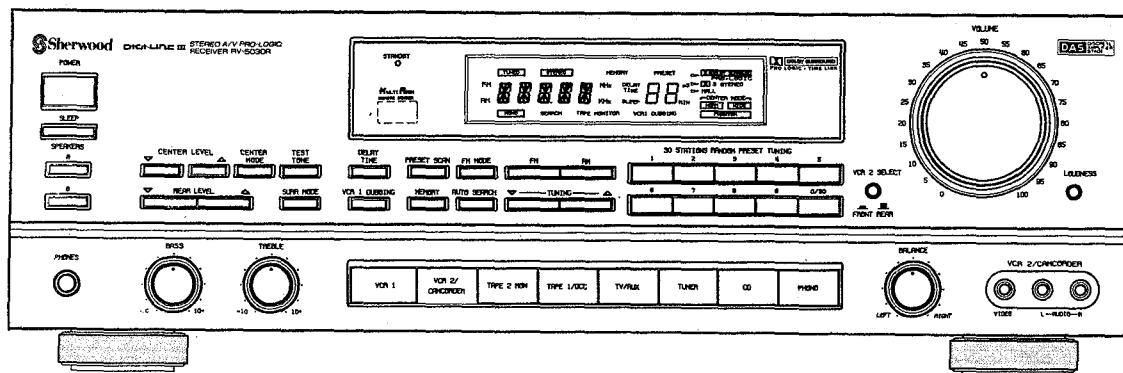


SERVICE MANUAL

RV-5030R

STEREO A/V PROLOGIC RECEIVER



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 **Sherwood**

SAFETY PRECAUTIONS

WARNING

Service Should not be attempted by anyone unfamiliar with the necessary precautions on this player. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this player have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by $\triangle$ in the schematic diagram and the parts list.

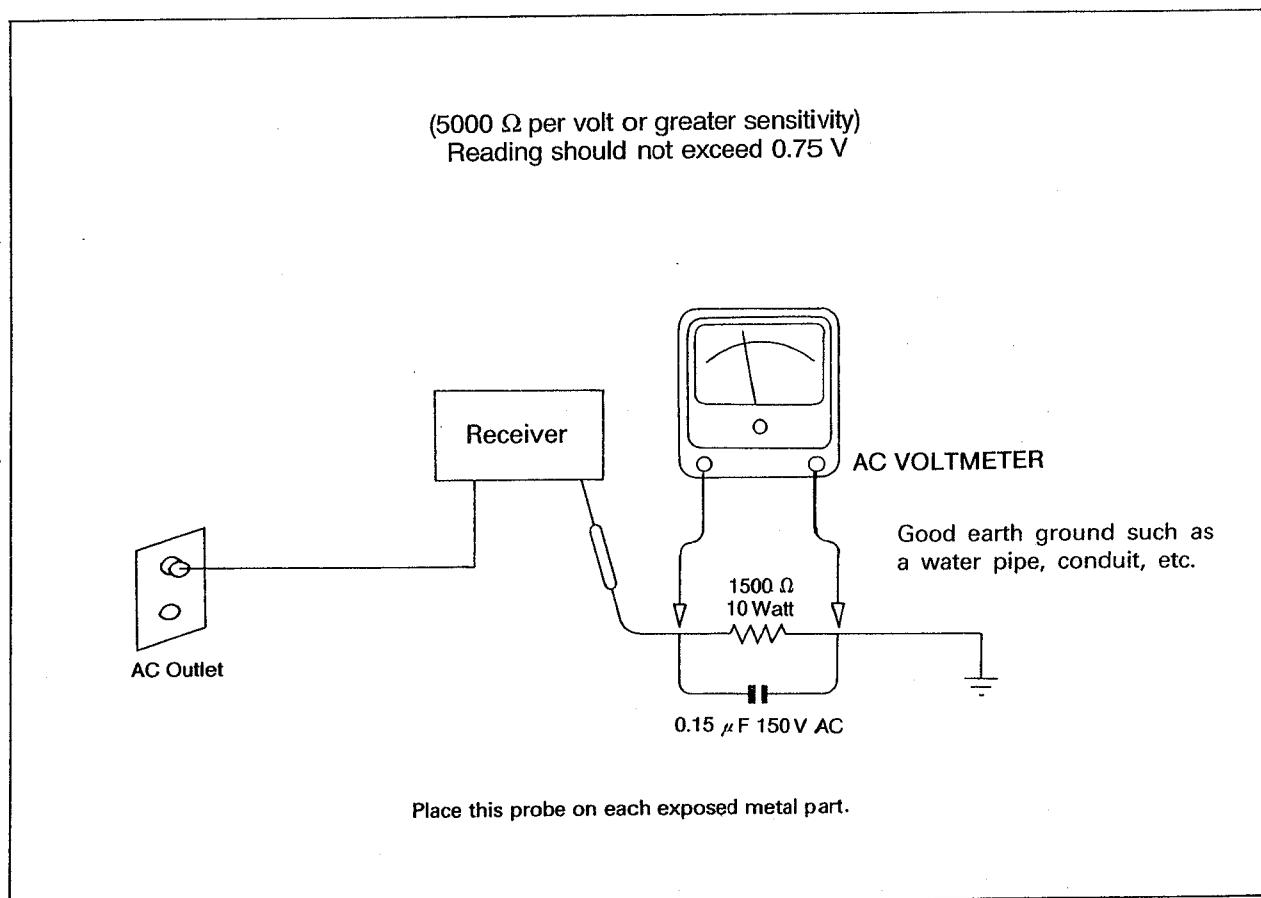
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such

as terminals, screw heads, metal overlays, etc., to be sure the set is safe to operate without danger of electrical shock.

Plug the AC line cord directly into a 120 V AC outlet (**120 V AC version only**). (Do not use a line isolation transformer during this check.)

Use an AC voltmeter, having 5000 Ω per volt or greater sensitivity, in the following manner: Connect a 1500 Ω 10 watt resistor paralleled by a 0.15 μ F 150 V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metal parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metal part. Voltage measured must not exceed 0.75 V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



SPECIFICATIONS

Audio Section-Front		Unit	Nominal	Limit
RMS output power: at distortion below 0.2% 20 Hz both channels driven at 8 Ω		W	83	80
	at distortion below 0.2% 1 kHz both channels driven at 8 Ω	W	90	85
Inter-modulation distortion at 80W output 60 Hz : 7 kHz=4 : 1 Smple		%	0.006	0.09
Hoarmonic distortion at 80 W output :	20 Hz	%	0.15	0.2
	1 kHz	%	0.1	9
	20 kHz	%	0.15	0.2
Frequency response at AUX 8 Ω load, 1 W output	20 Hz-20 kHz	dB	± 1	± 1.5
Input sensitivity for 80 W output :	PHONO	mV	2.5	2.5 ± 0.4
	CD / AUX	mV	150	150 ± 30
Tone control	BASS, 100 Hz	dB	± 10	± 12
	TREBLE, 10 kHz	dB	± 10	± 12
Phono amp overload at 0.5% THD -30 dB		mV	160	140
Loudness compensation at Volume :	100 Hz	dB	+6	$+6 \pm 2$
	10 kHz	dB	+3	$+3 \pm 1.5$
Channel separation with 4.7 k Ω shorted at AUX input	1 kHz	dB	62	45
	10 kHz	dB	53	35
Signal to noise ratio, input shorted with IHF-A	PHONO at 10 mV	dB	85	80
	CD, TV/AUX, TAPE1/2	dB	93	90
Audio Section-Center				
RMS output power at distortion below 0.9% 1 kHz, 8 Ω		W	53	50
Signal to Noise ratio, input shorted with IHF "A" (Dolby prologic, 3 Stereo) -line input level 350 mV		dB	75	65
Frequency response 8 Ω load, 1 watt output at -3dB(Dolby prologic)	Normal	Hz	100-21 k	150-15 k
	Wide	Hz	30-21 k	50-15 k
Audio Section-Rear				
RMS output power at distortion below 0.9% 1 kHz, 16 Ω		W	27	25
Signal to noise ratio input shorted with IHF "A" (Dolby prologic, Hall) -line input level 350mV, Delay 20ms		dB	65	60
Frequency response 8 Ω load, 1 watt output at -3dB(Dolby prologic)		Hz	80-7 k	100-6 k

FM Section		Unit	Nominal	Limit
Tuning coverage for USA / Canada		MHz	87.5-107.9	
Tuning coverage for Europe		MHz	87.50-108.00	
Usable sensitivity at noise & distortion 3% 75ohm input		dBf	17.2	20.7
Image rejection at 106 MHz		dB	35	30
IF rejection at 90 MHz		dB	80	70
Full limiting at -3 dB		μ V	1.5	2
50 dB quieting sensitivity at 98 MHz :	MONO	μ V	5	7
	STEREO	μ V	70	80
Distortion at 1 mV input :	MONO	%	0.35	0.5
	STEREO	%	0.5	0.7
Signal to noise(S / N) ratio at 1 mV input :	MONO	dB	70	65
	STEREO	dB	65	60
De-emphasis at 100-10,000Hz		dB	± 1.5	± 2
AM rejection ratio at 100 μ V-20 mV input		dB	45	35
Search level at 98 MHz		μ V	6	3.5-10
Output voltage at 75 kHz dev. :	MONO	V	0.5	0.5 ± 0.15
1kHz mod., 1mV input	STEREO	V	0.45	0.45 ± 0.15
Muting threshold at 98 MHz		μ V	6	3.5-10
Overload THD at 98 MHz, 100% mod. at 100 mV RF input		%	0.4	0.6
Spurious response at 98 MHz antenna input 3 μ V, 1/21F, 2x1/21F		dB	60	50
Capture ratio at 1 mV input		dB	2.5	3
Alternate channel selectivity at 0.1 mV input		dB	48	45
MPX Section				
Stereo separation :	100 Hz	dB	33	28
at 100% mod., 1 mV input	1 kHz	dB	43	33
	10 kHz	dB	30	25
Distortion :				
at 100% mod., 1 mV input through IHF Filter	MONO	%	0.35	0.5
	STEREO	%	0.5	0.7
Automatic stereo threshold		μ V	6	3.5-10
Residual 19 kHz & 38 kHz at 1 mV input		dB	35	27
AM Section				
Tuning coverage for USA / Canada		kHz	520-1710	
Tuning coverage for Europe		kHz	522-1611	
Usable sensitivity 600 kHz, 1010 kHz, 1400 kHz (603 kHz, 1008 kHz, 1404 kHz for Europe)		μ V/m	350	700
at 400 Hz, 30% mod., S/N=-20 dB		dB	35	28
Image rejection at 1400 kHz(1404 kHz for Europe)		dB	35	30
IF rejection at 600 kHz(603 kHz for Europe)		dB	45	35
AGC figure of merit from 100 mV/m at 1010 kHz (1008 kHz for Europe)		%	0.8	2.0
Distortion at 400 Hz, 30% mod., 5 mV/m input		kHz	8	5-12
IF bandwidth at 6 dB down, 350 μ V/m input		mV	165	165 ± 40
Output voltage at 400 Hz, 30% mod., 5 mV/m input				
Audio response at 5 mV/m input 1 kHz 0 dB, 1010 kHz(1008 kHz for Europe), -6 dB		Hz	50-2 k	70-1.8 k
Selectivity at 10 kHz 350 μ V/m input		dB	25	20
Signal to noise(S/N) ratio at 1010 kHz (1008 kHz for Europe)with antenna input 5 mV/m		dB	40	35
RF overload 400 Hz 80% mod., 100 mV input		%	5	10
Search level		μ V/m	500	500 ± 6 dB

General	
Speaker load impedance.....	8 Ω
Power consumption :	
No signal.....	50 watts
Full signal at both channels.....	120 V 60 Hz 170 watts
	220 V 50 Hz 400 watts
	240 V 50 Hz 400 watts
Dimensions.....	(W)17.3 " $\times$ (H)5 " $\times$ (D)15 "
	(W)439 $\times$ (H)127 $\times$ (D)381mm
Weight(Net).....	22 lbs(10 kg)

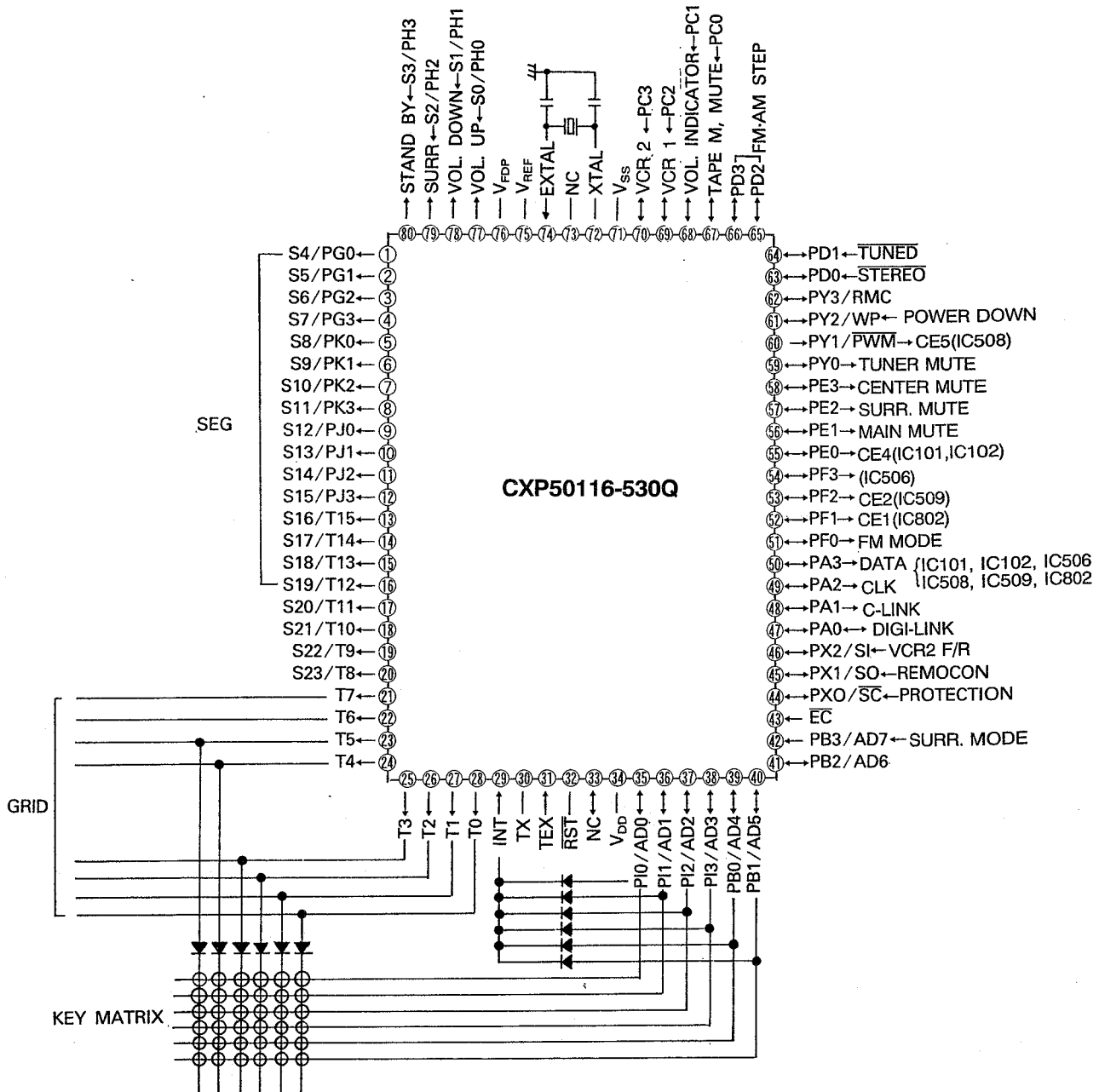
Power Requirements :

- A : 120 V 60 Hz for American/Canadian Version
- B : 120/220 V, 60/50 Hz for Multi-voltage Version(switchable)
- C : 230 V 50 Hz for General European Version
- D : 230 V 50 Hz for German/Italian Version
- E : 240 V 50 Hz for U.K/Australian Version
- F : 230 V 50 Hz for swiss/Scandinavian Version

Note : Nominal specs represent the design specs. All units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable ; in no case should a unit fail to meet limit specs.

CIRCUIT DESCRIPTION

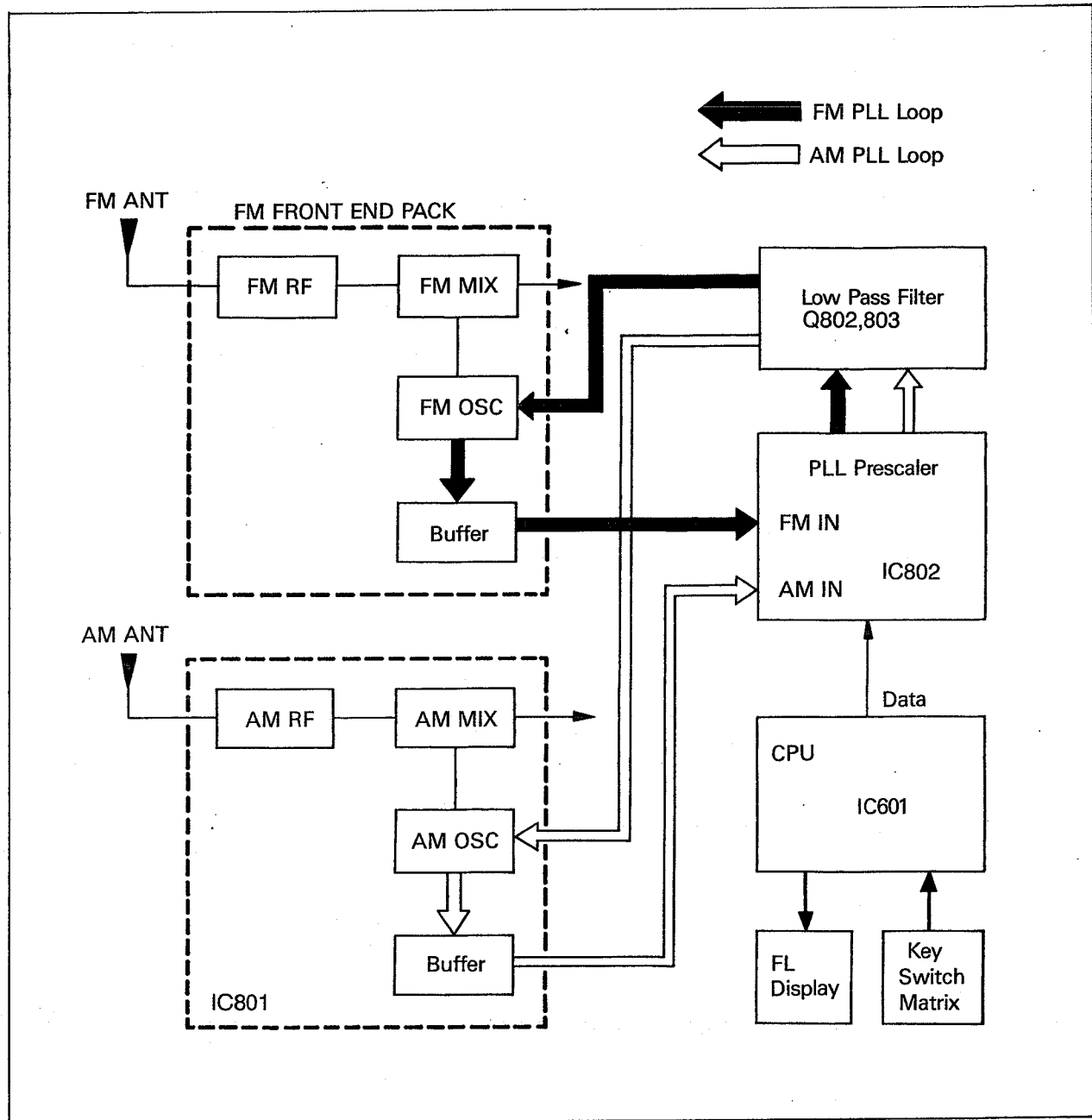
4 bit CMOS Microprocessor: CXP50116-530Q



Input and Output Terminal Functions

Code	Function
S4/PG0-S19/T12	These are segment signal output pins of FL controller/driver.
S20/T1-S23/T8	Not used
T7-T0	These are timing signal output pins of FL controller/driver and key scan pins.
INT	This is external interrupt dedicated pin.
TX, TEX	Not used
RST	This is the system reset of the device.
NC	No connection
VDD	This is the power supply pin.
PI0/AD0-PB1/AD5	These are the key input pins.
PB2/AD6	NC
PB3/AD7	This is the channel mode control pin of surround mode.
EC	Not used.
PX0	This is the protection input pin.
PX1	This is the remote control input pin.
PX2	This is the VCR2 front and rear input control pin.
PA0	This is the Digi-Link input/output pin
PA1	This is the mechanical deck control pin
PA2-PA3	These are used to control the PLL IC, analog switching IC, shift register IC, volume IC, delay IC.(CLK, DATA)
PF0	This is the FM mode control pin.
PF1	This is used to control the PLL IC.
PF2	This is used to control the shift register IC.
PF3	This is used to control the volume IC.
PE0	This is used to control at analog switching IC.
PE1	This is the main mute output pin.
PE2	This is the surround mute output pin.
PE3	This is the center mute output pin.
PY0	This is the tuner mute output pin.
PY1	This is used to control the delay IC.
PY2	This is the power down pin.
PY3	Not used.
PD0	This is the tuner stereo input pin.
PD1	This is the tuner tuned input pin.
PD2-PD3	These are used to control FM and AM step.
PC0	This is used to eliminate the noise of the PLL IC in the Tape 2 Monitor mode.
PC1	This is used to control volume indicator.
PC2	This is used to control VCR1
PC3	This is used to control VCR2
VSS	This pin provides the ground potential.
XTAL, EXTAL	These pin serve for connecting a clock oscillator crystal.
NC	No connection.
VREF	Not used
VFDP	This is the power supply pin of the FL controller.
PH0-PH1	These are used to control the motor volume.
PH2	This is used to control surround speaker.
PH3	This is used to control stand-by mode.

Digital Tuning System Description



Control Key and Mode Switch Matrix

Searching for Station

Automatic Tuning

Press the AUTO SEARCH key for automatic tuning

Pressing the TUNE $\triangle$ or TUNE ∇ key causes automatic up or down searching for a station until a station is received.

Manual Tuning

By pressing the TUNE $\triangle$ or TUNE ∇ key, the frequency is changed by a step. If the key is kept pressing scanning is continued until the key is released.

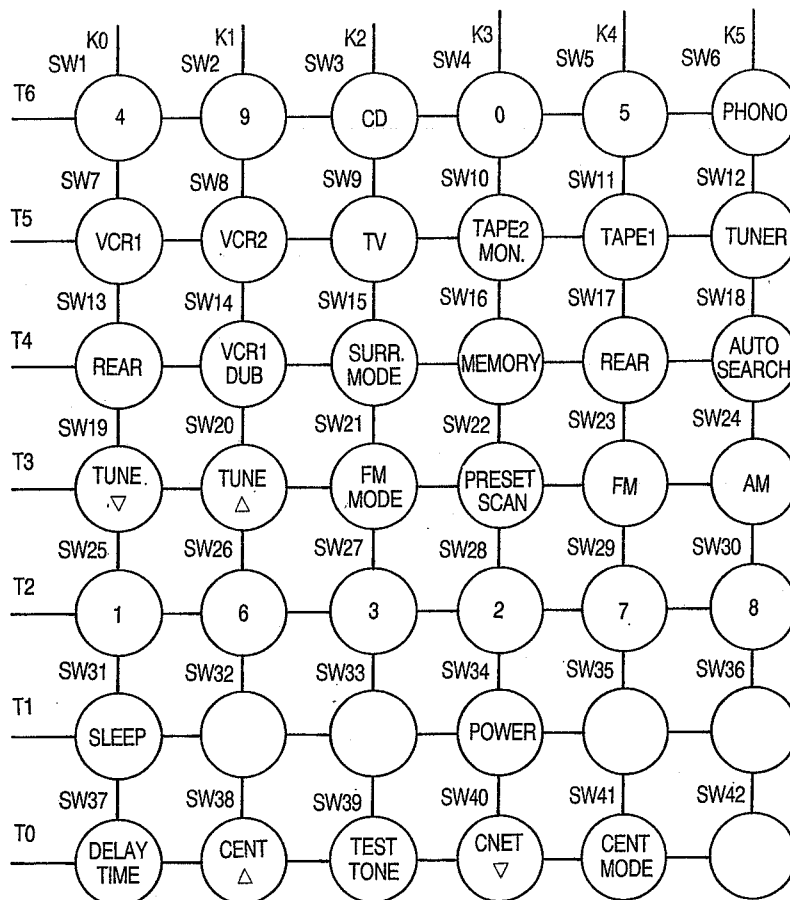
Memory

The tuning information is stored into an internal RAM by pressing the MEMORY key and then pressing one of 30 preset locations while the memory indicator 'MEMORY' blinks.

If no key is pressed while the indicator blinks, the memory function is canceled.

