

TEAC

SERVICE MANUAL

AG-680

AM/FM Stereo Receiver

NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- \triangle Parts marked with this sign are critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.
- Parts of [] mark can be used only with the version designated.
[J]: JAPAN [US]: U.S.A. [C]: CANADA
[E]: EUROPE [UK]: U.K. [GE]: GENERAL EXPORT

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Specifications

AMP Section

Power output	: 100W + 100W (8 Ω , 1kHz, 0.1%)
Total Harmonic Distortion	: 0.05% (95W, 1 kHz, 8 Ω)
S/N Ratio (Input Short)	
Phono	: 70 dB (IHF-A)
CD, AUX, Tape	: 95 dB (IHF-A)
Input Sensitivity/Impedance	
Phono(MM)	: 6.0mV/22k Ω
CD, AUX, Tape	: 200mV/22k Ω
Maximum Input level	
Phono	: 80mV
CD, Aux, Tape	: 3V
Channel Separation(Input Short)	: 70 dB (1kHz, 10W)
Residual Noise	: 20Hz to 40kHz
Frequency Response Tone control	
Bass	: ± 9 dB (100Hz)
Treble	: ± 9 dB (10kHz)
Required Speaker Impedance	: 8 Ω to 16 Ω

General

Power Consumption	: 320W
Power Requirements	: 120V AC, 60Hz [USA]
Dimensions (W x H x D)	: 435 X 130 X 310 mm
Weight (net)	: 7.0 kg

Standard Accessories

Remote Control Unit	: 1
Operator's Manual	: 1

FM Section

Tuning Range	: 87.5 MHz - 108.0 MHz (100 kHz steps)
Usable Sensitivity	: 3.0 μ V
Image Rejection Ratio	: 60dB
Distortion (at 60dB μ V) :	
Mono	: 0.3%
Stereo	: 0.5%
Signal-to-Noise Ratio (at 65dBf, 1KHz) :	
Mono	: 70 dB
Stereo	: 65 dB
Stereo Separation (1KHz)	: 30 dB

AM Section

Tuning Range	: 530 kHz - 1,720 kHz (10 kHz steps)
Usable Sensitivity	: 55 dB/m
Selectivity	: 40 dB (at ± 15 kHz)
Image Rejection Ratio	: 35 dB
Distortion	: 1% (at 85 dB/m)
Signal-to-Noise Ratio	: 40 dB (at 85 dB/m)

Accessories

AM Loop Antenna X 1, FM Antenna X 1

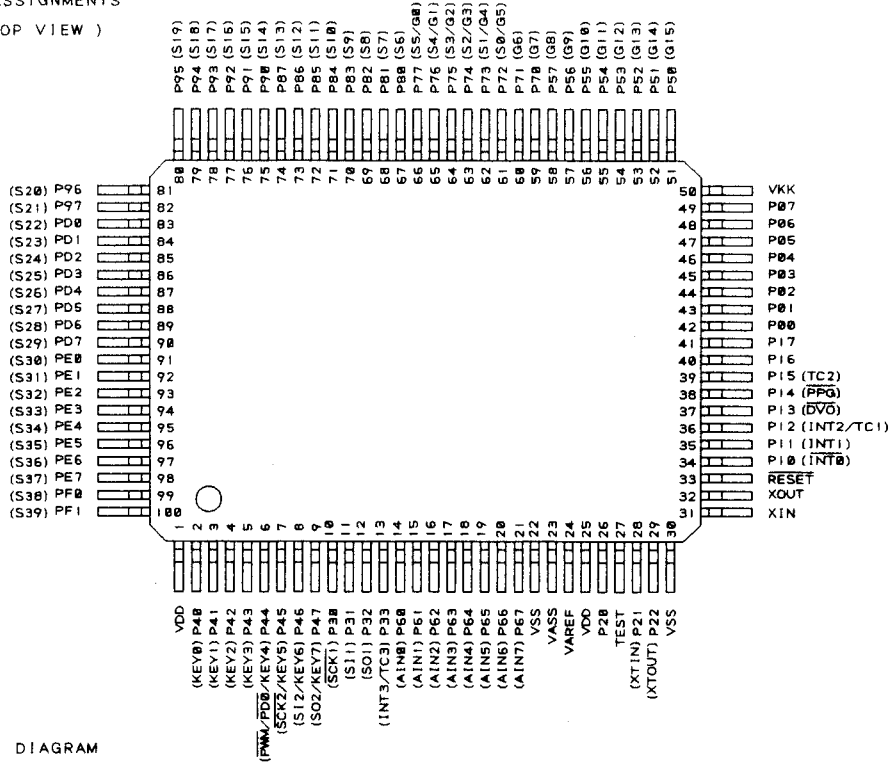
* Improvements may result in specification or feature changes without notice.

IC PIN FUNCTION (IC : ANAM1267T)

