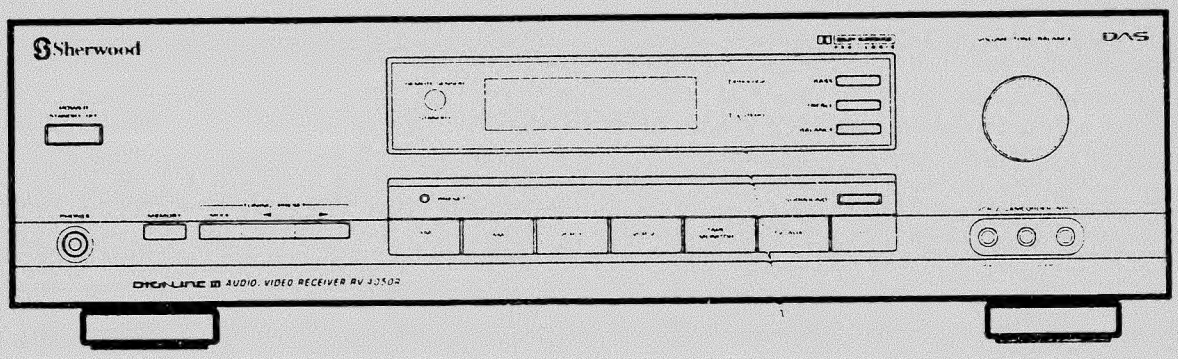
SERV. 31155

SERVICE MANUAL

RV-4050R

AUDIO/VIDEO PRO-LOGIC RECEIVER



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Sherwood

SAFETY PRECAUTIONS

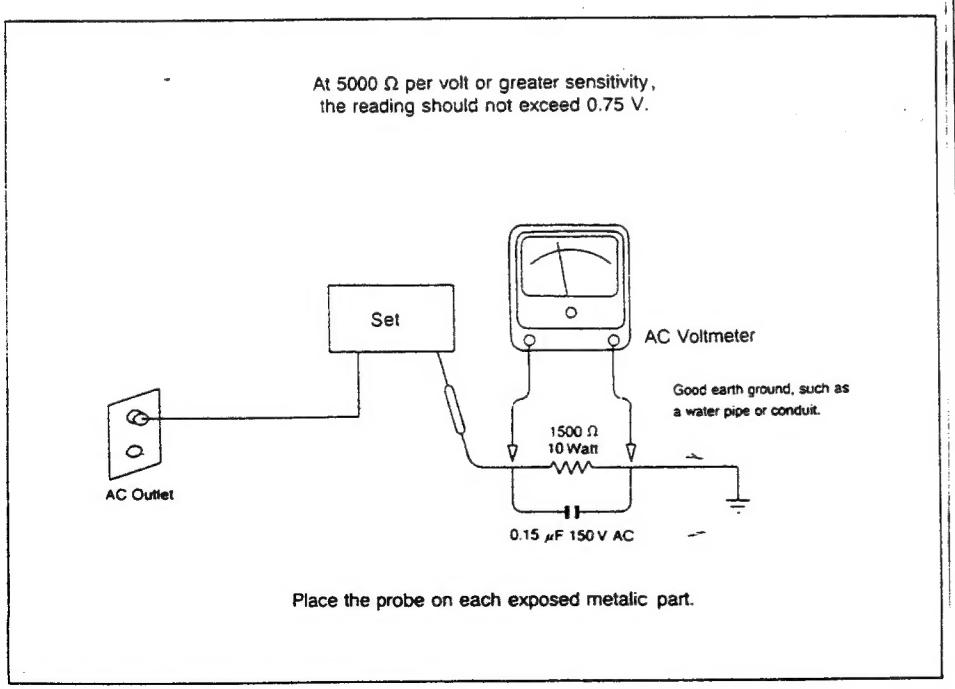
WARNING

Before servicing this unit, familiarize yourself with the following precautions:

1. Many electrical and mechanical parts in this chassis 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 voltge, 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 ⚠ 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, and metal overlays, to be sure the set is safe to operate 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.) Be sure your AC voltmeter has a sensitivity of 5000 Ω per volt or greater. Then connect a 1500 Ω 10 watt resistor, paralleled by a 0.15 μF 150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metalic is parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metalic part. Voltage measured must not exceed 0.75V 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 (Mode: Normal)		Unit	Norminal	Limit
RMS output power :				
at distortion below 0.3 % 50 Hz both channels driven at 8 Ω		W	≧ 52	≧ 50
at distortion below 0.3 % 1 kHz both channels driven at 8 Ω		W	≧ 52	≧ 50
Inter-modulation distortion at 80 W output 60 Hz : 7 kHz =4 : 1 SMPTE		%	0.05	0.08
Harmonic distortion at 45 W output :	40 Hz	%	0.15	0.3
	1 kHz	%	0.1	0.2
	20 kHz	%	0.15	0.3
Frequency response at AUX 8 Ω load, 1 W output	20 Hz - 40 kHz	dB	±3	±3
Input sensitivity for 50 W output :	CD/AUX	mV	200	200±30
Tone control	BASS, 100 Hz	dB	±10	±12
	TREBLE 10 kHz	dB	±10	±12
Channel separation with 4.7 kΩ shorted at AUX input	1 kHz	dB	55	45
	10 kHz	dB	45	40
Signal to noise ratio, input shorted with IHF-A	CD, TV/AUX, TAPE(MONI)	dB	≧90	≧85

Audio Section-Front(Mode : Dolby-logic) (Condition : input VCR, input level 1 kHz 350mV vol. level)				
RMS output power at distortion below 0.9% 1 kHz, 8 Ω		W	≧ 75	≧ 60
Signal to noise ratio, input shorted with IHF "A" (Dolby prologic, 3 Stereo)		dB	≧ 78	≧ 73
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)		Hz	40~20000	50~20000
Audio Section-Center				
RMS output power at distortion below 0.9% 1 kHz, 8 Ω		W	≧ 70	≧ 65
Signal to noise ratio, input shorted with IHF "A" (Dolby prologic, 3 Stereo)		dB	≧ 78	≧ 73
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)	Normal	Hz	100-17000	150-15000
	Wide	Hz	30-17000	50-15000
Audio Section-Rear				
RMS output power at distortion below 0.9 % 1 kHz, 16 Ω		W	≧ 35	≧ 30
Signal to noise ratio input shorted with IHF "A" (Dolby prologic) Delay 20 ms		dB	≧65	≧60
Frequency response 8 Ω load, 1 watt output at -3 dB (Dolby prologic)		Hz	80-7000	100-6000

FM Section		Unit	Norminal	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, S/N 30 dB				
75 ohm input		µV	2	3
Image rejection at 106 MHz		dB	40	35
IF rejection at 90 MHz		dB	80	70
Full limiting at -3 dB		µV	1.5	2
50 dB quieting sensitivity at 98 MHz :	MONO	µV	3	5
	STEREO	µV	31.6	50.1
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	68	65
	STEREO	dB	65	60
De-emphasis at 100-12,000 Hz		dB	±1.5	±2
AM rejection ratio at 100 µV-20 mV input		dB	45	35
Search level at 98 MHz		µV	10	3.5-10
Output voltage at 75 kHz dev. :	MONO	V	0.5	0.5±0.15
1 kHz mod., 1 mV input	STEREO	V	0.6	0.6±0.10
Muting threshold at 98 MHz		µV	10	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 µV, 1/21F, 2x1/21F		dB	70	60
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 :				
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		µV	6	3.5-10
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) at 400 Hz, 30 % mod., S/N=-20 dB		µV / m	350	700
Image rejection at 1400 kHz (1404 kHz for Europe)		dB	35	28
IF rejection at 600 kHz (603 kHz for Europe)		dB	35	30
AGC figure of merit from 100 mV/m at 1010 kHz (1008 kHz for Europe)		dB	45	35
Distortion at 400 Hz, 30 % mod., 5 mV/m input		%	0.8	2.0
IF bandwidth at 6 dB down, 350 µV/m input		kHz	8	5-12
Output voltage at 400 Hz, 30 % mod., 5 mV/m input		mV	200	200±50
Audio response at 5 mV/m input 1 kHz 0 dB, 1010 kHz (1008 kHz for Europe), -6 dB		Hz	50-2000	70-1.8000
Selectivity at 10 kHz 350 µV/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		µV/m	800	800±6dB

General

Speaker load impedance	8 Ω
Power consumption :	
No load, No signal	30 Watts
1/8 Pmax.	140 Watts
Pmax. (Undistorted output)	350 Watts
Pmax. (THD 10%)	380 Watts
Pmax. (Undistorted) with outlet	450 Watts
Dimensions (W × H × D)	440 × 110 × 280 mm (17-5/16 × 4-11/16 × 11 inch)
Weight (Net)	7.5 kg (16.5 lbs)

Power Requirment

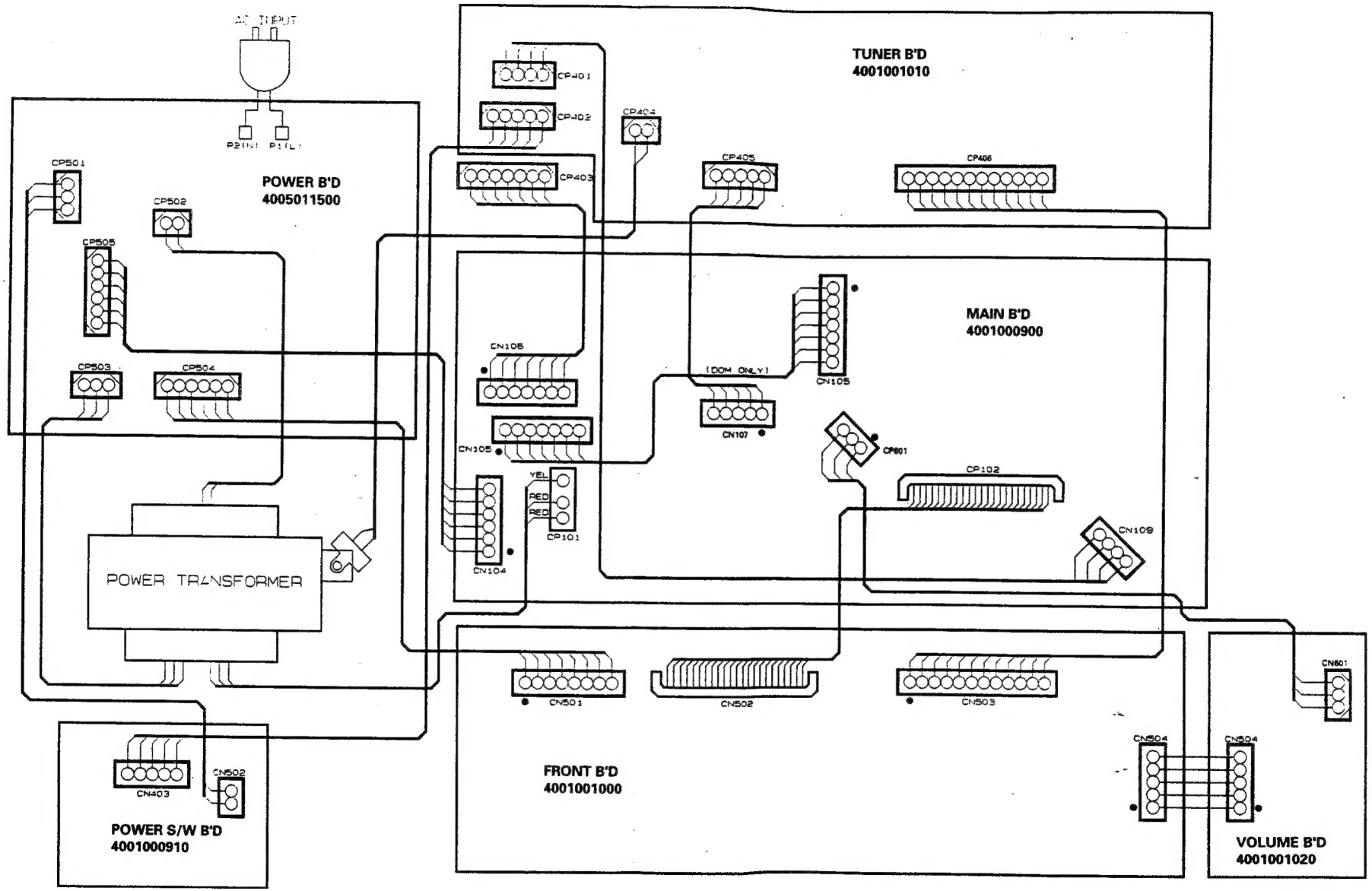
A: 120 V, 60 Hz for American/Canadian Version
B: 120/220 V, 60/50 Hz for mult-voltage version (switchable)
D: 230 V, 50 Hz German/Gerneral European version
E: 240 V, 50 Hz for UK/Austalian version
G: 220 V, 50 Hz for Other Area

Notes :

1. Norminal specs represent the design specs. All unit should be able to approximate these some will exceed and some may drop slight 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.
2. This manual is based on the General European(D) standard, and provieds information on regional circuit modification through the use of alternate schematic diagrams or wiring diagram, and information on regional component variations through the use of parts lists. Design and specifications subject to change without notice.

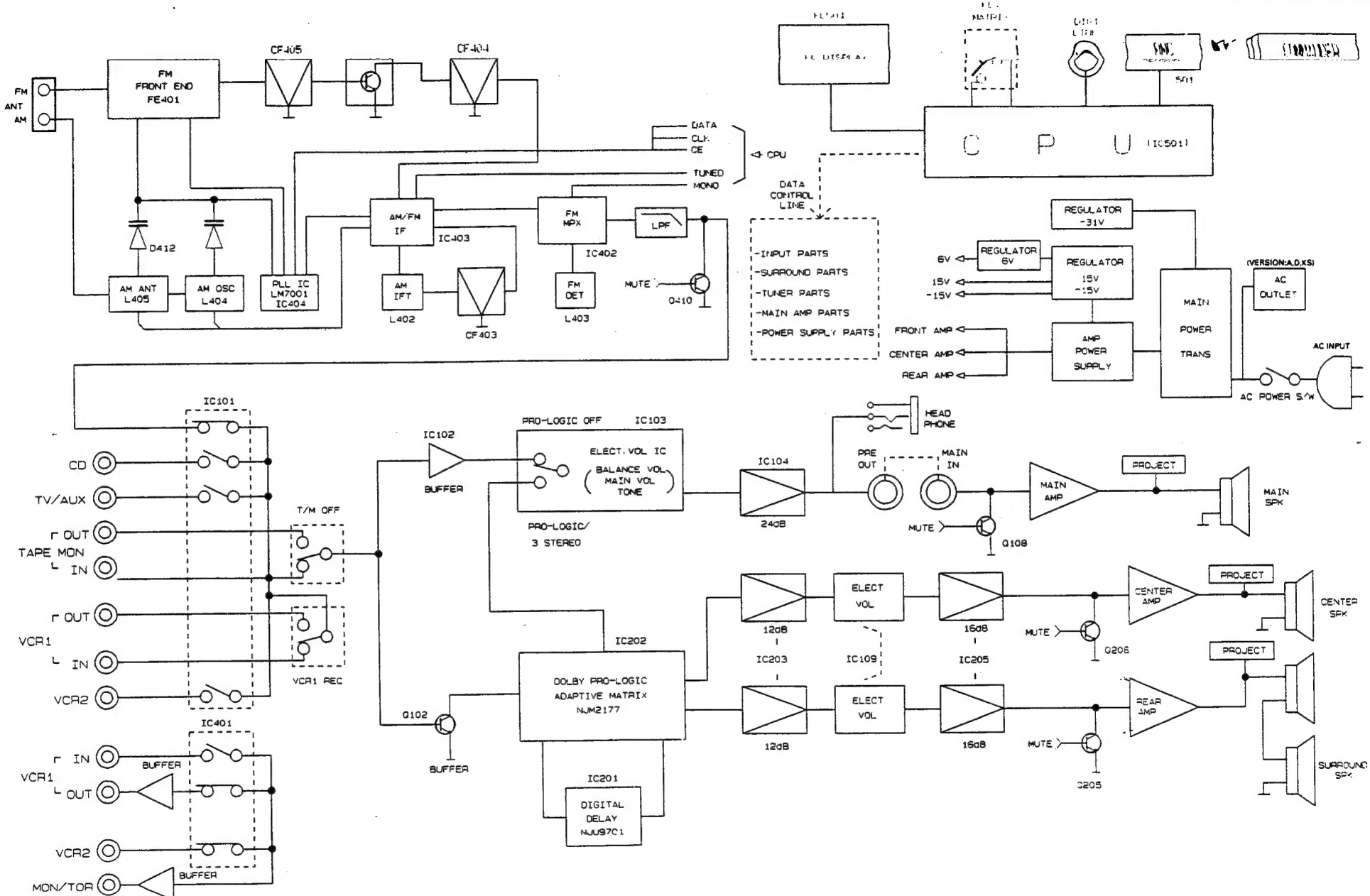
WIRING DIAGRAM

Model No. : RV-4050R



BLOCK DIAGRAM

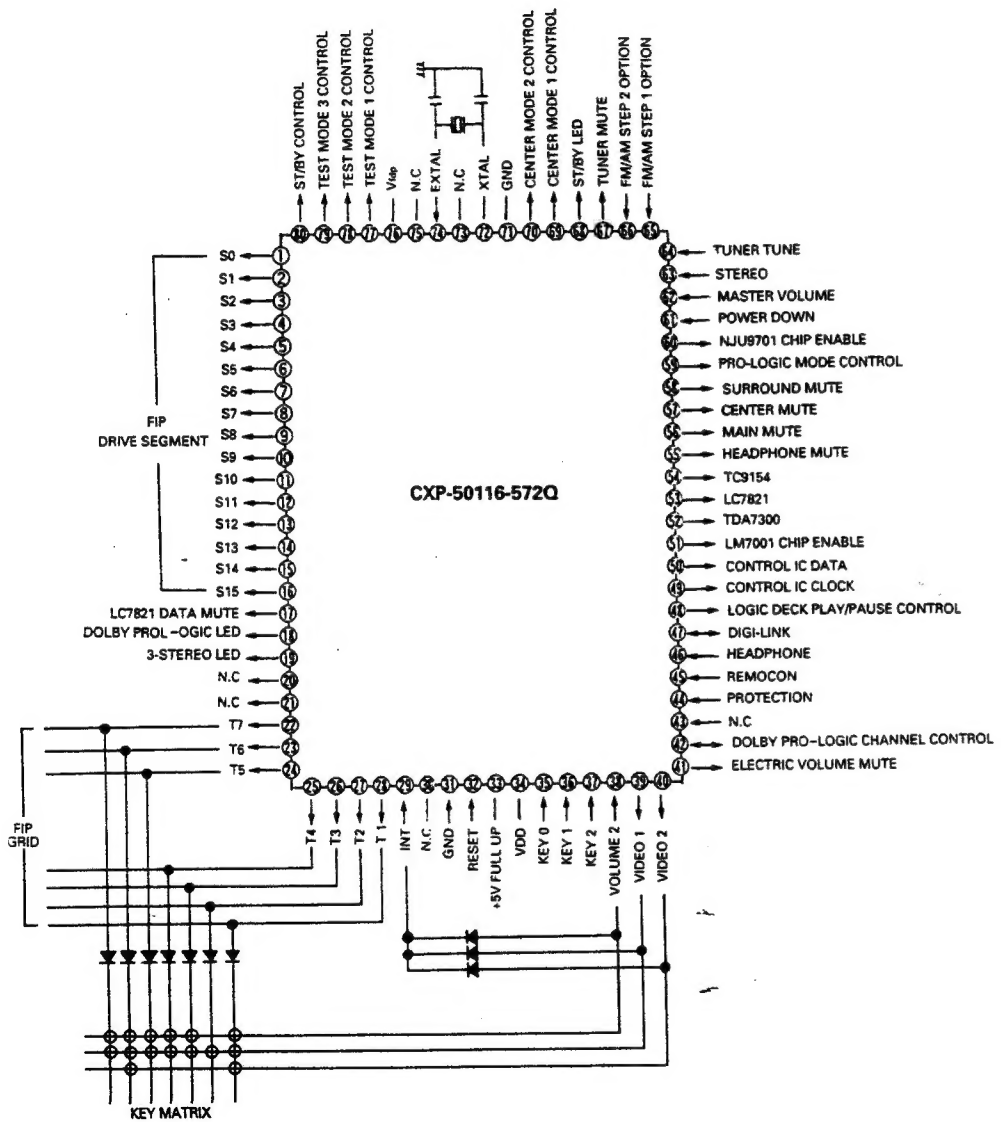
Model No. : RV-405



CIRCUIT DESCRIPTION

IC501: CXP50116-572Q (4-bit CMOS Microprocessor)