M1 to M10

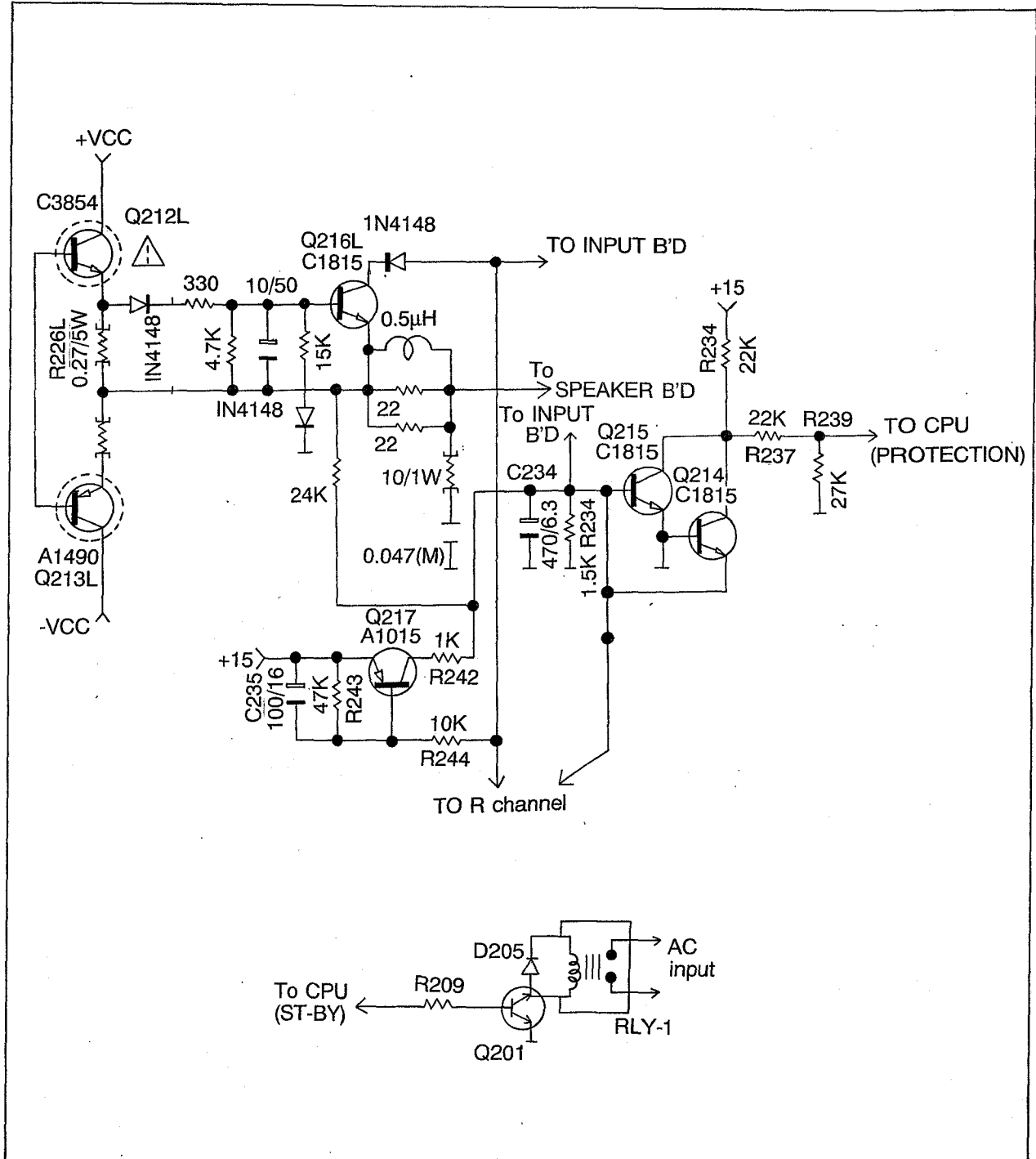
Thirty AM and FM stations can be recalled from internal RAM. When it is switched from one band to the other band, the tuner tunes to the station last tuned on that band. Each time a station is changed, the controller provides a signal to mute the tuner.



Protection Circuits

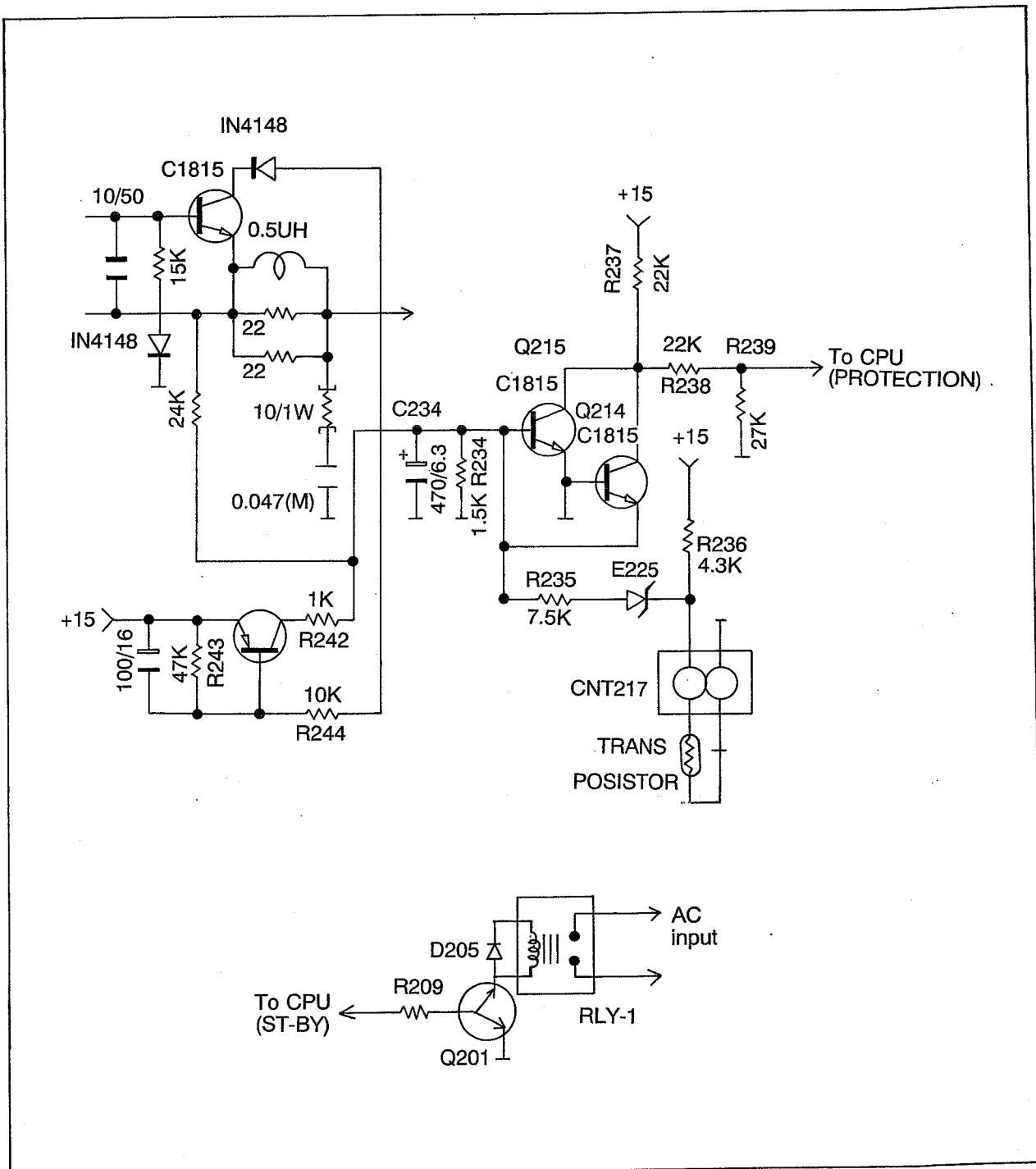
Speaker Protection Circuits

The CPU protects both this unit and the speakers when an abnormally high current flows in Q212 L/R and Q213 L/R due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R226 L/R turns on Q216 L/R, then Q217 turns on Q215. It makes the protection port of the CPU to low state, and the CPU turns off Q201 and RLY-1. Then the power is turned off.

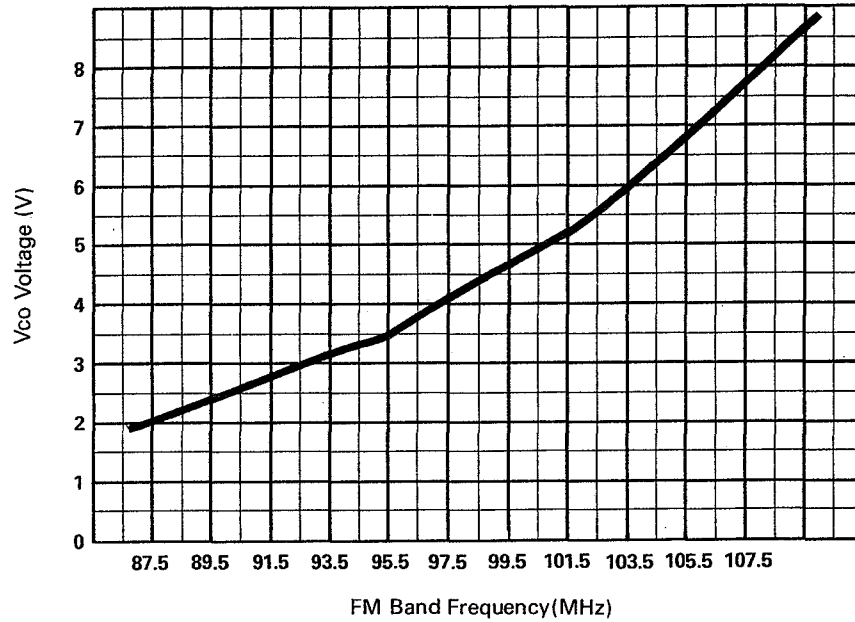


Thermal Protection Circuits

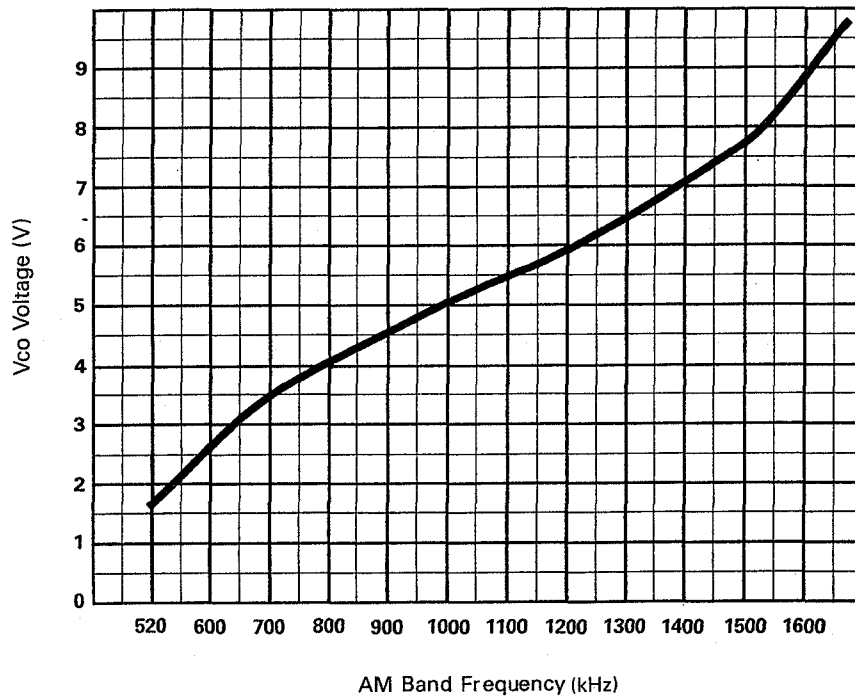
This receiver has a overload thermal protection circuits to guard against abnormal operation. When The temperature of TRANS POSISTOR installed with the main transformer rises abnormally, the resistance of the posistor becomes larger and Q215 is turned on. It makes the protection port of the CPU to Low state, and the CPU turns off Q201 and RLY-1. Then the power is turned off.



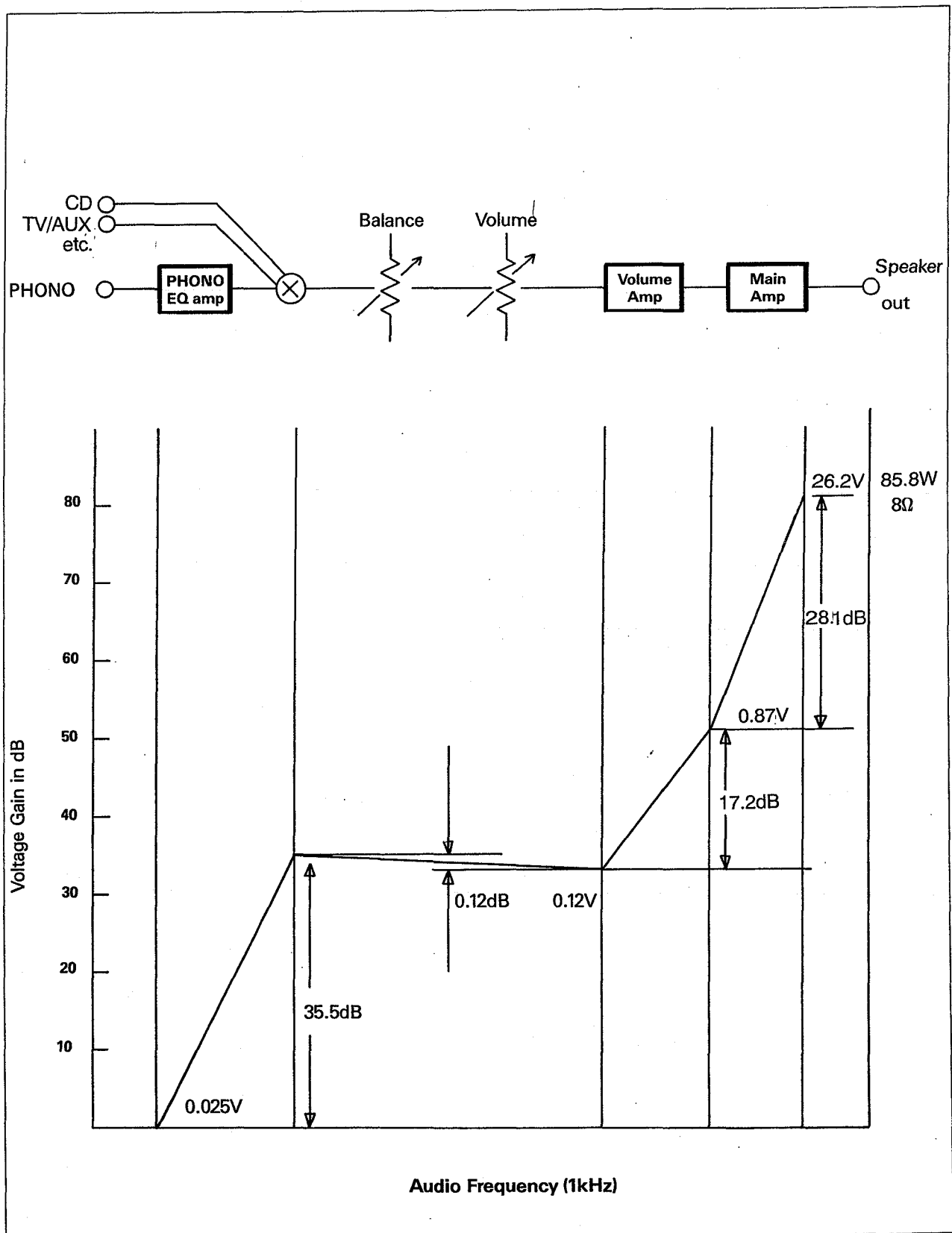
Vco vs. FM Band Frequency Curve



Vco vs. AM Band Frequency Curve



Level Diagram



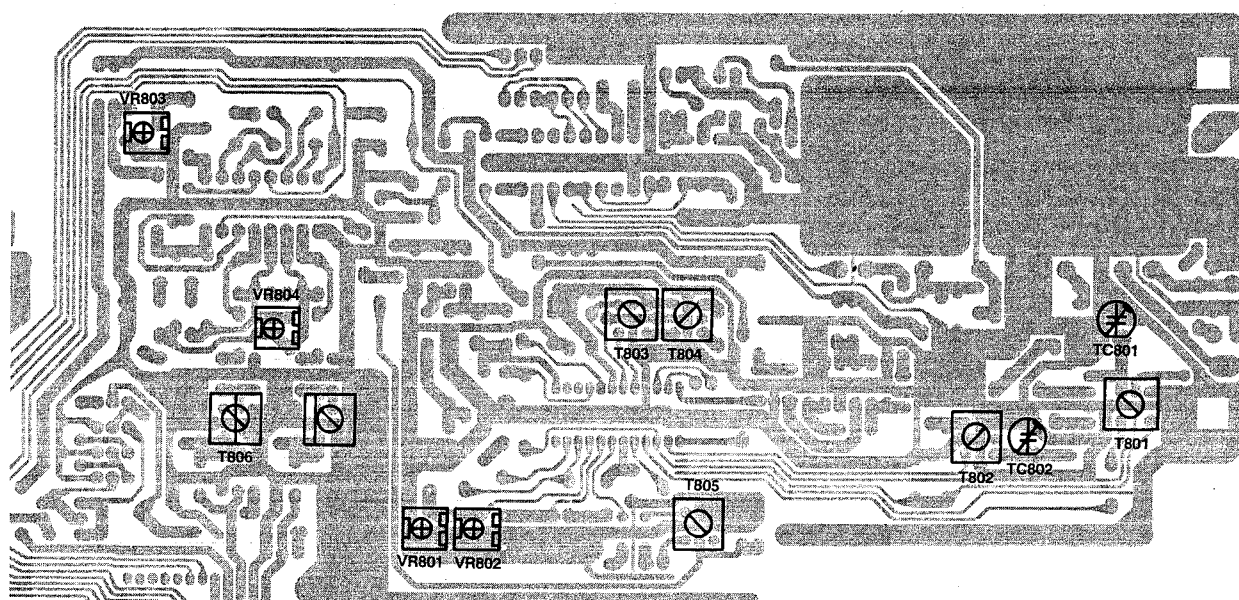
ALIGNMENT PROCEDURES

Equipment Required

- AM signal generator
- Oscilloscope
- AC voltmeter
- FM signal generator
- Stereo modulator
- Audio generator
- Distortion meter
- DC voltmeter
- Frequency counter

Note: Remove line cord antenna from FM external antenna terminal when aligning.

Alignment and Test Points (Tuner P.C.Board)



AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation: 30%.
3. Switch: Press to AM.

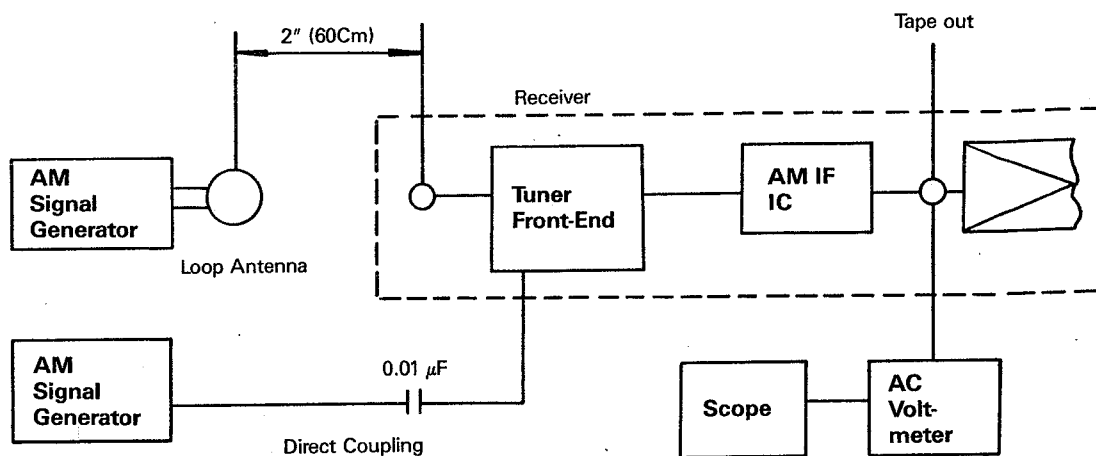
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	T805 (IFT)	Maximum reading
2	600 kHz (400 Hz, Mod.)	600 kHz	Same as Step 1.	T801 (ANT Coil)	Same as Step 1
3	1400 kHz (400 Hz, Mod.)	1400 kHz	Same as Step 1.	TC801 (ANT Trimmer)	Same as Step 1
4	1000 kHz (400 Hz, Mod.)	1000 kHz	FL display TUNED indicator	VR801	Indication on receiver with output of 500 μ V/m

FM IF Alignment

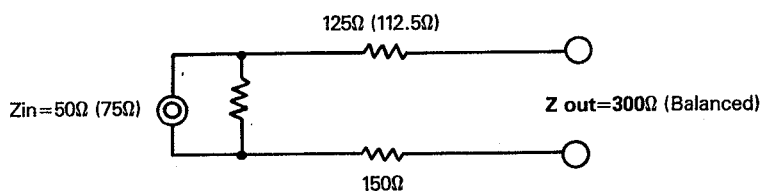
Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch: Press to FM.
3. Signal generator deviation: 75 kHz.
4. Be sure to disconnect FM line cord antenna during alignment.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Distortion meter to TAPE OUT jack	T804	Minimum distortion
2	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Same as Step 1	VR802	Zero reading on AC voltmeter with SSG output level of 6 μ V



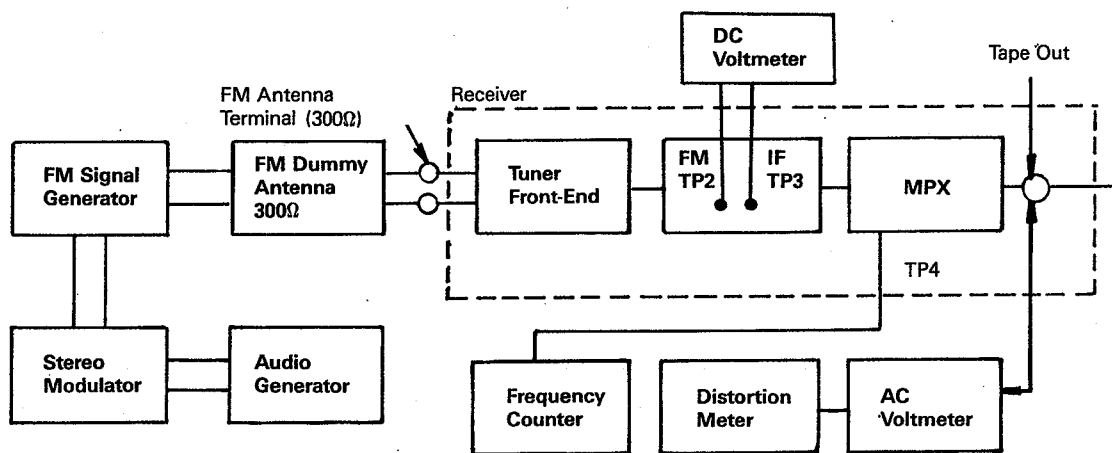
AM Alignment Connection



FM Dummy Antenna to 300 Ω Antenna terminal of receiver

FM Dummy Antenna

MPX Alignment



FM RF/IF and MPX Alignment Connection

Preparation

1. Switch: Press to FM.
2. Tune for 98 MHz on band.
3. Signal Generator output level: 1000 μ V.
4. Deviation: 75 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (300 Ω).

Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Output Indicator Connection	Adjust	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP4 (HOT) of PCB and ground	VR803	76kHz
2	8% mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	—	Adjust for about 450mV of audio output
3	8% mod.	Composite to channel 1kHz L	AC voltmeter to TAPE OUT jack of R channel	VR804	AC voltmeter reading should be at least 33dB below.
4	8% mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of L channel	VR804	Same as Step 3.
If you could not obtain -35 dB readings in Steps 3 and 4 (compared with Step 2), readjust VR804 until you obtain -33dB readings for both Steps 3 and 4. Nominal is -43dB.					

Model No. : RV-5030R



Model No. : RV-5030R



TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative (FL indicator does not light)	A) Faulty AC power cord. Replace. B) Defect in the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown power Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short in the primary or secondary of the transformer circuitry. Repair the short C) Damaged rectifier D208 to D211 Replace the defective component(s). D) Short circuit in the rectifier circuit. Repair the short.
Power indicator lights but no sound from both channels	A) Speaker switch A or B defective. Replace the defective switch(es). B) Defect in transistor Q212 L/R, Q213 L/R on the Main Amp Board. Replace the defective component(s).
Speaker A inoperative	A) Speaker switch A defective. Replace.
Speaker B inoperative	A) Speaker switch B defective. Replace.
One channel does not work when Volume is at maximum with a test signal applied to the center terminal of Volume control VR5 of the dead channel	A) Defect in transistor Q212 L/R, Q213 L/R on the Main Amp Board. Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the short. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative	A) Headphone plug does not mate with jack. Replace the plug. B) Defective resistor R901, R902. Replace.
PHONO input inoperative	A) Poor contact in phono input jack. Repair or replace the jack. B) Defective phono switch or IC103. Replace.
LOUDNESS has no effect	A) Defective loudness switch. Replace. B) Defective resistor R601, R602, R603, R604, C601, C602, C603, C606. Replace the defective components(s).
FM inoperative	A) Defective front-end.(FE306-A15) Replace. B) Defective FM switch. Replace the switch.

Symptom	Cause and Remedy
FM inoperative	C) Defective transistor Q801, Q805, Q806, IC801, IC803. Replace the defective transistor(s) or IC(s). D) Defective coil T803 or T804 Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filter CF801, CF802, CF803 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR803 and VR804. (Refer to MPX Alignment.) B) IC803 defective. Replace. C) Variable resistor VR803 or VR804 defective. Replace the variable resistor(s).
STEREO indicator does not light	A) Defective indicator in FL. Replace. B) Improper adjustment of VR803 of tuner board. Make readjustment. C) Defective IC803 Replace the defective component.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough: Front end Section defective Faulty IC801, Coil T803, Defective C838 of tuner Board. If sound of one channel is not loud enough: Defective T806, T807
FM Mono has no effect	A) Defective FM MODE switch. Replace.
AM inoperative	A) Damaged IC801 of tuner board. Replace. B) Defective T801, T802, T805 or CF804 of tuner board. Replace the defective component(s). C) Resistor R829, R817 defective. Replace the defective component(s). D) Capacitor C836, C818, C813 defectiv. Replace the defective capacitor(s). E) Defective AM switch. Replace. F) Defective varicap diode VD1, VD2 Replace varicap diods(s). G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
Bass control has no effect	A) Variable resistor BASE defective. Replace. B) Defective R720-722, R725, C707, C717, C711, C714. Replace the defective component(s).

