE.ZENR	MTZJ6.8A	6.8V
⚠	D610	VN011300	DIODE.BRG	D3SBA20	4A 200V
⚠	D611	VP344100	DIODE.BRG	D2SBA20	1.5A 200V
⚠*	D612	VG443500	DIODE.ZENR	MTZJ30D	30V
	D613	iF004600	DIODE	1SS133	
	D614	iF004600	DIODE	1SS133	
	D615	iF004600	DIODE	1SS133	
	D616	iF004600	DIODE	1SS133	
	D617	iF004600	DIODE	1SS133	
	D618	iF004600	DIODE	1SS133	
	D619	iF004600	DIODE	1SS133	
⚠	D620	VC398400	DIODE	MA185	
⚠	D621	VC398400	DIODE	MA185	

* New Parts

RX-V890

P.C.B. MAIN

	Schm Ref.	PART NO.	Description	
⚠	D622	VC398400	DIODE	MA185
⚠	D623	VN008700	DIODE	1SS270A
⚠	D624	VN008700	DIODE	1SS270A
	D625	iF004600	DIODE	1SS133
⚠	D629	VC398400	DIODE	MA185
	D631	iF004600	DIODE	1SS133
⚠	F601	KB003100	FUSE	T4.0A 250V(AG)
⚠	F601	KB003640	FUSE	T6.0A 125V(UCR)
⚠	F602	KB003100	FUSE	T4.0A 250V(AG)
⚠	F602	KB003640	FUSE	T6.0A 125V(UCR)
⚠	IC601	XA507A00	IC	AN78N05
⚠	IC602	XA330A00	IC	TK4141V
⚠	IC603	XJ602A00	IC	NJM78M12FA
⚠	IC604	XD343A00	IC	NJM79M12FA
⚠	IC605	XJ604A00	IC	NJM78M05FA
⚠	IC606	XE436A00	IC	NJM79M05FA
	L601	VC664100	COIL	0.95uH
	L602	VC664100	COIL	0.95uH
	L603	GD900470	COIL	1.5uH
	L604	GD900470	COIL	1.5uH
	L605	GD900470	COIL	1.5uH
	PJ601	VN134700	JACK.PIN	2P
	PJ602	VJ249400	JACK.PIN	2P YKC21-3079
	Q601	iC260320	TR	2SC2603 E,F
	Q602	VK165500	TR.DGT	DTC123JS TP
*	Q603	VT254500	TR.DGT	DTC143ZS
*	Q604	VT254500	TR.DGT	DTC143ZS
	Q605	iA111510	TR	2SA1115 E,F
⚠	Q606	iB056020	TR	2SB560 E,F
*	Q607	VT254500	TR.DGT	DTC143ZS
	Q608	iC260320	TR	2SC2603 E,F
	Q615	iA097000	TR	2SA970 GR,BL
⚠	Q616	VE198700	TR	2SA1145 O,Y
⚠	Q617	VC398100	TR	2SC1846 S
	Q618	iA097000	TR	2SA970 GR,BL
	Q619	iA097000	TR	2SA970 GR,BL
⚠	Q620	VE198800	TR	2SC2705 O,Y
	Q621	iC1815C0	TR	2SC1815 Y
	Q622	iC1815C0	TR	2SC1815 Y
	Q623	iA101521	TR	2SA1015 Y
	Q624	iA097000	TR	2SA970 GR,BL
⚠	Q625	VE198700	TR	2SA1145 O,Y
⚠	Q626	VC398100	TR	2SC1846 S
	Q627	iA097000	TR	2SA970 GR,BL
	Q628	iA097000	TR	2SA970 GR,BL
⚠	Q629	VE198800	TR	2SC2705 O,Y
	Q630	iC1815C0	TR	2SC1815 Y
	Q631	iC1815C0	TR	2SC1815 Y
	Q632	iA101521	TR	2SA1015 Y
⚠#	Q633	VC398100	TR	2SC1846 S
	Q634	iA097000	TR	2SA970 GR,BL
	Q635	iA097000	TR	2SA970 GR,BL
⚠	Q636	VE198800	TR	2SC2705 O,Y