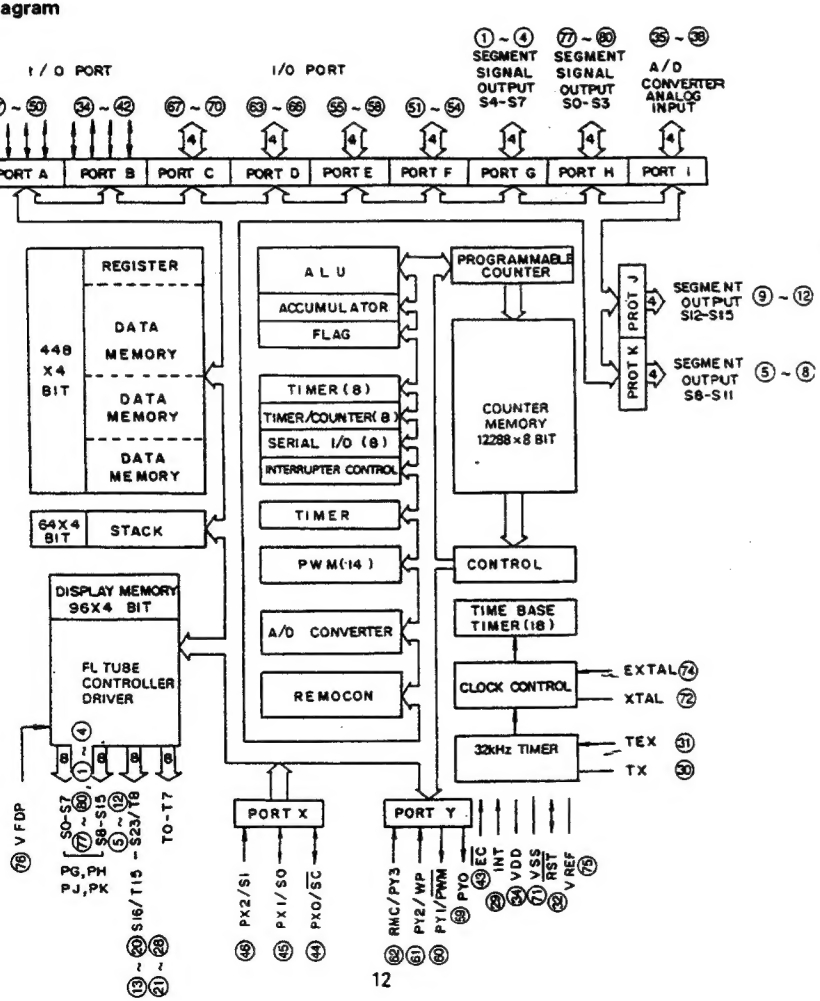
1. Pin Configuration



2. Key Matrix

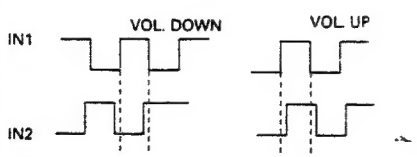
OUT / IN	KSCAN 0 PIN 28	KSCAN 1 PIN 27	KSCAN 2 PIN 26	KSCAN 3 PIN 25	KSCAN 4 PIN 24	KSCAN 5 PIN 23	KSCAN 8 PIN 22
KEY IN 0 PIN 35	FM	-	VCR 2	AM	DOWN	TUNING MODE	MEMORY
KEY IN 1 PIN 36	TREBLE	BASS	SURROUND MODE	CD	TV/AUX	VCR 2	TAPE MONITOR
KEY IN 2 PIN 37	BALANCE	-	-	-	-	-	UP

3. Block Diagram



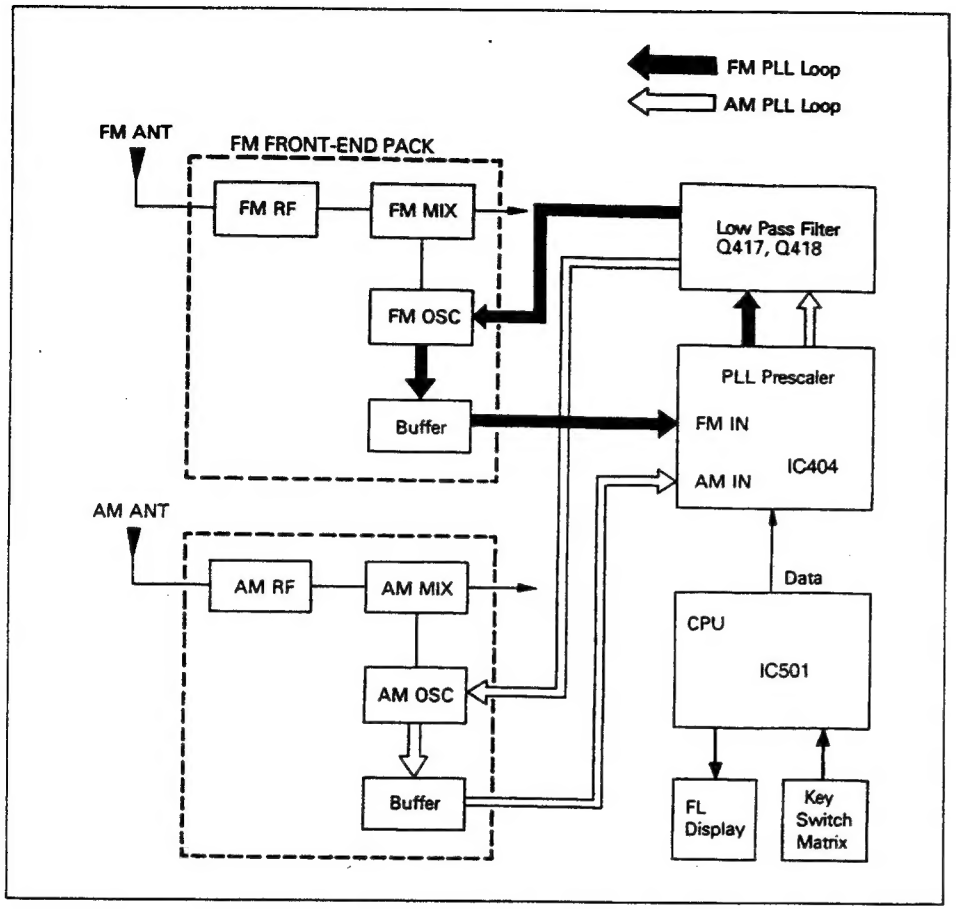
4. Pin Functions

Pin. No.	Symbol	Description
1~16	S16~S1	Segment signal output for FIP.
17	DATA MUTE	Mute signal output to LC7821
18	DOLBY	Output for driving DOLBY LED.
19	3-ST	Output for driving 3-STEREO LED.
20~21	NC	Not used! (NC pins are always connected to Vdd).
22~28	T7~T0	Grid signal output for FIP.
29	INT	Data input of K_0~K_8 for key scan.
30~31	NC	Not used !
35~37	KEY INPUT	Data input of K_0~K_8 for key scan.
38	EVC. MU.	Mute signal output to prevent click noise when operating electronic VOL.
39/40	VID1/VID2	Control data output for selecting VCR1 or VCR2 video signal. According to each mode, data output is as follows. MODE / VID 1 / VID 2 / REMARKS VCR 1 / H / L / Emitial settings VCR 2 / L / H OTHERS / △ / △ / △: Previous state ※ Last memory function is available.
41	M. VOL. IN1	Input for main volume.
42	CH. MODE	Port for settings of PRO-LOGIC and 3-STEREO mode. According to each mode, data output is as follows. MODE / OUTPUT 3-STEREO / High impedance PRO-LOGIC / H OTHERS / L
43	NC	Not used !
44	PROT.	Signal input for protection. When "L" is input, it is changed to STAND BY. (But for first 3 second, PROTECTION Is not checked.)
45	RMC	Input for remocon data. (At "L", it is active.)
46	H/P IN	When inserting headphone, "H" is input.
47	D. LINK	Input/output for controlling DIGI-LINK.
49~50	CLK/DATA	CLOCK/DATA output for TDA7300, TC9154, LC7821, NJU9701 and LM7001.
51	CE1	Chip enable output for LM7001.
52	CE2	Chip enable output for TDA7300.
53	CE3	Chip enable output for TC9154.
54	CE4	Chip enable output for LC7821.
55	H/P MUTE	Output for headphone mute. "H" is outputed under the following conditions. 1. When the power is on or off. 2. When selecting the input function. 3. When "H" is input to H/P input. 4. When "L" is input to "PROT" of CPU. 5. "-∞ " mute signal is transferred from the commander.

Pin. No.	Symbol	Description
56	MAIN MUTE	Output for main mute. "H" is outputed under the following conditions. 1. When the power is on or off. 2. When "H" is inputted to H/P input. 3. When "L" is inputed to "PROT" of CPU. 4. "-∞ " mute signal is transferred from the commander.
57	SURR. MUTE	Output for SURR. mute. "H" is outputed under the following conditions. 1. When the power is on or off. 2. When selecting surround mode. 3. When the test tone mode is on or off or When the channel is change in the test tone mode. 4. When "H" is inputed to H/P input. 5. When "L" is inputed to "PROT" of CPU. 6. "-∞ " mute signal is transferred from the commander.
58	CENTER MUTE	Output for center mute. "H" is outputed under the following conditions. 1. When the power is on or off. 2. When the center mode is on or off. 3. When selecting center mode. 4. When the test tone mode is on or off or When the channel is change in the test tone mode. 5. When "L" is inputed to "PROT" of CPU. 6. "-∞ " mute signal is transferred from the commander.
59	PRO	Output for controlling in the surround mode. SURROUND MODE: PRO-LOGIC, 3-STEREO → H; SURR. OFF → L
60	CE5	Chip enable output for NJU9701.
61	PD	Input for power down. (At "L", it is active.)
62	M. VOL. IN2	Input for main volume up/down. 
63	STEREO	Input for lighting the "STEREO" Indicator. (At "L", it is active.)
64	TUNED	Input for detecting station during tuning. If "L" is inputed during tuning, tuning stops at that frequency.

Pin. No.	Symbol	Description
65/66	A.STEP/F.STEP	According to region, input for selecting the frequency bands and steps of FM and AM. Setting are as follows. REGION / FREQUENCY / STEPS / F. STEP / A. STEP AMERICA: FM: 87.5~107.9 MHZ, 200 KHz; AM: 520~1710 kHz, 10 kHz; F. STEP H; A. STEP H EUROPE: FM: 87.5~108 MHz, 50 kHz; AM: 522~1611 kHz, 9 kHz; F. STEP L; A. STEP L KOREA: FM: 87.5~107.5 MHz, 200 kHz; AM: 522~1611 kHz, 9 kHz; F. STEP L; A. STEP L
67	T.MUTE	Output for tuner mute.
68	ST/BY	Output for driving STAND BY LED. (At "H", it is active).
69/70	CM1/CM2	Control data output for center mode in the DOLBY PRO-LOGIC and 3-STEREO mode. Setting are as follows. CENTER MODE / CM1 / CM2 NORMAL, OFF: L, H WIDE: H, L PHANTOM: L, L
71	V_{SS}	This pin prevides the ground potential.
72	XTAL	Output pin serve for connecting a clock oscillator crystal.
73	NC	Not used !
74	EXTAL	Input pin serve for connecting a clock oscillator crystal.
75	NC	Not used !
76	V_{DD}	This is the power supply pin of the FL controller.
77~79	NS3~NS1	Control data output for selecting channel in the test tone mode. Setting are as follows. SELECTION / NS1 / NS2 / NS3 TEST TONE OFF: H, △, △ LEFT: L, L, L CENTER: L, ⊥, H RIGHT: L, H, L SURROUND: L, H, H △ : previous state
80	STAND BY	When the power is on, control data output is "H". When the power is off, control data output is "L". (and last memory function is activated.)

5. Digital Tuning System Description



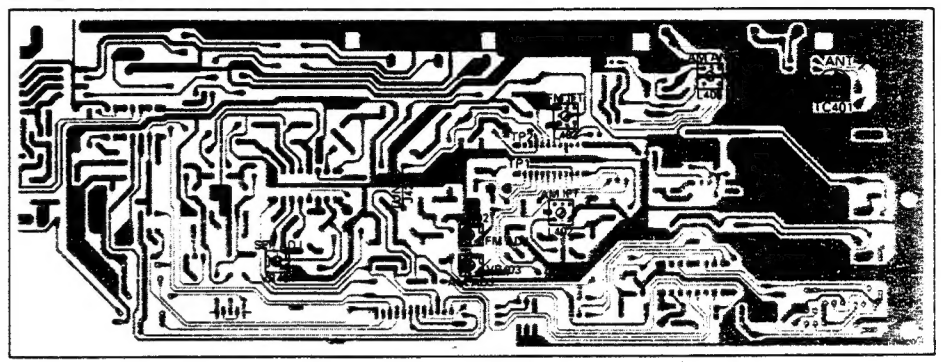
ALIGNMENT PROCEDURES

1. 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.

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



3. 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.

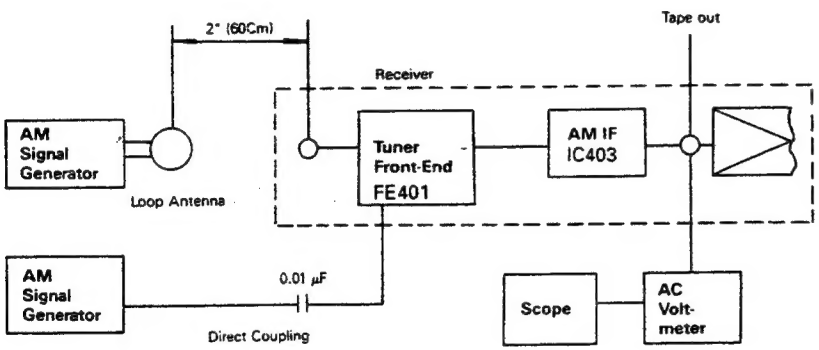
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	L402 (IFT)	Maximum reading
2	600 kHz (400 Hz, Mod.)	600 kHz	Same as Step 1.	L405 (ANT Coil)	Same as Step 1
3	1400 kHz (400 Hz, Mod.)	1400 kHz	Same as Step 1.	TC401 (ANT Trimmer)	Same as Step 1
4	1000 kHz (400 Hz, Mod.)	1000 kHz		VR403 (AM ADJ)	Indication on receiver with output of 500 μV/m

4. FM IF Alignment

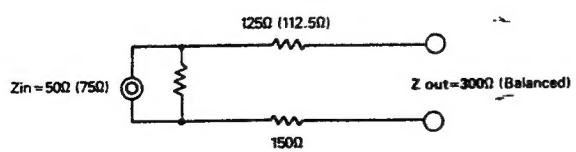
Preparation

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 on the Display	Equipment Connection	Adjustment Point	Adjust for
1	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Distortion meter to TAPE OUT jack	L403 (FM IFT)	Minimum distortion
2	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Same as Step 1	VR402 (FM ADJ)	Zero reading on AC voltmeter with SSG output level of 6 μV



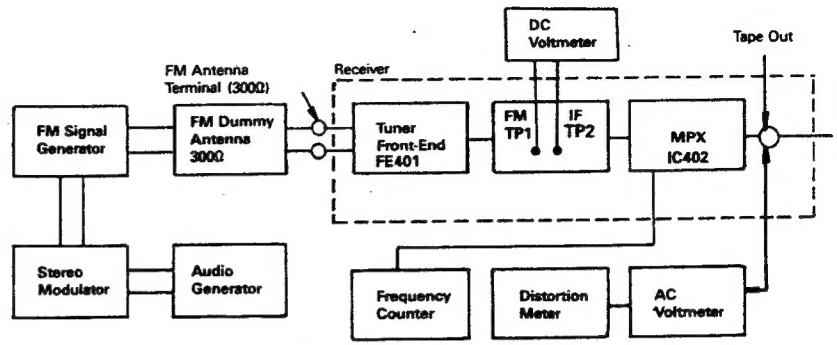
AM Alignment Connection



FM Dummy Antenna to 300Ω Antenna terminal of receiver

FM Dummy Antenna

5. 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 μV.
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 Point	Adjust for
3	8% Mod.	Composite to channel 1 kHz "L" CH.	AC voltmeter to TAPE OUT jack of R channel	VR401 (SEP ADJ)	AC voltmeter reading should be at least 33 dB below.
4	8% Mod.	Composite to channel 1 kHz "R" CH.	AC voltmeter to TAPE OUT jack of L channel	VR401 (SEP ADJ)	Same as Step 3.
If you could not obtain -35 dB readings in Steps 3 and 4 (compared with Step 2), readjust VR401 until you obtain -33 dB readings for both Steps 3 and 4. Nominal is -43 dB.					