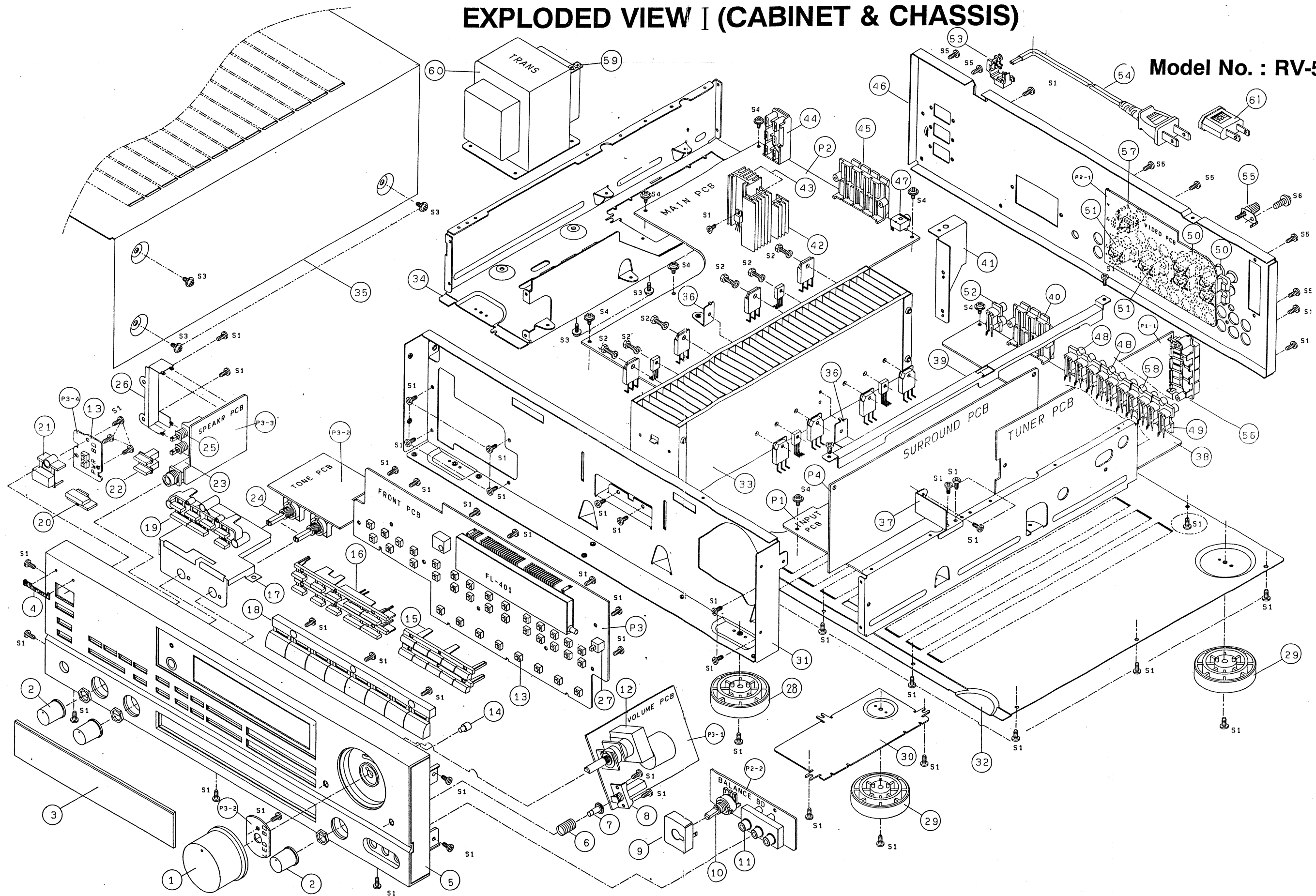
Symptom	Cause and Remedy
Treble control has no effect	A) Variable resistor VR2 defective. B) Defective R703, R704, R706, R713, C702-C705. Replace the defective component(s).
Auto tune inoperative(UP/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC401 Replace. C) Defective FL401. Replace. D) Defective tuner circuit component. Replace. E) In case of FM only, improper adjustment of FM front-end. Replace.
Manual tune inoperative(UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC401. Replace.
Memory setting(keys 1-10)inoperative	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC401. Replace the defective component.
FL inoperative	A) FL defective. Replace. B) Defective IC401. Replace. C) Defective X401. Replace.
Noise Volume control	A) Defective IC602. Replace. B) Defective capacitor C616 or C617. Replace the defective capacitor(s).
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC401 (CPU Board) or IC01. Replace.

CABINET & CHASSIS PARTS LIST

Ref. No.	Mfr. Part No.	Description	Q'ty	Version	Ref. No.	Mfr. Part No.	Description	Q'ty	Version
PACKAGE					46	046102037311	Chassis Back, SECC	1	Dom
	9722030810	Cushion Poly	1			046102037321	Chassis Back, SECC	1	A
	049604124183	Box Carton	1			046102037331	Chassis Back, SECC	1	B
	9735012320	PAD Commander	1			046102037341	Chassis Back, SECC	1	C
ACCESSORIES						046102037351	Chassis Back, SECC	1	D
	4348000810	ANT Wire (FM)	1			046102037361	Chassis Back, SECC	1	E
	054005100087	Ass'y Commander	1			046102037371	Chassis Back, SECC	1	F
	2608207361	ANT AM Loop Stand Strip Wire	1			046102037381	Chassis Back, SECC	1	G
	054005100087	Ass'y Commander	1		47	4438006510	Jack Multi	1	
CABINET					48	4438103210	Jack RCA 6P	2	
1	854304310	Knob VR, ABS Black	1		49	4438108110	Jack RCA(GND) 4P	1	
2	8545088210	Knob Tone, ABS Black	3		50	4438103410	Jack RAC 4P	2	
3	048555036114	Window FL, Acryl	1	A	51	4438111810	Jack RCA(GND) 2P	2	
	048555036114	Window FL, Acryl	1	C,D,E,F,G	52	4438103010	Jack RCA 2P	1	
4	048535034011	Badge(INKEL), ABS Gold	1	Dom(Only)	53	6518002310	Cord Stopper	1	A,Dom,E
	048535033911	Badge(Sherwood), ABS Gold	1			6518002320	Cord Stopper	1	B,C,D,F,G
5	048501021615	F/Panel, ABS Black	1	Dom(Only)	54	△ 4308001410	Cord AC Power	1	A,B
	048501021616	F/Panel, ABS Black	1			△ 4308007410	Cord AC Power	1	Dom
6	6555002510	Spring, SECC	1			△ 4308000430	Cord AC Power	1	C,D,F,G
7	8545082610	Button Loud, ABS Black	1			△ 4308007610	Cord AC Power	1	E
8	4628058310	SW Push	1		55	440810491	System GND	1	Dom
9	6165138210	Shield Fence	1			4408103720	System GND	1	A,B,C,D,E,F,G
10	3208052010	VR Balance	1		56	4408101610	ANT Terminal	1	B,C,D,E,F,G
11	4438109810	Jack RCA (3P)	1			4408107110	ANT Terminal	1	A,Dom
12	3228016310	VR Motor, 50KA	1		57	4438113810	Jack RCA 1P, Yellow	1	
or	3228019410	VR Motor, 50KB	1		58	4438103110	Jack RCA 4P	1	
13	4658003710	SW Tact	37		59	052438000183	Ass'y Posistor	1	
14	8545093910	BTN Push, ABS Black	1		60	△ 2828000167	Power Trans Former, 220V 60Hz	1	G,Dom
15	8543039910	BTN Tact (A), ABS Black	2		60	△ 2828000767	Power Trans Former, 230V 50Hz	1	C,D,F
16	8543040110	BTN Tact (B), ABS Black	2		60	△ 2828000777	Power Trans Former, 240V 50Hz	1	E
17	165138510	Shield Fence	1		60	△ 2828000177	Power Trans Former, 120V 60Hz	1	A
18	048543040213	BTN Function, ABS Black	1		60	△ 2828000937	Power Trans Former, 110/220V 50/60Hz	1	P.T.INDO
	048543040214	BTN Function, ABS Black	1	Dom(Only)	61	4428300410	Adaptor	1	P.T.INDO
19	8543040010	BTN Tact (C), ABS Black	1		S1	8109230083	Screw #2BTC 3X8 (B)		
20	8545088410	BTN Sleep	1		S2	8099130121	Screw #HEX MSPW 3X12		
21	8545088310	BTN Power, ABS Black	1		S3	8119440083	Screw #WSAM 4X8 (B)		
22	8545082210	BTN Speaker, ABS Black	2		S4	8159230081	Screw #2WPTC 3X8 (Y)		
23	4438005020	Jack Phone	1		S5	8119130083	Screw #1PTC 3X8 (B)		
24	3208049910	VR Tone	2		S6	8119230061	Screw #2PTC 3X6 (Y)		
25	4628043810	SW Speaker	2		P1	4002028400	P.C.B Main	1	
26	6505114120	Shield Fence	1		P1-1	4002028410	P.C.B Video	1	
27	4628054410	SW Push	1		P1-2	4002028420	P.C.B Balance	1	
28	046033102511	Foot (A)	2		P2	4002028500	P.C.B Front	1	
29	6033102510	Foot (B)	2		P2-1	4002028510	P.C.B Volume	1	
30	6123205210	Cover Bottom, SECC ZN	1		P2-2	4002028520	P.C.B Tone	1	
31	6122214110	Chassis Front, SECC ZN	1		P2-3	4002028530	P.C.B Speaker	1	
32	6122418120	Cover Bottom, SECC ZN	1		P2-4	4002028540	P.C.B Power	1	
33	7502007510	H/sink Power	1		P2-5	4002028550	P.C.B Volume/LED	1	
34	6121608930	Frame (L)	1		P3	4002028600	P.C.B Surround	1	
35	046122022411	Cover Top	1		P4	4002028700	P.C.B Input	1	
36	6505134910	BKT PCB	2		P4-1	4002028710	P.C.B Tuner	1	
37	6505111710	BKT PCB	1		PRODUCT SAFETY NOTICE Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol $\triangle$ in the parts list and the safety can be of special significance. When replacing a component identified with $\triangle$, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.				
38	6122636410	Frame (R)	1						
39	6123205110	Frame Center	1						
40	4408107420	Terminal Speaker (6P)	1						
41	6505135010	BKT H/Sink	1						
42	7505206220	H/Sink REG. TR	1						
43	7505206210	H/Sink REG. TR	2						
44	△ 4448102910	AC Outlet (3P)	1	A					
	△ 4448103610	AC Outlet (3P)	1	B,C,D,E,F,G					
	△ 4448105510	AC Outlet (3P)	1	Dom					
45	4408105510	Terminal Speaker 8P	1						

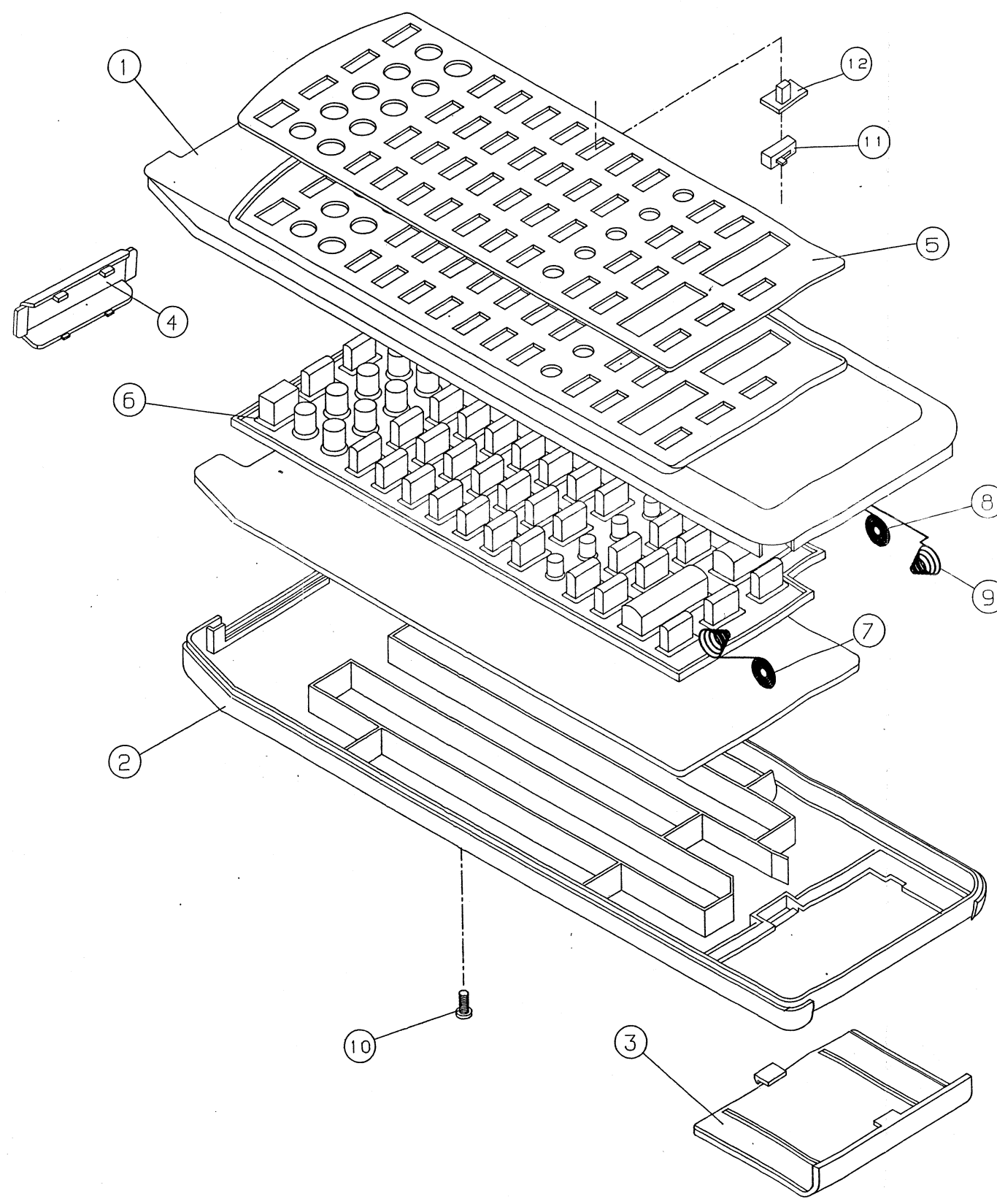
EXPLODED VIEW I (CABINET & CHASSIS)

Model No. : RV-5030R



EXPLODED VIEW II (COMMANDER)

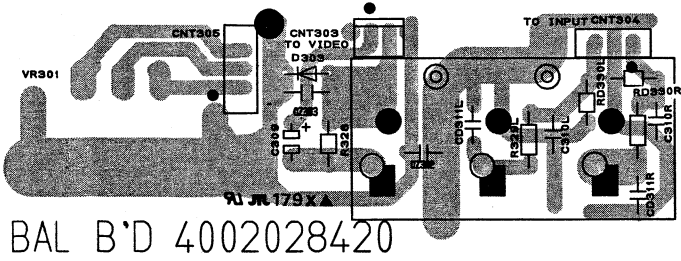
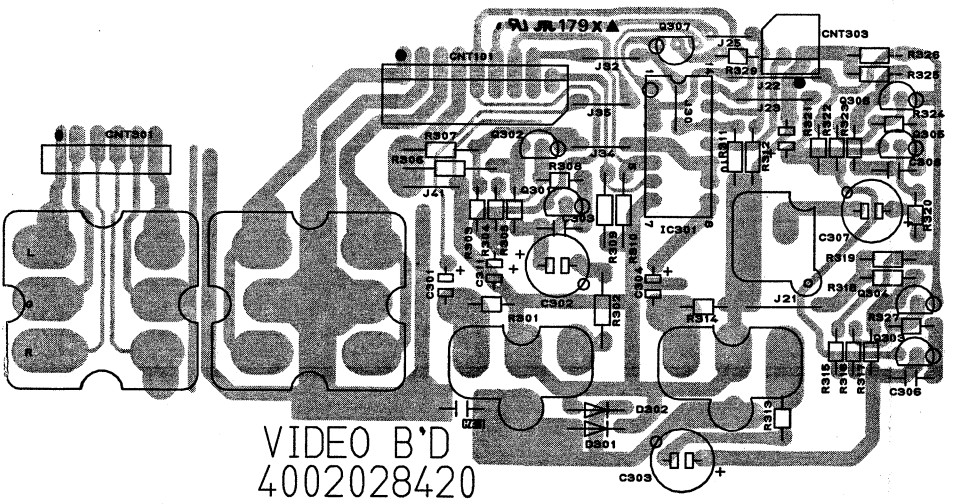
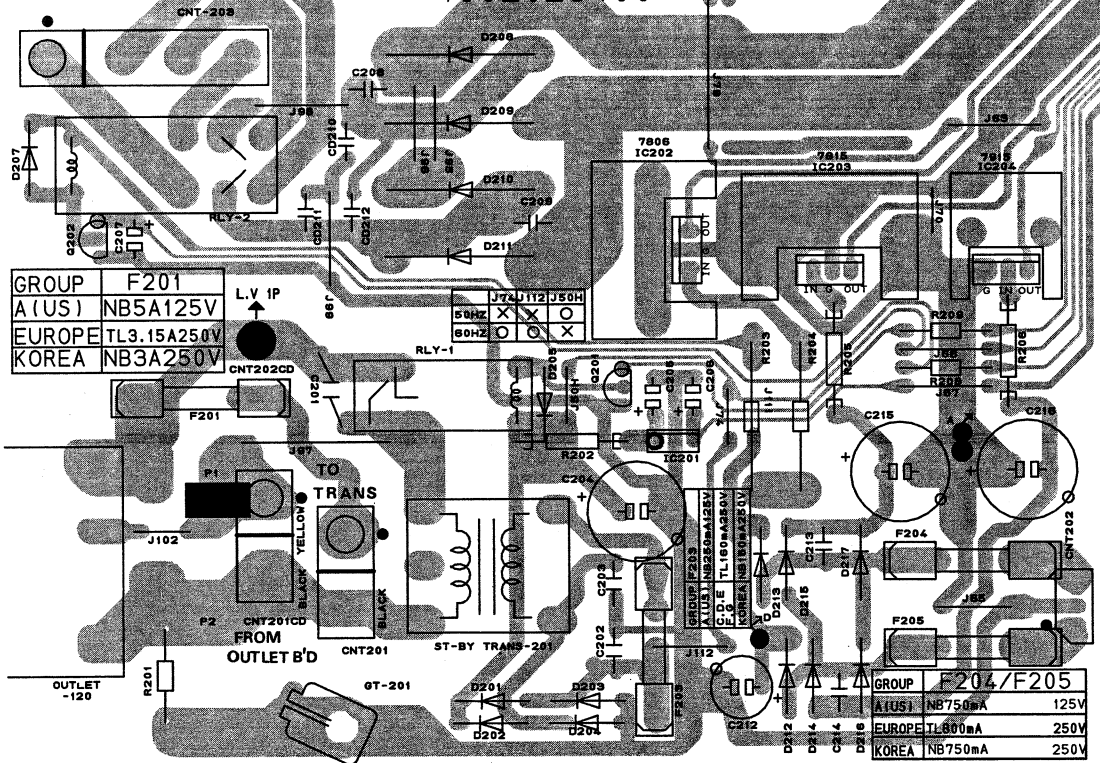
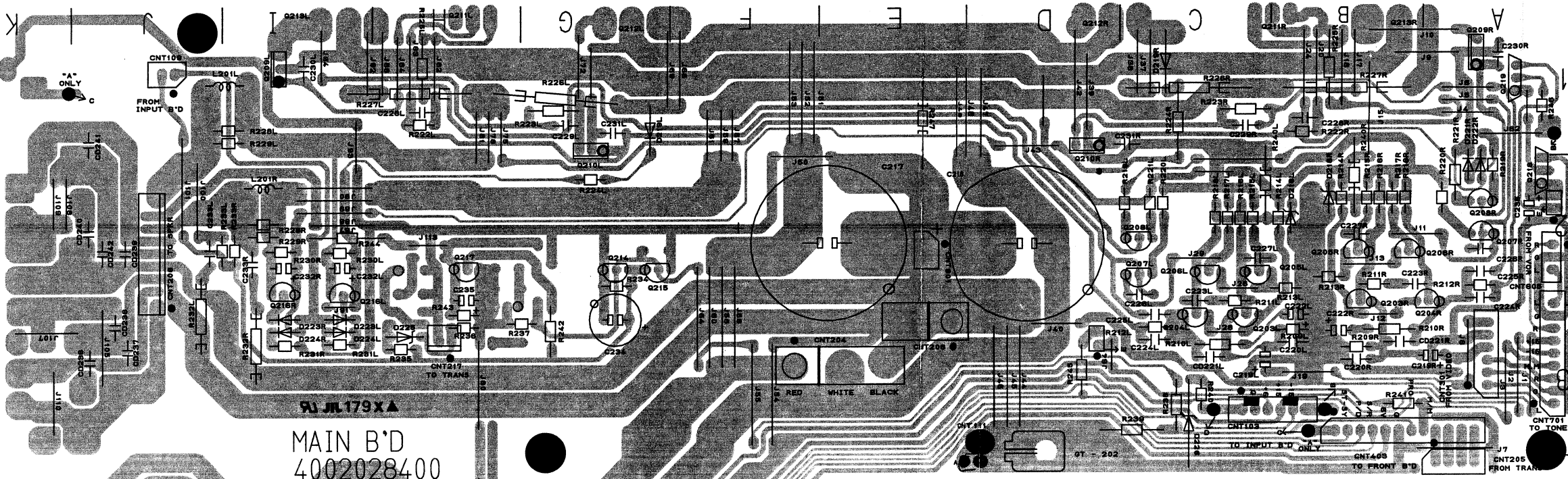
Model No. : RV-5030R



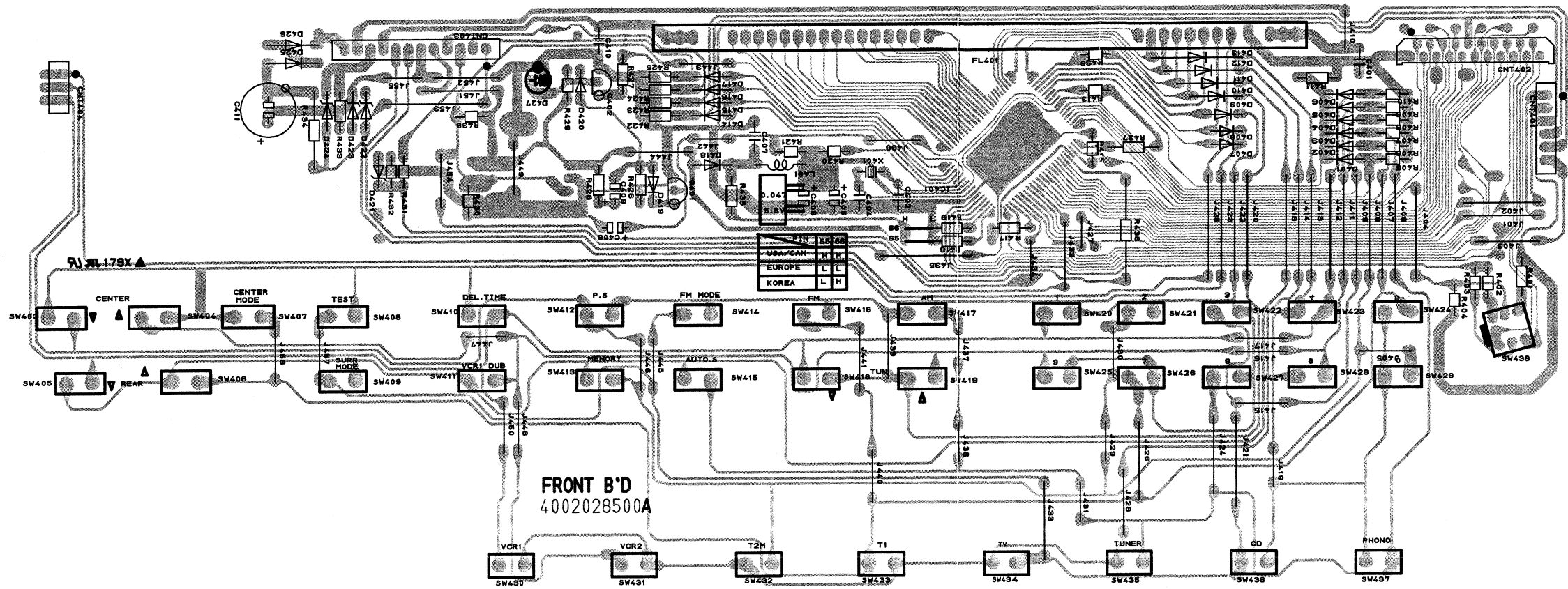
Ref. No.	Parts No.	Description	Q'ty	Remark
1	048582001117	Cover Top. Black	1	
	048582001118	Cover Top. Black	1	Dom
2	8582001210	Cover Bottom. Black	1	
3	8583004410	Cover Battery. Black	1	
4	8555040210	Window Sensor. Wine	1	
5	048552003631	Inlay Commander. Black	1	
	048552003632	Inlay Commander. Black	1	Dom
6	048722000951	Button Rubber. Gray	1	
	048722000952	Button Rubber. Gray	1	Dom
7	6555605310	Spring Battery (+,-)	1	
8	6555009710	Spring Battery(+)	1	
9	6555009810	Spring Battery(-)	1	
10	8019120103	Screw PM 2 x 10(B)	1	
11	4618008110	SW Slide	1	
12	8545095910	Knob Slide	1	