* New Parts

	Schm Ref.	PART NO.	Description		
⚠	Q637	VP872700	TR	2SC4488 S,T	
⚠#	Q638A	iX615750	TR	2SA1694 O,P,Y	
⚠#	Q638C	iX615760	TR	2SC4467 O,P,Y	
⚠#	Q639A	iX615750	TR	2SA1694 O,P,Y	
⚠#	Q639C	iX615760	TR	2SC4467 O,P,Y	
⚠	Q640	VP872700	TR	2SC4488 S,T	
⚠	Q641	VP872700	TR	2SC4488 S,T	
⚠	Q642	VP872600	TR	2SA1708 S,T	
⚠	Q643	VP872600	TR	2SA1708 S,T	
⚠#	Q644A	iX615750	TR	2SA1694 O,P,Y	
⚠#	Q644C	iX615760	TR	2SC4467 O,P,Y	
⚠#	Q645A	iX615750	TR	2SA1694 O,P,Y	
⚠#	Q645C	iX615760	TR	2SC4467 O,P,Y	
⚠	Q646	VP872700	TR	2SC4488 S,T	
⚠	Q647	VP872700	TR	2SC4488 S,T	
⚠	Q648	VP872600	TR	2SA1708 S,T	
⚠	Q649	VP872600	TR	2SA1708 S,T	
⚠#	Q650A	iX801420	TR	2SA1302 O,R	
⚠#	Q650C	iX801430	TR	2SC3281 O,R	
⚠	Q651	VP872700	TR	2SC4488 S,T	
⚠	Q652	VP872600	TR	2SA1708 S,T	
⚠	Q653	VP872600	TR	2SA1708 S,T	
⚠	Q655	iA097000	TR	2SA970 GR,BL	
	Q656	iC224030	TR	2SC2240 GR,BL	
	Q657	iC224030	TR	2SC2240 GR,BL	
	Q658	iC224030	TR	2SC2240 GR,BL	
	Q659	iC224030	TR	2SC2240 GR,BL	
	Q660	iC224030	TR	2SC2240 GR,BL	
⚠	R604	HL315470	R.MTL.OXD	470Ω	1W
⚠	R605	HL315330	R.MTL.OXD	330Ω	1W
⚠	R606	HL315330	R.MTL.OXD	330Ω	1W
⚠*	R607	VT267900	R.MTL.OXD	1.8KΩ	1W
⚠	R608	HL315330	R.MTL.OXD	330Ω	1W
⚠	R621	HL315330	R.MTL.OXD	330Ω	1W
⚠	R623	VK188600	R.FUS	470Ω	1/4W
⚠	R624	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R627	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R629	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R630	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R631	VK188600	R.FUS	470Ω	1/4W
⚠	R632	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R633	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R634	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R635	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R636	VK188600	R.FUS	470Ω	1/4W
⚠	R637	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R638	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R639	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R640	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R646	HV455560	R.CAR.FP	560Ω	1/4W
⚠	R647	HV455120	R.CAR.FP	120Ω	1/4W
⚠	R648	HV456270	R.CAR.FP	2.7KΩ	1/4W
⚠	R650	HV455820	R.CAR.FP	820Ω	1/4W

* New Parts

P.C.B. MAIN & DSP

	Schm Ref.	PART NO.	Description		
⚠	R656	HV455100	R.CAR.FP	100Ω	1/4W
⚠	R657	HV455100	R.CAR.FP	100Ω	1/4W
⚠	R658	HV455120	R.CAR.FP	120Ω	1/4W
⚠	R659	HL314470	R.MTL.OXD	47Ω	1W
⚠	R660	HL314470	R.MTL.OXD	47Ω	1W
⚠	R661	HV455560	R.CAR.FP	560Ω	1/4W
⚠	R662	HV455120	R.CAR.FP	120Ω	1/4W
⚠	R663	HV456270	R.CAR.FP	2.7KΩ	1/4W
⚠	R665	HV455820	R.CAR.FP	820Ω	1/4W
⚠	R671	HV455100	R.CAR.FP	100Ω	1/4W
⚠	R672	HV455100	R.CAR.FP	100Ω	1/4W
⚠	R673	HV455120	R.CAR.FP	120Ω	1/4W
⚠	R674	HV456680	R.CAR.FP	6.8KΩ	1/4W
⚠	R676	HV456560	R.CAR.FP	5.6KΩ	1/4W
⚠	R679	HV456330	R.CAR.FP	3.3KΩ	1/4W
⚠	R681	HV455270	R.CAR.FP	270Ω	1/4W
⚠	R682	HV455820	R.CAR.FP	820Ω	1/4W
⚠	R685	VK189100	R.FUS	1.2KΩ	1/4W
⚠	R688	HV455100	R.CAR.FP	100Ω	1/4W
⚠	R689	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R690	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R694	VJ695400	R.WW	0.22Ωx2	3W
⚠	R695	VJ695400	R.WW	0.22Ωx2	3W
⚠	R696	VK188600	R.FUS	470Ω	1/4W
⚠	R699	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R700	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R701	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R702	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R703	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R707	VJ695400	R.WW	0.22Ωx2	3W
⚠	R708	VJ695400	R.WW	0.22Ωx2	3W
⚠	R709	VK188600	R.FUS	470Ω	1/4W
⚠	R712	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R713	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R714	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R720	VJ695400	R.WW	0.22Ωx2	3W
⚠	R721	HL324330	R.MTL.OXD	33Ω	2W
⚠	R722	VK188600	R.FUS	470Ω	1/4W
⚠	R723	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R725	HL324330	R.MTL.OXD	33Ω	2W
⚠	R730	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R733	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R735	HL325390	R.MTL.OXD	390Ω	2W
⚠	R736	HL325390	R.MTL.OXD	390Ω	2W
⚠	R738	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R742	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R748	HV453220	R.CAR.FP	2.2Ω	1/4W
⚠	R749	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R750	HV454470	R.CAR.FP	47Ω	1/4W
⚠	R755	VK189600	R.MTL.OXD	0.1Ω	1W
⚠	R756	HV456470	R.CAR.FP	4.7KΩ	1/4W
⚠	R757	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R760	HV456220	R.CAR.FP	2.2KΩ	1/4W