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. 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 D309~D312. Replace the defective component(s). D) Short circuit in the rectifier circuit. Repair the short.
FL indicator lights but no sound from both channels	A) Defect in transistor Q115 L/R, Q119 L/R on the Main Amp Board. Replace the defective component(s).
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 Q118 L/R, Q119 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 inopertive.	A) Headphone plug does not mate with jack. Replace the plug. B) Defective resistors R511 L/R Replace.
FM inoperative	A) Defective front-end. (FE 401) Replace. B) Defective FM switch. Replace. C) Defective transistors Q416, Q410, Q412, IC402, IC403. Replace the defective transistor(s) or IC(s). D) Defective coil L403. Replace. E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filters CF404, CF405, defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR401. B) IC402 defective. Replace. C) Variable resistor VR401 defective. Replace.

Symptom	Cause and Remedy
STEREO indicator does not light	A) Defective indictor in FL. Replace. B) Improper adjustment of VR402 of tuner board. Readjust VR402. C) Defective IC402. Replace.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough: Front-end Section defective. Faulty IC403, Coil L403, Defective C838 of tuner Board. B) If sound of one channel is not loud enough: Defective VR401.
FM Mono has no effect	A) Defective FM MODE switch. Replace.
AM inoperative	A) Damaged IC403 of tuner board. Replace. B) Defective L405, L404, L402 or CF403 of tuner board. Replace the defective component(s). C) Resistor R478 defective. Replace. D) Capacitors C439, C429 defective. Replace the defective capacitor(s). E) Defective AM switch. Replace. F) Defective varicap diode D412. Replace . G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
BASS control has no effect	A) Variable resistor BASS defective. Replace. B) Defective IC103 Replace the defective component(s).
TREBLE control has no effect	A) Defective IC103. Replace the defective component(s).
Auto tune inoperative(UP/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC501. Replace. C) Defective tuner circuit component. Replace. D) In case of FM only, improper adjustment of FM front-end. Replace.

Symptom	Cause and Remedy
Manual tune inoperative(UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC501. Replace.
FL inoperative	A) FL defective. Replace. B) Defective IC501. Replace. C) Defective X-TAL501 Replace.
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC501(CPU Board) orZ1. Replace.

NOTES

MECHANICAL PARTS LIST

Ref.No.	Description	Part No.	Q'ty	Version
PACKAGE				
	Box Carton	049605254702	1	
	Cushion Poly	9722036710	1	
	Film Bag PE	9715000120	1	
	Poly Bag	9705001550	1	
ACCESSORIES				
	Antenna Wire (FM)	4348000810	1	A,B,KS
	Antenna Wire (FM)	4348001110	1	D,E,IU
	Battery 1.5 V AA(R6M)	5518001610	2	A,KS
	Manual Instruction	9007018030	1	A
	Manual Instruction	9007018031	1	D,IU
	Manual Instruction	9007018032	1	B
	Manual Instruction	9004018033	1	E
	Manual Instruction	9007018034	1	KS
	Antenna AM Loop Stand Strip Wire	2608207361	1	A,B,KS
	Antenna AM Loop Stand Strip Wire	2608207360	1	D,E,IU
	Ass'y Commander	5418001011	1	
	Ass'y Commander	5418001011	1	KS(Only)
CABINET & CHASSIS				
1	Cover Front, ABS, Black	048583005511	1	
(1)	Cover Front, ABS, Black	048583005512	1	KS(Only)
2	Window Display, Acryl, Wine	048553020411	1	
(2)	Window Display, Acryl, Wine	048553020412	1	KS(Only)
3	Button Tact 1key, ABS, Black	8543061810	1	
4	Knob Main, ABS, Black	8543061910	1	
5	Badge(Sherwood), ABS, Hot-stamp	048535042011	1	
(5)	Badge(Inkel), ABS, Hot-stamp	048535038511	1	KS(Only)
6	Panel Front, ABS, Black	048501034211	1	
(6)	Panel Front, ABS, Black	048501034212	1	KS(Only)
7	Button Power, ABS, Black	8545126010	1	
8	Switch Power	4628055910	1	
9	Jack Phone, Black	4438004520	1	
10	Washer, SECC 0.8t	8305001620	1	
11	Button Tact 4key, ABS, Black	8543061610	1	
12	Indicator, Acryl	8535049710	3	
13	Button Function 7 key, ABS, Black	048543061511	1	
(13)	Button Function 7 key, ABS, Black	048543061512	1	KS(Only)
14	Button Tact 3key, ABS, Black	8543061710	1	
15	Switch Encoder with Nut	3208062810	1	
16	Jack RCA 3P, Gold	4438109810	1	
17	Switch Tact	4658003710	16	
18	Sponge	6715020730	1	
19	FIP	2328132301	1	
20	Cover Top, SECC 0.8t	046122027541	1	
21	Heatsink Power	7502008410	1	
22	Foot, Hot-Stamping, ABS	046035101521	2	
(22)	Foot, Aluminum., Gold	046033102611	2	KS(Only)
23	Foot, ABS, Black	6035101520	2	
(23)	Foot, ABS, Black	6033102510	2	KS(Only)
24	Cover Bottom, SECC 0.8t	6122419120	1	
25	Bracket PCB	6505130010	2	
26 ⚠	Power Transformer, 120 V 60 Hz	2828001367	1	A
(26) ⚠	Power Transformer, 230 V, 50 Hz	2828100167	1	D,IU
(26) ⚠	Power Transformer, 240 V, 50 Hz	2828100167	1	E
(26) ⚠	Power Transformer, 220 V, 60 Hz	2828100177	1	KS
(26) ⚠	Power Transformer, 110/220 V, 50/60 Hz	2828100187	1	
27	Cover Insulation, PVC 0.5t	4833005910	1	E(Only)
28	Frame Left, SECC 1.0t	6122622210	1	
29	Terminal Speaker, 6P	4408107410	1	
30	Jack RCA, 4P	4438103110	1	
31	Jack RCA, 6P	4438103210	2	
32	Frame Right, SECC 0.8t	6123625310	1	
33	Heatsink Regulator TR.	7505206210	1	
34	Switch Selector, 6P	4618006510	1	PT INDO Only
35 ⚠	Outlet	4448104110	1	A
36 ⚠	Outlet	4448105510	1	KS
(36) ⚠	Outlet	4448103610	1	D
37	Locking Tie, ABS, White	6528002810	1	
38	Terminal Speaker, 4P	4408105410	1	
39	Jack RCA, 2P	4438112010	1	
40	Jack RCA, 3P	4438114310	1	
41	Antenna Terminal, 4P	4408107910	1	A,KS,B
(41)	Antenna Terminal, 4P	4408108210	1	D,E,IU
42	Chassis Back	046102041911	1	KS
(42)	Chassis Back	046102041921	1	A
(42)	Chassis Back	046102041931	1	B
(42)	Chassis Back	046102041951	1	D
(42)	Chassis Back	046102041961	1	E
(42)	Chassis Back	046102041991	1	PT INDO
43	Stopper Cord	6518002320	1	D, E
(43)	Stopper Cord	6518002310	1	A,KS
44 ⚠	Cord AC Power	4308001410	1	A
45 ⚠	Cord AC Power	4308007310	1	KS
(45) ⚠	Cord AC Power	4308000430	1	D,UK
(45) ⚠	Cord AC Power	4308007610	1	E
46	Adapter	4428300410	1	PT INDO Only
47	Plug Jumper	4328204210	2	KS(Only)
S1	Screw #2BTC 3x8B	8109230083	45	
S2	Screw #2WPTC 3x8Y	8159230081	13	
S3	Screw BSAM 4x8B	8109440083	4	
S4	Screw #2BTC 3x6B	8109230061	7	
S5	HEX MSPW 3x12Y	8099130121	6	
S6	Screw #1PT 3x10B	8119130103	16	
S7	Screw Ground	8155000710	1	
S8	Screw WSAM 4x8B	8159440083	4	
	P.C.Board Main	4001000900	1	
	P.C.Board Front	4001001000	1	
	P.C.Board Tuner	4001001010	1	
	P.C.Board Volume	4001001020	1	
	P.C.Board Power	4005011500	1	
	P.C.Board Power	4005011600	1	PT INDO Only
	P.C.Board Power Switch	4001000910	1	
	Cable, FPC 23P, 420mm	4118623425	1	
	Ass'y Posistor, 180mm	052438000181	1	

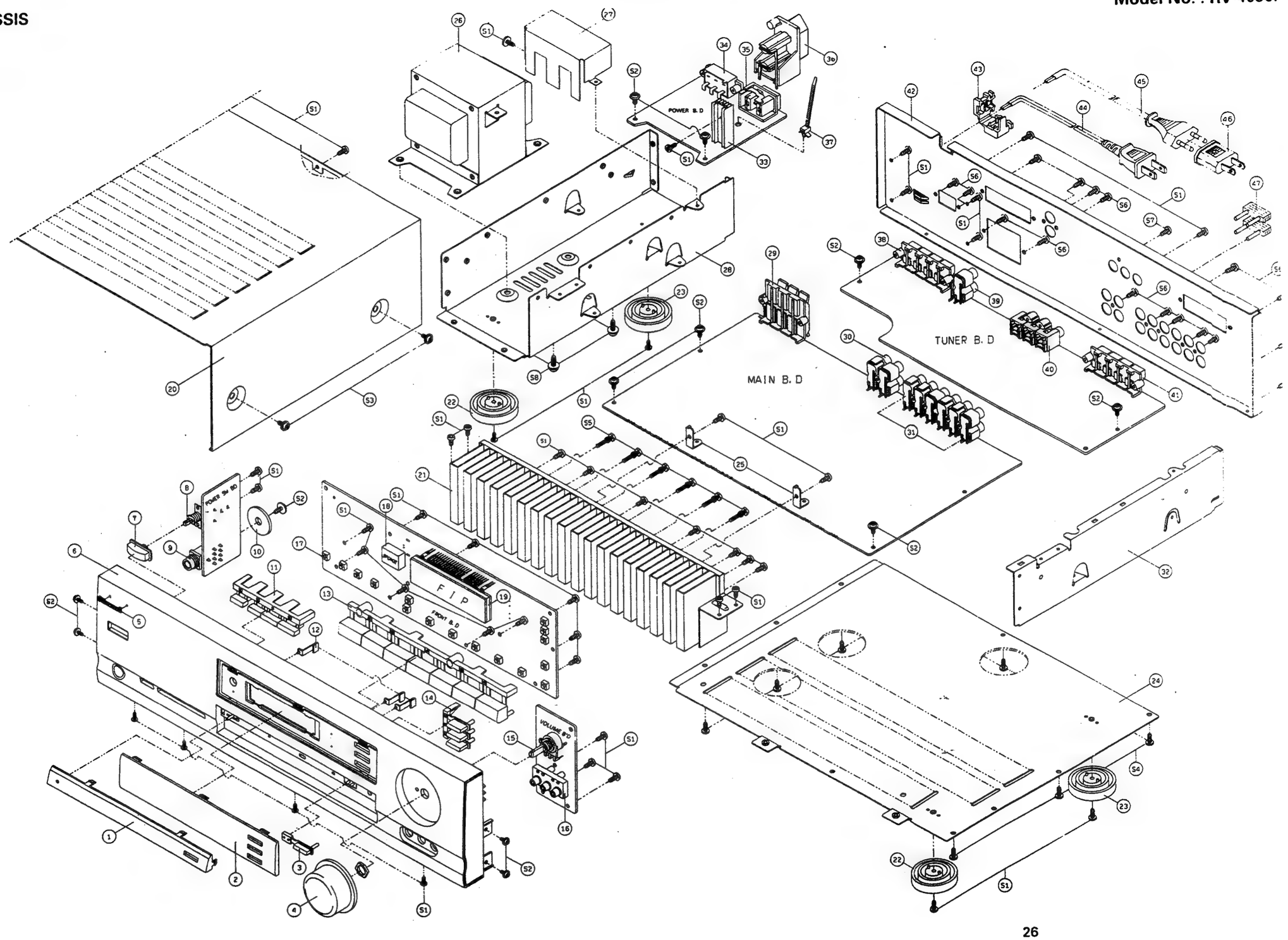
PRODUCT SAFETY NOTICE

Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, 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.

EXPLODED VIEW

Model No. : RV-4050I

CABINET & CHASSIS



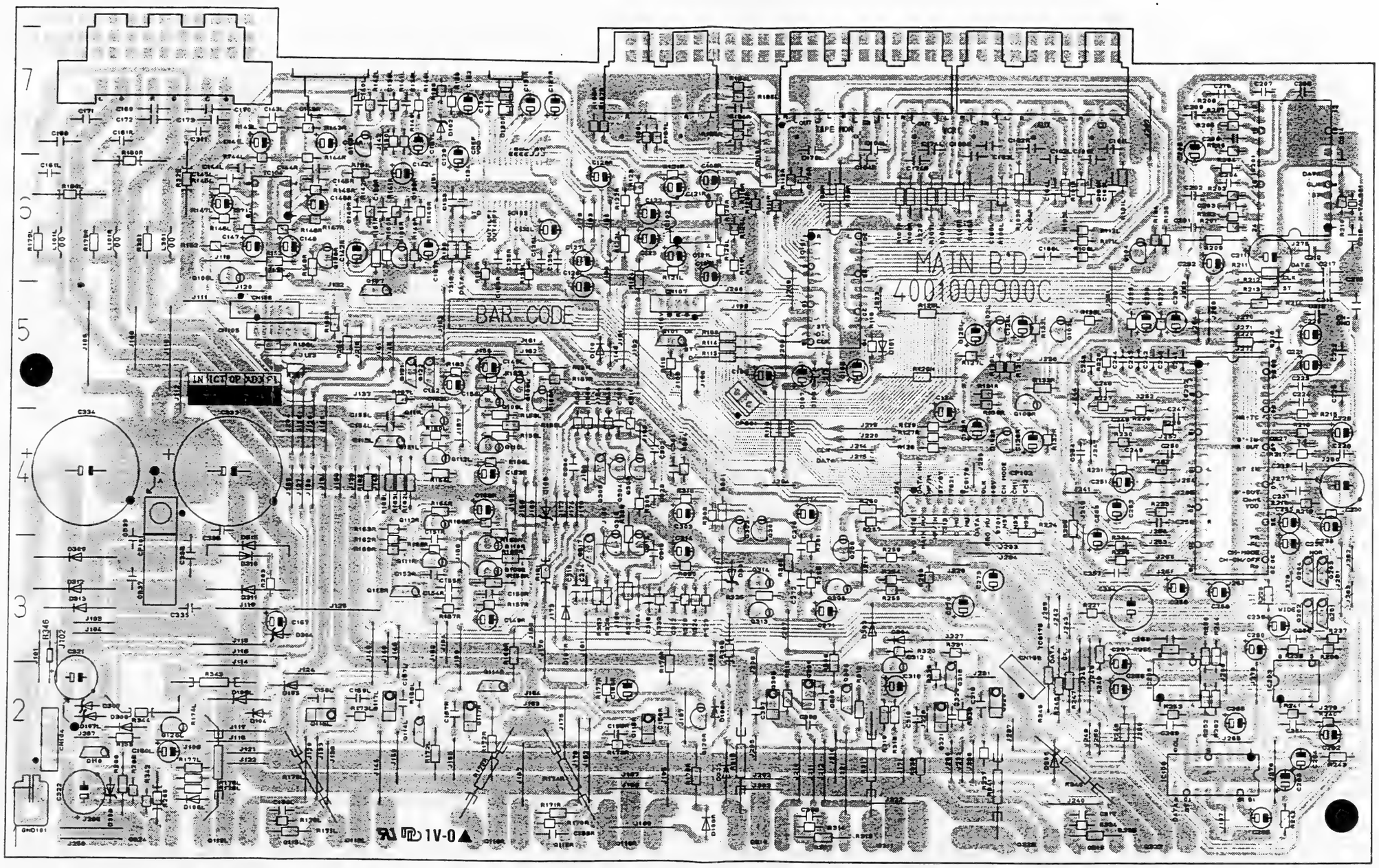
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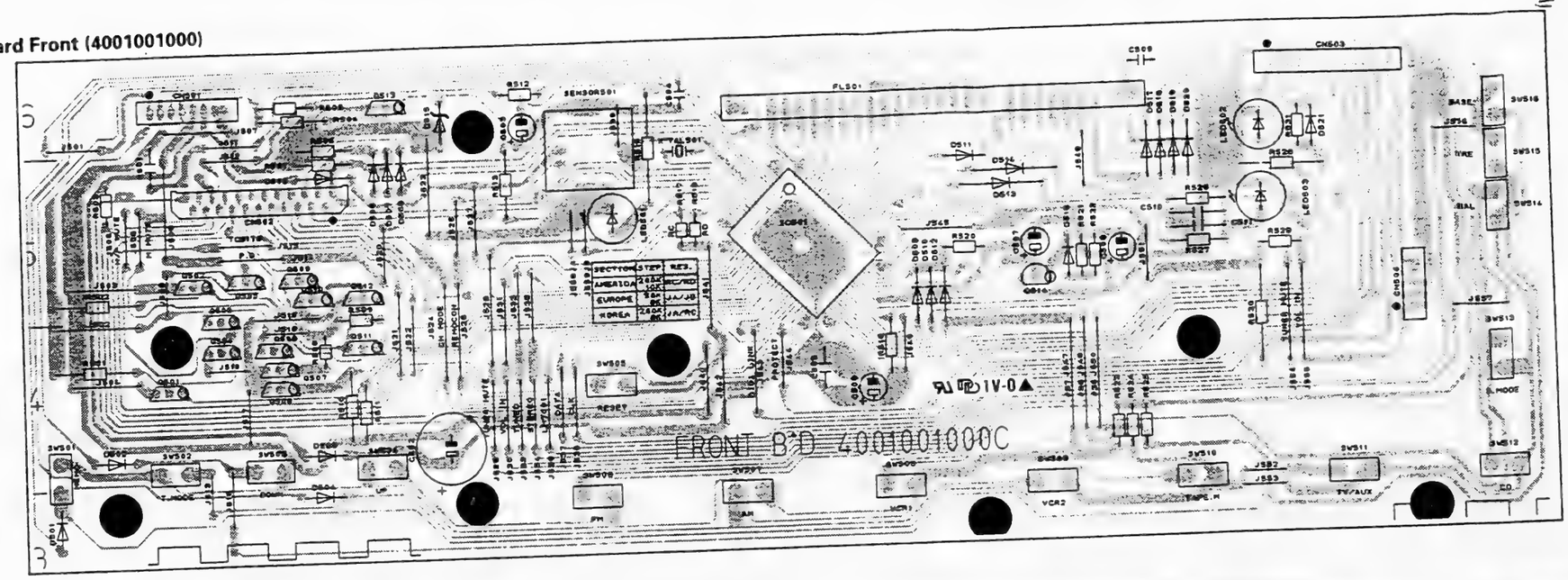
PRINTED CIRCUIT BOARDS