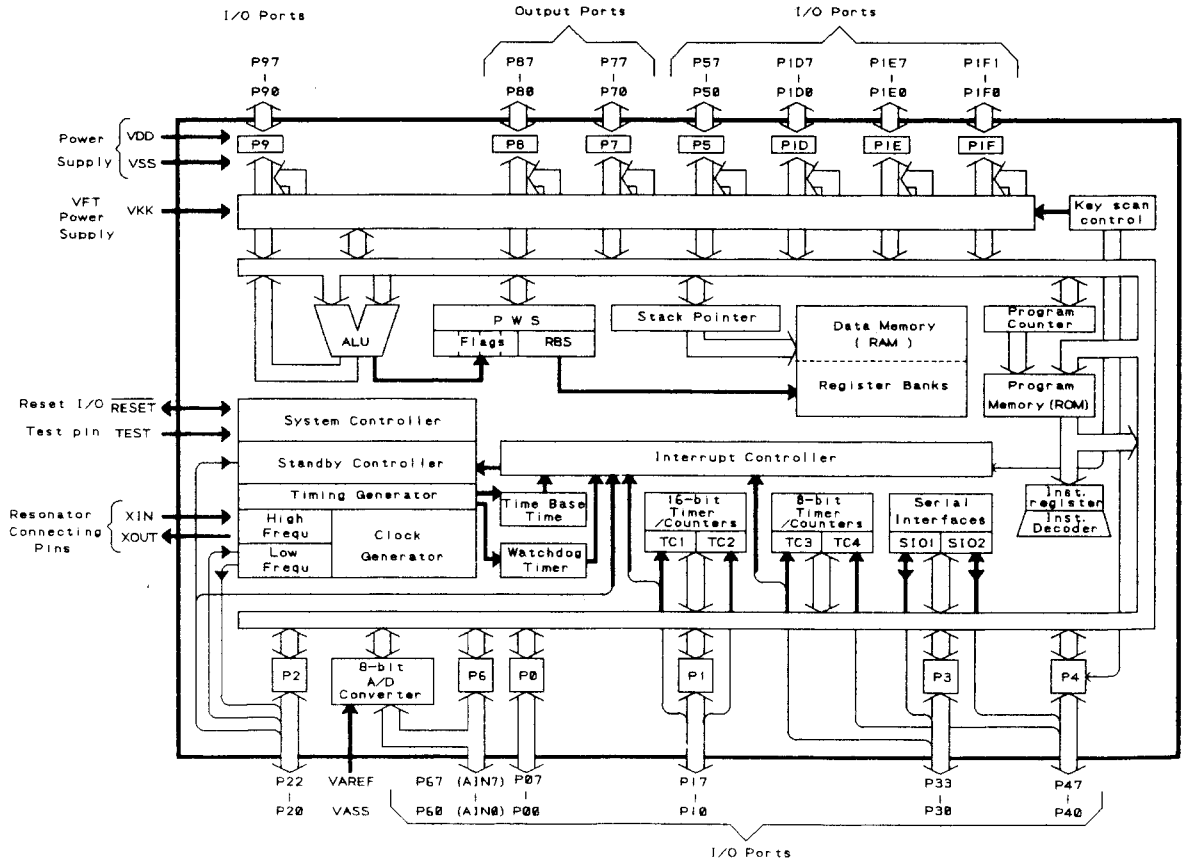
PIN No.	NAME	I/O	DESCRIPTION
1, 25	VDD	-	POWER SUPPLY (+5V)
2	LOUDNESS	O	LOUD LED CONTROL PORT
3	-20dB MUTE	O	-20dB LED CONTROL PORT
4	N-C		
5	FUNC MUTE	O	FUNCTION MUTE CONTROL PORT
6	SP B	O	SPEAKER SYSTEM CONTROL PORT
7	SP A	O	SPEAKER SYSTEM CONTROL PORT
8	SP ON	O	SPEAKER ON/OFF CONTROL PORT
9	TAPE 'H'	O	TAPE MONITOR FUNCTION 'H'
10	-	-	
11	-	-	
12	DATA	O	EUROPE VERSION RDS DATA CONTROL PORT
13	CLOCK	O	
14	STEREO IN	I	STEREO IN CONTROL INPUT
15	TUNED	I	TUNED CONTROL INPUT
16	PROTECTOR	I	PROTECTOR IN PORT
17 ~ 19	KEY MATRIX	I	KEY MATRIX PORTS
22,23,27,30	VSS	-	GND
24	VAREF	-	A/D CONVERTOR REFERENCE VOLTAGE
26	BACK UP	I	BACK-UP MODE CONTROL INPUT
28, 29	VOL UP/ON	I	ENCODER VOLUME UP/DOWN
31	X IN	I	8MHz CRYSTAL CONNECTING TERMINAL
32	X OUT	O	
33	RESET	I	SYSTEM RESET PULSE INPUT
34	REMOTE IN	I	REMOTE CONTROL SIGNAL INPUT
35	BUS IN	I	
36	BUS OUT	O	
38	POWER SW	O	
39	DATA	O	TDA7318D DATA CONTROL PORT
40	CLOCK	O	
41	CE	O	PLL DATA CONTROL PORT
42	DATA OUT	O	
43	CLOCK	O	
44	DATA IN	I	
46	SPEAKER 'A'	O	SPEAKER A LED CONTROL PORT
47	SPEAKER 'B'	O	SPEAKER B LED CONTROL PORT
48	ON/STAND BY	O	ON/STBY LED CONTROL PORT
50	VFL		(-33V) NEGATIVE POWER SUPPLY FOR FIP BLINKING
52 ~ 60	GRID	O	FIP GRID CONTROL OUTPUTS
61 ~ 82	SEGMENT	O	FIP SEGMENT CONTROL OUTPUTS
83	OPTION A	I	AREA OPTION PORT
84	OPTION B	I	
85	OPTION C	I	

[U-COM FUNCTION : BVIANAM126'T]

PIN ASSIGNMENTS
(TOP VIEW)



BLOCK DIAGRAM



■ ALIGNMENT INSTRUCTIONS

EQUIPMENT NEEDED:

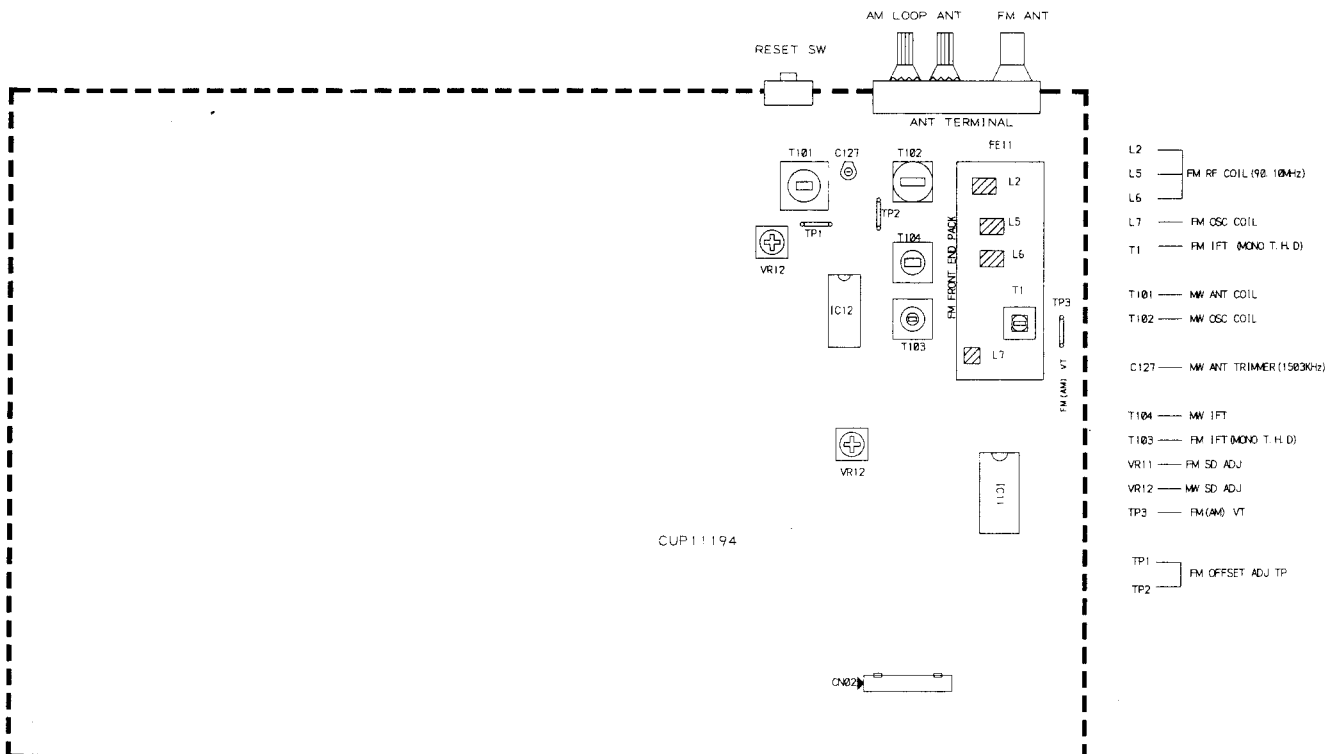
AM Signal Generator
 FM Signal Generator
 Oscilloscope
 VTVM(AC, DC)
 Test loop antenna (AW Adjustment)
 Dummy antenna (FM Adjustment)
 Stereo signal modulator
 Frequency counter
 Distortion analyser

IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

Band \ Item	Modulation	Modulation frequency
AM	30%	400Hz
FM	100%(75KHz Dev.)	400Hz

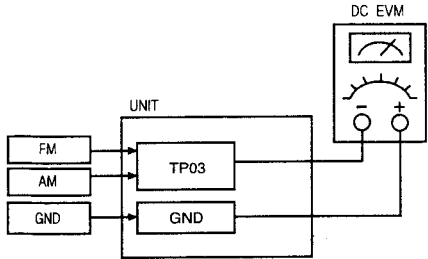
■ ADJUSTMENT POINT



MEASUREMENTS AND ADJUSTMENTS

1. FM, AM TRACKING VOLTAGE ADJUSTMENTS

(FM, AM) DC VOLTMETER CONNECT TO TEST POINT TP1 and GND

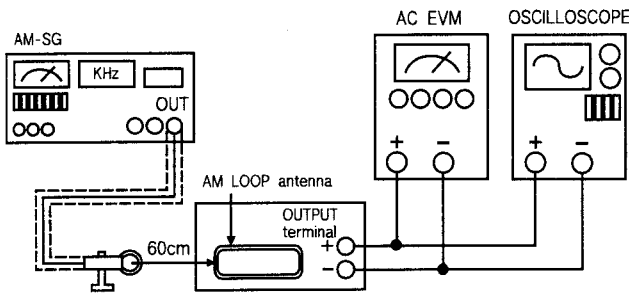


NO.	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	1.5V	L7
2	AM	530KHz	1V	T101

2. AM RF ADJUSTMENT

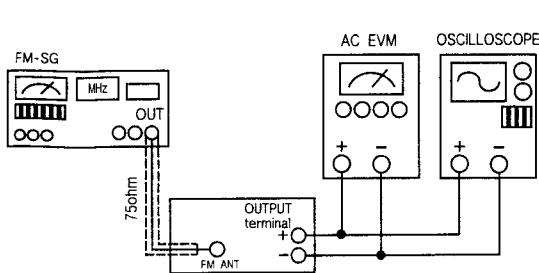
Signal Generator Connects to the AM ANT. Coil through the loop antenna.
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustment
AM	1	610KHz	Maximum sensitivity	T101, T104
	2	1510KHz	Maximum sensitivity	C127
	3	Repeat steps 1 and 2 several times.		



3. FM-RF ADJUSTMENT

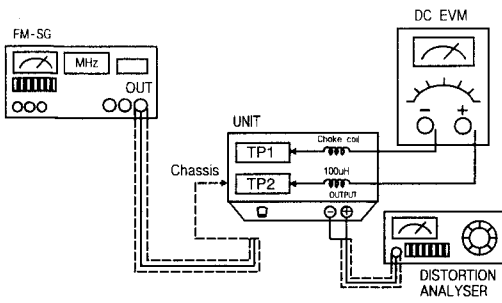
Signal Generator Connect to FM ANT JACK (FM IN) through the dummy.



NO.	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum Sensitivity	L2, L5, L6
2	Repeat step 1 several times.		

4. FM MONO DISTORTION ADJUSTMENT

- DC VOLT METERConnect to TP1(-), TP2(+) Through the choke coil (100 μ H)
 Signal Generator.....Connect to FM ANT Jack (FM IN) through the dummy.
 Distortion MeterConnect to the output.



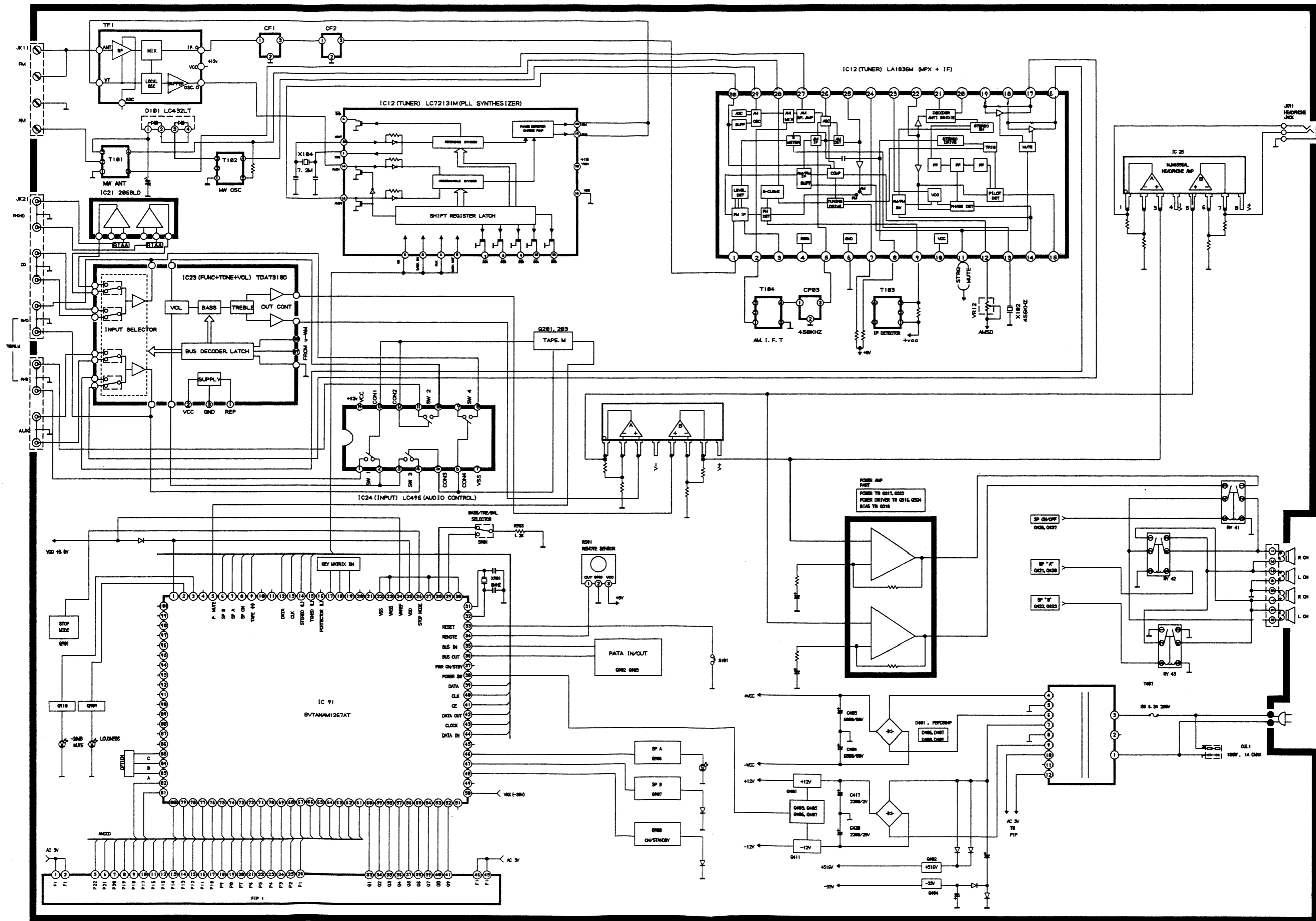
NO.	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T103
2	100.10MHz	Minimum T.H.D	T103
3	Repeat steps 1 and 2 Several times.		