* New Parts

	Schm Ref.	PART NO.	Description		
⚠	R762	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R763	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R765	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R768	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R769	HV456470	R.CAR.FP	4.7KΩ	1/4W
⚠	R770	VK189600	R.MTL.OXD	0.1Ω	1W
⚠*	R783	VL794700	R.MTL.OXD	1Ω	1W
⚠*	R784	VL794700	R.MTL.OXD	1Ω	1W
⚠	R785	HL324330	R.MTL.OXD	33Ω	2W
⚠	R786	HL324330	R.MTL.OXD	33Ω	2W
⚠	R831	HV456100	R.CAR.FP	1KΩ	1/4W
⚠	R832	HV453220	R.CAR.FP	2.2Ω	1/4W
	RY601	KC002020	RELAY	DH24D2-OTM	
	RY602	VM640200	RELAY	RY12W-OH-K DC12V	
	RY603	KC002020	RELAY	DH24D2-OTM	
	RY604	KC002020	RELAY	DH24D2-OTM	
	RY605	VK438300	RELAY	DH24D2-OTM-	
	SW609	VN121000	SW.PUSH	SPUN19-2N-W	
	TE601	VC313700	TERM.SP	8P(UCRA)	
	TE601	VC720900	TERM.SP	8P(UCRA)	
	TE602	VC313800	TERM.SP	LTS0410-2002(UCRA)	
	TE602	VC721000	TERM.SP	LTS0420(G)	
	TE603	VF018400	TERM.SP	4P(UCRA)	
	TE603	VF824000	TERM.SP	4P(UCRA)	
⚠	VR601	VJ692800	VR.TRIM	B470Ω	
⚠	VR602	VJ692800	VR.TRIM	B470Ω	
		VJ828000	PIN	IMSA-6024-03E	
		BB069510	GND.MTL	No.6951	
		BB070700	GND.MTL		
*		VT265800	P.C.B.	DSP(U)	
*		VT265900	P.C.B.	DSP(C)	
*		VT266000	P.C.B.	DSP(RAG)	
*	CB1	VN924000	CN	19P	
	CB2	VP360200	CN.BS.PIN	10P	
*	CB3	VN923500	CN	14P	
*	CB4	VN922800	CN	7P	
	CB451	VN923000	CN	9P	
	CB452	VQ047500	CN.BS.PIN	20P	
	CB453	VQ963600	CN.BS.PIN	15P	
	CB454	VN923100	CN	10P	
	CB455	VN923200	CN	11P	
*	CB701	VN922800	CN	7P	
*	CB702	VN923500	CN	14P	
	CB703	VD004500	CN.BS.PIN	2P	
	CB704	VQ047500	CN.BS.PIN	20P	
	CB709	LA002000	TERM.WRAP	2P	
	C37	UM417100	C.EL	10uF	50V
	C38	UM417100	C.EL	10uF	50V
	C39	UM417100	C.EL	10uF	50V
	C40	UM417100	C.EL	10uF	50V

* New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description		
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	UT452100	C. PP	100pF	100V
C47	UT452100	C. PP	100pF	100V
C48	UT452100	C. PP	100pF	100V
C49	UT452100	C. PP	100pF	100V
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	UJ638330	C. EL	330uF	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	UJ638330	C. EL	330uF	16V
C63	VH053100	C. CE. TUBLR	0. 1uF	50V
C64	VG279600	C. CE. TUBLR	3300pF	16V
C65	UA653120	C. MYLAR	1200pF	50V
C66	UA652100	C. MYLAR	100pF	50V
C67	UA652100	C. MYLAR	100pF	50V
C68	UA653120	C. MYLAR	1200pF	50V
C69	UT452100	C. PP	100pF	100V
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	UT452330	C. PP	330pF	100V
C76	UM407220	C. EL	22uF	25V
C77	UT452330	C. PP	330pF	100V
C78	UT452330	C. PP	330pF	100V
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	UA653330	C. MYLAR	3300pF	50V
C89	UA653270	C. MYLAR	2700pF	50V
C90	UM407220	C. EL	22uF	25V
C91	UA653100	C. MYLAR	1000pF	50V
C92	FG212150	C. CE	150pF	50V
C93	FG212150	C. CE	150pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C94	FG212150	C. CE	150pF	50V
C95	FG212150	C. CE	150pF	50V
C96	UA653100	C. MYLAR	1000pF	50V
C97	UM407220	C. EL	22uF	25V
C98	UA653330	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	FZ005880	C. CE. ML	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
C111	VD930900	C. CE. SMI	0. 1uF	25V
C112	VJ837200	C. EL	47uF	16V
C113	VG277000	C. CE. TUBLR	33pF	50V
C114	VJ839100	C. EL	1uF	50V
C117	VG279600	C. CE. TUBLR	3300pF	16V
C119	FZ005880	C. CE. ML	0. 1uF	25V
C120	VJ837200	C. EL	47uF	16V
C121	VJ837200	C. EL	47uF	16V
C122	FZ005880	C. CE. ML	0. 1uF	25V
C123	VE117600	C. EL	220uF	10V
C124	VH053100	C. CE. TUBLR	0. 1uF	50V
C125	VJ837200	C. EL	47uF	16V
C141	UM417100	C. EL	10uF	50V
C142	UM417100	C. EL	10uF	50V
C201	VJ839200	C. EL	2. 2uF	50V
C202	VJ839200	C. EL	2. 2uF	50V
C203	VJ839200	C. EL	2. 2uF	50V
C204	VJ839200	C. EL	2. 2uF	50V
C205	VJ837200	C. EL	47uF	16V
C206	VJ837200	C. EL	47uF	16V
C207	VJ839200	C. EL	2. 2uF	50V
C208	UM417100	C. EL	10uF	50V
C209	UM215100	C. EL	0. 1uF	50V
C210	UM417100	C. EL	10uF	50V
C211	UA652100	C. MYLAR	100pF	50V
C212	VJ837200	C. EL	47uF	16V
C213	UM417100	C. EL	10uF	50V
C214	FG212100	C. CE	100pF	50V
C215	UM417100	C. EL	10uF	50V
C216	UM215100	C. EL	0. 1uF	50V
C217	UM417100	C. EL	10uF	50V
C218	UA652100	C. MYLAR	100pF	50V
C219	VJ837200	C. EL	47uF	16V
C220	VJ837200	C. EL	47uF	16V
C221	UA652100	C. MYLAR	100pF	50V
C222	UM215100	C. EL	0. 1uF	50V