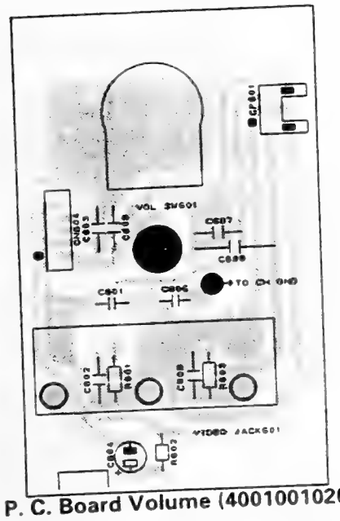
P. C. Board Main (4001000900)

Model No. : RV-4050R



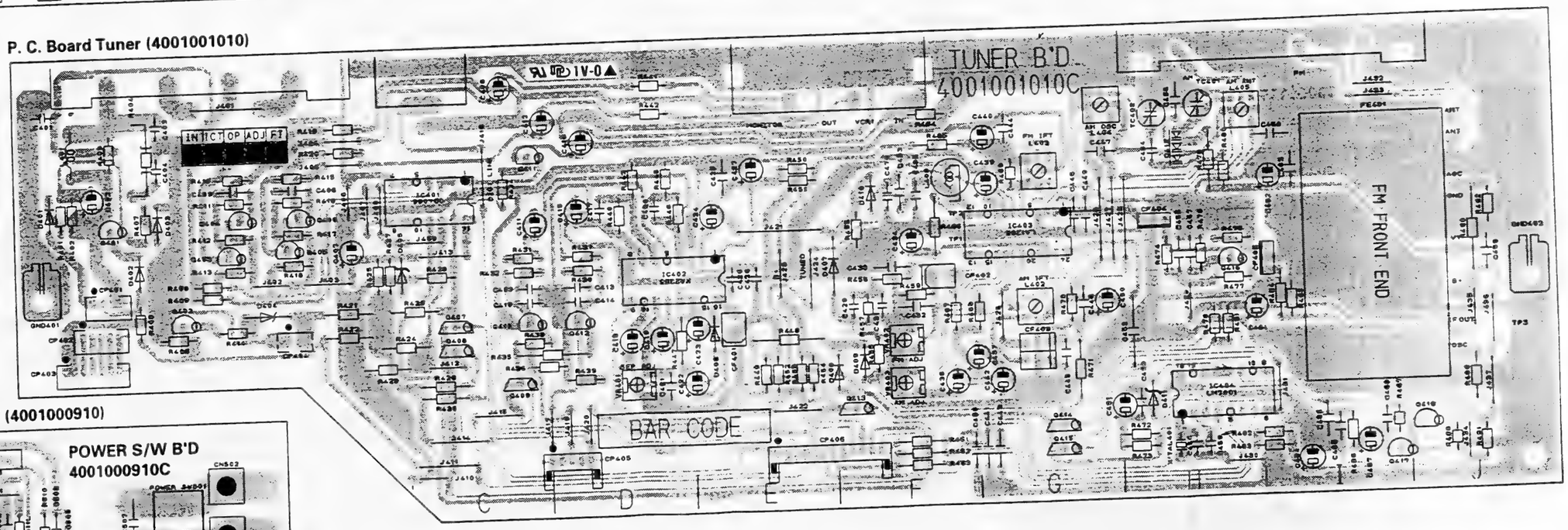
P. C. Board Front (4001001000)



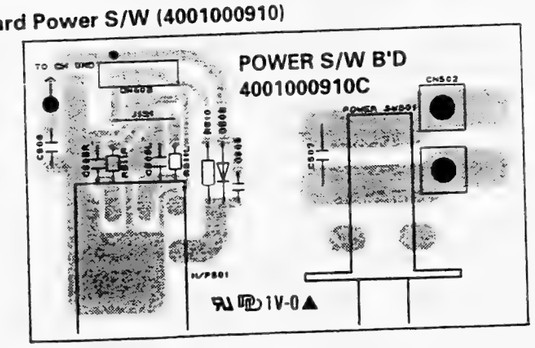


P. C. Board Volume (4001001020)

P. C. Board Tuner (4001001010)

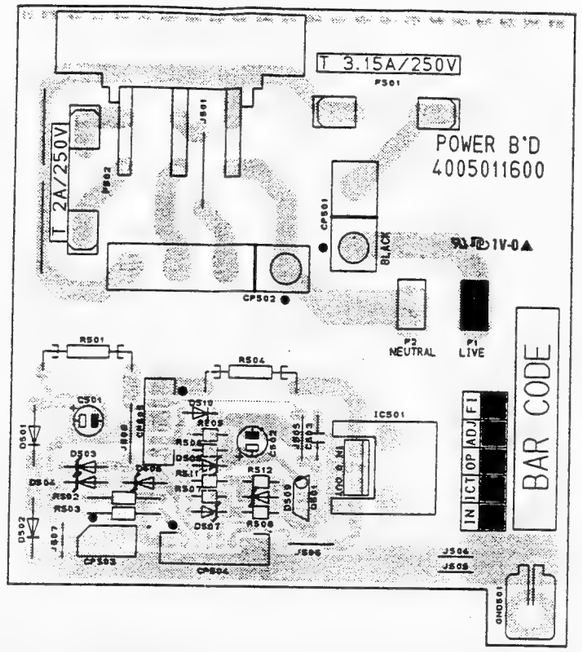


P.C. Board Power S/W (4001000910)

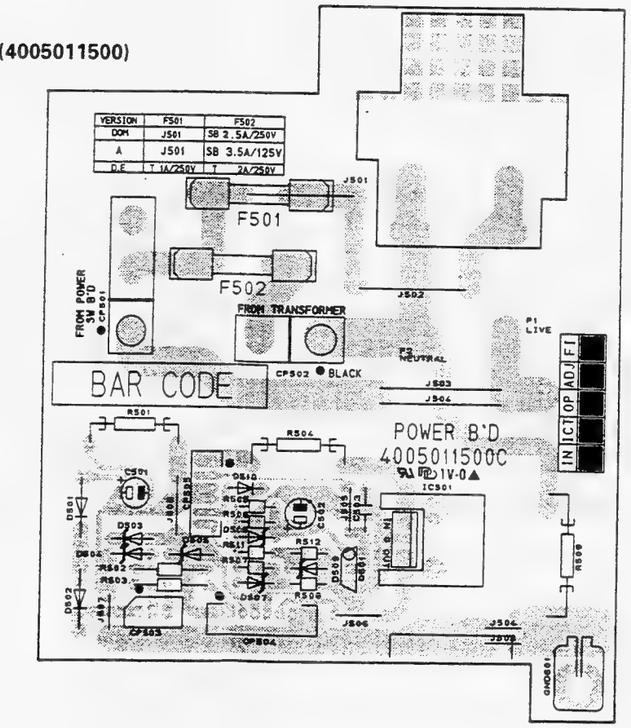


P. C. Board Power (4005011600)

Model No. : RV-4050R



P. C. Board Power (4005011500)



ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE : Products marked with ⚠ have special characteristics important to safety. If you replace of these components, read carefully the product safety notice in this manual.
Resistor/Capacitor Tolerance, D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : (+80, -20%).

Ref.No.	Description					Part No.	Q'ty	Version
	A'ssy P.C. Board Main					054010110107		A,B,E
	Ass'y P.C. Board Main					054010410108		D,IU
	Ass'y P.C. Board Main					054010810108		KS
	Wire Lug, #24BK200 LF 0.5/0.5					152624102057	1	
	Pipe Ceramic 12mm					4855000111	12	
	Terminal Ground					4235007310	1	
29	Terminal Speaker, 6P					4408107410	1	
30	Jack RCA, 4P					4438103110	1	
31	Jack RCA, 6P					4438103210	2	
C101/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C101L/R)	Not Used !							A,B,E,KS
C102/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C102L/R)	Not Used !							A,B,E,KS
C103/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C103L/R)	Not Used !							A,B,E,KS
C104/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D, IU
(C104L/R)	Not Used !							A,B,E,KS
C105	Ceramic Tubular	100	pF	50 V	J	3519101935	1	
C106	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C107/C108	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C109/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C121/R	Electrolytic SG	[illegible]	µF	50 V	M	3479322571	2	
C122-C124	Electrolytic SG	47	µF	25 V	M	3479347041	3	
C125/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C126/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C127/R	Electrolytic SG	2.2	µF	50 V	M	3479322571	2	
C128/R	Electrolytic SG	2.2	µF	50 V	M	3479322571	2	
C129	Electrolytic SG	[illegible]	µF	50 V	M	3479322071	1	
C130/R	Mylar	0.0022	µF	100 V	J	3679222120	2	
C131/R	Electrolytic SG	2.2	µF	50 V	M	3479322571	2	
C132	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C133/C134	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C135/R	Mylar	0.1	µF	63 V	K	3679104297	2	
C136/R	Mylar	0.1	µF	63 V	K	3679104297	2	
C137/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C138/R	Mylar	0.018	µF	100 V	J	3679183120	2	
C139/R	Mylar	0.02	µF	100 V	J	3679203120	2	
C140/R	Mylar	0.022	µF	100 V	J	3679223120	2	
C141/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C142/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C143/R	Ceramic Tubular	820	pF	50 V	J	3519821936	2	
C144/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C145/R	Ceramic Tubular	150	pF	50 V	J	3519151935	2	
C146/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C147/C148	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C149/R	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C150/R	Ceramic Tubular	470	pF	50 V	J	3519471936	2	
C151/R	Ceramic Tubular	470	pF	50 V	J	3519471936	2	
C152/R	Ceramic Tubular	27	pF	50 V	J	3519270935	2	
C153/R	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C154/R	Ceramic Tubular	47	pF	50 V	J	3519470935	2	
C155/R	Ceramic Tubular	5.6	pF	50 V	J	3519056935	2	
C156/R	Ceramic Tubular	1000	pF	50 V	J	3519102935	2	
C157/R	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C158/R	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C159/R	Mylar	0.047	µF	100 V	J	3679473120	2	
C160/R	Electrolytic SA	10	µF	50 V	M	3479210071	2	
C161/R	Mylar	0.047	µF	100 V	J	3679473120	2	
C162	Electrolytic SG	22	µF	50 V	M	3479322071	1	
C163/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C163L/R)	Not Used!							A,B,E,KS
C164/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C164L/R)	Not Used!							A,B,E,KS
C165/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C165L/R)	Not Used!							A,B,E,KS
C166/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C166L/R)	Not Used!							A,B,E,KS
C167	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C168/C169	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	2	D,IU
(C168/C169)	Not Used!							A,B,E,KS
C171/C172	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	2	D,IU
(C171/C172)	Not Used!							A,B,E,KS

Ref.No.	Description					Part No.	Q'ty	Version
C173	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	1	D,IU
(C173)	Not Used!							A,B,E,KS
C174L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
C174L/R	Not Used!							A,B,E,KS
C175L/R	Ceramic Tubular	100	pF	50 V	J	3519101935	2	D,IU
(C175L/R)	Not Used!							A,B,E,KS
C176	Ceramic Tubular	82	pF	50 V	J	3519820935	1	D,IU
(C176)	Not Used!							A,B,E,KS
C201/C202	Mylar	0.0056	µF	100 V	J	3679562120	2	
C203	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C204	Mylar	0.1	µF	63 V	K	3679104297	1	
C205	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C206/C207	Mylar	0.047	µF	100 V	J	3679473120	2	
C208	Mylar	0.1	µF	63 V	K	3679104297	1	
C209	Mylar	0.0033	µF	100 V	J	3679332120	1	
C210	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C211	Electrolytic SG	220	µF	16 V	M	3479322121	1	
C212	Ceramic Tubular	0.022	µF	50 V	J	3519223935	1	
C213/C214	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C215-C217	Ceramic Tubular	100	pF	50 V	J	3519101935	2	
C218	Mylar	0.1	µF	63 V	K	3679104297	1	
C219	Mylar	0.022	µF	100 V	J	3679223120	1	
C220/C221	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C222-C224	Mylar	0.22	µF	63 V	K	3679224297	3	
C225	Mylar	0.68	µF	63 V	K	3679684297	1	
C226	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C227	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C228	Mylar	0.0022	µF	100 V	J	3679222120	1	
C229	Mylar	0.047	µF	100 V	J	3679473120	1	
C230	Electrolytic SG	220	µF	16 V	M	3479322131	1	
C231	Mylar	0.0056	µF	100 V	J	3679662120	1	
C232/C233	Electrolytic SG	1	µF	50 V	M	3479310971	2	
C234	Electrolytic SG	220	µF	16 V	M	3479322131	1	
C235	Electrolytic SG	0.22	µF	50 V	M	3479322871	1	
C236	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C237	Electrolytic SG	0.22	µF	50 V	M	3479322871	1	
C238	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C239	Electrolytic SG	0.68	µF	50 V	M	3479368871	1	
C240-C242	Mylar	0.1	µF	63 V	K	3679104297	2	
C243/C244	Mylar	0.22	µF	63 V	K	3679224971	2	
C245	Mylar	0.1	µF	63 V	K	3679104297	1	
C246	Poly	680	pF	50 V	J	3619681110	1	
C247	Mylar	0.047	µF	100 V	J	3679473120	1	
C248	Mylar	0.1	µF	63 V	K	3679104297	1	
C249	Poly	680	pF	50 V	J	3619681110	1	
C250	Mylar	0.047	µF	100 V	J	3679473120	1	
C251	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C252	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C253/C254	Mylar	0.1	µF	63 V	K	3679104297	2	
C255	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C256	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C257	Mylar	0.0047	µF	100 V	J	3679472120	1	
C258	Electrolytic SG	22	µF	50 V	M	3479322071	1	
C259	Ceramic Tubular	820	pF	50 V	J	3519821935	1	
C260	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C261	Ceramic Disc	390	pF	50 V	Z	3579391130	1	
C262	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C263/C264	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C265	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C266/C267	Electrolytic SG	47	µF	25 V	M	3479347041	2	
C268	Ceramic Tubular	680	pF	50 V	J	3519681935	1	
C269	Ceramic Tubular	560	pF	50 V	J	3519561935	1	
C270/C271	Electrolytic SG	2.2	µF	50 V	M	3479322971	2	
C272	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C273/C274	Electrolytic SG	4.7	µF	50 V	M	3479347971	2	
C275	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C276	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C301	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C302	Ceramic Tubular	27	pF	50 V	J	3519270935	1	
C303	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C304	Ceramic Tubular	20	pF	50 V	J	3519200935	1	
C305	Ceramic Tubular	8.2	pF	50 V	J	3519082935	1	

Ref.No.	Description					Part No.	Q'ty	Version
C306	Ceramic Tubular	1000	pF	50 V	J	3519102935	1	
C307/C308	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C309	Mylar	0.047	µF	100 V	J	3679473120	1	
C310	Electrolytic SA	10	µF	50 V	M	3479210071	1	
C311	Mylar	0.047	µF	100 V	J	3679473120	1	
C312	Ceramic Tubular	470	pF	50 V	J	3519471935	1	
C313	Ceramic Tubular	[illegible]	pF	50 V	J	3519270935	1	
C314	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C315	Ceramic Tubular	20	pF	50 V	J	3519200935	1	
C316	Ceramic Tubular	[illegible]	pF	50 V	J	3519082935	1	
C317	Ceramic Tubular	1000	pF	50 V	J	3519102935	1	
C318/C319	Ceramic Tubular	220	pF	50 V	J	3519221935	2	
C320	Mylar	0.047	µF	100 V	J	3679473120	1	
C321	Electrolytic SG	220	µF	25 V	M	3479322141	1	
C322	Electrolytic SG	100	µF	25 V	M	3479310141	1	
C323/C324	Ceramic Tubular	[illegible]	pF	50 V	J	3519056935	2	
C333/C334	Electrolytic HS	4700	µF	50 V	M	3419547225	2	
C335-C339	Ceramic Disc	0.01	µF	500 V	Z	3509103451	2	
CN104	Lead Ass'y, 6P, 240mm					436206243332	1	
CN105	Lead Ass'y, 7P, 200mm					436207223332	1	KS(Only)
(CN105)	Not Used!							A,B,D,E,IU
CN106	Lead Ass'y, 7P, 120mm					436207123332	1	
CN107	Lead Ass'y, 5P, 120mm					436205123332	1	
CN108	Lead Ass'y, 3P, 300mm					436203007132	1	
CN109	Lead Ass'y, 4P, 300mm					436204303332	1	
CP101	Wafer, LV 3P					4428525790	1	
CP102	Wafer, FPC 23P					4428526355	1	
D101	1N4148M, Switching					2058322101	1	
D102	Diode Zener, UZ 9.1 BSC					2258599150	1	
D103	Diode Zener, UZ 27.0BSC					2258599115	1	
D104/D105	1N4148M, Switching					2058322101	2	
D106L/R	1N4148M, Switching					2058322101	2	
D107L/R	1N4148M, Switching					2058322101	2	
D108L/R	1N4148M, Switching					2058322101	2	
D110	1N4148M, Switching					2058322101	1	
D301	Diode Zener, UZ 27.0BSC					2258599115	1	
D302-D305	1N4148M, Switching					2058322101	4	
D306/D307	Diode Zener, UZ 7.5BSC					2258599130	2	
D308	Diode Zener, UZ16.0BSD					2258599117	1	
⚠ D309-D312	1N5402, Rectifier					2058100136	4	
⚠ D313	1N4002, Rectifier					2258100135	1	
D314	Diode Zener, UZ16.0BSD					2258599117	1	
⚠ D315	1N4002, Rectifier					2258100135	1	
IC101	LC7821					2168017132	1	
IC102	KIA4559P/KIA7559P, OP AMP					2168206104	1	
IC103	TDA7313D, ELEC-Volume					2168225101	1	
IC104	KIA4559P/KIA7559P, OP AMP					2168206104	1	
IC109	TC9176P					2138007124	1	
IC201	NJU9701D					2168020114	1	
IC202	NJUM2177L					2168020115	1	
IC203	KIA4559P/KIA7559P, OP AMP					2168206104	1	
IC205	KIA4559P/KIA7559P, OP AMP					2168206104	1	
L101L/R	Coil Inductor, 0.5 µF					2648001010	2	
L301	Coil Inductor, 0.5 µF					2648001010	1	
Q101	KTC114YS, NPN, Silicon					2208622106	1	
Q102L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q103L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q104	KTA1015Y/KTA1266, PNP, Silicon					2208206105	1	
Q105L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q106L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q107	KTA114YS/KRA107M					2238006103	1	
Q108L/R	KTD1302S, NPN, Silicon					2208606112	2	
Q109L/R	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q110L/R	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q111L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q112L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q113L/R	BKTA949Y					2208206102	2	
Q114L/R	KTC2229Y					2208606107	2	
Q115L/R	2SC4137, NPN, Bais					2008622110	2	
Q116L/R	KSC2690A-Y, NPN, Silicon					2008602102	2	
Q117L/R	KSA1220A-Y, PNP, Silicon					2008202101	2	
Q118	KTC114YS, NPN, Silicon					2208622106	1	
Q119L/R	2SB688/KTB688, PNP, Silicon					2028107106	2	
Q119L/R	2SD718/KTD718, NPN, Silicon					2028407109	2	
Q120L/R	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q121	KTA114YS/KRA107M					2238006103	1	