5. FM/AM AUTO STOP LEVEL ADJUSTMENT

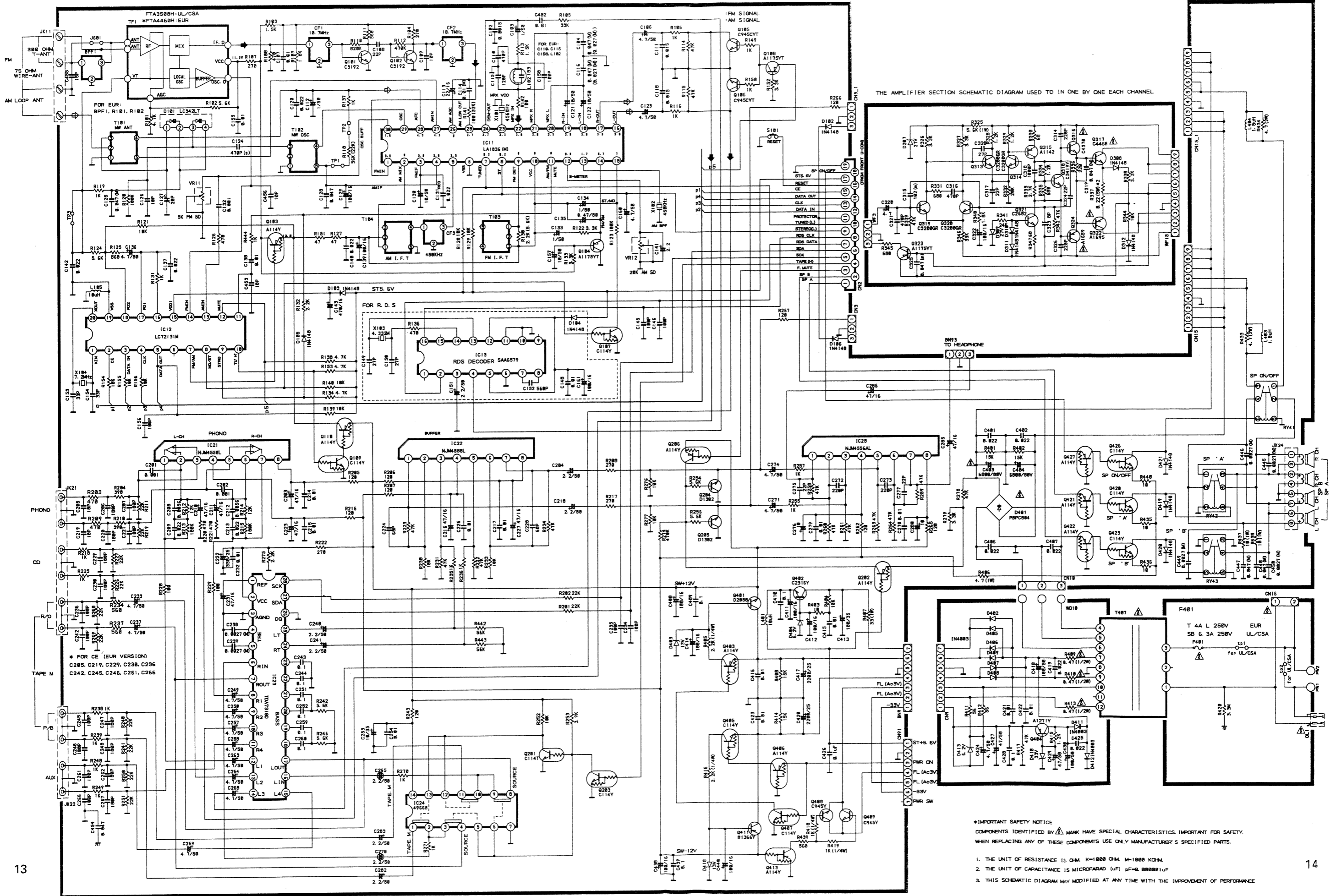
- FM SIGNAL GENERATORConnect to FM ANT Jack (FM IN) through the dummy
 AM SIGNAL GENERATOR.....Connect to AM ANT, Coil through the Loop antenna