* New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description		
C223	UM417100	C.EL	10uF	50V
C224	UM417100	C.EL	10uF	50V
C225	VD930900	C.CE.SMI	0.1uF	25V
C226	VJ839100	C.EL	1uF	50V
C227	VD930900	C.CE.SMI	0.1uF	25V
C228	VD930900	C.CE.SMI	0.1uF	25V
C229	UM417100	C.EL	10uF	50V
C230	UM417100	C.EL	10uF	50V
C243	VJ837200	C.EL	47uF	16V
C244	VJ837200	C.EL	47uF	16V
C249	UM417100	C.EL	10uF	50V
C250	UM417100	C.EL	10uF	50V
C252	VH053100	C.CE.TUBLR	0.1uF	50V(UC)
C253	UT452100	C.PP	100pF	100V
C254	UT452100	C.PP	100pF	100V
C451	VJ837200	C.EL	47uF	16V
C452	VH053100	C.CE.TUBLR	0.1uF	50V
C453	VH053100	C.CE.TUBLR	0.1uF	50V
C455	VF467000	C.CE.TUBLR	1000pF	50V
C456	VF467000	C.CE.TUBLR	1000pF	50V
C457	VD930900	C.CE.SMI	0.1uF	25V
C701	VJ839100	C.EL	1uF	50V
C702	UM407220	C.EL	22uF	25V
C703	VJ839200	C.EL	2.2uF	50V
C704	VJ839200	C.EL	2.2uF	50V
C705	UM407220	C.EL	22uF	25V
C706	VJ839100	C.EL	1uF	50V
C707	UM417100	C.EL	10uF	50V
C708	UT452100	C.PP	100pF	100V
C709	UT452100	C.PP	100pF	100V
C710	UM417100	C.EL	10uF	50V
C711	VJ837200	C.EL	47uF	16V
C712	UA655120	C.MYLAR	0.12uF	50V
C713	UT452100	C.PP	100pF	100V
C714	UT452100	C.PP	100pF	100V
C715	UA655120	C.MYLAR	0.12uF	50V
C716	VJ837200	C.EL	47uF	16V
C717	UM215100	C.EL	0.1uF	50V
C718	UM215100	C.EL	0.1uF	50V
C719	UA654330	C.MYLAR	0.033uF	50V
C720	UA654330	C.MYLAR	0.033uF	50V
C721	UM215100	C.EL	0.1uF	50V
C722	UM215100	C.EL	0.1uF	50V
C723	VF467000	C.CE.TUBLR	1000pF	50V
C724	VH053100	C.CE.TUBLR	0.1uF	50V
C725	VF467000	C.CE.TUBLR	1000pF	50V
C726	VJ839100	C.EL	1uF	50V
C727	VJ839100	C.EL	1uF	50V
C728	UM417100	C.EL	10uF	50V
C729	UM417100	C.EL	10uF	50V
C730	VF466900	C.CE.TUBLR	470pF	50V
C731	VH053100	C.CE.TUBLR	0.1uF	50V
C732	VF466900	C.CE.TUBLR	470pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C733	VH053100	C.CE.TUBLR	0.1uF	50V
C734	UM397330	C.EL	33uF	16V(C)
C735	UM397330	C.EL	33uF	16V(C)
D1	iF004600	DIODE	1SS133	
D201	VG437400	DIODE.ZENR	MTZJ5.1B	5.1V
D202	VG436900	DIODE.ZENR	MTZJ4.3C	4.3V
D204	VG439200	DIODE.ZENR	MTZJ9.1B	9.1V
D205	VG439200	DIODE.ZENR	MTZJ9.1B	9.1V
D701	iF004600	DIODE	1SS133(C)	
D702	iF004600	DIODE	1SS133(C)	
D703	iF004600	DIODE	1SS133(C)	
D704	iF004600	DIODE	1SS133(C)	
D705	iF004600	DIODE	1SS133(C)	
D706	iF004600	DIODE	1SS133(C)	
D707	iF004600	DIODE	1SS133(C)	
D708	iF004600	DIODE	1SS133(C)	
D709	iF004600	DIODE	1SS133(C)	
G451	VR463400	TERM.GND	D3.5	TP00385
G452	VR463400	TERM.GND	D3.5	TP00385
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	XM922A00	IC	NJM4558L	
IC16	XB247301	IC	uPC4570HA	
IC17	XM922A00	IC	NJM4558L	
IC18	XB247301	IC	uPC4570HA	
IC201	XB247301	IC	uPC4570HA	
IC202	XB247301	IC	uPC4570HA	
IC203	XB247301	IC	uPC4570HA	
IC204	XB247301	IC	uPC4570HA	
IC205	XB247301	IC	uPC4570HA	
IC206	XE536001	IC	LC7535	
IC207	XE536001	IC	LC7535	
⚠ IC208	iG152500	IC	BA6229	
IC212	iG037400	IC	uPD4066BC	
IC451	XP265A00	IC	BU2090	
IC701	XM356A00	IC	NJM2068LD	
IC702	XB247301	IC	uPC4570HA	
IC703	XB247301	IC	uPC4570HA	
IC704	XM922A00	IC	NJM4558L(C)	
JK701	VT749100	JACK.PHONE	HLJ5307	
JK702	VS867300	CN	4P YKF51-5501	
PJ701	VS549000	JACK.PIN	3P	
Q701	VK432900	TR	2SD1915F S,T	