Ref.No.	Description					Part No.	Q'ty	Version
Q122	KTC114YS, NPN, Silicon					2208622106	1	
Q201	KTA114YS/KRA107M					2238006103	1	
Q202	KTC114YS, NPN, Silicon					2208622106	1	
Q203	KTA114YS/KRA107M					2238006103	1	
Q204	KTC114YS, NPN, Silicon					2208622106	1	
Q205/Q206	KTD1302S, NPN, Silicon					2208606112	2	
Q301/Q302	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q303/Q304	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q305	BKTA949Y					2208206102	1	
Q306	KTC2229Y					2208606107	1	
Q307	2SC4137, NPN, Bais					2008622110	1	
Q308	KSC2690A-Y, NPN, Silicon					2008602102	1	
Q309	KSA1220A-Y, PNP, Silicon					2008202101	1	
Q310	2SD718/KTD718, NPN, Silicon					2028407109	1	
Q311	2SB688/KTB688, PNP, Silicon					2028107106	1	
Q312	KTC1815Y/KTC3198, NPN, Silicon					2208606104	1	
Q313/Q314	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
Q315/Q316	KTC1815Y/KTC3198, NPN, Silicon					2208606104	2	
Q317	BKTA949Y					2208206102	1	
Q318	KTC2229Y					2208606107	1	
Q319	2SC4137, NPN, Bais					2008622110	1	
Q320	KSC2690A-Y, NPN, Silicon					2008602102	1	
Q321	KSA1220A-Y, PNP, Silicon					2008202101	1	
Q322	2SD2058Y/KTD2058Y, NPN, Silicon					2028406123	1	
Q323	2SB1367Y/KTB1367Y, PNP, Silicon					2028106109	1	
Q324	2SD2058Y/KTD2058Y, NPN, Silicon					2028406123	1	
R101/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R103L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R105L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R107L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R108L/R	Carbon Film	100	kohm	1/6W	J	3069104970	2	D,IU
(R108L/R)	Not Used!							A,B,E,KS
R109L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R111L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R112	Carbon Film	1	kohm	1/6 W	J	3069102970	1	
R112L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	D,IU
(R112L/R)	Not Used !							A,B,E,KS
R113	Carbon Film	100	ohm	1/6 W	J	3069101970	1	
R114/R115	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R116	Carbon Film	100	kohm	1/6 W	J	3069104970	1	
R117/R118	Carbon Film	470	ohm	1/6 W	J	3069471970	2	
R119L/R	Carbon Film	470	ohm	1/6 W	J	3069471970	2	
R120L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	
R121L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R122L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	
R123/R124	Carbon Film	470	ohm	1/6 W	J	3069471970	2	
R125L/R	Carbon Film	47	kohm	1/6 W	J	3069473970	2	
R126L/R	Carbon Film	470	kohm	1/6 W	J	3069471970	2	
R127L/R	Carbon Film	10	kohm	1/6 W	J	3069103970	2	
R128	Carbon Film	27	kohm	1/6 W	J	3069273970	1	
R129	Carbon Film	10	kohm	1/6 W	J	3069103970	1	
R130L/R	Carbon Film	10	kohm	1/6 W	J	3069103970	2	
R131L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	
R132L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R133L/R	Carbon Film	3.3	kohm	1/6 W	J	3069332970	2	
R134	Carbon Film	47	kohm	1/6 W	J	3069473970	1	
R135	Carbon Film	4.7	kohm	1/6 W	J	3069472970	1	
R136	Carbon Film	470	ohm	1/6 W	J	3069471970	1	
R137/R138	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R139L/R	Carbon Film	6.8	kohm	1/6 W	J	3069682970	2	
R140L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R141L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R142L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R143L/R	Carbon Film	47	kohm	1/6 W	J	3069473970	2	
R144L/R	Carbon Film	1.2	kohm	1/6 W	J	3069122970	2	
R145L/R	Carbon Film	15	kohm	1/6 W	J	3069153970	2	
R146L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	
R147L/R	Carbon Film	10	ohm	1/6 W	J	3069100970	2	
R148L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	
R149L/R	Carbon Film	100	kohm	1/6 W	J	3069104970	2	
R150L/R	Carbon Film	47	kohm	1/6 W	J	3069473970	2	
R151L/R	Carbon Film	10	kohm	1/6 W	J	3069103970	2	
R152/R153	Carbon Film	100	ohm	1/6 W	J	3069101970	2	
R155	Carbon Film	20	kohm	1/6 W	J	3069203970	1	
R156L/R	Carbon Film	1	kohm	1/6 W	J	3069102970	2	A,B,D,E,IU
(R156L/R)	Not Used!							KS

Ref.No.	Description					Part No.	Q'ty	Version
R157L/R	Carbon Film	39	kohm	1/5 W	J	3069393970	2	
R158L/R	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	
R159L/R	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	
R160L/R	Carbon Film	680	ohm	1/5 W	J	3069681970	2	
R161	Metal Film	2.2	kohm	1 W	J	3029222472	1	
R162L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R163L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R164L/R	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R165L/R	Carbon Film	33	kohm	1/5 W	J	3069333970	2	
R166L/R	Carbon Film	2.4	kohm	1/5 W	J	3069242970	2	
R167L/R	Carbon Film	20	kohm	1/5 W	J	3069203970	2	
R168L/R	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	
R169L/R	Carbon Film	120	ohm	1/5 W	J	3069121970	2	
R170L/R	Carbon Film	2.7	kohm	1/5 W	J	3069272970	2	
R171L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R172L/R	Carbon Film	120	ohm	1/5 W	J	3069121970	2	
R173L/R	Carbon Film	220	ohm	1/5 W	J	3069221970	2	
R174L/R	Cement	0.27	ohm	3 W	K	3059278882	2	
R175L/R	Cement	0.27	ohm	3 W	K	3059278882	2	
R176L/R	Carbon Film	330	ohm	1/5 W	J	3069331970	2	
R177L/R	Carbon Film	4.7	kohm	1/5 W	J	3069472970	2	
R178L/R	Carbon Film	15	kohm	1/5 W	J	3069153970	2	
R179L/R	Carbon Film	3.3	ohm	1/5 W	J	3069339970	2	
R180L/R	Metal Film	15	ohm	1 W	J	3029150472	2	
R181L/R	Carbon Film	3	kohm	1/5 W	J	3069392970	2	
R182	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R183	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R184L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R185L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	KS(Only)
(R185L/R)	Not Used!							A,B,E,D,IU
R186L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R187L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	KS(Only)
(R187L/R)	Not Used!							A,B,E,D,IU
R188	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R201	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R202	Carbon Film	18	kohm	1/5 W	J	3069183970	1	
R203	Carbon Film	5.6	kohm	1/5 W	J	3069562970	1	
R204/R205	Carbon Film	22	ohm	1/5 W	J	3069220970	2	
R206	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R207	Carbon Film	18	kohm	1/5 W	J	3069183970	1	
R208	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R209	Carbon Film	82	ohm	1/5 W	J	3069820970	1	
R210	Carbon Film	1	ohm	1/5 W	J	3069105970	1	
R211-R213	Carbon Film	1	kohm	1/5 W	J	3069102970	3	
R214	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R215	Carbon Film	330	kohm	1/5 W	J	3069334970	1	
R216/R217	Carbon Film	15	kohm	1/5 W	J	3069153970	2	
R218/R219	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R220	Carbon Film	8.2	kohm	1/5 W	J	3069822970	1	
R221-R224	Carbon Film	100	ohm	1/5 W	J	3069101970	4	
R225	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R226	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R227	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R228	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R229	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R230	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R231	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R232	Carbon Film	10	ohm	1/5 W	J	3069106970	1	
R233/R234	Carbon Film	22	kohm	1/5 W	J	3069223970	2	
R235	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R236	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R237	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R238	Carbon Film	3	kohm	1/5 W	J	3069302970	1	
R239	Carbon Film	9.1	kohm	1/5 W	J	3069912970	1	
R240	Carbon Film	3	kohm	1/5 W	J	3069302970	1	
R241	Carbon Film	9.1	kohm	1/5 W	J	3069912970	1	
R242R243	Carbon Film	470	kohm	1/5 W	J	3069471970	2	
R244	Carbon Film	220	kohm	1/5 W	J	3069224970	1	
R245-R247	Carbon Film	1	kohm	1/5 W	J	3069102970	3	
R248/R249	Carbon Film	220	ohm	1/5 W	J	3069221970	2	
R250	Carbon Film	2	kohm	1/5 W	J	3069202970	1	
R251	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R252	Carbon Film	2	kohm	1/5 W	J	3069202970	1	
R253	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R254	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R255	Carbon Film	1	kohm	1/5 W	J	3069102970	1	

Ref.No.	Description					Part No.	Q'ty	Version
R256	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R257	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R258	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R259	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R260	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R261	Carbon Film	20	kohm	1/5 W	J	3069203970	1	
R262	Carbon Film	220	kohm	1/5 W	J	3069224970	1	
R263	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R264	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R265	Carbon Film	1	ohm	1/4 W	J	3069109270	1	
R266	Carbon Film	3.3	ohm	1/5 W	J	3069339970	1	
R267/R268	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R301/R302	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	
R303	Metal Film	2.2	kohm	1 W	J	3029222472	1	
R304	Carbon Film	680	ohm	1/5 W	J	3069681970	1	
R305	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R306	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R307	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R308	Carbon Film	33	kohm	1/5 W	J	3069333970	1	
R309	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R310	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R311	Carbon Film	27	ohm	1/5 W	J	3069273970	1	
R312	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R313	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R314	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R315	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R316/R317	Cement	0.27	ohm	3 W	K	3059278882	2	
R318	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R319	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R320	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R321	Carbon Film	3.3	ohm	1/5 W	J	3069339970	1	
R322	Metal Film	10	ohm	1 W	J	3029100472	1	
R323/R324	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	
R325	Carbon Film	680	ohm	1/5 W	J	3069681970	1	
R326	Carbon Film	33	kohm	1/5 W	J	3069333970	1	
R327/R328	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R329	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R330	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R331	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R332	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R333	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R334	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R335	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R336	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R337	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R338	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R339	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R340/R341	Cement	0.47	ohm	3 W	K	3059478782	2	
R342	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R343	Metal Film	680	ohm	2 W	J	3029681572	1	
R344	Metal Film	390	ohm	1 W	J	3029391470	1	
R345	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
X-TAL201	Resonator, CSA2.0MG-TF01					3938124001	1	
	A'ssy P.C. Board Tuner					054010110110		A
	A'ssy P. C. Board Tuner					054010210111		B
	A'ssy P. C. Board Tuner					054010410112		D,IU
	A'ssy P. C. Board Tuner					054010510113		E
	A'ssy P. C. Board Tuner					054010810114		KS
	Terminal Ground					4235007310	1	
38	Terminal Speaker, 4P					4408105410	1	
39	Jack RCA, 2P					4438112010	1	
40	Jack RCA, 3P					4438114310	1	
41	Antenna Terminal, 4P					4408107910	1	A,KS
	Antenna Terminal, 4P					4408108210	1	D,E
C402	Electrolytic SG	4.7	µF	50 V	M	3479347971	1	
C403	Ceramic Tubular	0.0047	µF	50 V	J	3519472935	2	D,IU
(C403)	Not Used!							A,B,E,KS
C404	Mylar	0.047	µF	100 V	J	3679473120	1	
C405/C406	Ceramic Tubular	1	pF	50 V	J	3519010935	2	
C407	Electrolytic SG	100	µF	16 V	M	3479310131	1	
C408	Electrolytic SG	470	µF	10 V	M	3479347121	1	
C409	Mylar	0.0082	µF	100 V	J	3679822120	1	
C410	Mylar	0.0018	µF	100 V	J	3679182120	1	
C411	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C412	Electrolytic SG	470	µF	10 V	M	3479347121	1	

Ref.No.	Description					Part No.	Q'ty	Version
C413	Mylar	0.0082	µF	100 V	J	3679822120	1	
C414	Mylar	0.0018	µF	100 V	J	3679182120	1	
C415	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C416	Electrolytic SG	33	µF	16 V	M	3479333031	1	
C417	Ceramic Disc	390	pF	50 V	J	3519391935	1	A,KS
(C417)	Ceramic Disc	180	pF	50 V	J	3519181935	1	B,D,IU,E
C418	Electrolytic SG	1	µF	50 V	M	3479310971	1	
(L409)	Jumper							A,KS,B,E
C420	Ceramic Disc	390	pF	50 V	J	3519391935	1	A,KS
(C420)	Ceramic Disc	180	pF	50 V	J	3519181935	1	B,D,IU,E
C421	Ceramic Tubular	120	pF	50 V	J	3519121935	1	
C422	Electrolytic SG	3.3	µF	50 V	M	3479333971	1	
C423	Electrolytic SG	47	µF	50 V	M	3479347071	1	
C424	Electrolytic SG	2.2	µF	50 V	M	3479322971	1	
C425	Ceramic Tubular	0.01	µF	50 V	J	3519103935	1	
C426	Mylar	0.047	µF	100 V	J	3679473120	1	
C427	Electrolytic SG	220	µF	16 V	M	3479322131	1	
C428	Poly	680	pF	50 V	J	3619681110	1	
C429	Mylar	0.056	µF	100 V	J	3679563120	1	
C430	Ceramic Tubular	330	pF	50 V	J	3519331935	1	
C432	Ceramic Tubular	0.047	µF	50 V	Z	3519473935	1	
C433	Ceramic Tubular	68	pF	50 V	J	3519680835	1	D,IU
(C433)	Not Used!							A,B,E,KS
C434	Electrolytic SG	4.7	µF	50 V	M	3479347971	1	
C435	Ceramic Tubular	330	pF	50 V	J	3519331935	1	
C436	Electrolytic SG	10	µF	50 V	M	3479310071	1	
C437	Electrolytic SG	3.3	µF	50 V	M	3479333971	1	
C438	Ceramic Tubular	47	pF	50 V	J	3519470935	1	
C439	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C440	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C441	Ceramic Tubular	47	pF	50 V	J	3519470935	1	
C442	Electrolytic SG	0.47	µF	50 V	M	3479347871	1	
C443	Ceramic Tubular	47	pF	50 V	J	3519470935	1	
C444	Ceramic Tubular	0.01	µF	50 V	J	3519103935	1	
C445	Ceramic Tubular	68	pF	50 V	J	3519680935	1	
C446-C449	Ceramic Tubular	0.022	µF	50 V	J	3519223935	4	
C450	Electrolytic SG	4.7	µF	50 V	M	3479347971	1	
C451	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C452/C453	Ceramic Tubular	0.01	µF	50 V	J	3519103935	2	
C454	Poly	470	pF	50 V	J	3619471110	1	
C455-C457	Ceramic Tubular	0.022	µF	50 V	J	3519223935	3	
C458/C459	Ceramic Disc (CH)	33	pF	50 V	Z	3528330210	2	
C460	Ceramic Tubular	0.022	µF	50 V	J	3519223935	1	
C461	Electrolytic SG	100	µF	16 V	M	3479310131	1	
C462	Electrolytic SG	0.47	µF	50 V	M	3479347871	1	
C463	Ceramic Tubular	0.01	µF	50 V	J	3519103935	1	
C464	Electrolytic SG	47	µF	25 V	M	3479347041	1	
C465	Not Used !							
C466	Ceramic Tubular	0.01	µF	50 V	J	3519103935	1	
C467	Electrolytic SG	1	µF	50 V	M	3479310971	1	
C468/C469	Ceramic Tubular	0.01	µF	50 V	J	3519103935	2	
C470	Ceramic Tubular	150	pF	50 V	J	3519151935	1	D,IU
(C470)	Not Used!							A,B,E,KS
CF401	Resonator, CSB456F11					3938001009	1	
CF402	Filter Ceramic, BFU450C4N					3908001020	1	
CF403	Filter Ceramic, SFZ450F					3908001380	1	
CF404/CF405	Filter, SFE10.7MA8-A-TF21					3978011001	2	A,KS
(CF404/CF405)	Filter, SFE10.7MS3GH-ATF21					3978011011	2	D,IU,B,E
CP401	Wafer, 4P					4428516310	1	
CP402	Wafer, 5P					4428516410	1	
CP403	Wafer, 7P					4428516610	1	
CP404	Wafer, 2P					4428516110	1	
CP405	Wafer, 5P					4428525550	1	
CP406	Wafer, 12P					4428525620	1	
D401-D403	1N4148M, Switching					2058322101	3	
D404	Diode Zener, UZ 8.2BSB					2258599123	1	
D405	Diode Zener, UZ 6.8BSC					2258599121	1	
D406-D410	1N4148M, Switching					2058322101	5	
D411	Diode Zener, UZ 5.1BSB					2258599103	1	
D412	Diode Varactor, KV1236Z					2058819106	1	
FE401	FM Tuner, FE407-G60					3928801890	1	A,KS,B,E
(FE401)	FM Tuner, FTH3-505HB					3928101790	1	D,IU
IC401	GD4066B					2138001101	1	
IC402	KA2265, MPX					2168002112	1	
IC403	LA1266					2168017128	1	
IC404	LM7001					2138017112	1	