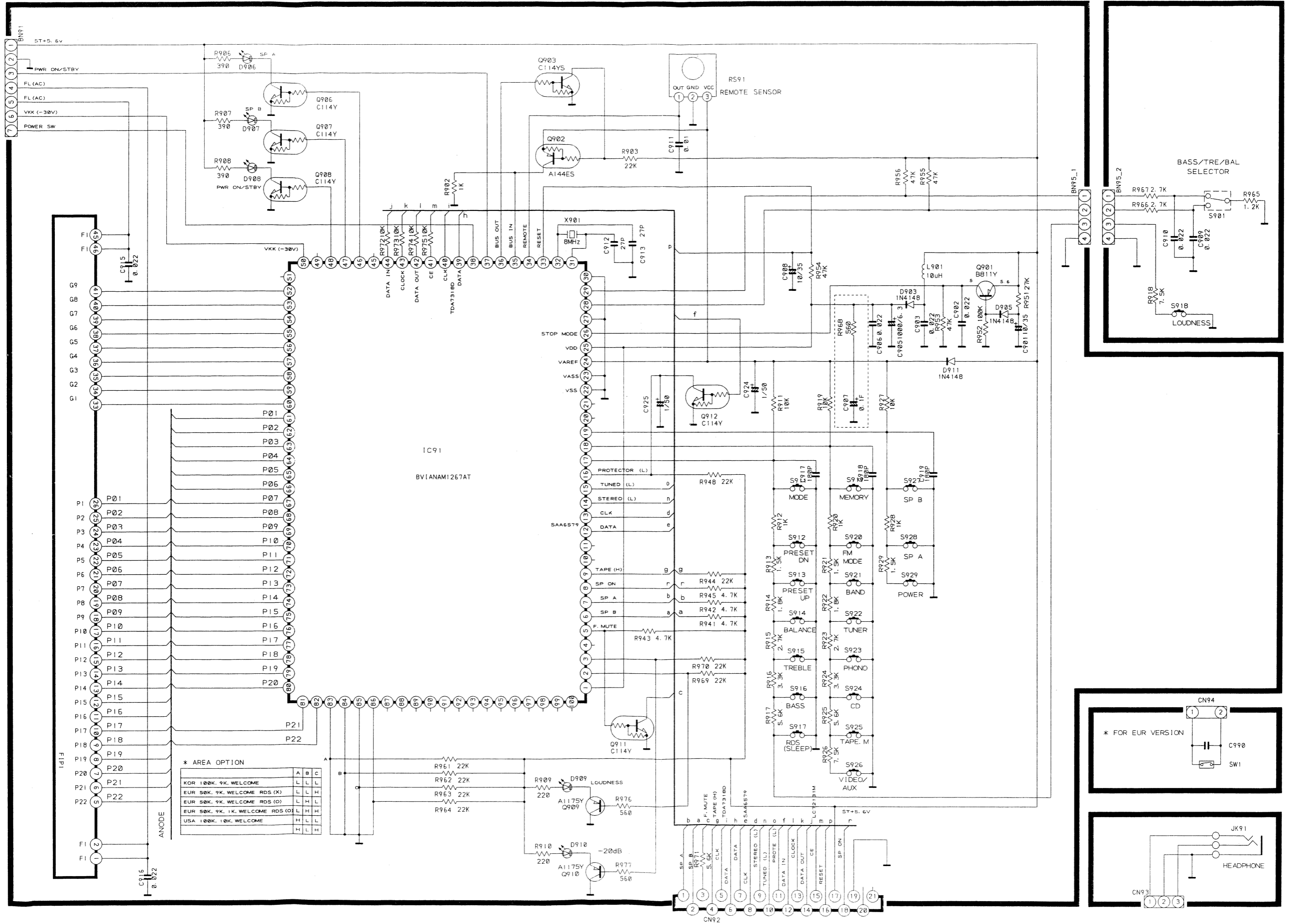
BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	100.1MHz 30dB	<input type="checkbox"/> TUNED Display OFF	VR11
	2	100.1MHz 30dB	<input type="checkbox"/> TUNED Display ON	VR11
AM	1	1000KHz 80dB	<input type="checkbox"/> TUNED Display OFF	VR12
	2	1000KHz 80dB	<input type="checkbox"/> TUNED Display ON	VR12

BLOCK DIAGRAM



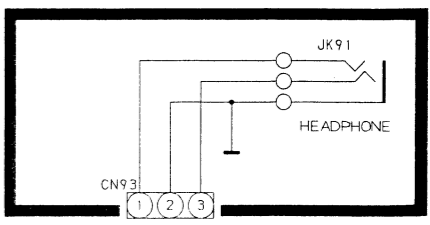
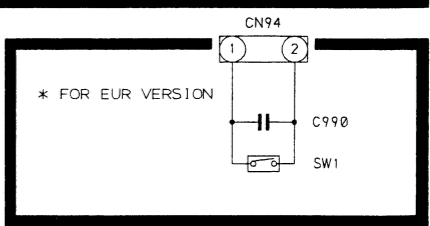
SCHEMATIC DIAGRAM