PRINTED CIRCUIT BOARDS

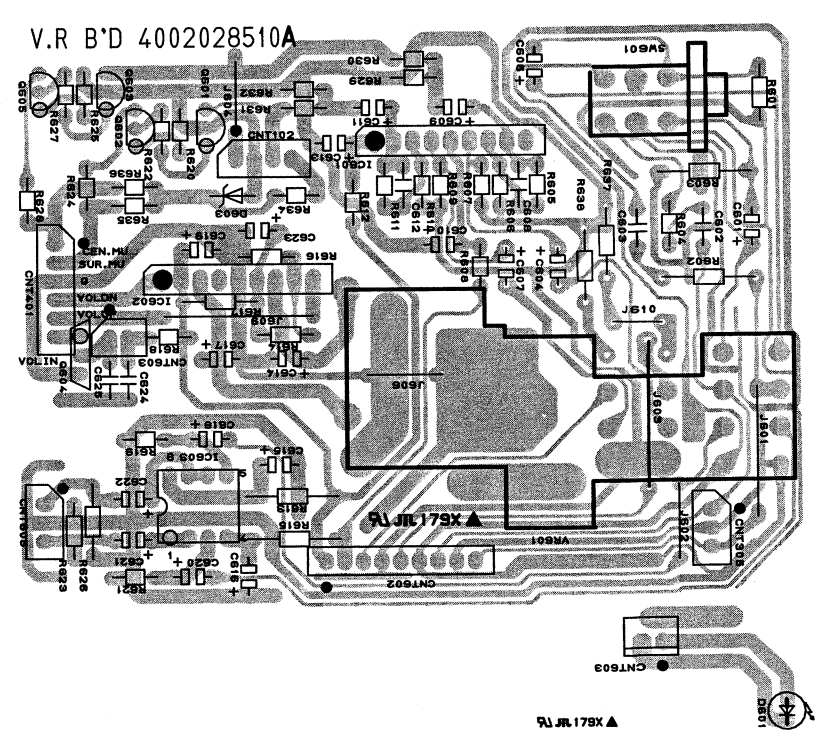
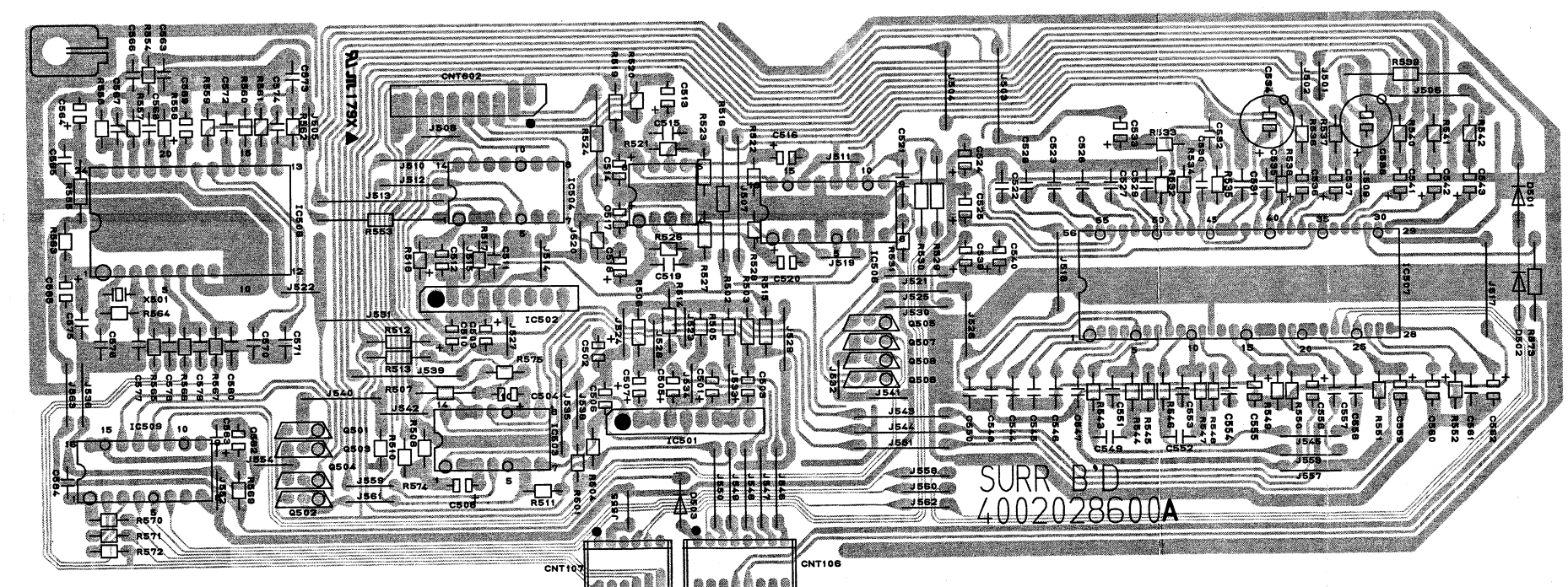
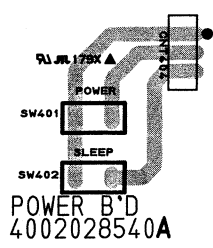
MAIN P.C.BOARD



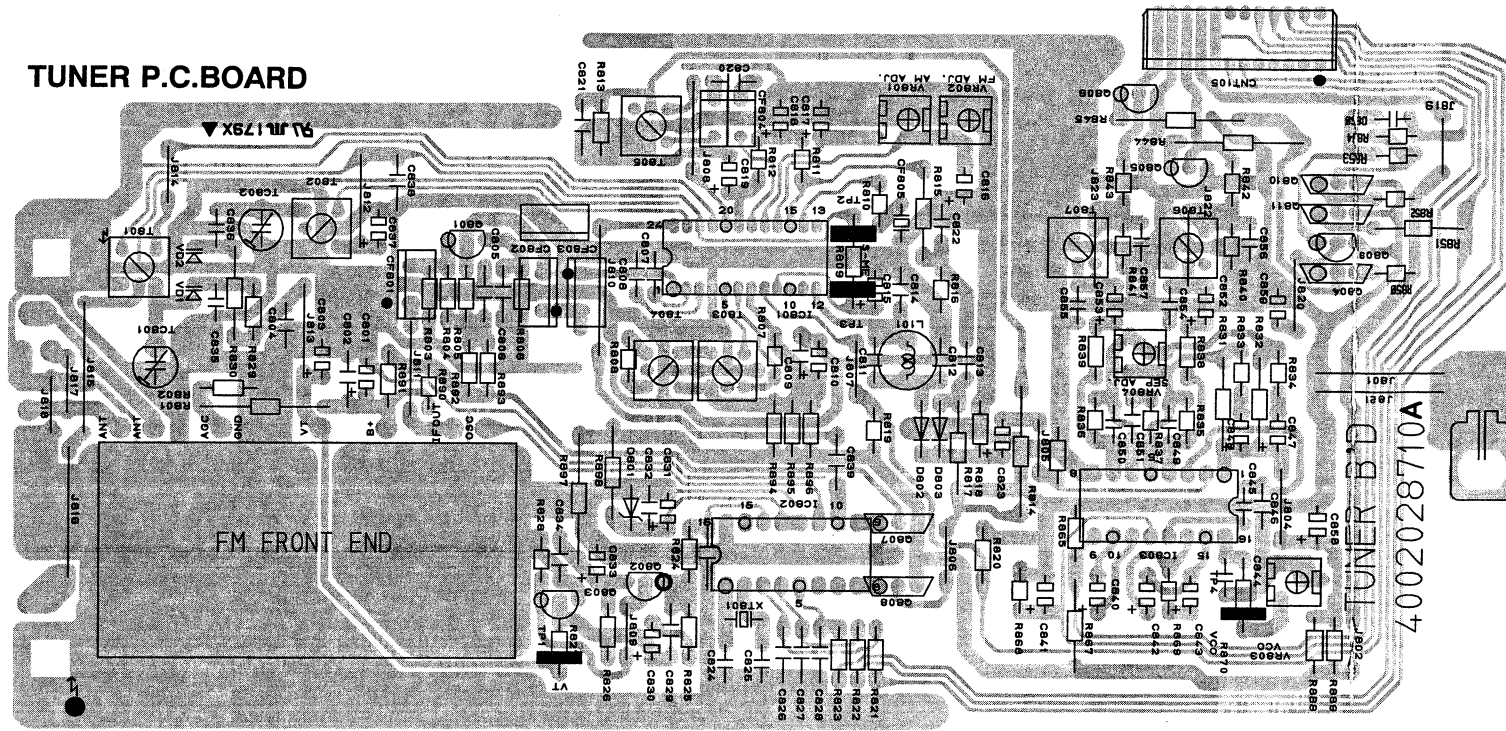
FRONT P.C.BOARD



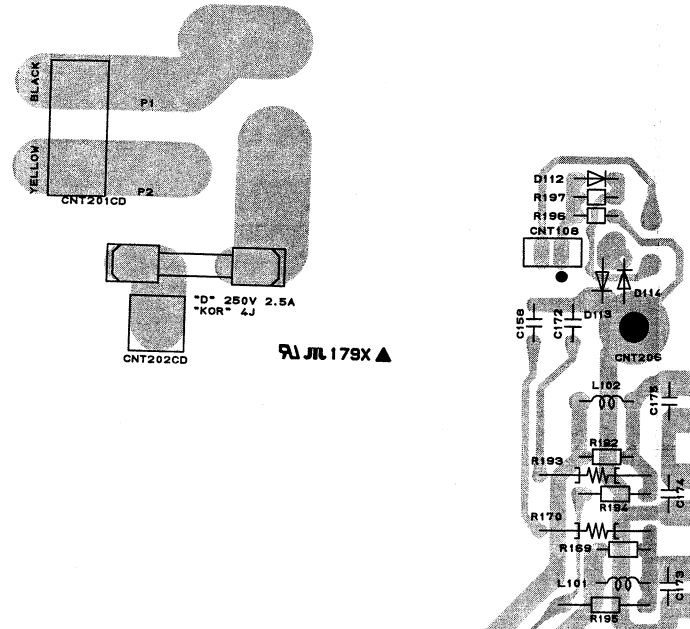
POWER P.C.BOARD



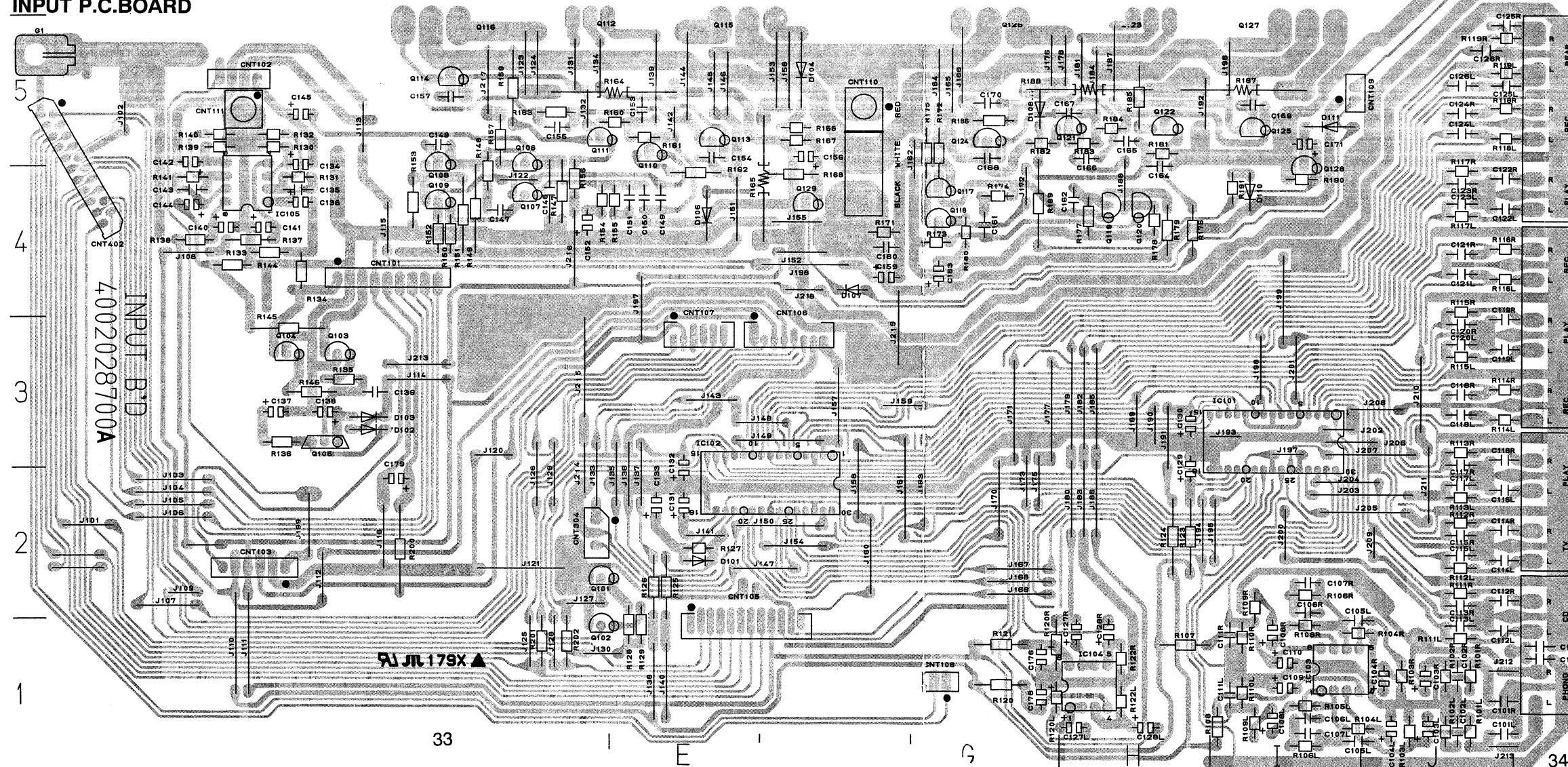
TUNER P.C.BOARD



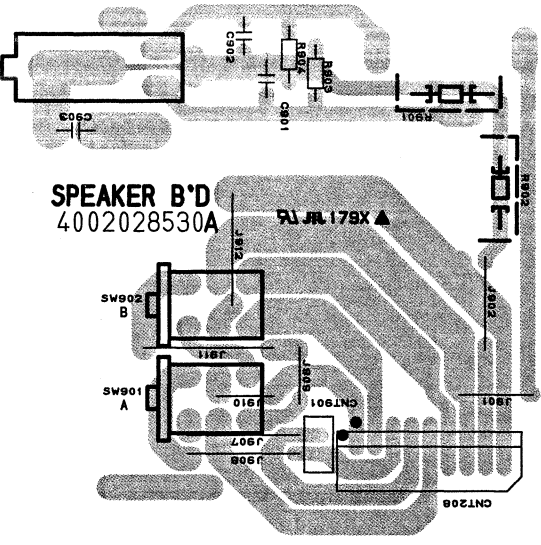
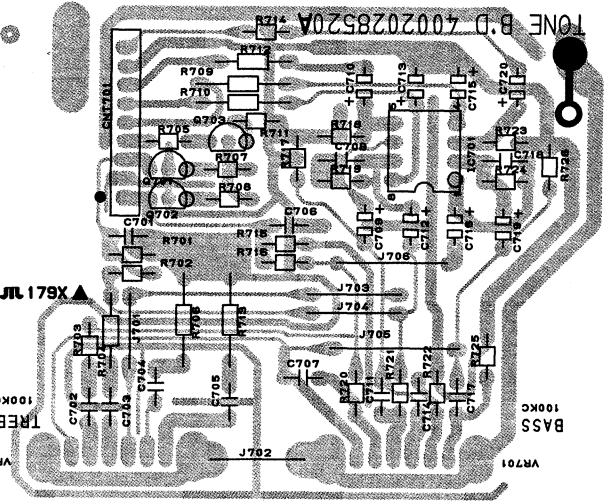
OUTLET P.C.BOARD



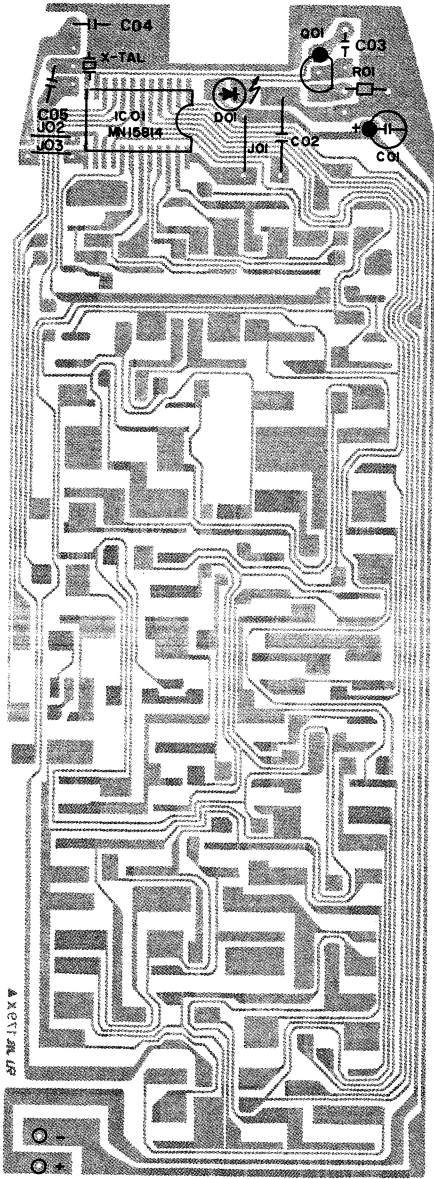
INPUT P.C.BOARD



TONE P.C.BOARD



COMMANDER P.C.BOARD



P.C.BOARD PARTS LIST

Ref. No.	Mfr. Part No.	Description	Q'ty	Version	Ref. No.	Mfr. Part No.	Description	Q'ty	Version
P1	054011010050	ASS'Y P.C.B MAIN			E	4119102204	Wire 200mm,	1	
36	6505134910	BKT PCB	2		F201	△ 5508203021	NB 125V 5A	1	A
42	7505206220	H/Sink REG. TR	1			△ 5508301434	TL 250V 3.15A	1	B,C,D,E,F,G
43	7505206210	H/Sink REG. TR	2			△ 5508202630	NB 250V 3A	1	Dom
44	△ 4448102910	AC Outlet (3P)	1	A	F203	△ 5508201221	NB 125V 250mA	1	A
44	△ 4448103610	AC Outlet (3P)	1	B,C,D,E,F,G		△ 5508301034	TL 250V 160mA		B,C,D,E,F,G
44	△ 4448105510	AC Outlet (3P)	1	Dom		△ 5508200930	NB 250V 150mA		Dom
45	4408105510	Terminal Speaker 8P	1		F204/20	△ 5508201821	NB 125V 750mA	2	
47	4438006510	Jack Multi	1			△ 5508301934	TL 250V 800mA		
C201	3549472407	Ceramic Tubular 0.0047 uF 400V K	1			△ 5508201830	NB 250V 750mA		
C202/203	3679473120	Mylar 0.047 uF 100V J	2		GT201/202	4235007310	Ground Plate	2	
C204	3409347149	Electric SG 470 uF 25V M	1		IC201/202	2168601110	GD7806	2	
C206	3479222071	Electric SA 22 uF 50V M	1		IC203	2168601105	GD7815	1	
C207	3479210971	Electric SA 1 uF 50V M	1		IC204	2168601111	GL7915		
C208/209	3679104257	Mylar 0.1 uF 250V J	2		L201	2648001010	Inductor 0.5uH	1	
C212	3479310161	Electric SG 100 uF 35V M	1		P1/P2	4228001410	Pin Solder	1	
C213/214	3679473120	Mylar 0.047 uF 100V J	2		Q201/202	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
C215/216	3409310269	Electric SG 1000 uF 35V M	2		Q203/L/R	2208606108	KTC2240/BKTC3200, NPN	2	
C217/218	3419582235	Electric HS 8200 uF 63V M	2		Q204/L/R	2208606108	KTC2240/BKTC3200, NPN	2	
C219/L/R	3479247971	Electric SA 4.7 uF 50V M	2		Q205/L/R	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
C220/L/R	3519471935	Ceramic Tubular 470 pF 50V K	2		Q206/L/R	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
C222/L/R	3479347031	Electric SG 47 uF 16V M	2		Q207/L/R	2208206102	BKTA949/KTA1024, PNP	2	
C223/L/R	3579471130	Ceramic Disc 470 pF 50V K	2		Q208/L/R	2208606107	KTC2229/KTC3206, NPN	2	
C224/L/R	3519082935	Ceramic Tubular 8.2 pF 50V K	2		Q209/L/R	2008202101	KSA1220A-Y, PNP	2	
C225/L/R	3519047935	Ceramic Tubular 4.7 pF 50V K	2		Q210/L/R	2008602102	KSC2690A-Y, NPN	2	
C227/L/R	3579270130	Ceramic Disc 27 pF 50V K	2		Q211/L/R	2008622110	2SC4137, Bias NPN	2	
C228/L/R	3579102130	Ceramic Disc 1000 pF 50V K	2		Q212/L/R	2028416107	2SC3854, NPN	2	
C229/L/R	3679473120	Mylar 0.047 uF 100V J	2		Q213/L/R	2028116104	2SA1490,PNP	2	
C230/L/R	3579221130	Ceramic Disc 220 pF 50V K	2		Q214/215	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
C231/L/R	3579221130	Ceramic Disc 220 pF 50V K	2		Q216/L/R	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
C232/L/R	3479210071	Electric SA 10 uF 50V M	2		Q217	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
C232/L/R	3479210971	Electric SA 1 uF 50V M	2		Q218/219	2208622106	DTC114YS, NPN	2	
C233/L/R	3679473120	Mylar 0.047 uF 100V J	2		R201	3009105373	Metal Film 3.3M ohm 1/2W J	1	
C234	3479347121	Electric SG 470 uF 10V	1		R202	3029479472	Metal Film 4.7 ohm 1W J	1	
C235	3479310131	Electric SG 100 uF 16V M	1		R203/204	3029220572	Metal Film 22 ohm 2W J	2	
C236	3479210071	Electric SA 10 uF 50V M	1		R205	3029100472	Metal Film 10 ohm 1W J	1	
CNT103	4428517910	Wafer 6P	1		R206	3029479472	Metal Film 4.7 ohm 1W J	1	
CNT109	4428508210	Wafer 2P	1		R208	3069332970	Carbon Film 3.3K ohm 1/5W J	1	
CNT111	4359824042	Lead Ass'y 1P 420mm	1		R209/L/R	3069393970	Carbon Film 39K ohm 1/5W J	2	
CNT201	4428525780	Wafer 2P, AC	1		R210/L/R	3069132970	Carbon Film 1.3K ohm 1/5W J	2	
CNT202	4428505710	Wafer 3P	1		R211/L/R	3069681970	Carbon Film 680 ohm 1/5W J	2	
CNT203	4428525800	Wafer 4P, AC	1		R212/L/R	3069393970	Carbon Film 39K ohm 1/5W J	2	
CNT204	4358800353	Lead Ass'y 3P 530mm	1		R213/L/R	3069472970	Carbon Film 4.7K ohm 1/5W J	2	
CNT205	4428505610	Wafer 4P	1		R214/L/R	3069333970	Carbon Film 33K ohm 1/5W J	2	
CNT206	4428525780	Wafer 2P, AC	1		R215/L/R	3069471970	Carbon Film 470 ohm 1/5W J	2	
CNT208	436209403461	Lead Ass'y 9P 400mm	1		R216/L/R	3069202970	Carbon Film 2K ohm 1/5W J	2	
CNT217	4428508210	Wafer 2P	1		R217/L/R	3069471970	Carbon Film 470 ohm 1/5W J	2	
CNT301	4428517910	Wafer 6P	1		R218/L/R	3069202970	Carbon Film 2K ohm 1/5W J	2	
CNT403	4428510720	Wafer 12P	1		R219/L/R	3069332970	Carbon Film 3.3K ohm 1/5W J	2	
CNT605	436103363331	Lead Ass'y 3P 360mm	1		R220/L/R	3069121970	Carbon Film 120 ohm 1/5W J	2	
CNT701	4428507010	Wafer 9P	1		R221/L/R	3069121970	Carbon Film 120 ohm 1/5W J	2	
CNT901	4428508210	Wafer 2P	1		R222/L/R	3069242970	Carbon Film 2.4K ohm 1/5W J	2	
D201-205	△ 2250128001	1N4002, Rectifier	5		R223/L/R	3069221970	Carbon Film 220 ohm 1/5W J	2	
D207	2250128001	1N4002	1		R224/L/R	3069331970	Carbon Film 330 ohm 1/5W J	2	
D208-211	△ 2058100138	PX6A03, Rectifier	4		R224/L/R	3069391970	Carbon Film 390 ohm 1/5W J	2	
D212-217	△ 2250128001	1N4002, Rectifier	6		R225/L/R	3069102970	Carbon Film 1K ohm 1/5W J	2	
D218/L/R	2258599115	Zener, UZ 27BSC	2		R226/L/R	3059278782	Cement 0.27 ohm 5W K	2	
D219/L/R	2058306101	1N4148	2		R227/L/R	3059278782	Cement 0.27 ohm 5W K	2	
D221/L/R	2058306101	1N4148	2		R228/L/R	3069220970	Carbon Film 22 ohm 1/5W J	2	
D222/L/R	2058306101	1N4148	2		R229/L/R	3069220970	Carbon Film 22 ohm 1/5W J	2	
D223/L/R	2058306101	1N4148	2		R230/L/R	3069472970	Carbon Film 4.7K ohm 1/5W J	2	
D224/L/R	2058306101	1N4148	2		R231/L/R	3069153970	Carbon Film 15K ohm 1/5W J	2	
D225	2258599104	Zener 5.6V	1		R232/L/R	3029100472	Metal Film 10 ohm 1W J	2	
D226	2258599102	Zener, UZ 4.3BSB	1		R233/L/R	3069243970	Carbon Film 24K ohm 1/5W J	2	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
R234	3069152970	Carbon Film 1.5K ohm 1/5W J	1	
R235	3069752970	Carbon Film 7.5K ohm 1/5W J	1	
R236	3069432970	Carbon Film 4.3K ohm 1/5W J	1	
R237/238	3069223970	Carbon Film 22K ohm 1/5W J	2	
R239	3069273970	Carbon Film 27K ohm 1/5W J	1	
R240L/R	3069472970	Carbon Film 4.7K ohm 1/5W J	1	
R240L/R	3069222470	Metal Film 2.2K ohm 1W J	2	
R241/242	3069102970	Carbon Film 1K ohm 1/5W J	2	
R243	3069473970	Carbon Film 47K ohm 1/5W J	1	
R244	3069103970	Carbon Film 10K ohm 1/5W J	1	
R245	3069223970	Carbon Film 22K ohm 1/5W J	1	
R246	3069103970	Carbon Film 10K ohm 1/5W J	1	
R247	3029222572	Metal Film 2.2K ohm 2W J	1	
RLY-1	5528001620	OEG OST-S-112DM	1	
RLY-2	5528001740	OEG OMI-SS-224L	1	
TRANS201	2828096001	ST-By Trans	1	