Ref.No.	Description					Part No.	Q'ty	Version
L401	Coil Inductor, 0.5 µF					2648001010	1	
L402	Coil, AM-IFT P-7SB					2648001250	1	
L403	Coil, FM-IFT					2838501080	1	
L404	Coil AM-OSC					2638201150	1	
L405	Coil, AM-ANT					2608201120	1	
L408	Coil Inductor, 20.8 mH					2648001430	1	D,IU
(L408)	Jumper							A,KS,B,E
Q401-Q403	KTC1815Y/KTC3198, NPN, Silicon					2208606104	3	
Q404	KTA1015Y/KTA1268, PNP, Silicon					2208206105	1	
Q405	KTC1815Y/KTC3198, NPN, Silicon					2208606104	1	
Q408	KTA1015Y/KTA1268, PNP, Silicon					2208206105	1	
Q407/Q408	KTC114YS, NPN, Silicon					2208622106	2	
Q409	DTA114YS/KRA107M, PNP, Silicon					2238606103	1	
Q410	KTC1815Y/KTC3198, NPN, Silicon					2208606104	1	
Q411	FET, 2SK117					2218207106	1	
Q412	KTC1815Y/KTC3198, NPN, Silicon					2208606104	1	
Q413-Q415	DTA114YS/KRA107M, PNP, Silicon					2238606103	3	
Q416	KTC1923Y/C3194Y, NPN, Silicon					2208406103	1	
Q417/Q418	KTC2240BL/KTC3200, NPN, Silicon					2208606108	2	
R401	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R402	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R403	Carbon Film	3.3	ohm	1/5 W	J	3069339970	1	
R404	Metal Film	10	ohm	1 W	J	3029100470	1	
R405	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R406	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R407	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R408/R409	Carbon Film	8.2	kohm	1/5 W	J	3069822970	2	
R410	Carbon Film	180	ohm	1/5 W	J	3069181970	1	
R411/R412	Carbon Film	1.2	kohm	1/5 W	J	3069122970	2	
R413	Carbon Film	12	kohm	1/5 W	J	3069123970	1	
R414	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R415	Carbon Film	180	ohm	1/5 W	J	3069181970	1	
R416/R417	Carbon Film	1.2	kohm	1/5 W	J	3069122970	2	
R418	Carbon Film	12	kohm	1/5 W	J	3069123970	1	
R419/R420	Carbon Film	150	ohm	1/5 W	J	3069151970	2	
R421/R422	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R423	Carbon Film	82	kohm	1/5 W	J	3069823970	1	
R424	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R425	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R426	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R427	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R428	Carbon Film	82	kohm	1/5 W	J	3069823970	1	
R429/R430	Carbon Film	68	kohm	1/5 W	J	3069683970	2	
R431	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R432	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R433	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R434	Carbon Film	1	ohm	1/5 W	J	3069105970	1	
R435	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R436	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R437	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R438	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R439	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R440	Carbon Film	180	kohm	1/5 W	J	3069184970	1	A,KS
(R440)	Carbon Film	270	kohm	1/5 W	J	3069274970	1	D,IU,B,E
R441/R442	Carbon Film	75	ohm	1/5 W	J	3069750970	2	
R443	Carbon Film	150	kohm	1/5 W	J	3069154970	1	A,KS
(R443)	Carbon Film	180	kohm	1/5 W	J	3069184970	1	D,IU,B,E
R445	Carbon Film	150	kohm	1/5 W	J	3069154970	1	A,KS
(R445)	Carbon Film	180	kohm	1/5 W	J	3069184970	1	D,IU,B,E
R446	Carbon Film	180	kohm	1/5 W	J	3069184970	1	A,KS
(R446)	Carbon Film	270	kohm	1/5 W	J	3069274970	1	D,IU,B,E
R447	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R448	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R449	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R450/R451	Carbon Film	270	ohm	1/5 W	J	3069271970	2	
R452	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R453/R454	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R455	Carbon Film	27	kohm	1/5 W	J	3069273970	1	
R456	Carbon Film	8.2	kohm	1/5 W	J	3069822970	1	
R457	Carbon Film	6.8	kohm	1/5 W	J	3069682970	1	D,IU,B,E
(R457)	Not Used!							A,KS
R458	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R459	Carbon Film	82	ohm	1/5 W	J	3069820970	1	
R461-R463	Carbon Film	2.2	kohm	1/5 W	J	3069222970	3	
R465	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R466	Carbon Film	27	kohm	1/5 W	J	3069273970	1	A,KS

Ref.No.	Description	Part No.	Q'ty	Version
(R466)	Carbon Film 47 kohm 1/5 W J	3069473970	1	D,IU,B,E
R468	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R469	Carbon Film 2.2 kohm 1/5 W J	3069222970	1	
R470	Carbon Film 68 kohm 1/5 W J	3069683970	1	
R471	Carbon Film 4.3 kohm 1/5 W J	3069432970	1	
R472/R473	Carbon Film 680 ohm 1/5 W J	3069681970	2	
R474/R475	Carbon Film 330 ohm 1/5 W J	3069331970	2	
R476	Carbon Film 470 ohm 1/5 W J	3069471970	1	
R477	Carbon Film 3.3 kohm 1/5 W J	3069332970	1	
R478	Carbon Film 100 kohm 1/5 W J	3069104970	1	
R479	Carbon Film 180 ohm 1/5 W J	3069181970	1	
R479	Carbon Film 270 ohm 1/5 W J	3069271970	1	D,IU(Only)
R480	Carbon Film 100 kohm 1/5 W J	3069104970	1	
R481	Carbon Film 180 ohm 1/5 W J	3069181970	1	
R481	Carbon Film 270 ohm 1/5 W J	3069271970	1	D,IU(Only)
R482/R483	Carbon Film 270 ohm 1/5 W J	3069271970	2	
R484	Carbon Film 180 ohm 1/5 W J	3069181970	1	
R485	Carbon Film 220 ohm 1/5 W J	3069221970	1	
R486	Carbon Film 4.7 kohm 1/5 W J	3069472970	1	
R487	Carbon Film 1.5 kohm 1/5 W J	3069152970	1	
R488	Carbon Film 1 ohm 1/5 W J	3069105970	1	
R489	Carbon Film 560 ohm 1/5 W J	3069561970	1	
R490	Carbon Film 100 kohm 1/5 W J	3069104970	1	D,IU
(R490)	Not Used!			A,B,E,KS
R491	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R492	Carbon Film 56 kohm 1/5 W J	3069563970	1	D,IU
(R492)	Jumper			A,B,E,KS
TC401	Trimmer, 20P	3838001010	1	
TC402	Trimmer, 10P	3838001000	1	
VR401	Semi Fixed Resistor, 200 k(B)	3248020443	1	
VR402	Semi Fixed Resistor, 50 k(B)	3248050343	1	
VR403	Semi Fixed Resistor, 50 k(B)	3248050343	1	
XTAL401	X-TAL, 7.2 MHz	3908101031	1	
	A'ssy P.C. Board Front	054010110115		A
	A'ssy P.C. Board Front	054010810116		KS
	A'ssy P.C. Board Front	054010210117		B,D,E,IU
	Wire Lug, #24BK200 LF 0.5/0.5	152624102057	1	
17	Switch Tact	4868003710	16	
18	Sponge	6715020730	1	
19(FL501)	FIPSSM6	2328132301	1	
C501	Ceramic Tubular 220 pF 50 V J	3519221935	1	
C502	CAP, FYHOH473Z	3479347314	1	
C503	Electrolytic SG 47 µF 50 V M	3479347071	1	
C504	Mylar 0.047 µF 100 V J	3679473120	1	
C505	Ceramic Tubular 0.01 µF 50 V J	3519103935	1	
C506	Electrolytic SG 100 µF 10 V M	3479310121	1	
C507/C508	Electrolytic SG 1 µF 50 V M	3479310971	2	
C509	Mylar 0.047 µF 100 V J	3679473120	1	
C510/C511	Ceramic Tubular 220 pF 50 V J	3519221935	2	
CN501	Lead Ass'y, 8P, 300mm	436208303332	1	
CN503	Lead Ass'y, 12P, 450mm	436212453332	1	
CN504	Lead Ass'y, 5P, 100mm	436405103332	1	
CN602	Wafer, FPC 23P	4428526355	1	
D501	1N4148M, Switching	2058322101	1	
D502	1N4148M, Switching	2058322101	1	
D503	1N4002, Retifier	2258100135	1	
D504-D514	1N4148M, Switching	2058322101	11	
D515	Diode Zener, UZ 5.6BSB	2258599104	1	
D516-D521	1N4148M, Switching	2058322101	6	
IC501	CPU, CXP50116-572Q	2138322121	1	
LED501-503	LED, SLR-34URC-F25	2371085701	3	
Q501/Q502	KTC114YS, NPN, Silicon	2208622106	2	
Q503	DTA114YS/KRA107M, PNP, Silicon	2238006103	1	
Q504	KTC114YS, NPN, Silicon	2208622106	1	
Q505/Q506	DTA114YS/KRA107M, PNP, Silicon	2238006103	2	
Q507/Q508	KTC114YS, NPN, Silicon	2208622106	2	
Q509	DTA114YS/KRA107M, PNP, Silicon	2238006103	1	
Q510-Q513	KTC114YS, NPN, Silicon	2208622106	4	
Q514	KTC1815Y/KTC3198, NPN, Silicon	2208606104	1	
R501-R511	Carbon Film 47 kohm 1/5 W J	3069473970	11	
R512	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R513	Carbon Film 22 kohm 1/5 W J	3069223970	1	
R516	Carbon Film 33 ohm 1/5 W J	3069330970	1	
R517	Carbon Film 10 kohm 1/5 W J	3069103970	1	A,KS
(R517)	Not Used!			B,D,E,IU

Ref.No.	Description	Part No.	Q'ty	Version
R518	Carbon Film 10 kohm 1/5 W J	3069103970	1	A,B
(R518)	Not Used!			KS,D,E,IU
R519	Carbon Film 68 kohm 1/5 W J	3069683970	1	
R520	Carbon Film 220 kohm 1/5 W J	3069224970	1	
R521	Carbon Film 22 kohm 1/5 W J	3069223970	1	
R522	Carbon Film 2.2 kohm 1/5 W J	3069222970	1	
R523-R525	Carbon Film 68 kohm 1/5 W J	3069683970	3	
R526/R527	Carbon Film 56 ohm 1/5 W J	3069560970	2	
R528	Carbon Film 220 kohm 1/5 W J	3069224970	1	
R529/R530	Carbon Film 68 kohm 1/5 W J	3069683970	2	
R531	Carbon Film 22 kohm 1/5 W J	3069223970	1	
J558	Jumper		1	A,B
(J558)	Not Used!			KS,D,E,IU
J559	Jumper		1	B,D,E,IU
(J559)	Not Used!			A,KS
X'TAL501	Resonator, CST4.19MGW-TF01	3938124006	1	
FL501	FIPSSM6	2328132301	1	
SENSOR501	Sensor Remote, KRM-34U	2408000131	1	
	A'ssy P.C. Board Volume	054010110118		A,B,E,KS
	A'ssy P.C. Board Volume	054010410119		D,IU
15	Switch Encoder with Nut	3208062810	1	
16	Jack RCA 3P, Gold	4438109810	1	
C601	Ceramic Disc 0.1 µF 50 V Z	3579104530	1	A,B,E,KS
(C601)	Not Used!			D,IU
C602	Ceramic Tubular 100 pF 50 V J	3519101935	1	D,IU
(C602)	Not Used!			A,B,E,KS
C603	Ceramic Tubular 0.01 µF 50 V J	3519103935	1	
C604	Electrolytic SG 33 µF 16 V M	3479333031	1	
C605	Ceramic Tubular 0.01 µF 50 V J	3519103935	1	
C606	Ceramic Disc 0.1 µF 50 V Z	3579104530	1	
C607	Ceramic Tubular 100 pF 50 V J	3519101935	1	D,IU
(C607)	Not Used!			A,B,E,KS
C608/C609	Ceramic Tubular 100 pF 50 V J	3519101935	2	D,IU
(C608/C609)	Not Used!			A,B,E,KS
CP601	Wafer, 3P	4428525630	1	
R601	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R602	Carbon Film 75 ohm 1/5 W J	3069750970	1	
R603	Carbon Film 1 kohm 1/5 W J	3069102970	1	
	A'ssy P.C. Board Power	054010110120		A
	A'ssy P. C. Board Power	054010210121		B
	A'ssy P. C. Board Power	054010410122		D,E,IU,KS
33	Heatsink Regulator TR.	7505206210	1	
34	Switch Selector, 6P	4618006510	1	FT9000Only
35	Outlet	4448104110	1	A
36	Outlet	4448105510	1	KS
	Outlet	4448103610	1	D
C501	Electrolytic SG 100 µF 50 V M	3479310171	1	
C502	Electrolytic SG 10 µF 50V M	3479310071	1	
C503	Not Used!		1	
⚠ IC501	KA7806, Regulator	2188602106	1	
CP501	Wafer, LV 3P	4428525790	1	
CP501	Wafer, LV 2P	4428525710	1	
CP502	Wafer,LV 2P	4428525780	1	
CP502	Wafer,LV 4P	4428525800	1	
CP503	Wafer, 3P	4428505710	1	
CP504	Wsafer, 8P	4428516710	1	
CP505	Wafer, 6P	4428516510	1	
⚠ D501/D502	1N4002, Rectifier	2258100135	2	
D503/D504	Diode Zener, UZ15.0BSC	2258599109	2	
D505	Diode Zener, UZ 5.6BSC	2258599200	1	
D506	Diode Zener, UZ15.0BSC	2258599109	1	
D507	Diode Zener, UZ12.0BSC	2258599116	1	
D508	Not Used!		1	
D509	Diode Zener, UZ5.1BSB	2258599103	1	
D510	1N4148, Switching	2058322101	1	
⚠ F501	Fuse, T 1 A, 250 V	5508302035	1	D
(F501)	Jumper		1	A,KS
(F501)	Not Used!			E,IU
⚠ (F501)	Fuse, T 3.15 A, 250 V	5508302735	1	B
⚠ F502	Fuse, T 2 A, 250 V	5508302435	1	D,IU,B,E
⚠ (F502)	Fuse, SB 2.5 A, 250 V	5508102530	1	KS
⚠ (F502)	Fuse, SB 3.5 A, 125 V	5508102821	1	A
Q501	KTC114YS, NPN, Silicon	2208622106	1	
R501	Metal Film 330 ohm 1 W J	3029331470	1	

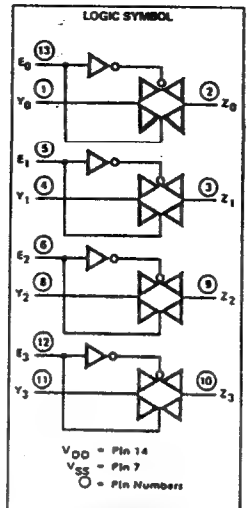
Ref.No.	Description	Part No.	Q'ty	Version
R502/R503	Carbon Film 3.3 ohm 1/5 W J	3069339970	2	
R504	Metal Film 100 ohm 2 W J	3029101570	1	
R505	Carbon Film 4.7 kohm 1/5 W J	3069472970	1	
R506	Carbon Film 100 kohm 1/5 W J	3069104970	1	
R507	Carbon Film 4.7 kohm 1/5 W J	3069472970	1	
R508	Carbon Film 100 kohm 1/5 W J	3069104970	1	
R509	Metal Film 3.3 ohm 1/2W J	3029335380	1	A(Only)
(R509)	Not Used!			KS,D,IU,B,E
R511	Carbon Film 5.6 kohm 1/5 W J	3069562970	1	
R512	Carbon Film 22 kohm 1/5 W J	3069223970	1	
J501	Jumper		1	A,KS
(J501)	Not Used!			D,IU,B,E
J502	Jumper		1	A,KS,D
(J502)	Not Used!			IU,B,E
P1/P2	Pin Solder	4228001410	2	
	Clip Fuse	4255001010	2	
	Terminal Ground	4228001410	2	
	A'ssy P.C. Board Power S/W	054010110123		A,B,E,KS
	A'ssy P.C. Board Power S/W	054010410124		D,IU
8 ⚠	Switch Power	4628055910	1	
9	Jack Phone, Black	4438004520	1	
C505L/R	Mylar 0.047 µF 100 V J	3679473120	2	D,IU
C506	Ceramic Tubular 0.1 µF 50 V Z	3519103935	1	
C507	Capacitor 0.0047 µF 400 VAC M	3548472340	1	
C508	Ceramic Disc 0.1 µF 50 V Z	3579104530	1	
RS10	Carbon Film 1 kohm 1/5 W J	3069102970	1	
RS11L/R	Carbon Film 4.7 ohm 1/5W J	3069479970	2	
D508	1N4148, Switching	2058322101	1	
CN502	Lead Ass'y, 2P, 350mm	435402353519	1	A
(CN502)	Lead Ass'y, 2P, 350mm	4358850235	1	B
(CN502)	Lead Ass'y, 2P, 350mm	435402353559	1	KS,D,E,IU
CN403	Lead Ass'y, 5P, 300mm	436205303332	1	

PRODUCT SAFETY NOTICE

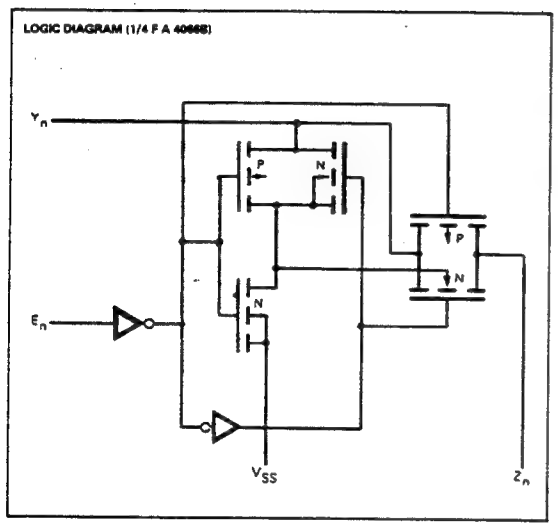
Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, 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.