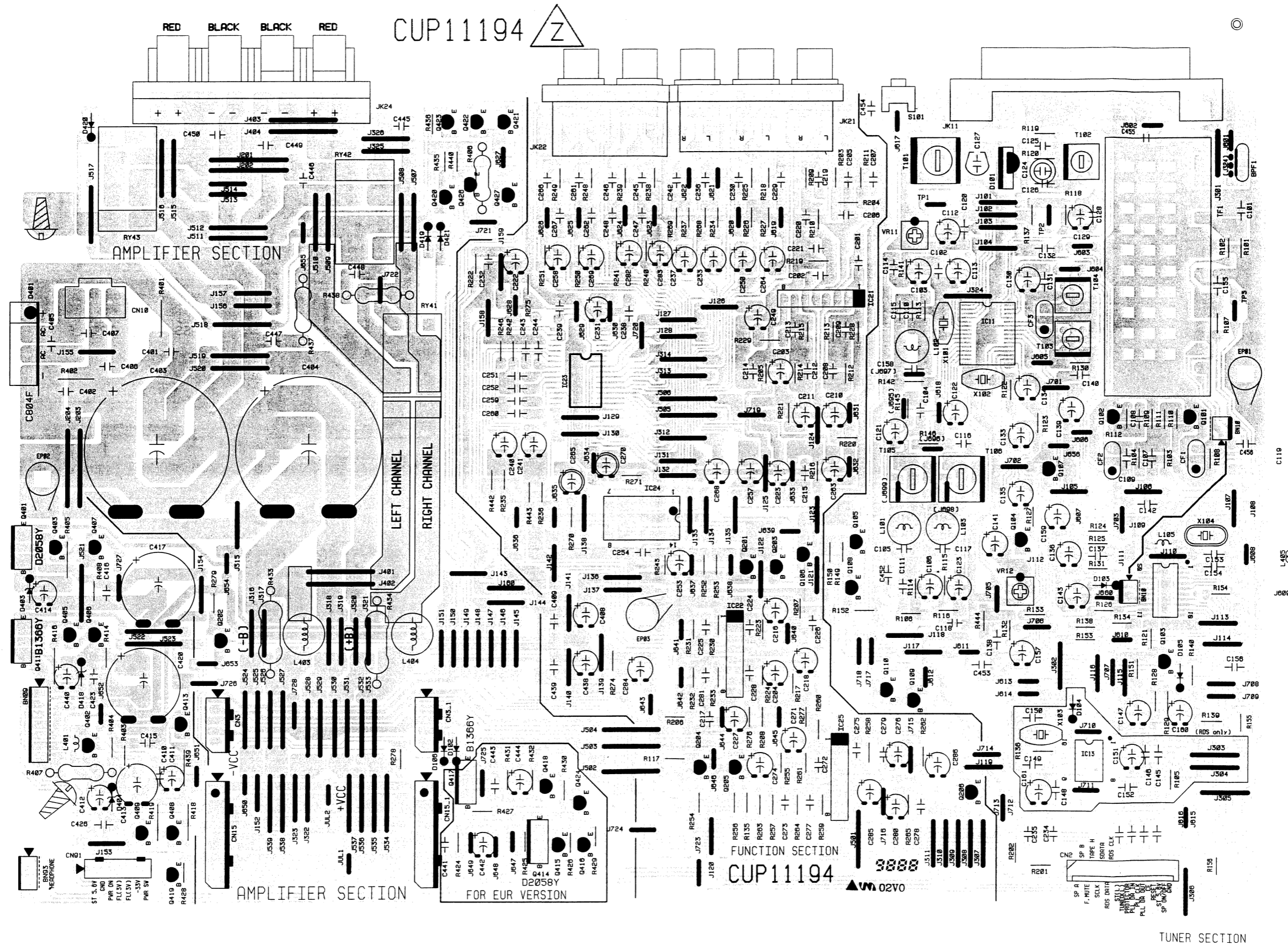


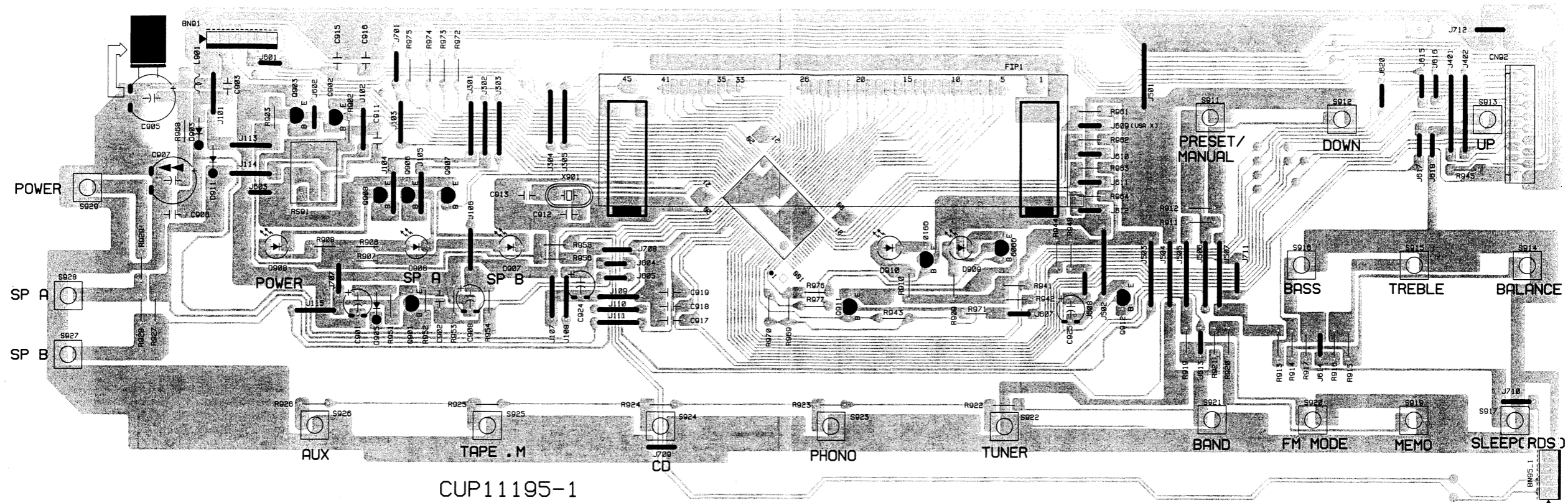
* AREA OPTION

	A	B	C
KOR 100K, 9K, WELCOME	L	L	L
EUR 50K, 9K, WELCOME RDS (X)	L	L	H
EUR 50K, 9K, WELCOME RDS (O)	L	H	L
EUR 50K, 9K, 1K, WELCOME RDS (O)	L	H	H
USA 100K, 10K, WELCOME	H	L	L
	H	L	H