P1-1 054011010051 ASS'Y P.C.B VIDEO

50	4438103410	Jack RAC 4P	2	
51	4438111810	Jack RCA(GND) 2P	2	
57	4438113810	Jack RCA 1P, Yellow	1	
C301	3479332041	Electric SG 33 uF 25V M	1	
C302	3479347121	Electric SG 470 uF 10V M	1	
C303	3519010935	Ceramic Tubular 1 pF 50V K	1	
C304	3479332041	Electric SG 33 uF 25V M	1	
C305	3479347121	Electric SG 470 uF 10V M	1	
C306	3519010935	Ceramic Tubular 1 pF 50V K	1	
C307	3479347121	Electric SG 470 uF 10V M	1	
C308	3519010935	Ceramic Tubular 1 pF 50V K	1	
C311	3479310121	Electric SG 100 uF 10V M	1	
C2301	3519104935	Ceramic Tubular 0.1 uF 50V K	1	
CNT101	4428513490	Wafer 9P	1	
CNT301	436106603331	Lead Ass'y 600mm 6P	1	
CNT303	4428513420	Wafer 2P	1	
D301/302	2058306101	1N4148	2	
IC301	2138001101	GD4066, Switching	1	
R301/302	3069750970	Carbon Film 75 ohm 1/5W J	2	
R303	3069123970	Carbon Film 12k ohm 1/5W J	1	
R304	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R305	3069181970	Carbon Film 180 ohm 1/5W J	1	
R306	3069151970	Carbon Film 150 ohm 1/5W J	1	
R307	3069822970	Carbon Film 8.2k ohm 1/5W J	1	
R308	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R309/310	3069104970	Carbon Film 100k ohm 1/5W J	2	
R311/312	3069104970	Carbon Film 100k ohm 1/5W J	2	
R313/314	3069750970	Carbon Film 75 ohm 1/5W J	2	
R315	3069123970	Carbon Film 12k ohm 1/5W J	1	
R316	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R317	3069181970	Carbon Film 180 ohm 1/5W J	1	
R318	3069151970	Carbon Film 150 ohm 1/5W J	1	
R319	3069822970	Carbon Film 8.2k ohm 1/5W J	1	
R320	3069750970	Carbon Film 75 ohm 1/5W J	1	
R321	3069123970	Carbon Film 12k ohm 1/5W J	1	
R322	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R323	3069181970	Carbon Film 180 ohm 1/5W J	1	
R324	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R325	3069151970	Carbon Film 150 ohm 1/5W J	1	
R326	3069822970	Carbon Film 8.2k ohm 1/5W J	1	
R327	3069122970	Carbon Film 1.2k ohm 1/5W J	1	
R329	3069105970	Carbon Film 1M ohm 1/5W J	1	
Q301	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
Q302	2208606104	KTC1815Y/BKTC3198Y,NPN	1	
Q303	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
Q304	2208606104	KTC1815Y/BKTC3198Y,NPN	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
Q305	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
Q306	2208606104	KTC1815Y/BKTC3198Y,NPN	1	
Q307	2218207106	FET, 2SK117Y	1	

P1-2 054011010052 ASS'Y P.C.B BALANCE

9	6165138210	Shield Fence	1	
10	3208052010	VR Balance	1	
11	4438109810	Jack RCA (3P)	1	
C309	3479332041	Electric SG 33 uF 25V M	1	
C310L/R	3519101935	Ceramic Tubular 100 pF 50V K	2	
CZ312/313	3519104935	Ceramic Tubular 0.1 uF 50V K	2	
D303	2058306101	1N4148	1	
R328	3069750970	Carbon Film 75 ohm 1/5W J	1	
R329L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	

P2 054011010053 ASS'Y P.C.B FRONT

	4118621200	Card Cable	1	
27	4628054410	SW Push	1	
C401	3679473120	Mylar 0.047 uF 100V J	1	
C402	3529560210	Ceramic CH 56 pF 50V K	1	
C404	3529560210	Ceramic CH 56 pF 50V K	1	
C405	3409247022	Electric SS 47 uF 10V M	1	
C406	3438147312	Electric 0.047 uF 5.5V K	1	
C407	3679104120	Mylar 0.1 uF 100V J	1	
C408	3479210971	Electric SA 1 uF 50V M	1	
C409	3479210071	Electric SA 10 uF 50V M	1	
C410	3679473120	Mylar 0.047 uF 100V J	1	
C411	3479310171	Electric SG 100 uF 50V M	1	
CNT401	436106183331	Lead Ass'y 180mm 6P	1	
CNT402	4428526330	Wafer 21P	1	
CNT403	436112203331	Lead Ass'y 200mm 12P	1	
CNT404	436403083231	Lead Ass'y 80mm 3P	1	
D401-420	2058306101	1N4148	20	
D421	2258599102	Zener, UZ 4.3BSB	1	
D422/423	2258599177	Zener, UZ 16BSD	2	
D424	2258599107	Zener, UZ 9.1BSC	1	
D425/426	2258128001	1N4002, Rectifier	2	
D427	2371124701	LED, SLR-34URCF25	1	
L401	2648610082	Inductor 100uH	1	
X401	3938131460	4.19MHz	1	
IC401	2138322155	CXP50116-530Q	1	
R401-403	3069103970	Carbon Film 10k ohm 1/5W J	3	
R404-410	3069223970	Carbon Film 22k ohm 1/5W J	6	
R411	3069224970	Carbon Film 220k ohm 1/5W J	1	
R413	3069334970	Carbon Film 330k ohm 1/5W J	1	
R415	3069103970	Carbon Film 10k ohm 1/5W J	1	
R417-420	3069103970	Carbon Film 10k ohm 1/5W J	4	
R421	3069104970	Carbon Film 100k ohm 1/5W J	1	
R422	3069473970	Carbon Film 47k ohm 1/5W J	1	
R424/425	3069473970	Carbon Film 47k ohm 1/5W J	2	
R427	3069102970	Carbon Film 1k ohm 1/5W J	1	
R428	3069331970	Carbon Film 330 ohm 1/5W J	1	
R429	3069471970	Carbon Film 470 ohm 1/5W J	1	
R430	3069473970	Carbon Film 47k ohm 1/5W J	1	
R431/432	3069472970	Carbon Film 4.7k ohm 1/5W J	2	
R433	3069153970	Carbon Film 15k ohm 1/5W J	1	
R434	3029471472	Metal Film 470 ohm 1W J	1	
R436	3069331970	Carbon Film 330 ohm 1/5W J	1	
R437	3069103970	Carbon Film 10k ohm 1/5W J	1	
R438	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R439	3069221970	Carbon Film 220 ohm 1/5W J	1	
Q401/402	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
FL401	2328130925	FIP 11CM9	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
P2-1	054011010054	ASS, Y P.C.B VOLUME		
8	4628058310	SW Push	1	
12	3228016310	VR Motor, 50KA	1	
or	3228019410	VR Motor, 50KB	1	
C601	3479233871	Electric SA 0.33 uF 50V M	1	
C601	3479210871	Electric SA 0.1 uF 50V M	1	
C602/603	3519331935	Ceramic Tubular 330 pF 50V K	2	
C602/603	3529821935	Ceramic Tubular 820 pF 50V K	2	
C603	3519331935	Ceramic Tubular 330 pF 50V K	1	
C604	3479210971	Electric SA 1 uF 50V M	1	
C606	3479233871	Electric SA 0.33 uF 50V M	1	
C606	3479210871	Electric SA 0.1 uF 50V M	1	
C607	3479210971	Electric SA 1 uF 50V M	1	
C608	3519102935	Ceramic Tubular 1000 pF 50V K	1	
C609	3479210971	Electric SA 1 uF 50V M	1	
C610	3479347041	Electric SG 47 uF 25V M	1	
C611	3479210971	Electric SG 1 uF 50V M	1	
C612	3519102935	Ceramic Tubular 1000 pF 50V K	1	
C613	3479347041	Electric SG 47 uF 25V M	1	
C614	3479310121	Electric SG 100 uF 10V M	1	
C615/616	3479347041	Electric SG 47 uF 25V M	2	
C617	3479310121	Electric SG 100 uF 10V M	1	
C618	3479247971	Electric SA 4.7 uF 50V M	1	
C619	3479210071	Electric SA 10 uF 50V M	1	
C620-622	3479247971	Electric SA 4.7 uF 50V M	3	
C623	3479310131	Electric SG 100 uF 16V M	1	
CNT102	4428505610	Wafer 4P	1	
CNT305	4428505710	Wafer 3P	1	
CNT401	4428505810	Wafer 6P	1	
CNT602	436109183331	Lead Ass'y 180mm 9P	1	
CNT603	4428508210	Wafer 2P	1	
CNT605	4428505710	Wafer 3P	1	
R601	3069202970	Carbon Film 2k ohm 1/5W J	1	
R601	3069512970	Carbon Film 5.1k ohm 1/5W J	1	
R602	3069273970	Carbon Film 27k ohm 1/5W J	1	
R602	3069153970	Carbon Film 15k ohm 1/5W J	1	
R603	3069202970	Carbon Film 2k ohm 1/5W J	1	
R603	3069512970	Carbon Film 5.1k ohm 1/5W J	1	
R604	3069273970	Carbon Film 27k ohm 1/5W J	1	
R604	3069153970	Carbon Film 15k ohm 1/5W J	1	
R605	3069622970	Carbon Film 6.2k ohm 1/5W J	1	
R606	3069102970	Carbon Film 1k ohm 1/5W J	1	
R607	3069473970	Carbon Film 47k ohm 1/5W J	1	
R608	3069101970	Carbon Film 100 ohm 1/5W J	1	
R609	3069473970	Carbon Film 47k ohm 1/5W J	1	
R610	3069102970	Carbon Film 1k ohm 1/5W J	1	
R611	3069622970	Carbon Film 6.2k ohm 1/5W J	1	
R612/613	3069101970	Carbon Film 100 ohm 1/5W J	2	
R614	3069103970	Carbon Film 10k ohm 1/5W J	1	
R615	3069101970	Carbon Film 100 ohm 1/5W J	1	
R616	3069242970	Carbon Film 2.4k ohm 1/5W J	1	
R617	3069479970	Carbon Film 4.7 ohm 1/5W J	1	
R618	3069432970	Carbon Film 4.3k ohm 1/5W J	1	
R619	3069104970	Carbon Film 100k ohm 1/5W J	1	
R620	3069103970	Carbon Film 10k ohm 1/5W J	1	
R621	3069104970	Carbon Film 100k ohm 1/5W J	1	
R622	3069102970	Carbon Film 1k ohm 1/5W J	1	
R623	3069104970	Carbon Film 100k ohm 1/5W J	1	
R624	3069471970	Carbon Film 470 ohm 1/5W J	1	
R625	3069103970	Carbon Film 10k ohm 1/5W J	1	
R626	3069104970	Carbon Film 100k ohm 1/5W J	1	
R627	3069102970	Carbon Film 1k ohm 1/5W J	1	
R628	3069471970	Carbon Film 470 ohm 1/5W J	1	
R629	3069104970	Carbon Film 100k ohm 1/5W J	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
R630/631	3069471970	Carbon Film 470 ohm 1/5W J	2	
R632	3069104970	Carbon Film 100k ohm 1/5W J	1	
R633/634	3069822970	Carbon Film 8.2k ohm 1/5W J	2	
R635/636	3069102970	Carbon Film 1k ohm 1/5W J	2	
R637/638	3069512970	Carbon Film 5.1k ohm 1/5W J	2	
Q601	2208606112	KTD1302, NPN	1	
Q602	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
Q603	2208606112	KTD1302, NPN	1	
Q604	2208622108	DTC114TS, NPN	1	
Q605	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
D603	2258599102	Zener, UZ 4.3BSB	1	
IC601	2168206103	KIA7559S/KIA4559S	1	
IC602	2168007204	TA7291S	1	
IC603	2168206104	KIA7559P/KIA4559P	1	
P2-2	054011010055	ASS'Y P.C.B TONE		
24	3208049910	VR Tone	2	
C701	3679122120	Mylar 0.0012 uF 100V J	1	
C702/703	3679332120	Mylar 0.0033 uF 100V J	2	
C704/705	3679183120	Mylar 0.018 uF 100V J	2	
C706	3679122120	Mylar 0.0012 uF 100V J	1	
C707	3679153120	Mylar 0.015 uF 100V J	1	
C708	3529101935	Ceramic Tubular 100 pF 50V K	1	
C709/710	3479247971	Electric SA 4.7 uF 50V M	2	
C711	3679153120	Mylar 0.015 uF 100V J	1	
C712	3479210071	Electric SA 10 uF 50V M	1	
C713	3479347041	Electric SG 47 uF 25V M	1	
C714	3679823120	Mylar 0.082 uF 100V J	1	
C715	3479347041	Electric SG 47 uF 25V M	1	
C716	3479210071	Electric SA 10 uF 50V M	1	
C717	3679823120	Mylar 0.082 uF 100V J	1	
C718	3529101935	Ceramic Tubular 100 pF 50V K	1	
C719/720	3479247971	Electric SA 4.7 uF 50V M	2	
CNT701	436109243331	Lead Ass'y 240mm 9P	1	
IC701	2168206104	KIA7559P/KIA4559P	1	
R701	3069104970	Carbon Film 100k ohm 1/5W J	1	
R702	3069102970	Carbon Film 1k ohm 1/5W J	1	
R703/704	3069222970	Carbon Film 2.2k ohm 1/5W J	2	
R705	3069471970	Carbon Film 470 ohm 1/5W J	1	
R706	3069561970	Carbon Film 560 ohm 1/5W J	1	
R707/708	3069102970	Carbon Film 1k ohm 1/5W J	2	
R709/710	3069470970	Carbon Film 47 ohm 1/5W J	2	
R711	3069103970	Carbon Film 10k ohm 1/5W J	1	
R712	3069102970	Carbon Film 1k ohm 1/5W J	1	
R713	3069561970	Carbon Film 560 ohm 1/5W J	1	
R714	3069102970	Carbon Film 1k ohm 1/5W J	1	
R715	3069104970	Carbon Film 100k ohm 1/5W J	1	
R716	3069102970	Carbon Film 1k ohm 1/5W J	1	
R717/718	3069104970	Carbon Film 100k ohm 1/5W J	2	
R719	3069105970	Carbon Film 1M ohm 1/5W J	1	
R720/721	3069223970	Carbon Film 22k ohm 1/5W J	2	
R722	3069392970	Carbon Film 3.9k ohm 1/5W J	1	
R723	3069104970	Carbon Film 100k ohm 1/5W J	1	
R724	3069105970	Carbon Film 1M ohm 1/5W J	1	
R725	3069392970	Carbon Film 3.9k ohm 1/5W J	1	
R726	3069104970	Carbon Film 100k ohm 1/5W J	1	
Q701/702	2208606112	KTD1302, NPN	2	
Q703	2208206105	KTA1015Y/BKTA1266Y, PNP	1	
P2-3	054011010056	ASS'Y P.C.B SPEAKER		
23	4438005020	Jack Phone	1	
25	4628043810	SW Speaker	2	
26	6505114120	Shield Fence	1	
R901/902	3029271572	Metal Film 270 ohm 2W J	2	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
CNT208	4428519910	Wafer 9P	1	
CNT901	436102343321	Lead Ass'y 340mm 2P	1	
P2-4	054011010057	ASS'Y P.C.B POWER		
13	4658003710	SW Tact	35	
P2-5	054011010058	ASS'Y P.C.B VOLUME LED		
CNT603	435102183181	Lead Ass'y 180mm 2P	1	
D601	2308220140	LED, SLC-22VR5	1	
P3	054011010059	ASS'Y P.C.B SURROUND		
C501	3479247971	Electric SA	4.7 uF 50V M	1
C502	3479347041	Electric SG	47 uF 25V M	1
C503-505	3479247971	Electric SA	4.7 uF 50V M	3
C506	3479347041	Electric SG	47 uF 25V M	1
C507/508	3479247971	Electric SA	4.7 uF 50V M	2
C509/510	3479347041	Electric SG	47 uF 25V M	2
C511	3529101935	Ceramic Tubular	100 pF 50V K	1
C512/513	3479210971	Electric SA	1 uF 50V M	2
C514	3479347041	Electric SG	47 uF 25V M	1
C515	3519681935	Ceramic Tubular	680 pF 50V K	1
C516	3479210971	Electric SA	1 uF 50V M	1
C517	3479347041	Electric SG	47 uF 25V M	1
C518	3479210971	Electric SA	1 uF 50V M	1
C519	3519681935	Ceramic Tubular	680 pF 50V K	1
C520	3479210971	Electric SA	1 uF 50V M	1
C521	3529101935	Ceramic Tubular	100 pF 50V K	1
C522	3679104297	Mylar	0.1 uF 63V J	1
C523	3679224297	Mylar	0.22 uF 63V J	1
C524/525	3479247971	Electric SA	4.7 uF 50V M	2
C526-528	3679224297	Mylar	0.22 uF 63V J	3
C529	3679684297	Mylar	0.68 uF 63V J	1
C530	3619471110	Poly	470 pF 50V J	1
C531	3679473120	Mylar	0.047 uF 100V J	1
C532	3679222120	Mylar	0.0022 uF 100V J	1
C533	3479210971	Electric SA	1 uF 50V M	1
C534	3479322131	Electric SG	220 uF 16V M	1
C535	3679562120	Mylar	0.0056 uF 100V J	1
C536/537	3479210971	Electric SA	1 uF 50V M	2
C538	3479322131	Electric SG	220 uF 16V M	1
C539	3479210071	Electric SA	10 uF 50V M	1
C540	3479222871	Electric SA	0.22 uF 50V K	1
C541-543	3479210971	Electric SA	1 uF 50V M	3
C544-546	3679104297	Mylar	0.1 uF 63V J	3
C547/548	3679224297	Mylar	0.22 uF 63V J	2
C549	3679104297	Mylar	0.1 uF 63V J	1
C550	3679473120	Mylar	0.047 uF 100V J	1
C551	3619681110	Poly	680 pF 50V J	1
C552	3679104297	Mylar	0.1 uF 63V J	1
C553	3619681110	Poly	680 pF 50V J	1
C554	3679473120	Mylar	0.047 uF 100V J	1
C555	3479210051	Electric SA	10 uF 35V M	1
C556	3479210971	Electric SA	1 uF 50V M	1
C557/558	3679104297	Mylar	0.1 uF 63V J	2
C559	3479210971	Electric SA	1 uF 50V M	1
C560	3479210051	Electric SA	10 uF 35V M	1
C561	3679472120	Mylar	0.0047 uF 100V J	1
C562	3479222071	Electric SG	22 uF 50V M	1
C563	3679562120	Mylar	0.0056 uF 100V J	1
C564	3479310121	Electric SG	100 uF 10V M	1
C565	3579104530	Ceramic Tubular	0.1 uF 50V K	1
C566	3679562120	Mylar	0.0056 uF 100V J	1
C567	3579471130	Ceramic Tubular	470 pF 50V K	1
C568	3679104297	Mylar	0.1 uF 63V J	1

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
C569	3479347041	Electric SG	47 uF 25V M	1
C570/571	3679473120	Mylar	0.047 uF 100V J	2
C572	3679104297	Mylar	0.1 uF 63V J	1
C573	3679332120	Mylar	0.0033 uF 100V J	1
C574	3579471130	Ceramic Tubular	470 pF 50V K	1
C576/577	3579271130	Ceramic Tubular	270 pF 100V K	2
C578	3529101935	Ceramic Tubular	100 pF 50V K	1
C582	3479347041	Electric SG	47 uF 25V M	1
C583	3579103530	Ceramic Tubular	0.01 uF 50V K	1
C584	3529101935	Ceramic Tubular	100 pF 50V K	1
C585	3479310121	Electric SG	100 uF 10V M	1
D501-503	2058306101	1N4148		3
CNT106	4428560080	Wafer 8P		1
CNT107	4428560060	Wafer 6P		1
CNT602	4428507010	Wafer 9P		1
IC501/502	2168206103	KIA7559S/KIA4559S		2
IC503/504	2138017108	LC4966		2
IC505	2168206104	KIA7559P/KIA4559P		1
IC506	2138007124	TC9176P		1
IC507	2168020115	NJM2177L		1
IC508	2168020114	NJU9701D		1
IC509	2138009115	MC14094		1
R501	3069101970	Carbon Film	100 ohm 1/5W J	1
R502/503	3069104970	Carbon Film	100k ohm 1/5W J	2
R504	3069101970	Carbon Film	100 ohm 1/5W J	1
R505-508	3069104970	Carbon Film	100k ohm 1/5W J	4
R510/511	3069154970	Carbon Film	150k ohm 1/5W J	2
R512/513	3069101970	Carbon Film	100 ohm 1/5W J	2
R514/515	3069223970	Carbon Film	22k ohm 1/5W J	2
R516	3069124970	Carbon Film	120k ohm 1/5W J	1
R517	3069103970	Carbon Film	10k ohm 1/5W J	1
R518	3069104970	Carbon Film	100k ohm 1/5W J	1
R519	3069101970	Carbon Film	100 ohm 1/5W J	1
R520	3069104970	Carbon Film	100k ohm 1/5W J	1
R521	3069362970	Carbon Film	3.6k ohm 1/5W J	1
R522	3069104970	Carbon Film	100k ohm 1/5W J	1
R523	3069182970	Carbon Film	1.8k ohm 1/5W J	1
R524	3069101970	Carbon Film	100 ohm 1/5W J	1
R525	3069104970	Carbon Film	100k ohm 1/5W J	1
R526	3069472970	Carbon Film	4.7k ohm 1/5W J	1
R527	3069182970	Carbon Film	1.8k ohm 1/5W J	1
R528	3069104970	Carbon Film	100k ohm 1/5W J	1
R529-531	3069102970	Carbon Film	1k ohm 1/5W J	3
R532	3069334970	Carbon Film	330k ohm 1/5W J	1
R533-535	3069153970	Carbon Film	15k ohm 1/5W J	3
R536-538	3069104970	Carbon Film	100k ohm 1/5W J	3
R539	3069470970	Carbon Film	47 ohm 1/5W J	1
R540-542	3069104970	Carbon Film	100k ohm 1/5W J	3
R543	3069752970	Carbon Film	7.5k ohm 1/5W J	1
R544	3069473970	Carbon Film	47k ohm 1/5W J	1
R545	3069153970	Carbon Film	15k ohm 1/5W J	1
R546	3069752970	Carbon Film	7.5k ohm 1/5W J	1
R547	3069473970	Carbon Film	47k ohm 1/5W J	1
R548	3069153970	Carbon Film	15k ohm 1/5W J	1
R549	3069106970	Carbon Film	10M ohm 1/5W J	1
R550/551	3069223970	Carbon Film	22k ohm 1/5W J	2
R552	3069104970	Carbon Film	100k ohm 1/5W J	1
R553	3069822970	Carbon Film	8.2k ohm 1/5W J	1
R554	3069752970	Carbon Film	7.5k ohm 1/5W J	1
R555	3069820970	Carbon Film	82 ohm 1/5W J	1
R556	3069183970	Carbon Film	18k ohm 1/5W J	1
R557	3069562970	Carbon Film	5.6k ohm 1/5W J	1
R558	3069220970	Carbon Film	22 ohm 1/5W J	1
R559	3069153970	Carbon Film	15k ohm 1/5W J	1

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
R560	3069220970	Carbon Film 22 ohm 1/5W J	1	
R561	3069183970	Carbon Film 18k ohm 1/5W J	1	
R562	3069153970	Carbon Film 15k ohm 1/5W J	1	
R563	3069470970	Carbon Film 47 ohm 1/5W J	1	
R564	3069105970	Carbon Film 1M ohm 1/5W J	1	
R565-567	3069102970	Carbon Film 1k ohm 1/5W J	3	
R569	3069471970	Carbon Film 470 ohm 1/5W J	1	
R570	3069102970	Carbon Film 1k ohm 1/5W J	1	
R571/572	3069102970	Carbon Film 1k ohm 1/5W J	2	
R573	3069101970	Carbon Film 100 ohm 1/5W J	1	
R574/575	3069122970	Carbon Film 1.2k ohm 1/5W J	2	
Q501/502	2208622105	DTA114YS, PNP	2	
Q503/504	2208622106	DTC114YS, NPN	2	
Q505/506	2208622105	DTA114YS, PNP	2	
Q507/508	2208622106	DTC114YS, NPN	2	