* New Parts

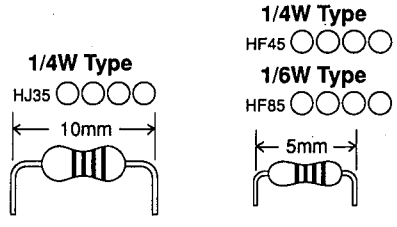
P.C.B. DSP

	Schm Ref.	PART NO.	Description	
	Q702	VK432900	TR	2SD1915F S,T
	Q703	VK432900	TR	2SD1915F S,T
	Q704	VK432900	TR	2SD1915F S,T
	Q707	iC260320	TR	2SC2603 E,F(C)
	Q708	iA111510	TR	2SA1115 E,F(C)
	Q709	iC260320	TR	2SC2603 E,F(C)
	Q710	iA111510	TR	2SA1115 E,F(C)
	Q711	iA111510	TR	2SA1115 E,F(C)
	Q712	iC260320	TR	2SC2603 E,F(C)
	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
	R201	HV453100	R.CAR.FP	1Ω 1/4W
	R202	HV453100	R.CAR.FP	1Ω 1/4W
	R203	HV453220	R.CAR.FP	2.2Ω 1/4W
	R229	HV453330	R.CAR.FP	3.3Ω 1/4W
	R230	HV453330	R.CAR.FP	3.3Ω 1/4W
	R232	HV455560	R.CAR.FP	560Ω 1/4W
	R256	HV455560	R.CAR.FP	560Ω 1/4W
	R702	HV454470	R.CAR.FP	47Ω 1/4W
	R707	HV454470	R.CAR.FP	47Ω 1/4W
	SW701	VJ769400	SW.PUSH	SPUN24 2
*	SW703	VS679400	SW.RT	SRRM19044A
	VR201	VM929700	VR.MTR	100KYΩx5
	VR701	VP741800	VR	B20KΩ
	VR702	VP741900	VR	G25KΩ
	VR703	VP742000	VR	MN50KΩ
	XL1	VK175200	RSNR.CE	11.28MHz
		VJ828000	PIN	IMSA-6024-03E
		AA626100	PLATE	25
		BB071360	SCR.TERM	8.3x13