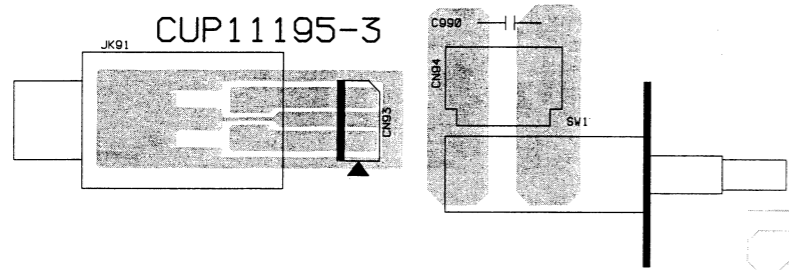


PRINTED CIRCUIT BOARDS





CUP11195-1

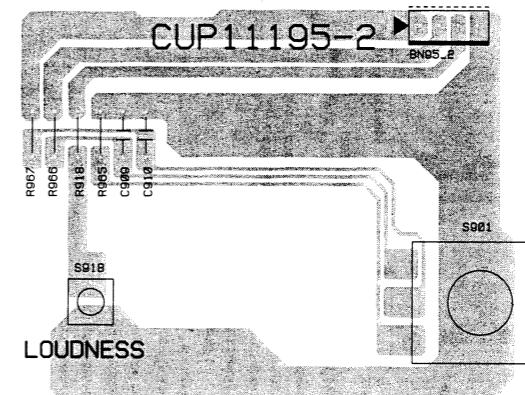


CUP11195-3

IC	ICT	ADJ1	ADJ2	RP



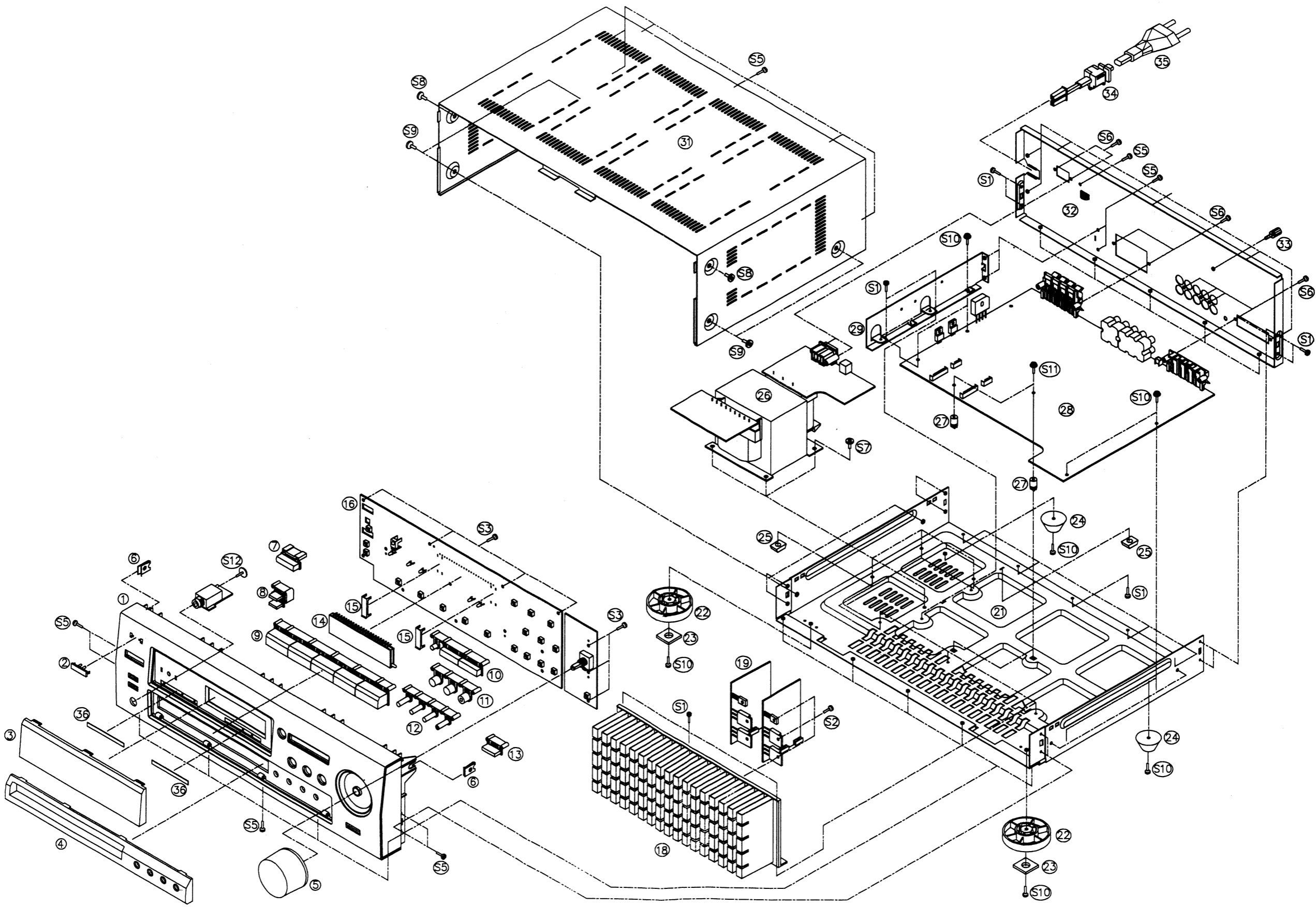
CUP11195



CUP11195-2

LOUDNESS

EXPLODED VIEW



EXPLODED VIEW

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1	9A07368400	FRONT PANEL	CGW1A241ZH10
2	9A07047400	BADGE	KGB1A056H12
3	9A07327700	WINDOW , FIP	CGU1A197Z
4	9A07368300	FRONT ORNAMENT	CGR1A150Z
5	9A07045100	KNOB , FUNCTION	KBN1A082K76
6	9A03741300	U-NUT	KNE4060
7	9A06777500	KNOB,POWER	KBT2A450
8	9A07327000	KNOB , SPEAKER	CBT1A587
9	9A07327100	KNOB , FUNCTION	CBT1A588Z
10	9A07327200	KNOB , TUNING	CBT1A589
11	9A07327300	KNOB , CONTROL	CBT1A590
12	9A07327400	KNOB , BAND	CBT1A591
13	9A07327500	KNOB , LOUDNESS	CBT1A592
14	9A07329300	F.I.P	KFLSVA09MS10
15	9A07290000	BRACKET, FLT	KMD1A374
16	9A07368500	FRONT PCB ASS'Y [US, C]	COP11195B
	9A07368510	FRONT PCB ASS'Y [E]	COP11195Y
17		<i>Vacant</i>	
18	9A07330600	HEAT SINK	CMY1A139
19	9A07370800	POWER PCB ASS'Y [US, C]	COP11206B
	9A07370810	POWER PCB ASS'Y [E]	COP11206D
20		<i>Vacant</i>	
21	9A07328900	CHASSIS , MAIN	CUA1A168
22	9A05891400	FOOT,FRONT	KKL1A042H11
23	9A05837300	FOOT CUSHION	KHG1A050Y
24	9A06755300	FOOT,RUBBER (BLACK)	KKL1A012
25	9A05921700	RUBBER	KHG1A113
26	9A07371100	MAIN TRANS [US]	CLT5U012ZU
	9A07491900	MAIN TRANS [E]	CLT5U012ZE
27	9A06229100	MOUNT , PCB A4-92-1728	KHE1A023
28	9A07370700	MAIN PCB ASS'Y [US, C]	COP11194B
	9A07370710	MAIN PCB ASS'Y [E]	COP11194D
29	9A07328200	BRACKET , PCB	CMD1A392
30		<i>Vacant</i>	
31	9A07328000	CABINET , TOP	CKC1B098S1
32	9A07328100	PANEL , REAR	CKF1A172Z
33	9A05917200	GROUND TERMINAL	KMA2A001
34	△ 9A06754900	BUSHING,AC CORD	KHR1A028
35	△ 9A07370600	CORD,POWER [US, C]	CJA2A040Z
	△ 9A07332400	CORD,POWER [E]	BJA2B034Z
36	9A07329400	SHEET , LED	KGX1A266Z
	△ 9A07371000	FUSE 2C6300TLU [US, C]	KBA2C6300TLU
	△ 9A06784300	FUSE 2C6300TLE [E]	KBA2C6300TLE
S1	9A01535800	SCREW,KTB3+8J	KTB3+8J
S2	9A01397500	SCREW,KTB3*10J	KTB3+10J
S3	9A01377400	SCREW,KTB3+10G	KTB3+10G
S4	9A01377500	SCREW,KTB3+12J	KTB3+12J
S5	9A01377200	SCREW KTB3+8JFZ	KTB3+8JFZ
S6	9A01377300	SCREW,KTB3+10GFZ	KTB3+10GFZ
S7	9A01477800	SCREW,KTB4*8F	KTB4+8F
S8	9A01397700	SCREW KTB4+8JFZ	KTB4+8JFZ
S9	9A05984300	SCREW KTB4+6FFZ	KTB4+6FFZ
S10	9A05339200	SCREW KTW3+8J	KTW3+8J
S11	9A06255100	SCREW KTW3+16G	KTW3+16G
S12	9A01377600	SCREW,KTWS3+10G	KTWS3+10G

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A06261100	ANT,AM LOOP	KSA1A009Z
	9A06261200	ANT,FM T	KSA1A010Z
	9A07126800	OWNER'S MNL E/F AG-680 [US, C]	CQX1A485Z
	9A07125400	OWNER'S MNL E/F/G/I/S/ AG-680 [E]	CQX1A505Z
	9A07369600	REMOCON TRANSMITER(RC-708) [US, C]	CARTAG680TCCC
	9A07492000	REMOCON TRANSMITER [E]	CARTAG680EURCC

■ Resistor and Capacitor

- Notes :
- Part numbers are indicated for most mechanical parts.
Please use this part number for parts order.
 - **IMPORTANT SAFETY NOTICE.**
Components identified by \triangle mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.
 - The unit of resistance is OHM(Ω)
K=1000(Ω), M=1000(K Ω)
 - The unit of capacitance is MICROFARAD(μ F).
P=10⁻⁶ μ F

■ Numbering System of Resistor

Example

$\frac{\text{KRD}}{\text{Type}}$ $\frac{25}{\text{Wattage}}$ $\frac{\text{F}}{\text{Shape}}$ $\frac{\text{J}}{\text{Tolerance}}$ $\frac{101}{\text{Value}}$

Resistor Type	Wattage	Tolerance
KRD:Carbon	20:1/5W	F:= \pm 1%
KRG:Metal Oxide	25:1/4W	J:= \pm 5%
	50:1/2W	K:= \pm 10%
	1:1W	
KRF:Metal Cement	2:2W	
	3:3W	