P4 054011010060 ASS'Y P.C.B INPUT

40	4408107420	Terminal Speaker (6P)	1	
48	4438103210	Jack RCA 6P	2	
49	4438108110	Jack RCA(GND) 4P	1	
52	4438103010	Jack RCA 2P	1	
58	4438103110	Jack RCA 4P	1	
C101L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C102L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C103L/R	3479210971	Electric SA 1 uF 50V M	2	
C104L/R	3479332041	Electric SG 33 uF 25V M	2	
C105L/R	3519222935	Ceramic Tubular 2200 pF 50V K	2	
C106L/R	3679562120	Mylar 0.0056 uF 100V J	2	
C107L/R	3679182120	Mylar 0.0018 uF 100V J	2	
C108L/R	3479210971	Electric SA 1 uF 50V M	2	
C109/110	3479347041	Electric SG 47 uF 25V M	2	
C111L/R	3679182120	Mylar 0.0018 uF 100V J	2	
C112L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C113L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C114L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C115L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C116L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C117L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C118	3529101935	Ceramic Tubular 100 pF 50V K	1	
C119L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C120L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C121L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C122L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C123L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C124L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C125L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	D
C126L/R	3529101935	Ceramic Tubular 100 pF 50V K	2	
C127L/R	3479247971	Electric SA 4.7 uF 50V M	2	
C128L/R	3479247971	Electric SA 4.7 uF 50V M	2	
C129-132	3479347041	Electric SG 47 uF 25V M	4	
C133/134	3479210971	Electric SA 1 uF 50V M	2	
C135	3519102935	Ceramic Tubular 1000 pF 50V K	1	
C136	3479210971	Electric SA 1 uF 50V M	1	
C137	3479347041	Electric SG 47 uF 25V M	1	
C138	3479222031	Electric SA 22 uF 16V M	1	
C139	3679223120	Mylar 0.022 uF 100V J	1	
C140/141	3479347041	Electric SG 47 uF 25V M	2	
C142	3479210971	Electric SA 1 uF 50V M	1	
C143	3519102935	Ceramic Tubular 1000 pF 50V K	1	
C144/145	3479210971	Electric SA 1 uF 50V M	2	
C146	3519681935	Ceramic Tubular 680 pF 50V K	1	
C147	3579471130	Ceramic Disc 470 pF 50V K	1	
C148	3579270130	Ceramic Disc 27 pF 50V K	1	
C149	3579150130	Ceramic Disc 15 pF 50V K	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
C151	3579080130	Ceramic Disc 8 pF 50V K	1	
C152	3479332041	Electric SG 33 uF 25V M	1	
C153	3579102130	Ceramic Disc 1000 pF 50V K	1	
C154	3579221130	Ceramic Disc 220 pF 50V K	1	
C155	3679473120	Mylar 0.047 uF 100V J	1	
C156	3479210071	Electric SA 10 uF 50V M	1	
C156	3479210971	Electric SA 1 uF 50V M	1	
C157	3579221130	Ceramic Tubular 220 pF 50V K	1	
C158	3679473120	Mylar 0.047 uF 100V J	1	
C159	3479210971	Electric SA 1 uF 50V M	1	
C160	3579681130	Ceramic Disc 680 pF 50V K	2	
C161	3579471130	Ceramic Disc 470 pF 50V K	2	
C162	3579270130	Ceramic Disc 27 pF 50V K	1	
C163	3479332041	Electric SG 33 uF 25V M	1	
C164	3579080130	Ceramic Disc 8 pF 50V K	1	
C166	3579150130	Ceramic Disc 15 pF 50V K	1	
C167	3579102130	Ceramic Disc 1000 pF 50V K	1	
C168/169	3579221130	Ceramic Disc 220 pF 50V K	2	
C170	3679473120	Mylar 0.047 uF 100V J	1	
C171	3479210071	Electric SA 10 uF 50V M	1	
or	3479210971	Electric SA 1 uF 50V M	1	
C172	3679473120	Mylar 0.047 uF 100V J	1	
C173-175	3679473120	Mylar 0.047 uF 100V J	3	D
C176	3479347041	Electric SG 47 uF 25V M	1	
C178	3479347041	Electric SG 47 uF 25V M	1	
CNT101	436109303331	Lead Ass'y 300mm 9P	1	
CNT102	436104223331	Lead Ass'y 220mm 4P	1	
CNT103	436106403331	Lead Ass'y 400mm 6P	1	
CNT105	4428550120	Wafer 12P	1	
CNT106	4428550080	Wafer 8P	1	
CNT107	4428550060	Wafer 6P	1	
CNT108	436402303231	Lead Ass'y 300mm 2P	1	
CNT109	436102243331	Lead Ass'y 240mm 2P	1	
CNT110	4428525790	Wafer 3P	1	
CNT111	4428525861	Wafer 1P	1	
CNT206	4359584030	Lead Ass'y 300mm 1P	1	
CNT304	4428505710	Wafer 3P	1	
CNT402	4428526330	Wafer 21P	1	
D101-104	2058306101	1N4148	4	
D106-108	2058306101	1N4148	3	
D110-114	2058306101	1N4148	5	
G1	4235007310	Ground Plate	1	
IC101/102	2168017132	LC7821	2	
IC103	2168206107	KIA7559P/KIA4559P	1	
IC104/105	2168206104	KIA7559P/KIA4559P	2	
L101/102	2648001010	Inductor 0.5uH	2	
Q101-104	2208606104	KTC1815Y/BKTC3198Y,NPN	4	
Q105	2208622105	DTA114YS, PNP	1	
Q106/107	2208606108	KTC2240/BKTC3200, NPN	2	
Q108/109	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
Q110	2208206102	BKTA949/KTA1024, PNP	1	
Q111	2208606107	KTC2229/KTC3206, NPN	1	
Q112	2008622110	2SC4137, Bias NPN	1	
Q113	2228406120	BKTC2235/KTC1027, NPN	1	
Q114	2208206107	KTA965, PNP	1	
Q115	2028407109	2SD718/KTD718, NPN	1	
Q116	2028107106	2SB688/KTB688, PNP	1	
Q117/118	2208606108	KTC2240/BKTC3200, NPN	2	
Q119/120	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
Q121	2208206102	BKTA949/KTA1024, PNP	1	
Q122	2208606107	KTC2229/KTC3206, NPN	1	
Q123	2008622110	2SC4137, Bias NPN	1	
Q124	2228406120	BKTC2235/KTC1027, NPN	1	
Q125	2208206107	KTA965, PNP	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
Q126	2028407109	2SD718/KTD718, NPN	1	
Q127	2028107106	2SB688/KTB688, PNP	1	
Q128/129	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
R101L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R102L/R	3069913970	Carbon Film 91k ohm 1/5W J	2	
R103L/R	3069913970	Carbon Film 91k ohm 1/5W J	2	
R104L/R	3069821970	Carbon Film 820 ohm 1/5W J	2	
R105L/R	3069564970	Carbon Film 560k ohm 1/5W J	2	
R106L/R	3069433970	Carbon Film 43k ohm 1/5W J	2	
R107/108	3069470970	Carbon Film 47 ohm 1/5W J	2	
R109L/R	3069471970	Carbon Film 470 ohm 1/5W J	2	
R110L/R	3069104970	Carbon Film 100k ohm 1/5W J	2	
R111L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R112L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R113L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R114L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R115L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R116L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R117L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R118L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R119L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R120/121	3069473970	Carbon Film 47K ohm 1/5W J	2	
R122L/R	3069104970	Carbon Film 100k ohm 1/5W J	2	
R123-126	3069471970	Carbon Film 470 ohm 1/5W J	4	
R127	3069104970	Carbon Film 100k ohm 1/5W J	1	
R128/129	3069472970	Carbon Film 4.7K ohm 1/5W J	2	
R130	3069104970	Carbon Film 100k ohm 1/5W J	1	
R131	3069123970	Carbon Film 12k ohm 1/5W J	1	
R132	3069202970	Carbon Film 2k ohm 1/5W J	1	
R133	3069473970	Carbon Film 47K ohm 1/5W J	1	
R134	3069471970	Carbon Film 470 ohm 1/5W J	1	
R135	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R136	3069222970	Carbon Film 2.2k ohm 1/5W J	1	
R137/138	3069471970	Carbon Film 470 ohm 1/5W J	2	
R139	3069104970	Carbon Film 100k ohm 1/5W J	1	
R140	3069202970	Carbon Film 2k ohm 1/5W J	1	
R141	3069123970	Carbon Film 12k ohm 1/5W J	1	
R144	3069104970	Carbon Film 100k ohm 1/5W J	1	
R145	3069471970	Carbon Film 470 ohm 1/5W J	1	
R146	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R147	3069393970	Carbon Film 39k ohm 1/5W J	1	
R148	3069681970	Carbon Film 680 ohm 1/5W J	1	
R149/150	3069472970	Carbon Film 4.7k ohm 1/5W J	2	
R151/152	3069681970	Carbon Film 680 ohm 1/5W J	2	
R153	3069682970	Carbon Film 6.8k ohm 1/5W J	1	
R154	3069182970	Carbon Film 1.8k ohm 1/5W J	1	
R155	3069393970	Carbon Film 39k ohm 1/5W J	1	
R156	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R157	3069473970	Carbon Film 47k ohm 1/5W J	1	
R159	3069121970	Carbon Film 120 ohm 1/5W J	1	
R160	3069102970	Carbon Film 1k ohm 1/5W J	1	
R161	3069242970	Carbon Film 2.4K ohm 1/5W J	1	
R162	3069121970	Carbon Film 120 ohm 1/5W J	1	
R163	3069221970	Carbon Film 220 ohm 1/5W J	1	
R164/165	3059278676	Cement 0.27 ohm 3W K	2	
R166	3069271970	Carbon Film 270 ohm 1/5W J	1	
R166	3060331970	Carbon Film 330 ohm 1/5W J	1	
R167	3069472970	Carbon Film 4.7k ohm 1/5W J	1	
R168	3069153970	Carbon Film 15k ohm 1/5W J	1	
R169/170	3069100970	Carbon Film 10 ohm 1/5W J	2	
R171	3069393970	Carbon Film 39k ohm 1/5W J	1	
R172/173	3069472970	Carbon Film 4.7k ohm 1/5W J	2	
R174	3069681970	Carbon Film 680 ohm 1/5W J	1	
R175	3069473970	Carbon Film 47k ohm 1/5W J	1	

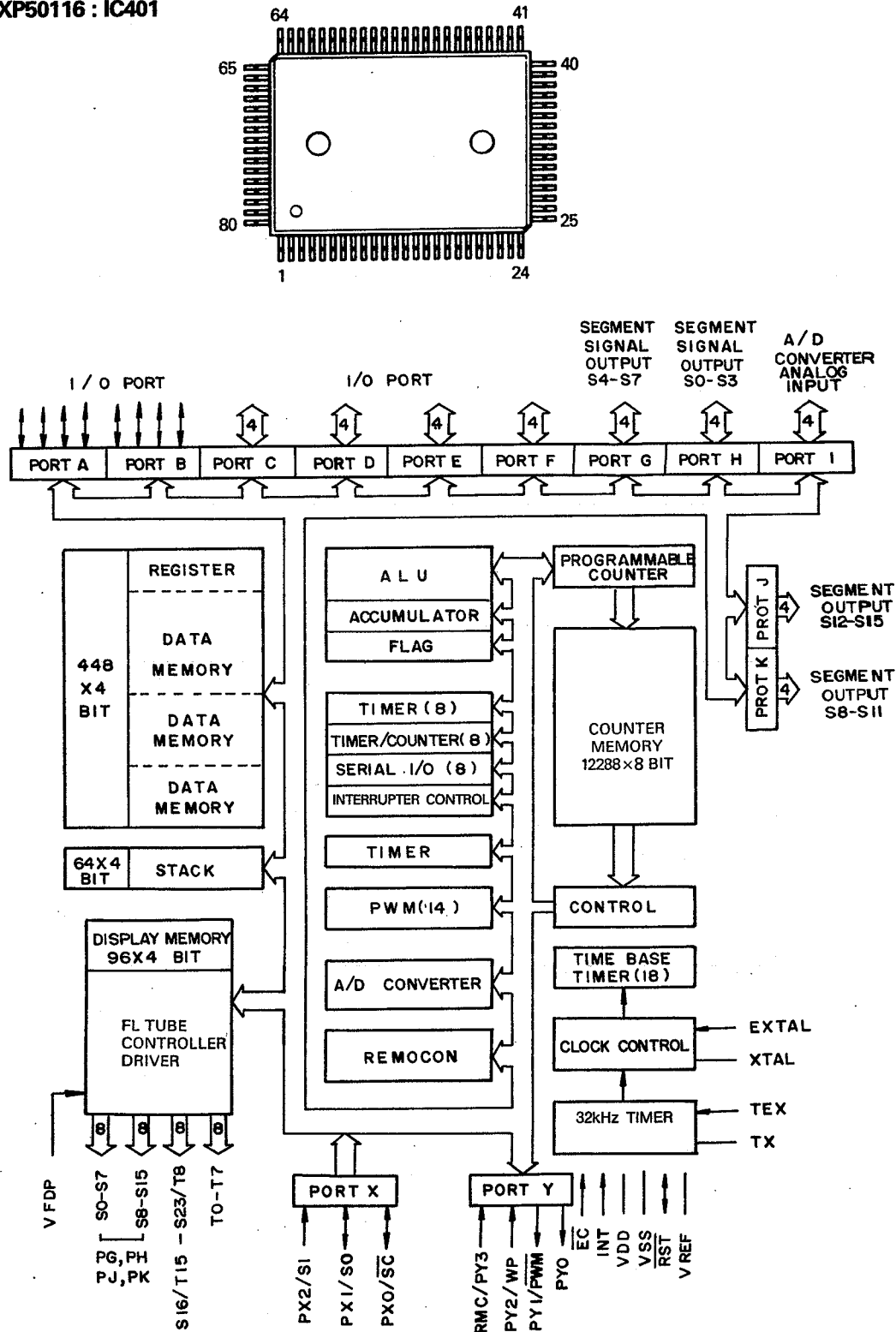
Ref. No.	Mfr. Part No.	Description	Q'ty	Version
R176	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R177/178	3069681970	Carbon Film 680 ohm 1/5W J	2	
R179	3069682970	Carbon Film 6.8k ohm 1/5W J	1	
R180	3069182970	Carbon Film 1.8k ohm 1/5W J	1	
R181	3069393970	Carbon Film 39k ohm 1/5W J	1	
R182	3069121970	Carbon Film 120 ohm 1/5W J	1	
R183	3069242970	Carbon Film 2.4K ohm 1/5W J	1	
R184	3069102970	Carbon Film 1k ohm 1/5W J	1	
R185	3069121970	Carbon Film 120 ohm 1/5W J	1	
R186	3069221970	Carbon Film 220 ohm 1/5W J	1	
R187/188	3059278676	Cement 0.27 ohm 3W K	2	
R189	3069271970	Carbon Film 270 ohm 1/5W J	1	
R189	3069331970	Carbon Film 330 ohm 1/5W J	1	
R190	3069472970	Carbon Film 4.7k ohm 1/5W J	1	
R191	3069153970	Carbon Film 15k ohm 1/5W J	1	
R192	3069100970	Carbon Film 10 ohm 1/5W J	1	
R193	3029100472	Metal Film 10 ohm 1W J	1	
R194/195	3069243970	Carbon Film 24k ohm 1/5W J	2	
R196	3069224970	Carbon Film 220k ohm 1/5W J	1	
R197	3069223970	Carbon Film 22k ohm 1/5W J	1	
P4-1	054010110061	ASS'Y P.C.B TUNER		A
P4-1	054010810062	ASS'Y P.C.B TUNER		Dom
P4-1	054010310063	ASS'Y P.C.B TUNER		C,E,F,G,P,T,INDO
P4-1	054010410064	ASS'Y P.C.B TUNER		D
56	4408101610	ANT Terminal	1	B,C,D,E,F,G
56	4408107110	ANT Terminal	1	A,Dom
C801	3479310141	Electric SG 100 uF 25V M	1	
C802	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C805-809	3519223935	Ceramic Tubular 0.022 uF 50V K	5	
C810	3479347041	Electric SG 47 uF 25V M	1	
C811	3519820935	Ceramic Tubular 82 pF 50V K	1	D
C812	3519101935	Ceramic Tubular 100 pF 50V K	1	D
C813	3679333120	Mylar 0.033 uF 100V J	1	
C814	3519331935	Ceramic Tubular 330 pF 50V K	1	
C815	3479210971	Electric SA 1 uF 50V M	1	
C815	3479247871	Electric SA 0.47 uF 50V M	1	D
C816	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C817	3479247971	Electric SA 4.7 uF 50V M	1	
C818	3479233971	Electric SA 3.3 uF 50V M	1	
C819	3479247971	Electric SA 4.7 uF 50V M	1	
C820	3519470935	Ceramic Tubular 47 pF 50V K	1	
C821	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C822	3679332120	Mylar 0.0033 uF 100V J	1	
C823	3479222971	Electric SA 2.2 uF 50V M	1	
C824/825	3529330210	Ceramic Disc CH 33 pF 50V K	2	
C826-828	3519101935	Ceramic Tubular 100 pF 50V K	3	
C829	3519103935	Ceramic Tubular 0.01 uF 50V K	1	
C830	3479210971	Electric SA 1 uF 50V M	1	
C831	3479347041	Electric SG 47 uF 25V M	1	
C832	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C833	3479347041	Electric SG 47 uF 25V M	1	
C834	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C835	3679473120	Mylar 0.047 uF 100V J	1	
C836	3619471110	Poly 470 pF 50V J	1	
C837	3479210071	Electric SA 10 uF 50V M	1	
C838	3519223935	Ceramic Tubular 0.022 uF 50V K	1	
C839	3519103935	Ceramic Tubular 0.01 uF 50V K	1	
C840	3479233971	Electric SA 3.3 uF 50V M	1	
C841/842	3479210971	Electric SA 1 uF 50V M	2	
C843	3479233971	Electric SA 3.3 uF 50V M	1	
C844	3619102110	Poly 1000 pF 50V J	1	
C845	3679473120	Mylar 0.047 uF 100V J	1	
C846	3519681935	Ceramic Tubular 680 pF 50V K	1	

Ref. No.	Mfr. Part No.	Description	Q'ty	Version
C847/848	3479222061	Electric SA 22 uF 35V M	2	
C849/850	3679152120	Mylar 0.0015 uF 100V J	2	
C849/850	3679102120	Mylar 0.001 uF 100V J	2	B
C851	3519151935	Ceramic Tubular 150 pF 50V K	1	
C852/853	3479222971	Electric SA 2.2 uF 50V M	2	
C856/857	3679392120	Mylar 0.0039 uF 100V J	2	
C858	3479310141	Electric SG 100 uF 25V M	1	
C859	3479222871	Electric SA 0.22 uF 50V K	1	
C860	3519104935	Ceramic Tubular 0.1 uF 50V K	1	
TC801	3838001000	TZ03-T110FR 169	1	
TC802	3838001010	TZ03-R200FR 169	1	
CNT105	4428560120	Wafer 12P	1	
T801	2608201120	AM ANT	1	
T802	2638201150	AM OSC	1	
T803	2838501110	FM Quad DET(A)	1	
T804	2838501210	FM Quad DET(B)	1	
T805	2848001250	AM IFT, P-7SB	1	
T806/807	2658301100	MPX 16KHz, FB-7SG	2	
XT801	3908101031	7.2MHz	1	
CF805	3908001020	BFU450C4N	1	
D801	2258599103	Zener 5.1V	1	
D802/803	2058306101	1N4148	2	
VD1/VD2	2058819106	KV12362	2	
IC801	2168017128	LA1266	1	
IC802	2138017112	LM7001	1	
IC803	2168411105	HA12016	1	
CF801	3908011001	SFE10.7MA8	1	
CF801-803	3908011001	SFE10.7MA8	3	D
CF804	3908001380	SFZ450F	1	
FE1	3928801930	FM Front End, FE306-A15	1	
FE1	3928801970	FM Front End, FE407-G60	1	D
VR801	3248020343	Semi, 20K(B)	1	
VR802	3248020343	Semi, 20K(B)	1	
VR803	3248033243	Semi, 3.3K(B)	1	
VR804	3248020443	Semi, 200K(B)	1	
R801	3069104970	Carbon Film 100k ohm 1/5W J	1	D
R802	3069623970	Carbon Film 62K ohm 1/5W J	1	D
R803	3069471970	Carbon Film 470 ohm 1/5W J	1	
R804	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R805/806	3069331970	Carbon Film 330 ohm 1/5W J	2	
R807	3069103970	Carbon Film 10k ohm 1/5W J	1	
R808	3069332970	Carbon Film 3.3k ohm 1/5W J	1	
R809	3069183970	Carbon Film 18K ohm 1/5W J	1	
R809	3069473970	Carbon Film 47K ohm 1/5W J	1	B
R810	3069823970	Carbon Film 82k ohm 1/5W J	1	
R811	3069243970	Carbon Film 24k ohm 1/5W J	1	
R812	3069103970	Carbon Film 10k ohm 1/5W J	1	
R813	3069683970	Carbon Film 68k ohm 1/5W J	1	
R814	3069472970	Carbon Film 4.7k ohm 1/5W J	1	
R815	3069222970	Carbon Film 2.2K ohm 1/5W J	1	
R815	3069332970	Carbon Film 3.3k ohm 1/5W J	1	B
R816	3069272970	Carbon Film 2.7k ohm 1/5W J	1	
R817/818	3069104970	Carbon Film 100k ohm 1/5W J	2	
R819	3069473970	Carbon Film 47k ohm 1/5W J	1	
R820	3069223970	Carbon Film 22k ohm 1/5W J	1	
R821-823	3069102970	Carbon Film 1k ohm 1/5W J	3	
R824	3069821970	Carbon Film 820 ohm 1/5W J	1	
R825	3069152970	Carbon Film 1.5k ohm 1/5W J	1	
R826	3069103970	Carbon Film 10k ohm 1/5W J	1	
R827	3069102970	Carbon Film 1k ohm 1/5W J	1	
R828	3069101970	Carbon Film 100 ohm 1/5W J	1	
R829/830	3069104970	Carbon Film 100k ohm 1/5W J	2	
R831/832	3069223970	Carbon Film 22k ohm 1/5W J	2	
R833/834	3069332970	Carbon Film 3.3K ohm 1/5W J	2	

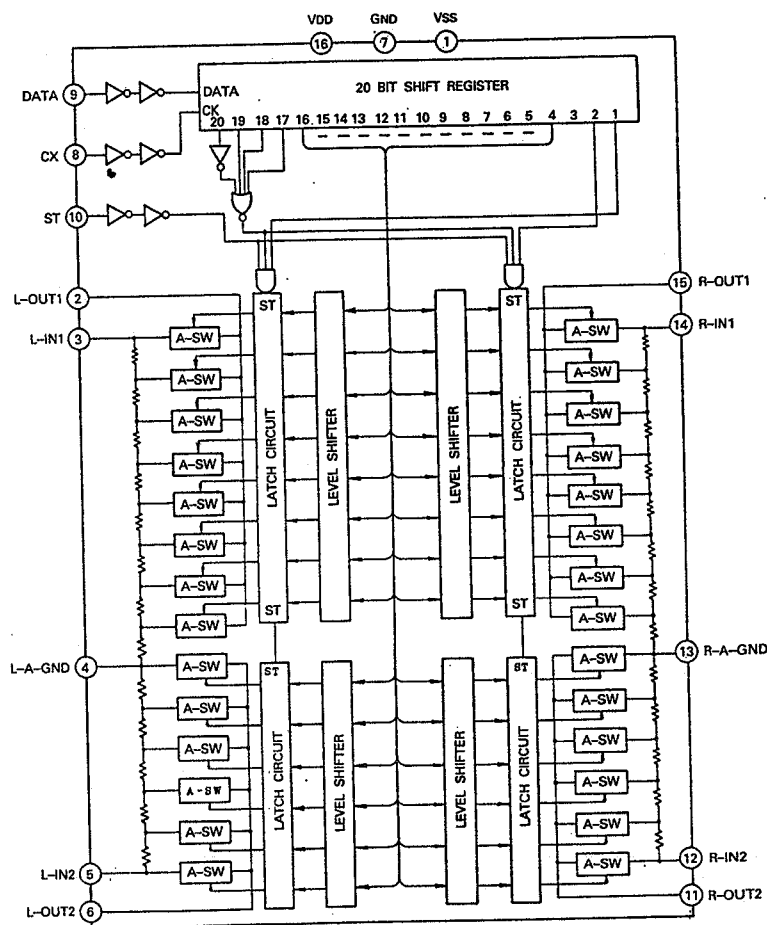
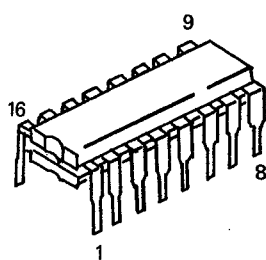
Ref. No.	Mfr. Part No.	Description	Q'ty	Version
R833/834	3069202970	Carbon Film 2k ohm 1/5W J	2	B
R835/836	3069473970	Carbon Film 47k ohm 1/5W J	2	
R837	3069392970	Carbon Film 3.9k ohm 1/5W J	1	
R838/839	3069332970	Carbon Film 3.3K ohm 1/5W J	2	
R838/839	3069242970	Carbon Film 2.4k ohm 1/5W J	2	B
R840/841	3069332970	Carbon Film 3.3k ohm 1/5W J	2	
R842/843	3069102970	Carbon Film 1k ohm 1/5W J	2	
R844/845	3069302970	Carbon Film 3k ohm 1/5W J	2	
R850	3069100970	Carbon Film 10 ohm 1/5W J	1	
R851	3069103970	Carbon Film 10k ohm 1/5W J	1	
R852	3069104970	Carbon Film 100k ohm 1/5W J	1	
R853	3069102970	Carbon Film 1k ohm 1/5W J	1	
R854	3069822970	Carbon Film 8.2k ohm 1/5W J	1	
R865	3069223970	Carbon Film 22k ohm 1/5W J	1	
R867	3069473970	Carbon Film 47k ohm 1/5W J	1	
R868	3069104970	Carbon Film 100k ohm 1/5W J	1	
R869	3069102970	Carbon Film 1k ohm 1/5W J	1	
R870	3069562970	Carbon Film 5.6k ohm 1/5W J	1	
R888/889	3069271970	Carbon Film 270 ohm 1/5W J	2	
R890/891	3069221970	Carbon Film 220 ohm 1/5W J	2	
R892-897	3069271970	Carbon Film 270 ohm 1/5W J	6	
R898	3069331970	Carbon Film 330 ohm 1/5W J	1	
Q801	2208406103	KTC1923Y, NPN	1	
Q802	2018211100	2SK168, FET	1	
Q803	2208606108	KTC2240/BKTC3200, NPN	1	
Q804	2208622105	DTA114YS, PNP	1	
Q805/806	2208606104	KTC1815Y/BKTC3198Y,NPN	2	
Q807/808	2208622105	DTA114YS, PNP	2	
Q809	2208606104	KTC1815Y/BKTC3198Y,NPN	1	
Q810/811	2208622106	DTC114YS	2	
P5 054011010065 ASS'Y P.C.B Remoto Control				
IC01	2138326101	IC MN15814	1	
X-TAL	3938101890	CRA455	1	
Q01	2208606112	TR, KTD1302	1	
D01	2408001139	Diode, IR-LED EL-5HIR7	1	
C01	3409247022	CAP, Electric SA 47 uF 10V	1	
C02	3519103935	CAP, Ceramic Tubula 0.01 uF 50V	1	
C04	3519470935	CAP, Ceramic Tubula 47 pF 50V	1	
R01	3069229970	Carbon Film 2.2 ohm 1/5W	1	

SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM

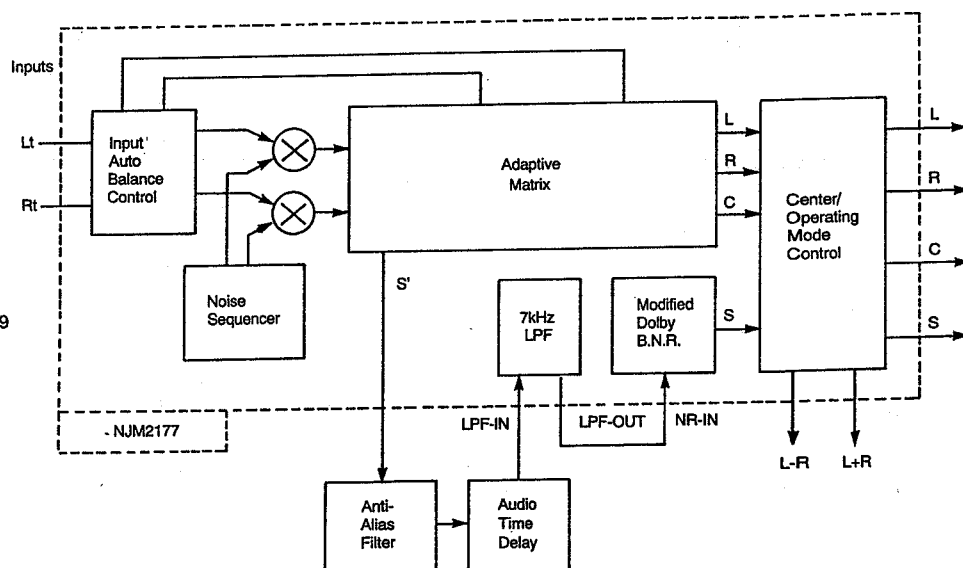
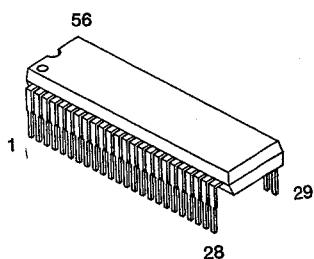
CXP50116 : IC401



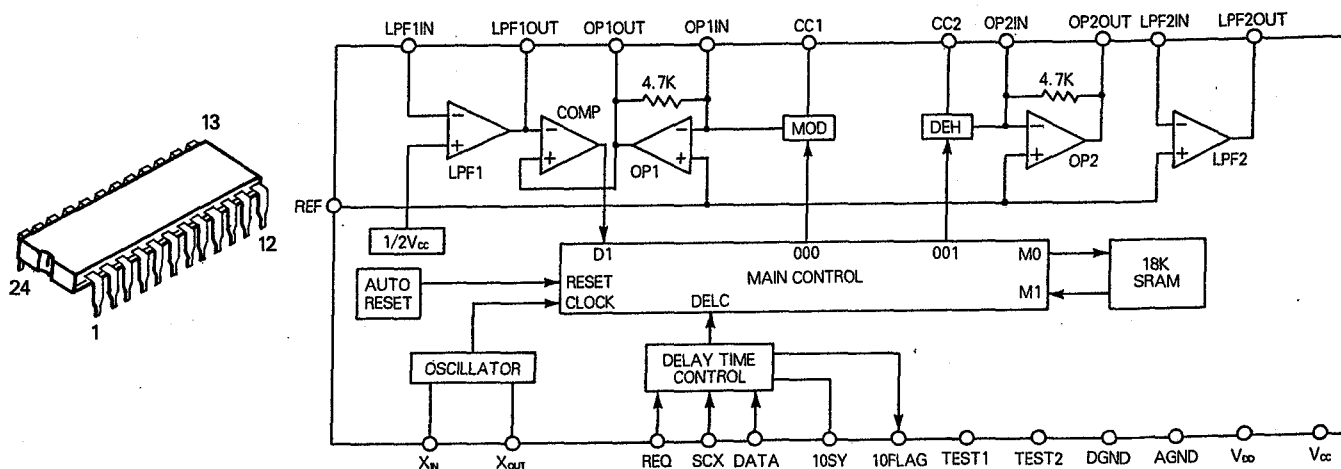
TC9176 : IC506



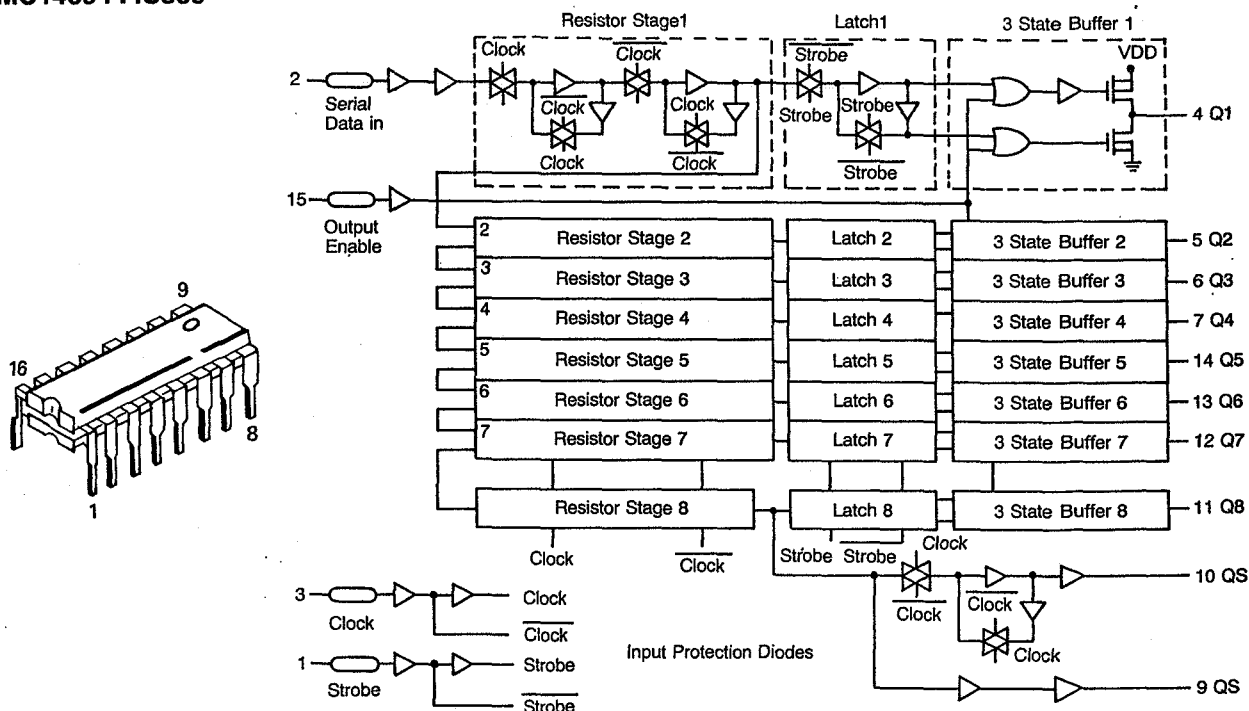
NJM2177 : IC507



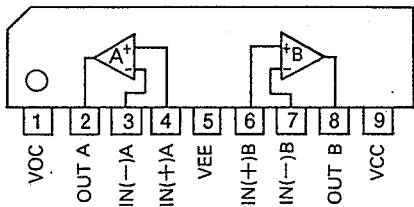
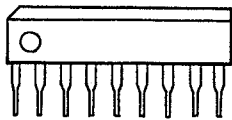
NJU9701 : IC508



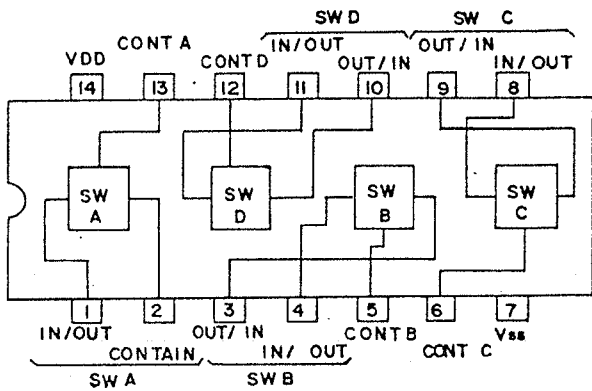
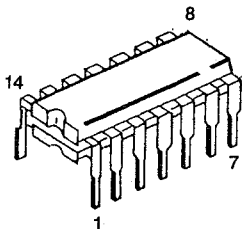
MC14094 : IC509



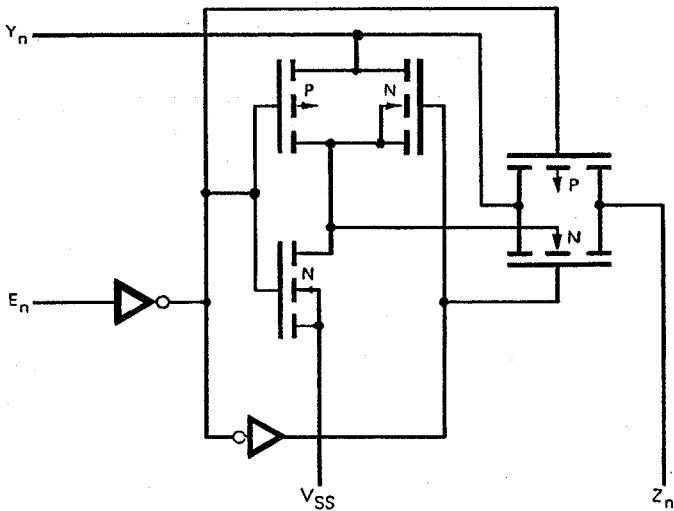
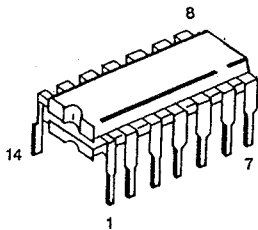
KIA4559S : IC501,IC502,IC601
(KIA7559)



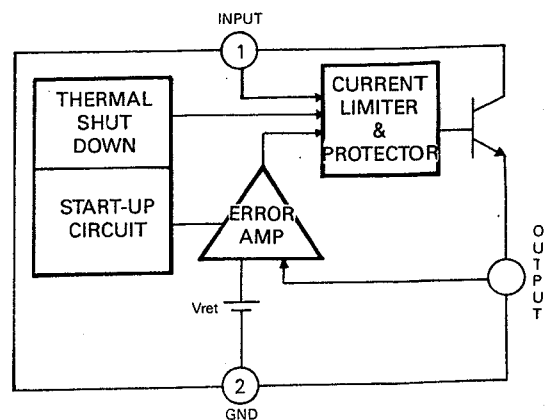
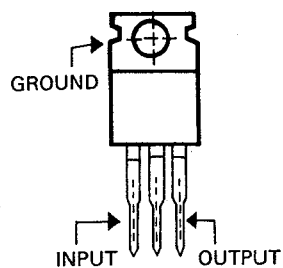
LC4966B : IC503,IC504



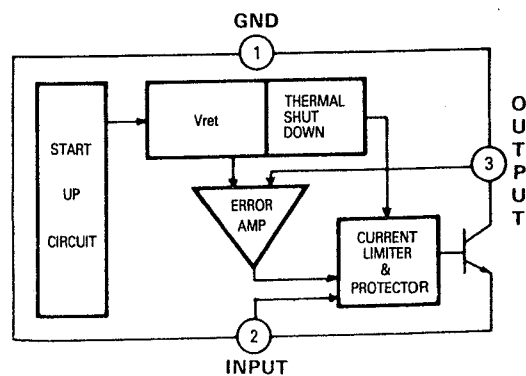
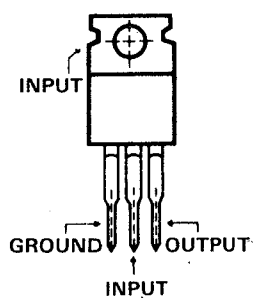
GD4066 : IC301



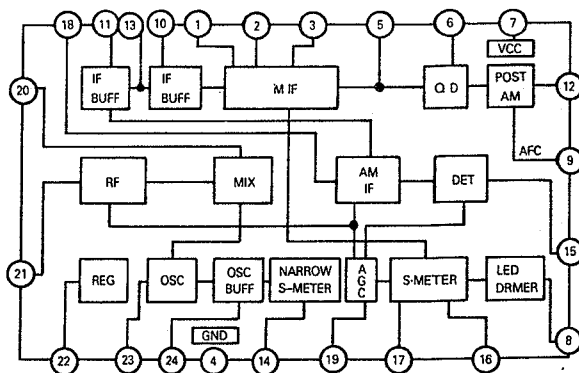
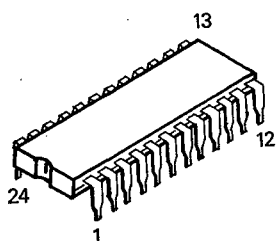
GD78XX : IC201,IC202,IC203



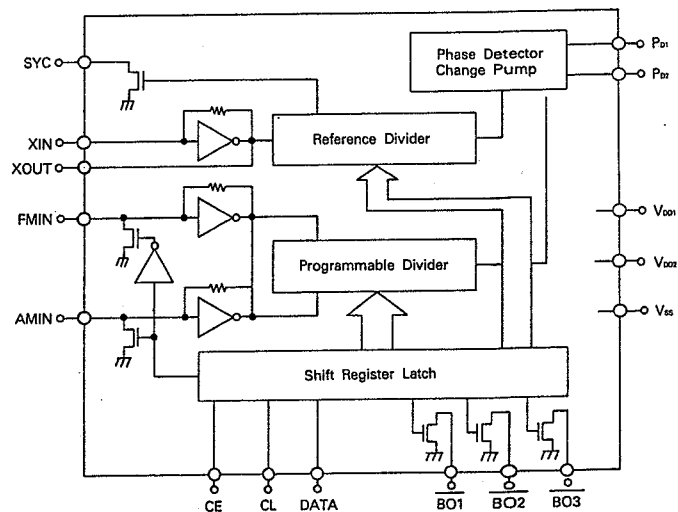
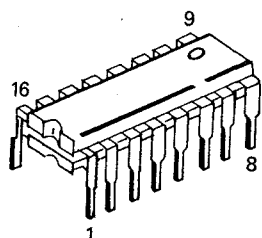
GD7915 : IC204



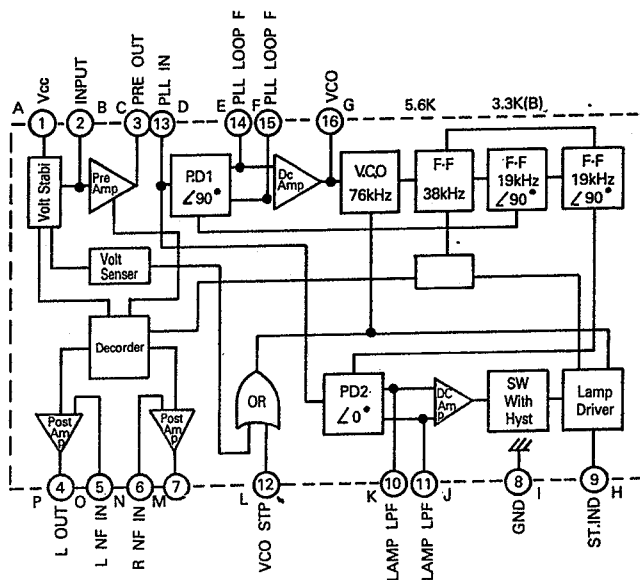
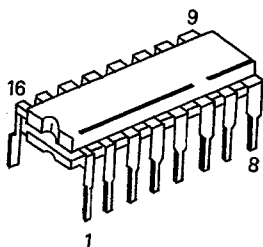
LA1266 : IC801



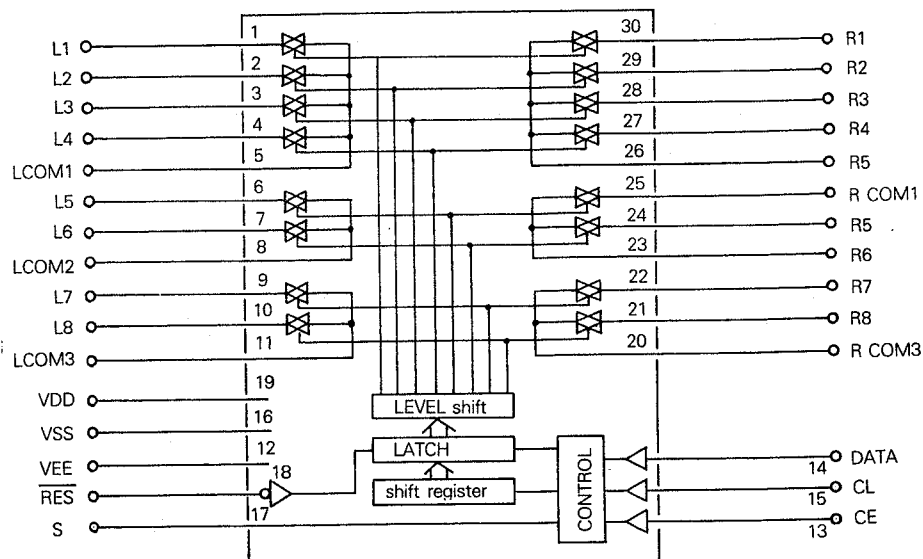
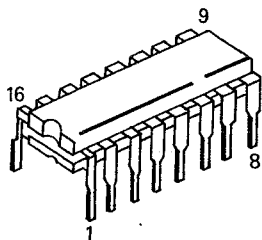
LM7001 : IC802



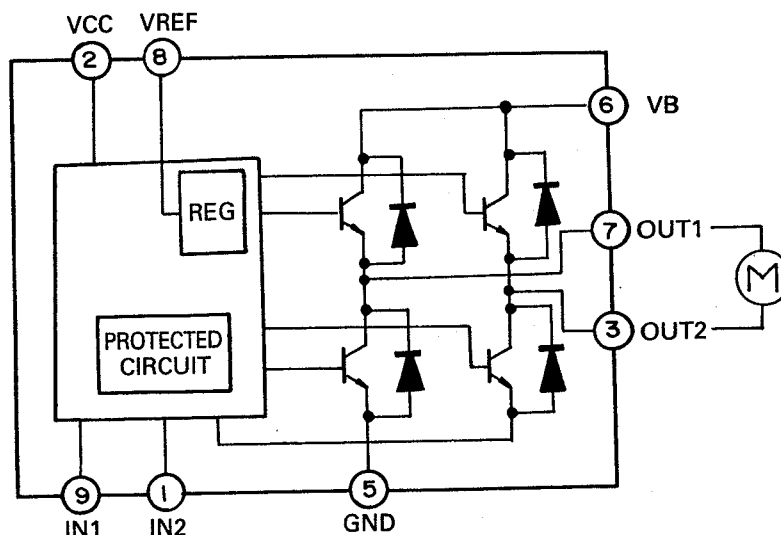
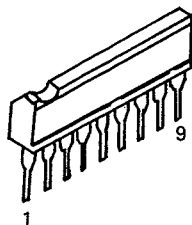
HA12016 : IC803



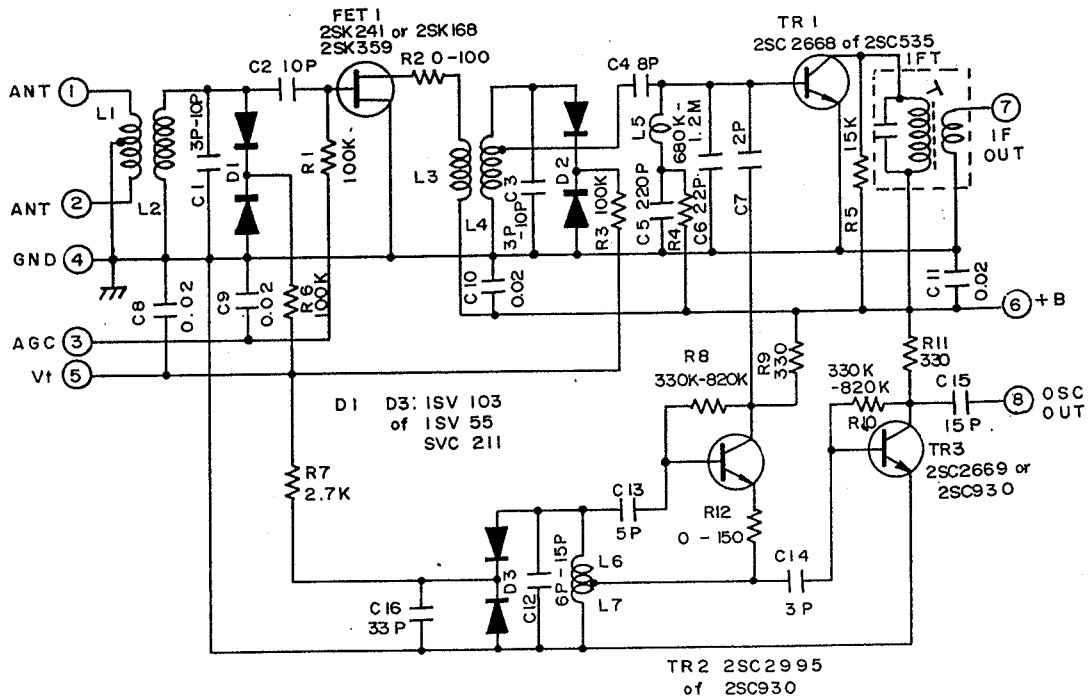
LC7821 : IC101



TA7291S : IC602



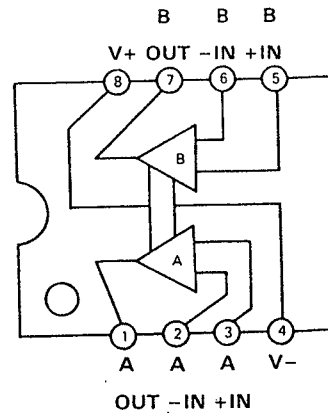
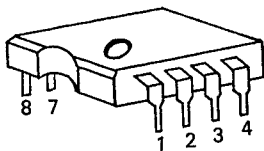
FRONT-END : FE 306-A15



KIA75559P : IC103,IC104,IC105,IC505,IC603

(KIA 4559P)

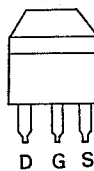
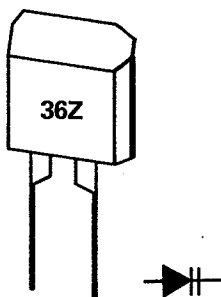
(KIA 6259P : IC701)



KV1236Z : VD1,VD2

KTC1923Y : Q801

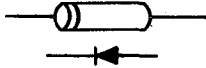
2SK168D : Q802



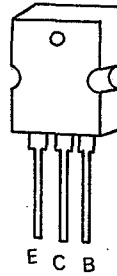
IN4148 : D101~D114, D219~D224
D303,D301,D302,D401~D420
D501~D503,D802,D803