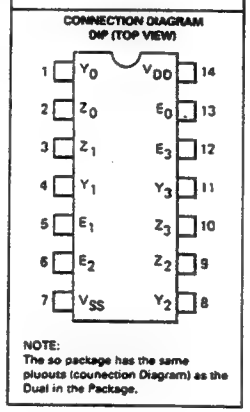
IC'S LEAD IDENTIFICATION & INTERNAL DIAGRAM

GD4066B: IC401(Quad bilateral switches)



PIN NAMES
E0-E3 Enable Inputs
Y0-Y3 Input/Output Terminals
Z0-Z3 Input/Output Terminals

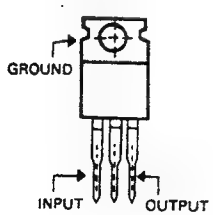




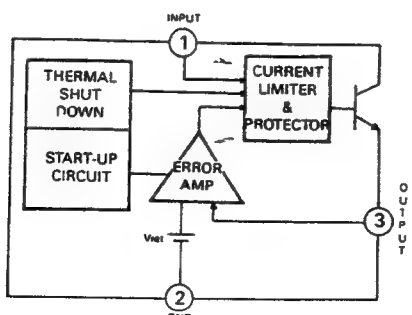
NOTE:
The so package has the same pinouts (connection Diagram) as the Dual in the Package.

KA7806: IC501(Regulator+)

Front View

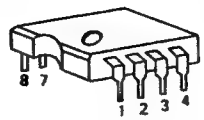


Block Diagram

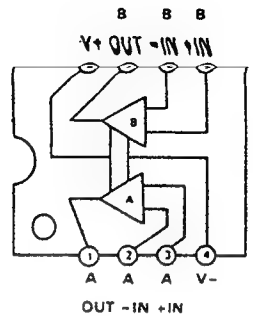


KIA4559P/KIA75559P: IC102, IC104, IC203, IC205 (OP AMP)

Package Outline

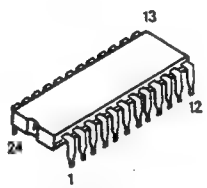


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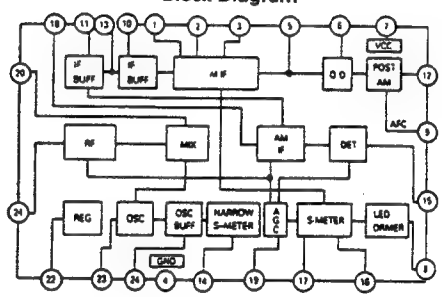


LA1266: IC403

Package Outline

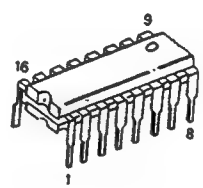


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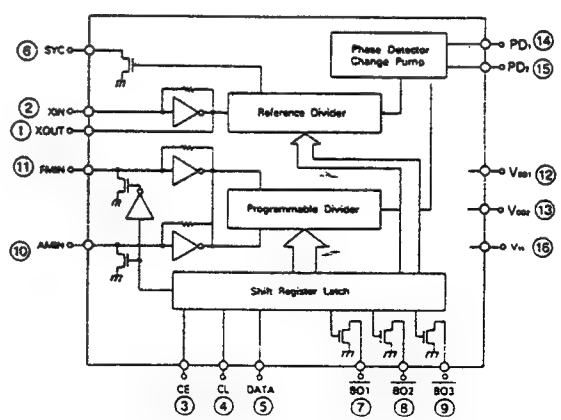


LM7001: IC404

Package Outline

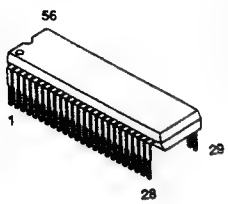


Block Diagram

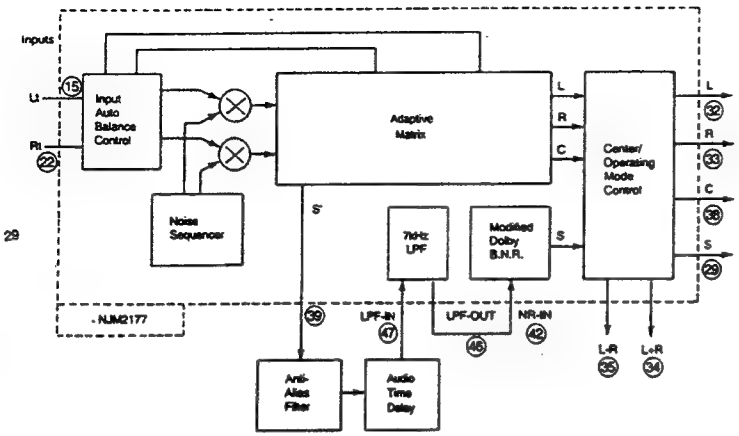


NJM2177L: IC202

Package Outline

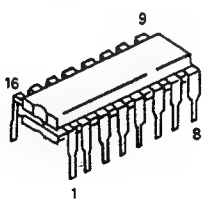


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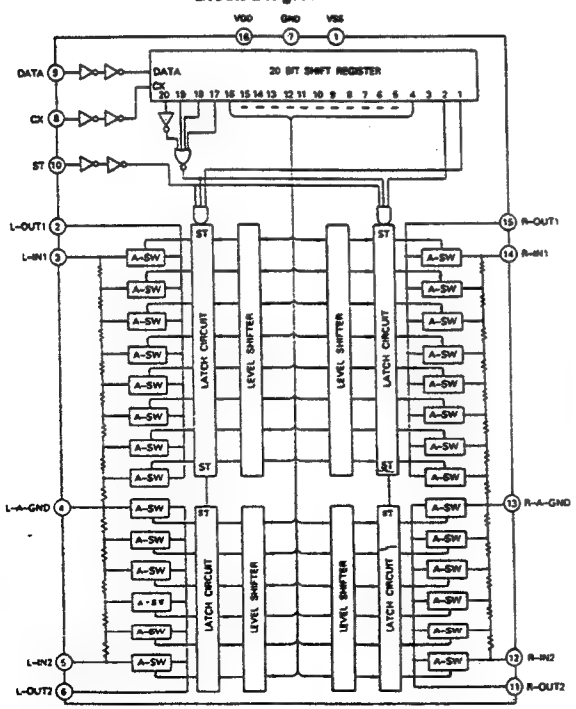


TC9176P: IC109

Package Outline

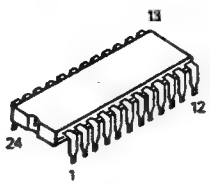


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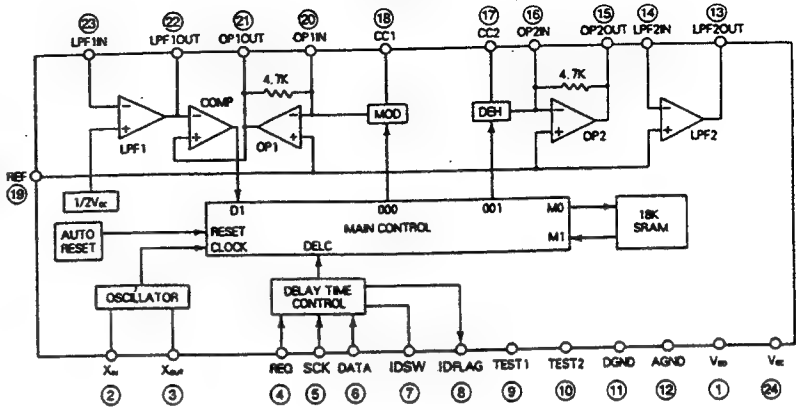


NJU9701: IC201

Package Outline

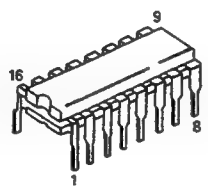


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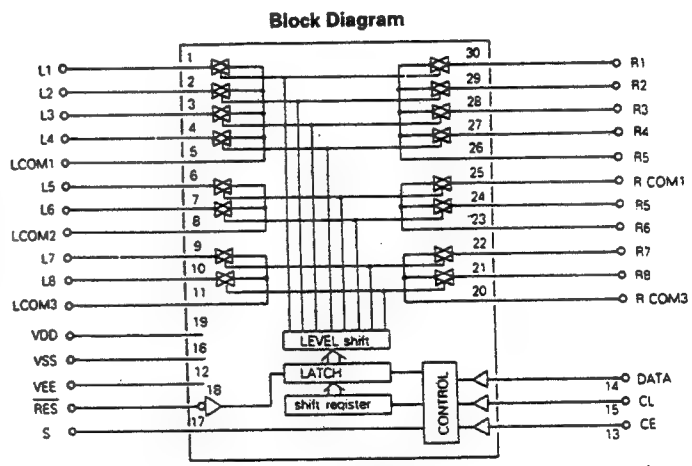


LC7821: IC101

Package Outline

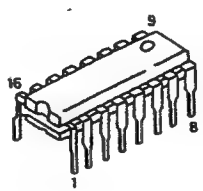


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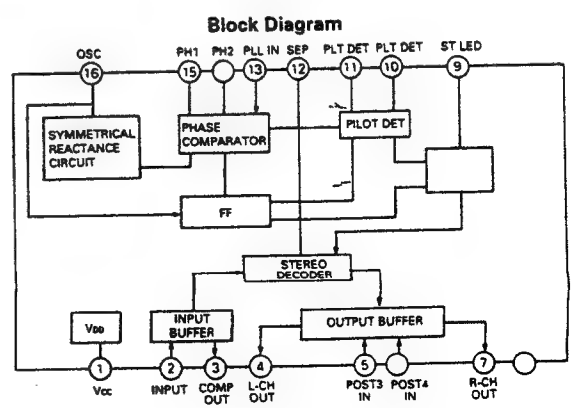


KA2265: IC402

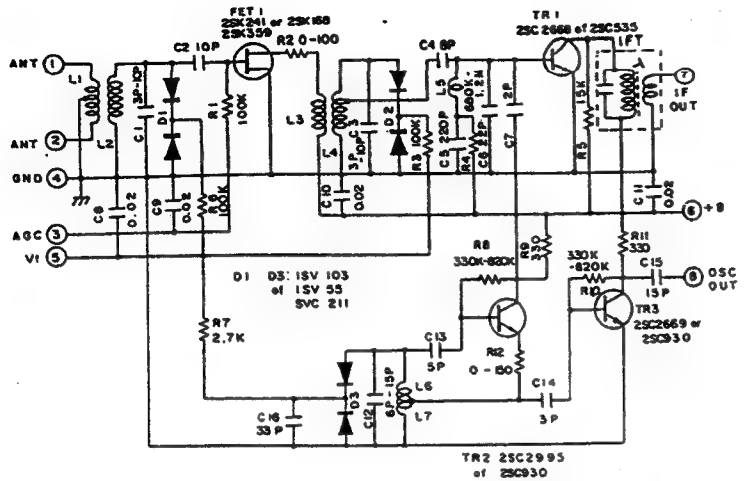
Package Outline



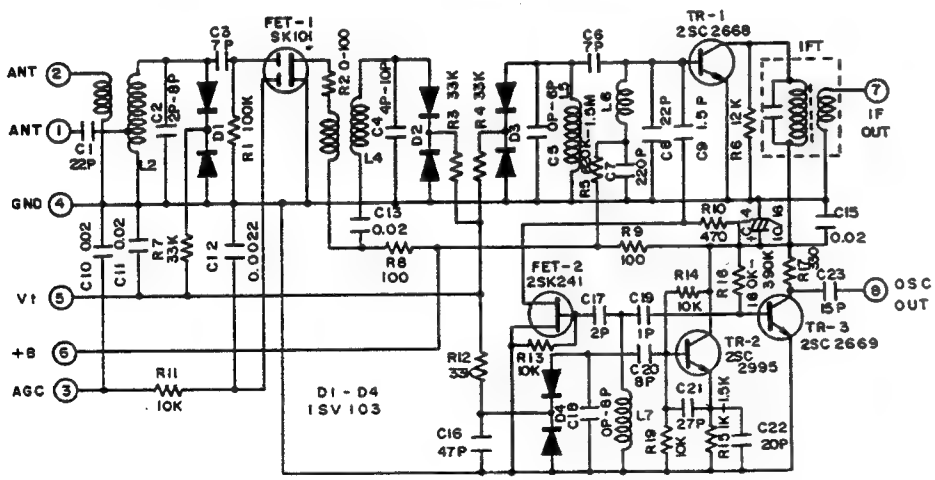
Block Diagram



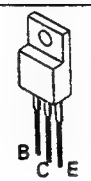
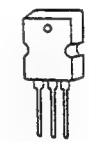
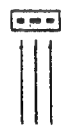
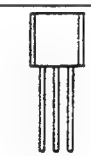
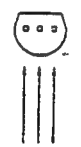
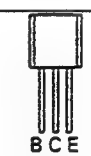
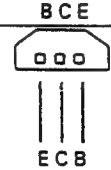
FRONT-END: FE401 (FTH3-505H)



FRONT-END: FE401 (FE407-G60) "D" Version Only



TRANSISTORS LEAD IDENTIFICATION

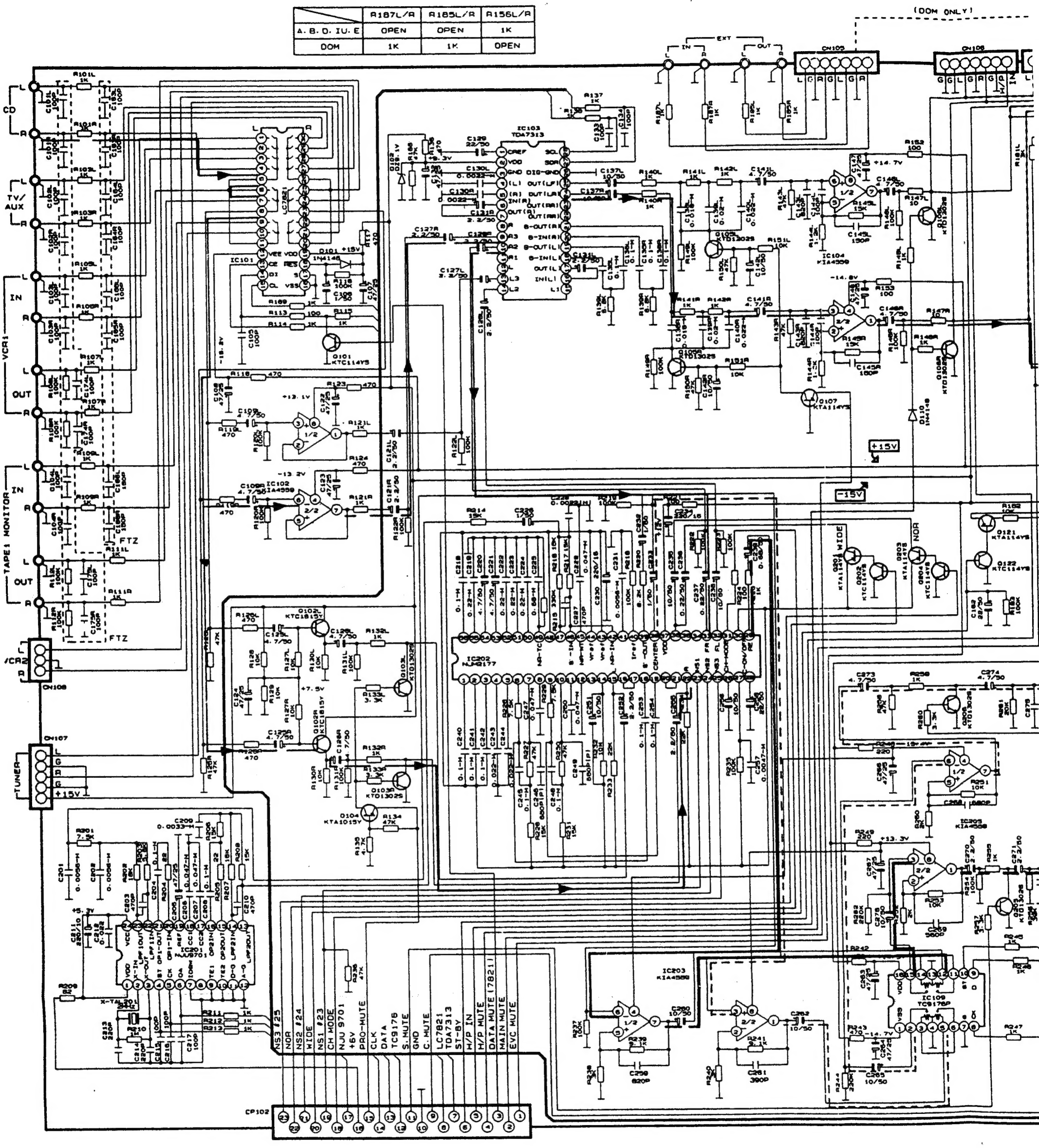
Transistor	Front View	Bottom View
KTB688/2SB688 KTD718/2SD718		
KTB1367/2SB1367 KTD2059/2SD2059		
2SC4137		
KTA1015/KTA1266 KTC1923/KTC3194 KTC1815/KTC3198 KTC2240/KTC3200 KTD1302		
KTC114YS KTA114YS		
KTA949/KTA1024 KTC2229/KTC3206		
2SK117		