* New Parts

Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



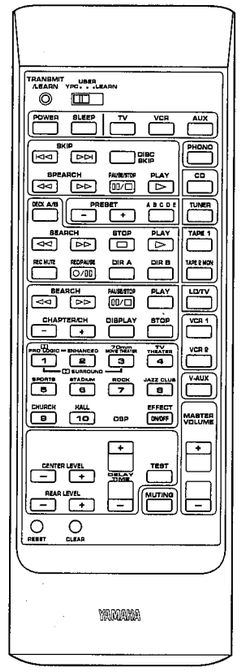
1992

RX-V890

RX-V890

YAMAHA

REMOTE CONTROL TRANSMITTER

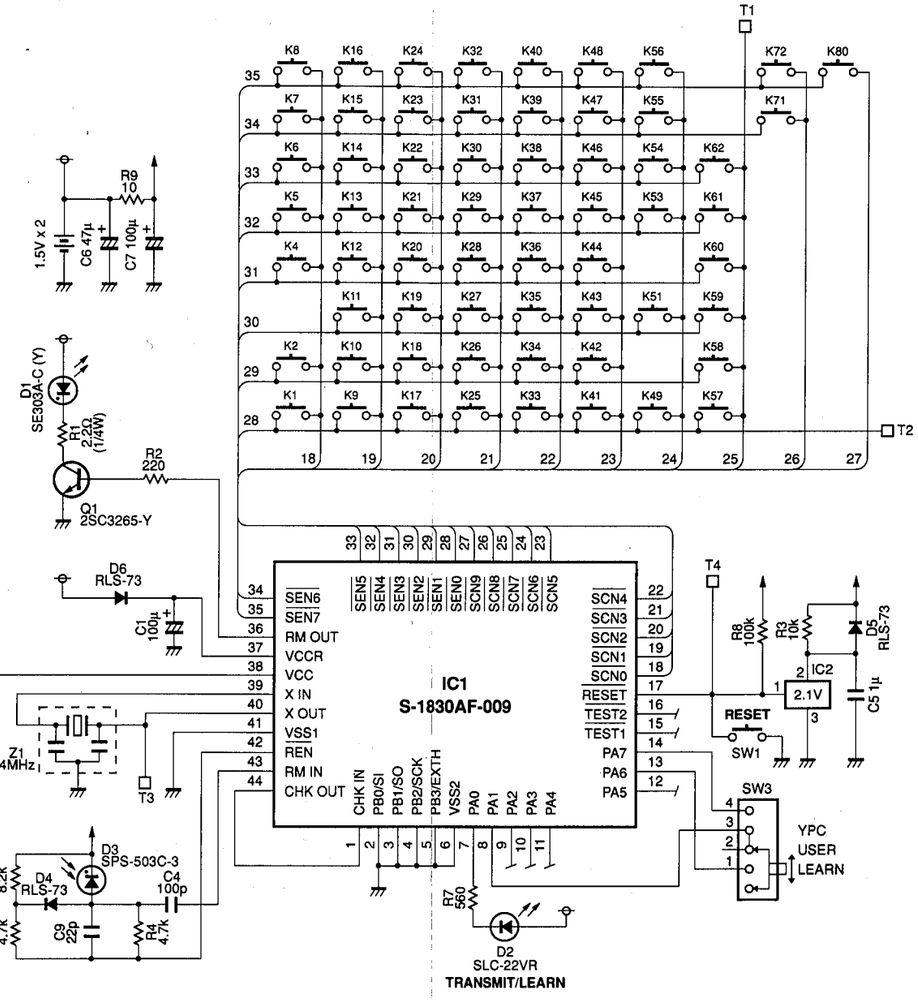


KEY No.	FUNCTION	CONTROL CODE
1	INPUT AUX	—
2	INPUT PHONO	7A-14
4	INPUT VCR	—
5	INPUT TV	—
6	CD DISC SKIP	7A-4F
7	SLEEP	7A-57
8	POWER	7A-1F
9	INPUT TUNER	7A-16
10	INPUT CD	7A-15
11	CD PLAY ►	7A-08
12	CD PAUSE/STOP ▮▮/■	7A-09
13	CD SEARCH ►►	7A-0C
14	CD SEARCH ◄◄	7A-0D
15	CD SKIP ►►I	7A-0A
16	CD S KIP I◄◄	7A-0B
17	TAPE 1	7A-18
18	TUNER A/B/C/D/E	7A-12
19	TAPE PLAY ►	7A-00
20	TUNER PRESET +	7A-10
21	TAPE STOP ■	7A-03
22	TAPE SEARCH ►►	7A-02

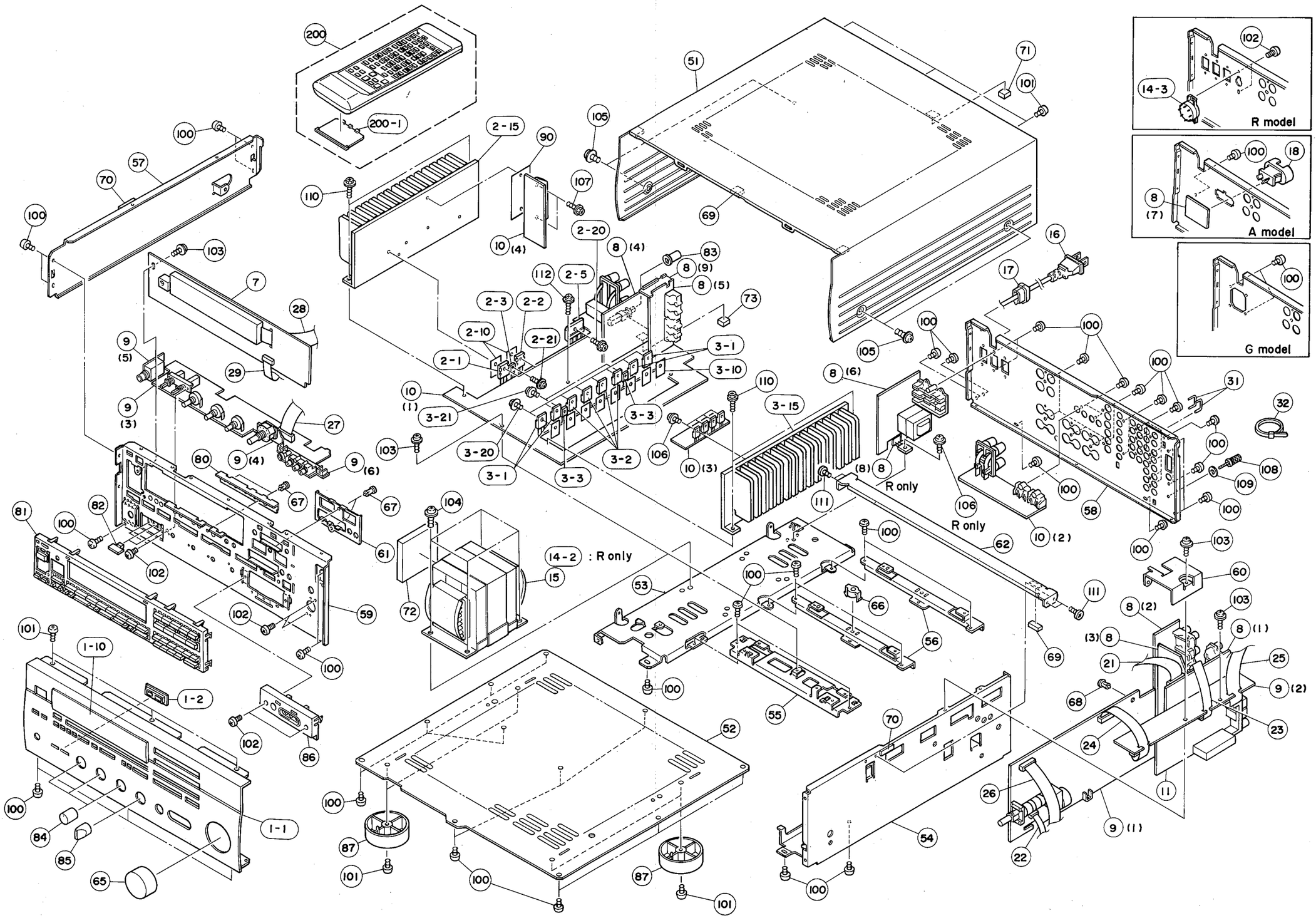
KEY No.	FUNCTION	CONTROL CODE
23	TUNER PRESET –	7A-11
24	TAPE DECK A/B	7A-06
25	TAPE 2 MON	7A-19
26	INPUT LD/TV	7A-17
27	LD PLAY ►	7C-05
28	TAPE DIR B	7A-40
29	TAPE DIR A	7A-07
30	TAPE REC PAUSE	7A-04
31	TAPE REC MUTE	7A-05
32	TAPE SEARCH ◄◄	7A-01
33	INPUT VCR 1	7A-0F
34	LD STOP ■	7C-5B
35	LD DISPLAY	7C-13
36	LD PAUSE/STOP ▮▮/■	7C-04
37	LD SEARCH ►►	7C-07
38	LD CHAPTER/CH +	7C-03
39	LD CHAPTER/CH –	7C-02
40	LD SEARCH ◄◄	7C-06
41	INPUT VCR 2	7A-13
42	INPUT V-AUX	7A-55
43	DSP-4	7A-8B