IN4002 : D201~D207
D212~D217
D425,D426

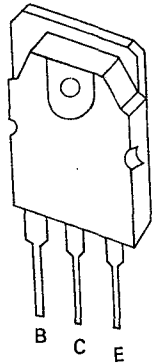
6A3 : D208~D211



2SC4137 : Q211L/R,
Q112,Q123

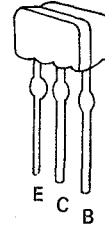


2SC3854 : Q212L/R
2SA1490 : Q213L/R
KTD718 : Q115,Q126
KTB688 : Q116,Q127

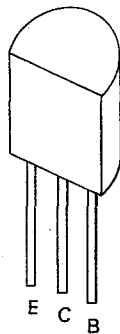


DTA114Y : Q105,Q501,Q502,Q804
Q219,Q505,Q506,Q807,
Q808
DTC114Y : Q218,Q503,Q504,Q507,
Q508,Q810,Q811

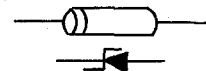
DTC114T : Q604



2SD1302S : Q601,Q603,Q701,Q702
KTC2240BL : Q106,Q107,Q117,Q118,
Q203L/R,Q204L/R,Q803
KTC2235C : Q113,Q124
KTA949 : Q207L/R,Q110,Q121
KTA1015Y : Q703,Q301,Q303,Q305,
Q217,Q602,Q605
KTC1815Y : Q101~Q104,Q108,Q109
Q119,Q120,Q128,Q129
Q201,Q202,Q205,Q206
Q214~Q216,Q805,Q806
Q809,Q401,Q402
Q302,Q304,Q306



ZD9.1BS : D424 ZD16BM : D422,D423
ZD27BM : D218L/R ZD5.6BS : D225
ZD4.3BS : D226,D421,D603
ZD5.1 : D801



SEMICONDUCTOR VOLTAGE CHART

[unit:V]

[unit:V]

Ref. No.		No Signal
IC101	1-11	0
	12	-14.8
	13-17	0
	18,19	+15
	20-30	0
IC102	1-11	0
	12	-14.8
	13-16	0
	17,18,19	15.1
	20-30	0
IC103 ~105	1-3	0
	4	-12.4
	5-7	0
	8	12.7
IC201	IN	11.6
	G	0
	OUT	6.1
IC103 ~105	1-3	0
	4	-12.4
	5-7	0
	8	12.7
IC201	IN	11.6
	G	0
	OUT	6.1
IC202	IN	21.7
	G	0
	OUT	6.1
IC203	IN	24.9
	G	0
	OUT	15.2
IC204	G	0
	In OUT	-25.7 -14.9
IC301	1	0
	2-4	2.5
	5	5.2
	6	5.5
	7	0
	8-10	2.5
	11	0
	12	0
	13	0
	14	6.1
IC501	1	14.7
	2-4	0
	5	-14.4
	6-8	0
	9	14.7
IC502	1	14.6
	2-4	0
	5	-14.3
	6,7	0.8
	8	14.1
	9	14.6

Ref. No.		No Signal	
IC503	1-4	0	
	5,6,7	-14.7	
	8-11	0	
	12,13	15.1	
	14	14.7	
IC504	1-3	1.9	
	4	0	
	5	-14.7	
	6	0	
	7-9	-14.3	
Ref. No.		FM:98.2 MHz	AM:1000 kHz
IC401	1	-15.9	-20.5
	2	-19.2	-19.1
	3	-28.0	-28.3
	4	-28.1	-28.4
	5	-28.0	-24.0
	6	-15.0	-28.4
	7	-28.1	-28.4
	8	-28.0	-28.3
	9	-28.1	-28.4
	10	-11.6	-20.5
	11	-10.7	-7.1
	12	-15.0	-7.1
	13	-3.0	-3.3
	14	-2.8	-2.6
	15	-2.8	-2.6
	16	-6.9	-7.1
	17	-28.0	-28.3
	18	-28.1	-28.3
	19	-28.1	-28.3
	20	-28.1	-28.3
	21	-28.1	-28.3
	22	-24.1	-24.3
	23	-24.1	-24.3
	24	-24.1	-24.2
	25	-24.2	-24.4
	26	-24.7	-24.9
	27	-24.8	-25
	28	-25.0	-25.2
	29	0	0
	30	0	0
	31	4.7	4.8
	32	4.8	4.9
	33	4.9	5.0
	34	4.9	5.0
	35	0	0
	36	0	0
	37	0	0
	38	0	0
	39	0	0
	40	0	0
	41	5.0	5.1
	42	0	0
	43	0	0
	44	5.0	5.0
	45	4.0	4.1
	46	4.2	4.2

[unit:V]

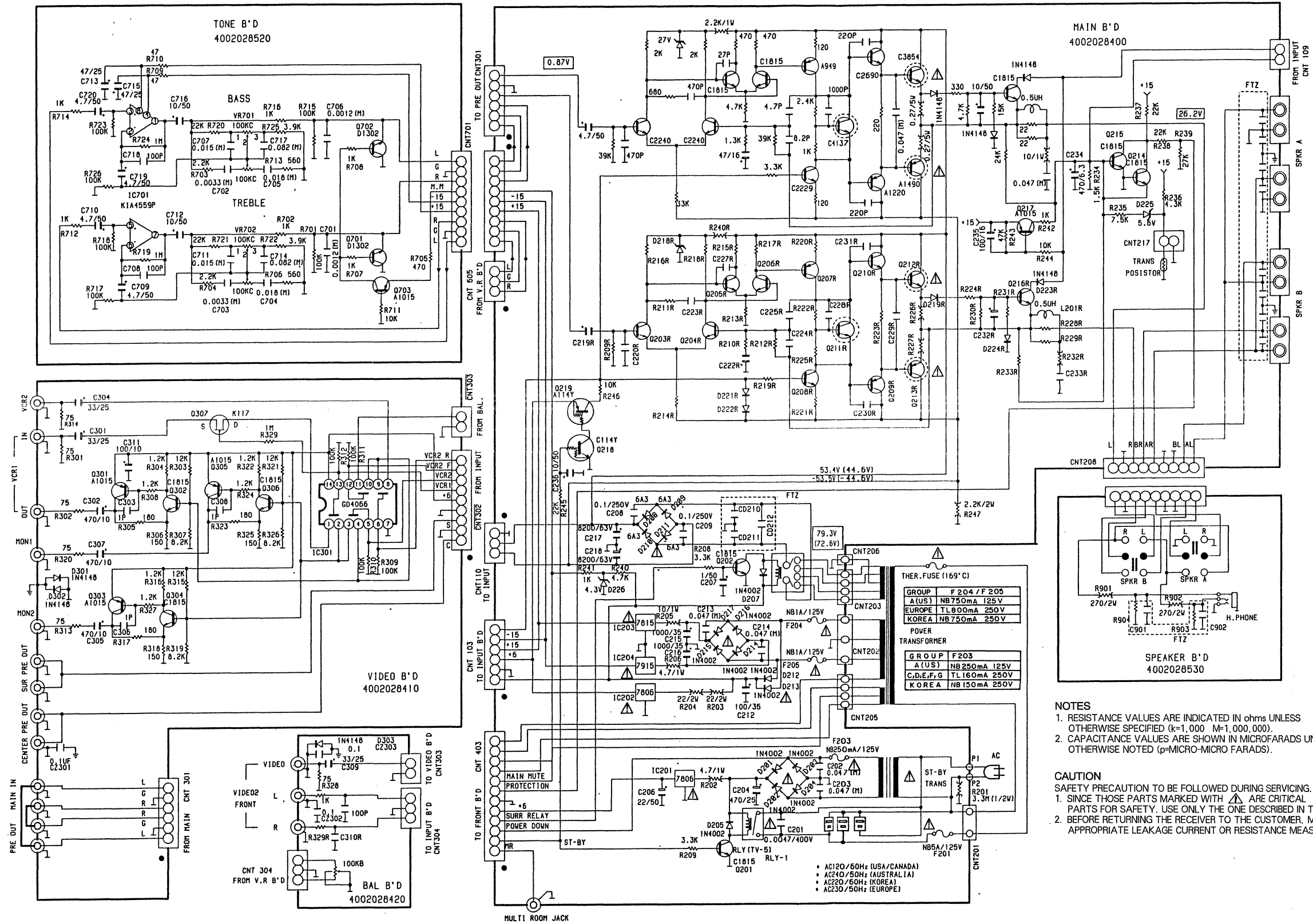
Ref. No.	FM:98.2 MHz	AM:1000 kHz
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	4.9	5.1
58	4.9	5.1
59	4.3	0
60	0	0
61	3.7	3.7
62	0	0
63	4.9	4.9
64	4.9	4.9
65	5.2	5.3
66	5.1	5.3
67	0	0
68	4.9	5.0
69	5.0	5.1
70	0	0
71	0	0
72	2.3	2.3
73	5.1	5.1
74	2.1	2.2
75	5.1	5.1
76	-29.4	-29.3
77	-2.1	-1.2
78	-2.1	-4.0
79	-2.1	-3.8
80	4.5	4.6
Ref. No.	No Signal	
IC504	10-11	3
	12	14.3
	12	15.1
	13	15.1
	14	14.6
IC505	1-3	0
	4	-14.3
	5-7	0
	8	14.6
IC507	1	3.8
	2	3.8
	3,4,5	3.9
	12	0
	13	+11.3
	14	5.1
	15-21	3.9
	22	3.9
	23	5.1
	24-26	0
	27	3.9
	28	2.5
	29-30	0
	31	0
	32-36	3.9
	37	12.1
	38-39	3.93

[unit:V]

Ref. No.	No Signal		
IC507	40	1.4	
	41-48	3.91	
	49	0	
	50-56	3.9	
IC508	1	5.2	
	2,3	2.3	
	4-13	0	
	14	2.3	
	15	2.4	
	16	2.3	
	17,18	0.97	
	19-23	2.3	
IC509	24	4.4	
	1-5	0	
	6	5.1	
	7,8	0	
	9,12	0	
	13	5.0	
	14	0	
IC601	15,16	5.1	
	1	14.7	
	2-4	0	
	5	-14.5	
	6-8	0	
IC602	9	14.7	
	1	0	
	2	15.2	
	3	11.7	
	4	0	
	5	0	
	6	15.2	
	7	10.3	
	8	2.9	
IC603	9	0	
	1-3	0	
	4	-14.4	
	5-7	0	
IC701	8	14.7	
	1-3	0	
	4	-14.6	
	5-7	0	
	8	14.9	
Ref. No.	FM:98.2 MHz	AM:1000 kHz	
IC801	1-3	2.6	
	4	0	
	5,6	12.9	
	7	12.6	
	8	4.9	
	9	3.7	
	10,11	-	
	12	3.4	
	13	-	
	14	1.6	
	15-17	0	
	18	2.6	
	19,20	0	
	21-23	4.1	
	24	3.3	
		1.1	
		0	
		13.1	
		13.1	
		4.9	
		3.9	
		-	
		3.2	
		-	
		1.6	
		1.2	
		1.1	
		1.2	
		3.7	
		2.3	

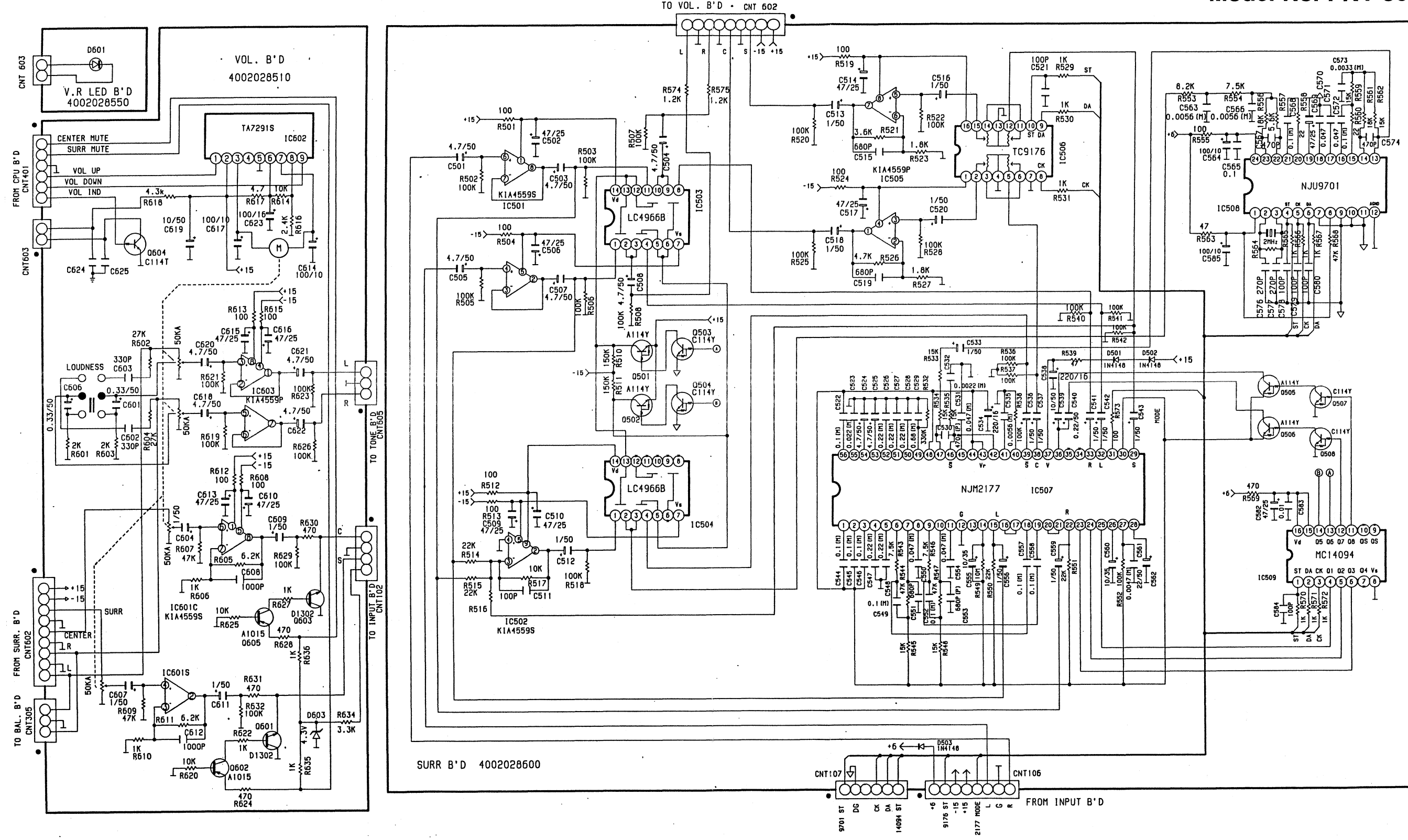
SCHEMATIC DIAGRAM I

Model No. : RV-5030R



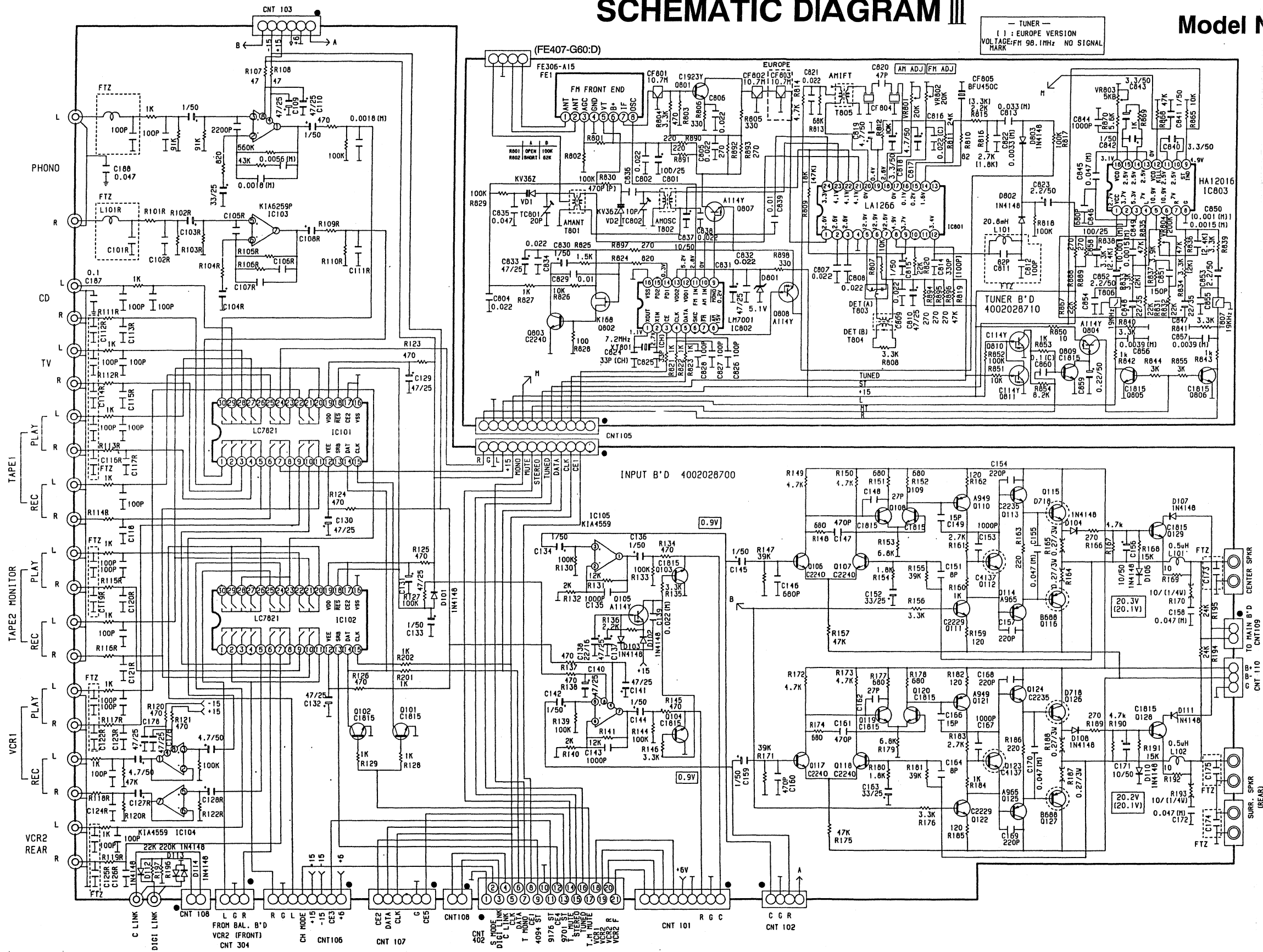
SCHEMATIC DIAGRAM II

Model No. : RV-5030R

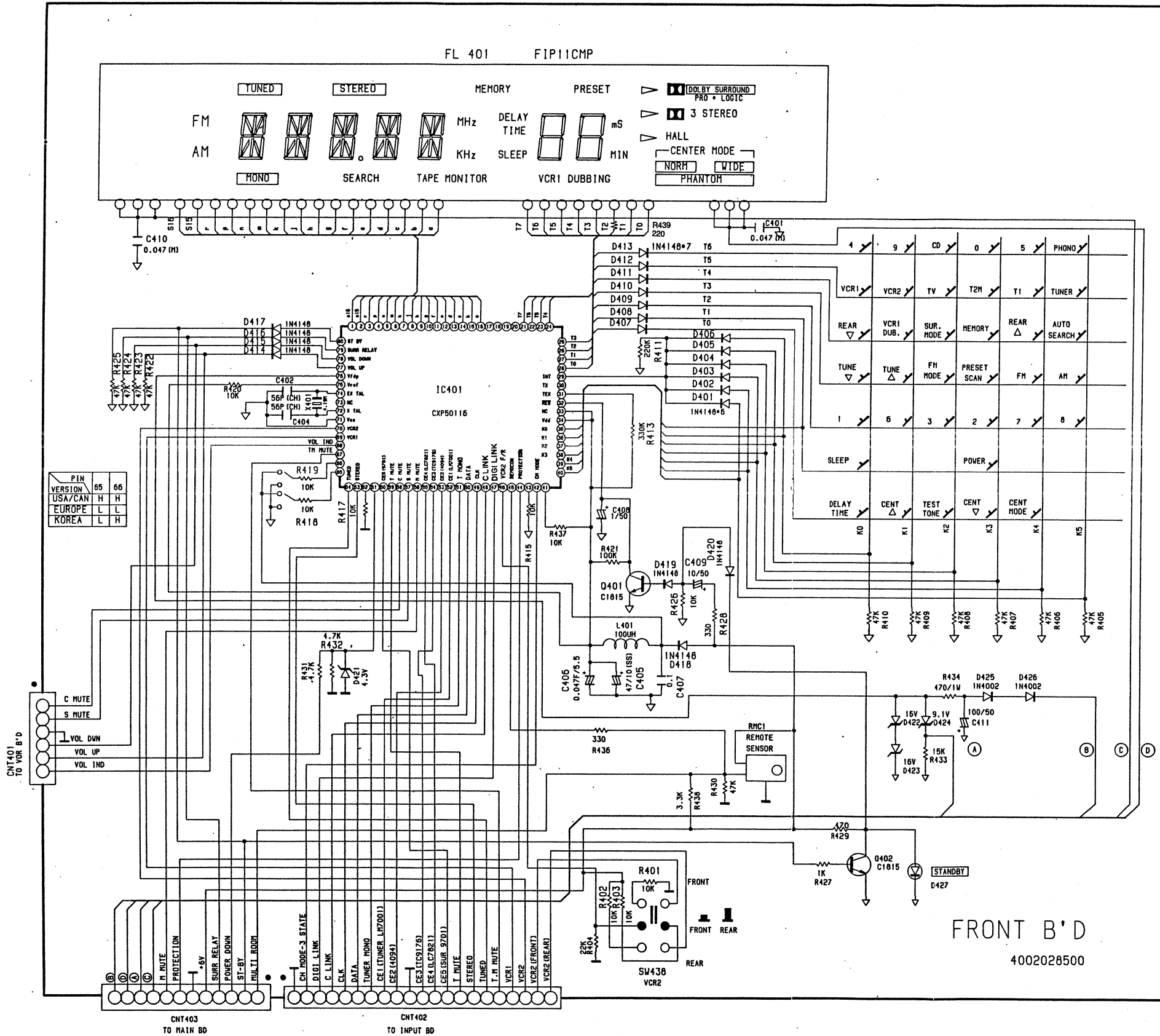


SCHEMATIC DIAGRAM III

Model No. : RV-5030R

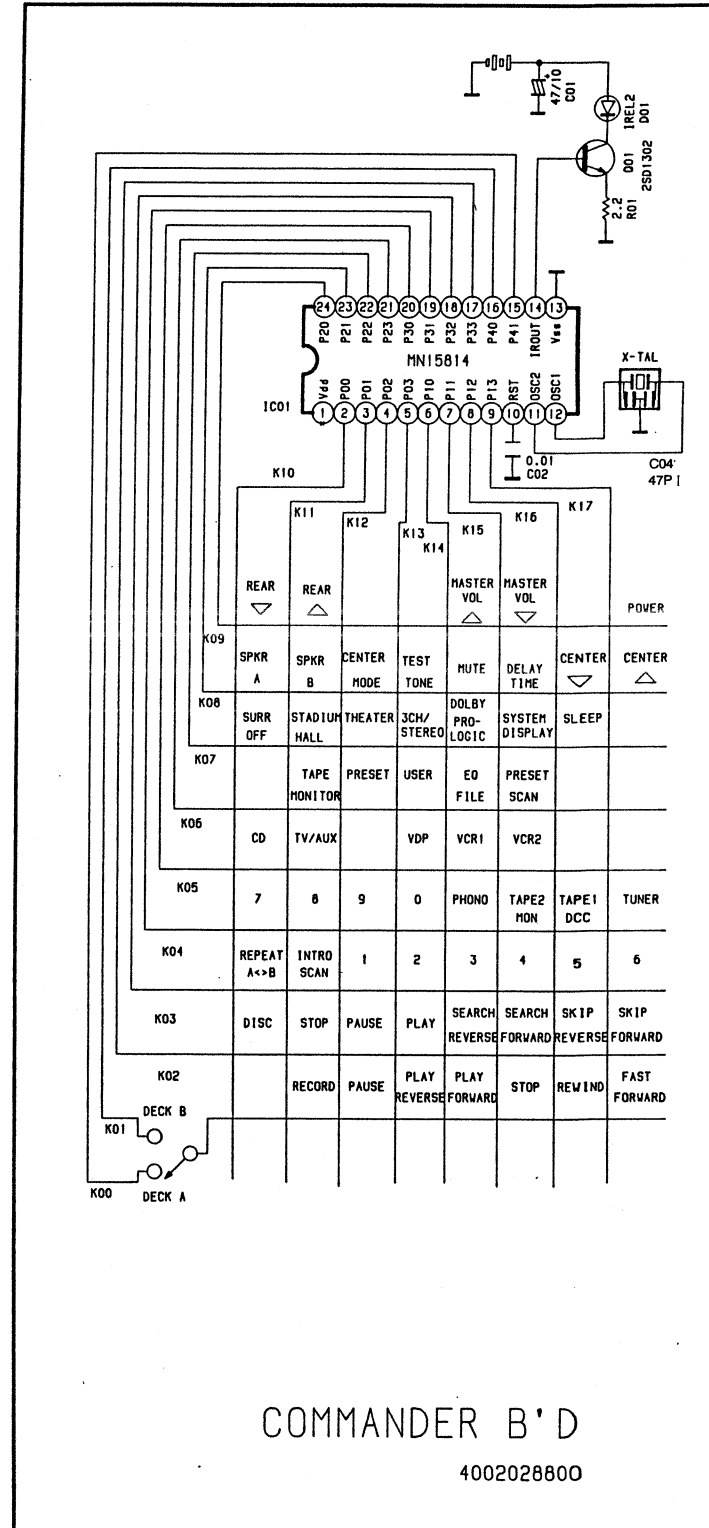


SCHEMATIC DIAGRAM IV



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Model No. : RV-5030R



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