TERMINAL NAME

B→BASE
C→COLLECTOR
E→EMITTER
S→SOURCE
G→GATE
D→DRAIN

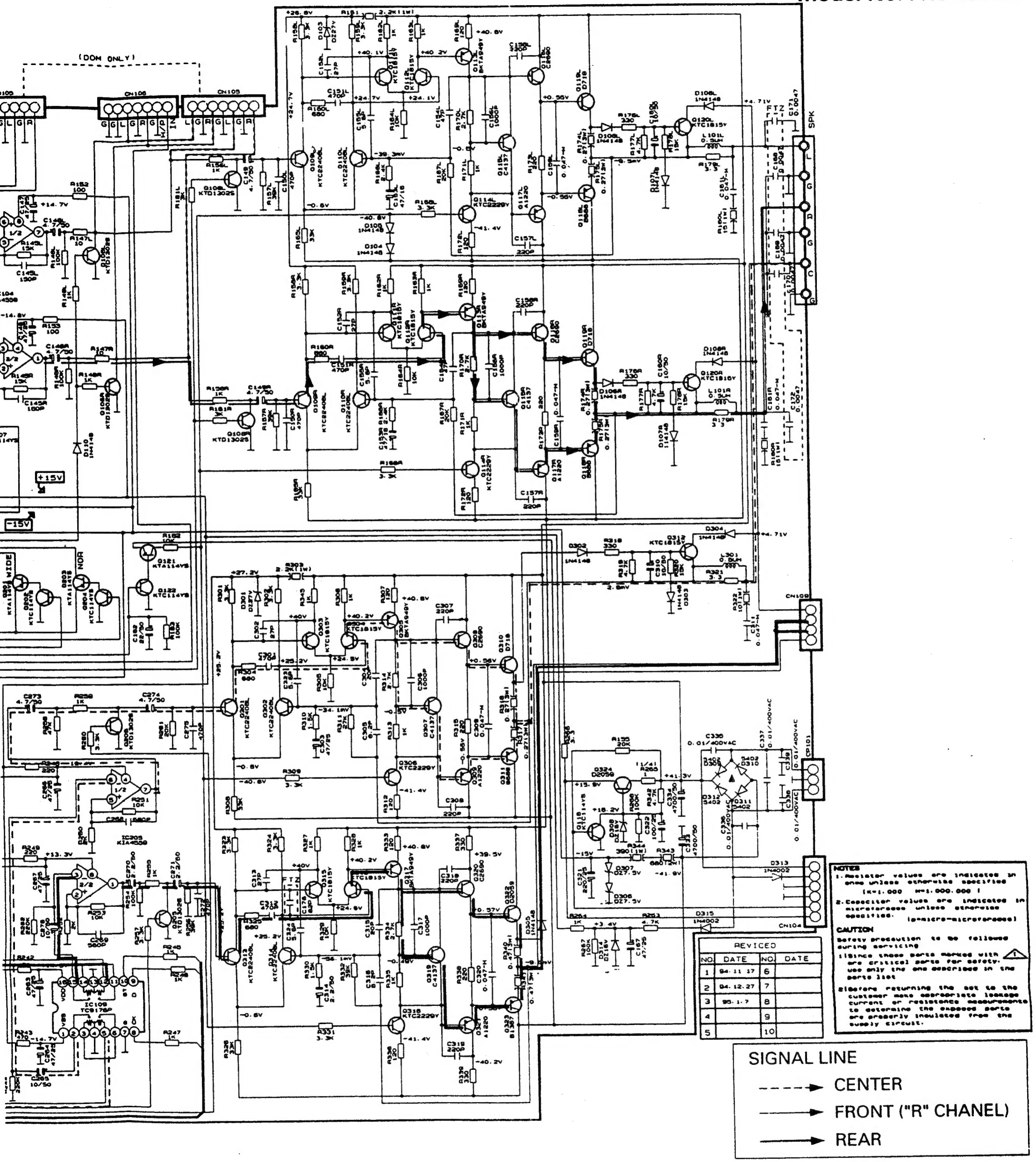
SCHEMATIC DIAGRAM

	R187L/R	R185L/R	R156L/R
A. B. D. IU. E	OPEN	OPEN	1K
DOM	1K	1K	OPEN



MATIC DIAGRAM I

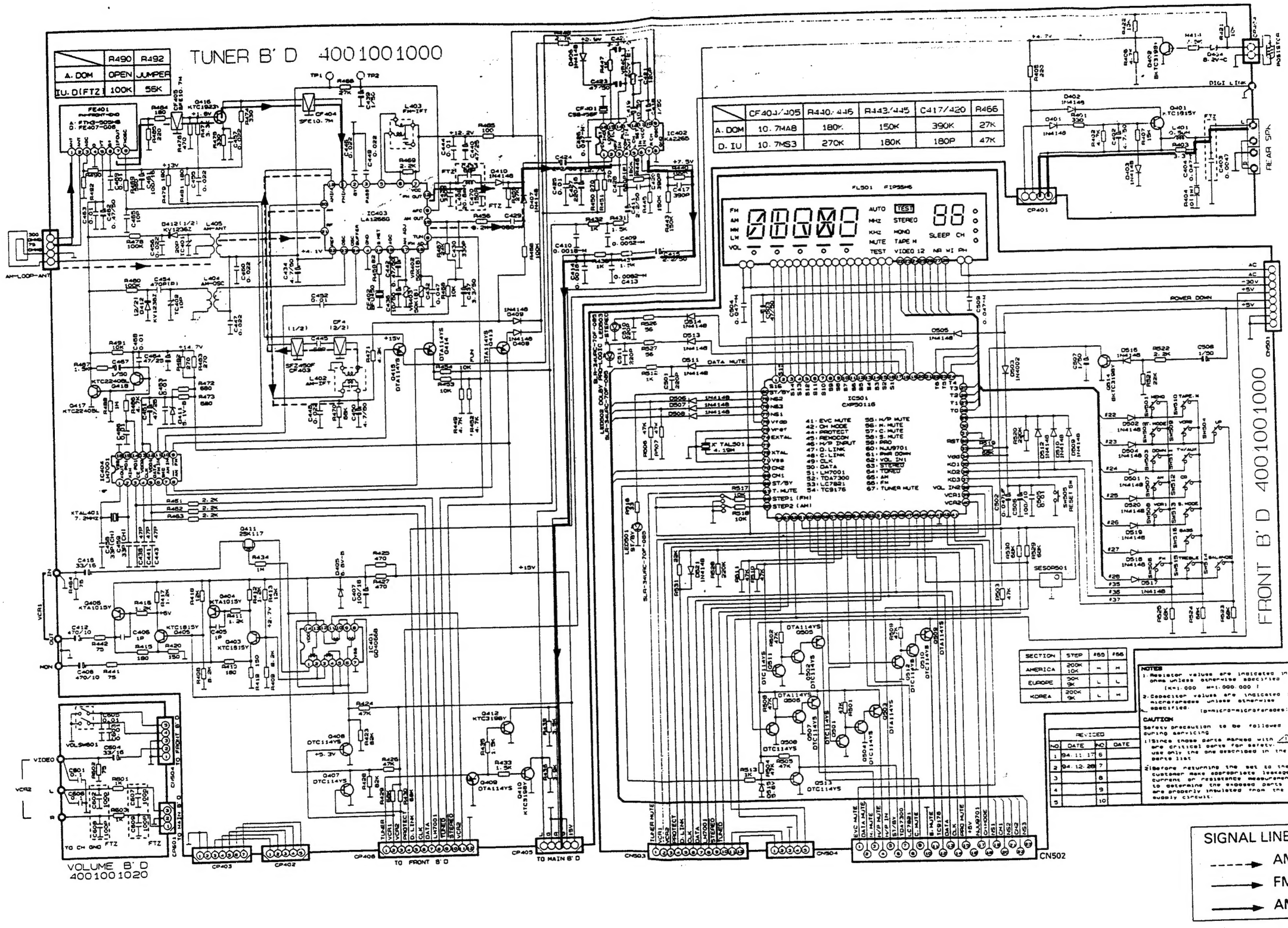
Model No. : RV-4050R



REVICED			
NO.	DATE	NO.	DATE
1	94.11.17	6	
2	94.12.27	7	
3	95.1.7	8	
4		9	
5		10	

NOTES
1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

CAUTION
Safety precaution to be followed during servicing
1) Since those parts marked with ⚠1 are critical parts for safety, use only the one described in the parts list
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.



	R490	R492
A. DOM	OPEN	JUMPER
IU. D(FTZ)	100K	56K

	CF40J/J05	R440/445	R443/445	C417/420	R466
A. DOM	10.7MA8	180K	150K	390K	27K
D. IU	10.7MS3	270K	180K	180P	47K

SECTION	STEP	#65	#66
AMERICA	200K	H	H
	10K	L	L
EUROPE	200K	H	H
	9K	L	L
KOREA	200K	H	H
	9K	L	L

NOTES
1. Resistor values are indicated in ohms unless otherwise specified
(K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

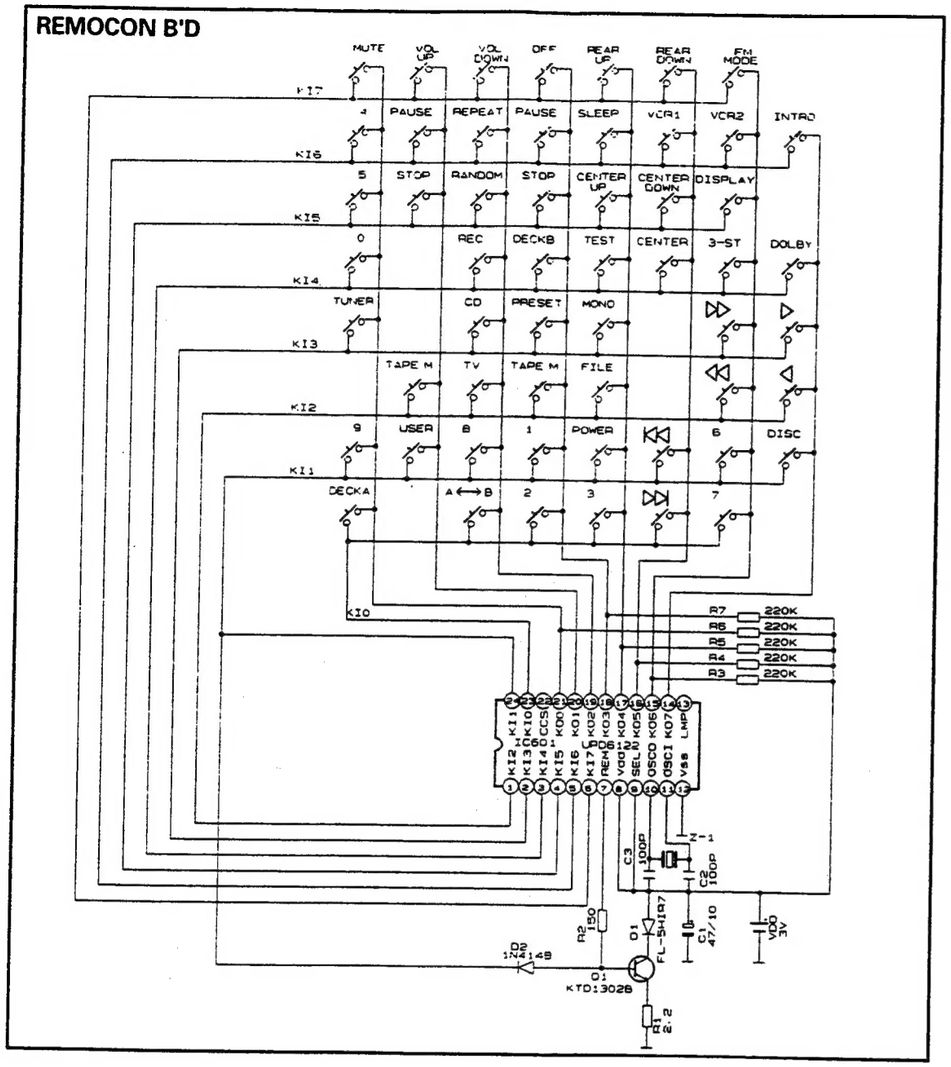
CAUTION
Safety precaution to be followed during servicing
1) Since those parts marked with are critical parts for safety. use only the one described in the parts list
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

REVISED			
NO	DATE	NO	DATE
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2	94.12.28	7	
3		8	
4		9	
5		10	

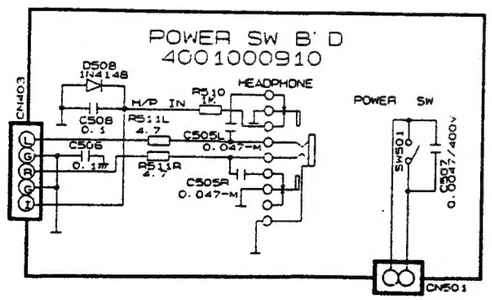
SCHEMATIC DIAGRAM III

Model No. : RV-4050R

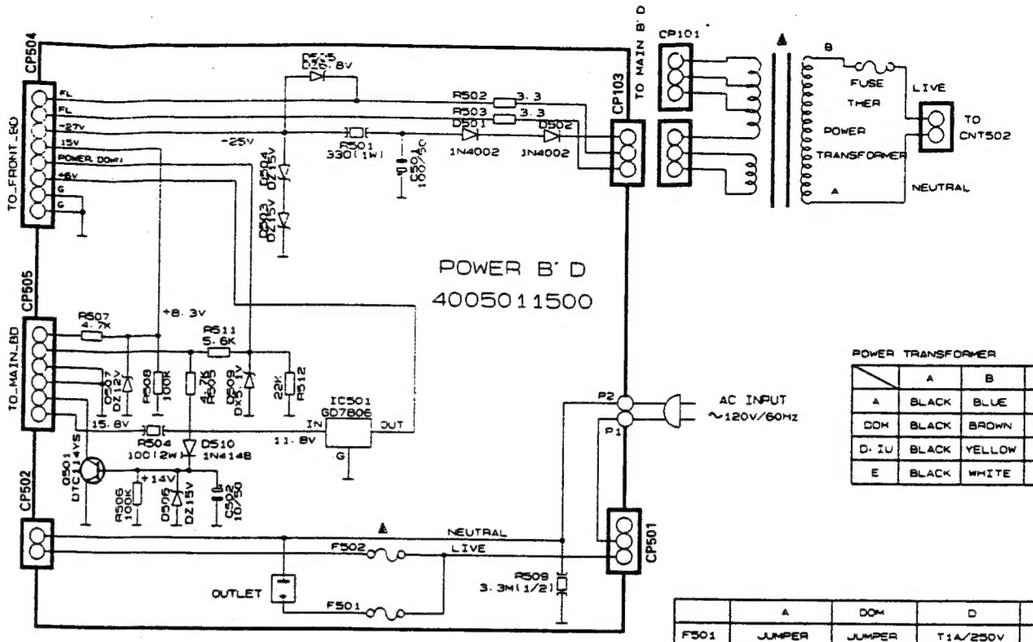
REMOCON B'D



POWER SW B'D
4001000910



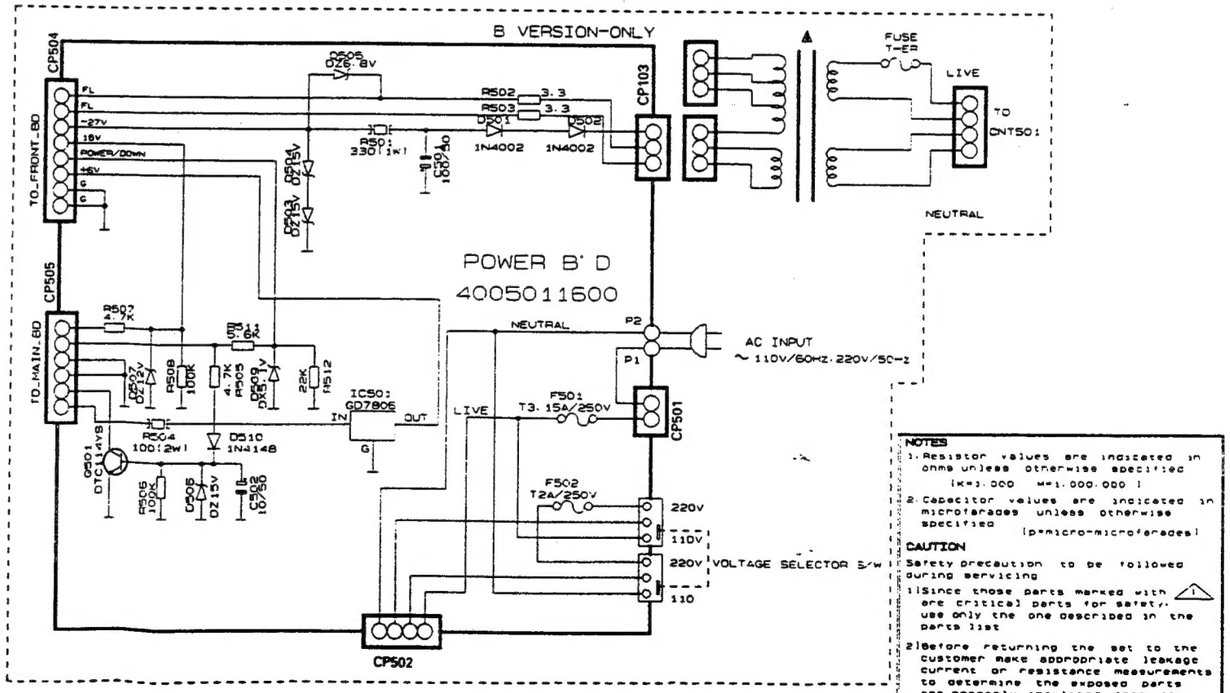
	C506	C505L	C505R
IU. D(FTZ)	OPEN	0.047-M	0.047-M
A. DOM. B. E	0.1(C)	OPEN	OPEN



POWER TRANSFORMER

	A	B	VOLTAGE
A	BLACK	BLUE	120V/60HZ
DOM	BLACK	BROWN	220V/60HZ
D. IU	BLACK	YELLOW	230V/50HZ
E	BLACK	WHITE	240V/50HZ

	A	DOM	D	IU	E
F501	JUMPER	JUMPER	T1A/250V	OPEN	OPEN
F502	SB3.5A	SB2.5A	T2A/250V	T2A/250V	T2A/250V
R509	3.3M(1/2W)	OPEN			



NOTES

1. Resistor values are indicated in ohms unless otherwise specified
   (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified
   (p=micro-microfarades)

CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list

2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.