KEY No.	FUNCTION	CONTROL CODE
44	DSP 8	7A-8D
45	DSP 7	7A-8C
46	DSP 3	7A-8A
47	DSP 2	7A-89
48	DSP 1	7A-88
49	MASTER VOL +	7A-1A
51	EFFECT ON/OFF	7A-56
53	DSP-10	7A-91
54	DSP 6	7A-8F
55	DSP-9	7A-90
56	DSP 5	7A-8E
57	MASTER VOL –	7A-1B
58	TEST	7A-85
59	MUTING	7A-1C
60	DELAY TIME –	7A-53
61	DELAY TIME +	7A-52
62	CENTER LEVEL +	7A-82
68	REAR LEVEL +	7A-5E
71	CENTER LEVEL –	7A-83
72	REAR LEVEL –	7A-5F
80	CLEAR	

■ SCHEMATIC DIAGRAM



■ EXPLODED VIEW



■ MECHANICAL PARTS

	Ref. No.	PART NO.	Description		Remarks	Markets
*	1- 1	VT062200	FRONT PANEL			
	1- 2	VJ833300	BUTTON GUIDE	2P		
*	1-10	VS588700	WINDOW PANEL			(UCRA)
*	1-10	VS588800	WINDOW PANEL			(G)
⚠#	2- 1	iX801420	TRANSISTOR	2SA1302 O,R	Q650A	
⚠#	2- 2	iX801430	TRANSISTOR	2SC3281 O,R	Q650C	
⚠#	2- 3	VC398100	TRANSISTOR	2SC1846 S	Q633	
⚠	2- 5	VQ163000	DIODE BRIDGE	D5SB20 5A 200V		
	2-10	VK196000	SHEET	22x29		
*	2-15	VT062000	HEAT SINK			
	2-20	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3		
	2-21	VK697600	BIND HEAD B-TITE SCREW	3x10 SP ZMC2-Y		
⚠#	3- 1	iX615750	TRANSISTOR	2SA1694 O,P,Y	Q638A,Q639A,	
⚠#	3- 1	iX615750	TRANSISTOR	2SA1694 O,P,Y	Q644A,Q645A	
⚠#	3- 2	iX615760	TRANSISTOR	2SC4467 O,P,Y	Q638C,Q639C,	
⚠#	3- 2	iX615760	TRANSISTOR	2SC4467 O,P,Y	Q644C,Q645C	
⚠	3- 3	VC398100	TRANSISTOR	2SC1846 S	Q617,Q626	
	3-10	VK195900	SHEET	19x24		
*	3-15	VT062000	HEAT SINK			
	3-20	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3		
	3-21	VK697600	BIND HEAD B-TITE SCREW	3x10 SP ZMC2-Y		
*	7	VT265100	P.C.B. ASS'Y	OPERATION		(UCA)
*	7	VT265200	P.C.B. ASS'Y	OPERATION		(R)
*	7	VT265300	P.C.B. ASS'Y	OPERATION		(G)
*	8	VT265400	P.C.B. ASS'Y	FUNCTION		(UC)
*	8	VT265500	P.C.B. ASS'Y	FUNCTION		(R)
*	8	VT265600	P.C.B. ASS'Y	FUNCTION		(A)
*	8	VT265700	P.C.B. ASS'Y	FUNCTION		(G)
*	9	VT265800	P.C.B. ASS'Y	DSP		(U)
*	9	VT265900	P.C.B. ASS'Y	DSP		(C)
*	9	VT266000	P.C.B. ASS'Y	DSP		(RAG)
*	10	VT266100	P.C.B. ASS'Y	MAIN		(UCR)
*	10	VT266200	P.C.B. ASS'Y	MAIN		(A)
*	10	VT266300	P.C.B. ASS'Y	MAIN		(G)
	11	VR341800	P.C.B. ASS'Y	TUNER		(UC)
	11	VR341900	P.C.B. ASS'Y	TUNER		(R)
	11	VR342000	P.C.B. ASS'Y	TUNER		(A)
	11	VR342100	P.C.B. ASS'Y	TUNER		(G)
⚠*	14-2	XQ565A00	POWER TRANSFORMER			(R)
⚠	14-3	Vi449800	VOLTAGE SELECTOR	ESE-37284-F		(R)
⚠*	15	XQ563A00	POWER TRANSFORMER			(U)
⚠*	15	XQ564B00	POWER TRANSFORMER			(C)
⚠*	15	XQ566A00	POWER TRANSFORMER			(A)
⚠*	15	XQ567A00	POWER TRANSFORMER			(G)
⚠	16	VP418300	POWER CORD ASS'Y			(A)
⚠	16	VQ458400	POWER CORD ASS'Y			(R)
⚠	16	VS168300	POWER CORD ASS'Y			(UC)
⚠	16	VS168400	POWER CORD ASS'Y			(G)
	17	VN158600	CORD STOPPER	No.2104		
⚠	18	VP418700	AC OUTLET	2P		(A)
*	21	VT242300	CONNECTOR, FLAT CABLE	19P 200mm		
*	22	VT242400	CONNECTOR, FLAT CABLE	7P 140mm		
*	23	VT242500	CONNECTOR, FLAT CABLE	9P 80mm		

* New Parts

	Ref. No.	PART NO.	Description		Remarks	Markets
*	24	VT242600	CONNECTOR, FLAT CABLE	10P 80mm		
*	25	VT242700	CONNECTOR, FLAT CABLE	11P 220mm		
*	26	VT242800	CONNECTOR, FLAT CABLE	14P 250mm		
*	27	VT242900	CONNECTOR, FLAT CABLE	20P 100mm		
*	28	VT243000	CONNECTOR, FLAT CABLE	20P 390mm		
*	29	VT362600	CONNECTOR, FLAT CABLE	13P 120mm		
	31	VQ194100	SHORT PLUG	CNT31-0		
	32	CB069250	BINDING TIE	BK-1		
*	51	VT059800	TOP COVER			
*	52	VT059900	BOTTOM COVER			
*	53	VT060000	FRAME	L		
*	54	VT060100	FRAME	R		
*	55	VT060200	FRAME	CF		
*	56	VT060300	FRAME	CR		
*	57	VT060400	FRAME	SL		
*	58	VT060500	REAR PANEL			(U)
*	58	VT060600	REAR PANEL			(C)
*	58	VT060700	REAR PANEL			(R)
*	58	VT060800	REAR PANEL			(A)
*	58	VT060900	REAR PANEL			(G)
*	59	VT061500	SUB CHASSIS			
*	60	VT061700	SUPPORT	PCB		
*	61	VT061900	SUPPORT	INPUT		
*	62	VT604600	SUPPORT	HS		
	65	VQ945500	KNOB WITH LED	D42		
	66	VN130700	SPACER			
	67	CB068880	PLASTIC RIVET	No.1027		
	68	CB605620	PLASTIC RIVET	No.1781		
	69	VE222600	CUSHION			
	70	VQ085200	DAMPER			
	71	VJ314400	CUSHION			
	72	VQ199500	DAMPER	/TRANSF.		
	73	VP665700	CUSHION	/DSP		
	80	VS738700	SUPPORT/BT			
	81	VS588400	BUTTON, CASE			
	82	VQ779000	BUTTON	3x14		
	83	VS048300	BUTTON	D7		
	84	VS409600	KNOB	D18		
	85	VS587200	KNOB,SEL	D18		
	86	VS195900	ESCUTCHEON			
	87	VS025000	LEG	D60xH21		
	90	VL024400	SHEET			
	100	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL		
	101	EP600190	BIND HEAD B-TITE SCREW	3x8 ZMC2-BL		
	102	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL		
	103	EK930010	BW HEAD TAPPING SCREW	3x8-8 FCRM3-BL		
	104	VK625000	CUP S-TITE SCREW	5x10-12 ZMC2-Y		
	105	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL		
	106	VK697600	BIND HEAD B-TITE SCREW	3x10 SP ZMC2-Y		
	107	VK865300	HEX. HEAD TAP. SCREW WITH WS	3x18 FCRM3-BL		
	108	AA627310	GROUND TERMINAL			
	109	EV265560	PLAIN WASHER	3.6x10x0.8FNM3-3G		
	110	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3		

* New Parts

Ref. No.	PART NO.	Description		Remarks	Markets
111	EP600790	FLAT HEAD B-TITE SCREW	3x8 MFZN2-BL		
112	VK642600	CUP B-TITE SCREW	3x14-8 MFC2		
		ACCESSORIES			
* 200	VS713600	REMOTE CONTROL TRABSMITTER		(7A, 7C)	
200-1	CX676010	LID		103RRC-031-01R	
	VE366200	LOOP ANTENNA	AM		
	VG850700	ANTENNA, FM	1.4m		
		BATTERY, MANGANESE	SUM-3, AA, R06		

* New Parts

■ ELECTRICAL PARTS

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

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

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

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

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