■ Numbering System of Capacitor

Example

$\frac{\text{KCKT}}{\text{Type}}$ $\frac{1\text{H}}{\text{Voltage}}$ $\frac{101}{\text{Value}}$ $\frac{\text{K}}{\text{Tolerance}}$ $\frac{\text{B}}{\text{Peculiarity}}$

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
KCB: Ceramic	OJ:6.3V	1H:50V DC	C: \pm 0.25pF
KCC: Ceramic	1A:10V	1:125V DC	G: \pm 2%
KCK: Ceramic	1C:16V	KC:400V AC	J: \pm 5%
KCFR: Semiconductor	1E:25V		K: \pm 10%
KCQI: Polyester	1H:50V		Z: + 80%, -20%
KCQP: Polypropylene	1V:35V		
KCQS: Polystyrol			

MAIN PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07370700	MAIN PCB ASS'Y [US, C]	COP11194B
	9A07370710	MAIN PCB ASS'Y [E]	COP11194D
	9A07373300	MAIN PCB	CUP11194Z
BPF1	9A07337800	B.P.F GFMBB.P.F [E]	KVFGFMB3
C403.404	△ 9A07371700	CAP,ELECT T80V682AD	CCET80V682AD
C417.420	△ 9A07371800	CAP,ELECT A1ERS222ED	CCEA1ERS222ED
CF03	9A07006300	FILTER CERAMIC	BVFPFB450JR3
D101	9A06767400	D.SVC342LT	BVDSVC342LT
D102.103	9A01390500	DIODE,1N4148MT	KVD1N4148MT
D105.106	9A01390500	DIODE,1N4148MT	KVD1N4148MT
D401	△ 9A06759900	D.KBU804F	BVDKBU804F
D403.418	△ 9A06765200	DIODE,MTZJ13BT	KVDMTZJ13BT
D404	△ 9A06236200	DIODE,ZENER MTZJ6.2BT	KVDMTZJ6.2BT
D419-421	9A01390500	DIODE,1N4148MT	KVD1N4148MT
IC11	9A06767500	IC.LA1836M	BVILA1836M
IC12	9A07326300	I.C.PLL	BVILC72131M
IC13	9A07343200	IC, RDS ENCODER [E]	BVIBFU1923FT
IC21.22	9A07043700	I.C NJM4558L	BVINJM4558L
IC23	9A05425000	IC (VOLUME+FUNCTION)	BVITDA7318D
IC24	9A05971200	IC.LC4966	BVILC4966
IC25	9A06760100	IC.NJM4556AL	BVINJM4556AL
JK11	9A07371900	TERMINAL,ANT	KJJ3G011Z
JK21	9A06761800	TERMINAL,IN/OUT	KJJ4R012Z
JK22	9A07329800	JACK .IN/OUT	KJJ4P014Z
JK24	9A01536100	TERMINAL,SPEAKER 8P	KJJ5Q001Z-C
L105.401	9A05356900	COIL .AXAIL 10UH,K	KLQ02C100KT
L403.404	9A04875100	COIL	KLEYK1R8KA
Q101.102	9A05197300	TR,KTC31920T	KVTKTC31920T
Q103	9A05196400	TR,DTA114YST	KVTDTA114YST
Q104	9A03745100	TR,KSA1175-YTA	KVTKSA1175YT
Q105.106	9A01388800	TR,KSC945-YTA	KVTKSC945CYT
Q107	9A05196500	TR,DTC114YST	KVTDTC114YST
Q108	9A03745100	TR,KSA1175-YTA	KVTKSA1175YT
Q109.201	9A05196500	TR,DTC114YST	KVTDTC114YST
Q110.202	9A05196400	TR,DTA114YST	KVTDTA114YST
Q203	9A05196500	TR,DTC114YST	KVTDTC114YST
Q204.205	9A05197500	TR,KTD1302T	KVTKTD1302T
Q206	9A05196400	TR,DTA114YST	KVTDTA114YST
Q401	9A06676000	TR KTD2058Y	KVTKTD2058Y
Q402	9A05196800	TR,KSC2316-Y-SHTA	KVTKSC2316YT
Q403.406	9A05196400	TR,DTA114YST	KVTDTA114YST
Q405.407	9A05196500	TR,DTC114YST	KVTDTC114YST
Q408.409	9A01388800	TR,KSC945-YTA	KVTKSC945CYT
Q411	9A06245000	T.R KTB1366Y	KVTKTB1366Y
Q413	9A05196400	TR,DTA114YST	KVTDTA114YST
Q420	9A05196500	TR,DTC114YST	KVTDTC114YST
Q421.422	9A05196400	TR,DTA114YST	KVTDTA114YST
Q423.426	9A05196500	TR,DTC114YST	KVTDTC114YST
Q427	9A05196500	TR,DTC114YST	KVTDTC114YST
R406	△ 9A05896400	R.,4.7-OHM,1W	KRG1ANJ4R7H
R407	△ 9A07372000	RES,METAL OXIDE FILM	KRG1ANJ330H
R433.434	△ 9A05979000	R.,4.7-OHM,2W	KRG2ANJ4R7H
R437.438	△ 9A05338000	R,METAL OXIDE FILM 1W 10	KRG1ANJ100H
RY41- 43	9A07326100	RELAY	BSL4A010ZU
S101	9A04882400	SW,TACT	KST1A010Z
T101	9A06259900	COIL .AM ANT2	KLA2C005
T102	9A05332500	COIL .AM OSC 2B008Z	KLO2B008Z
T103	9A06762200	I.F.T,FM B028Z	KLI3B028Z
T104	9A05939400	IFT,AM	KLI2B103-G
T105, 106	9A014073-00	COIL, MPX [E]	KLM5B2-T
TF01	9A07005100	TUNER,PACK	KNVFTA3508HB
VR11	9A05940500	R,SEMI FIXED EVNDJAA03B53	BVN1PA502B01T
VR12	9A05317700	VR,SEMI FIX EVNDJAA03B24	BVN1PA203B01T
X101	9A06762400	RESONATOR,CERAMIC	BVFZTB456F11
X102	9A06762500	FILTER,CERAMIC	BVFLZU450C4N
X103	9A06785200	CRYSTAL,BOX04332A200C [E]	BOX04332A200C
X104	9A04874300	CRYSTAL.	KOX07200A200C

FRONT PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07368500	FRONT PCB ASS'Y [US, C]	COP11195B
	9A07368510	FRONT PCB ASS'Y [E]	COP11195Y
	9A07369100	SUB PCB	CUP11195Z
D903.905	9A01390500	DIODE,1N4148MT	KVD1N4148MT
D906-910	9A05195000	LED,RED SLR342VCF02	KVD342VCF02T085
D911	9A01390500	DIODE,1N4148MT	KVD1N4148MT
FIP1	9A07329300	F.I.P	KFLSVA09MS10
IC91	9A07369000	IC,(U-COM) ANAM1267T	BVIANAM1267T
JK91	9A06758000	JACK,HEAD PHONE	BJJ2E020Z
L901	9A05356900	COIL , AXAIL 10UH,K	KLQ02C100KT
Q901	9A03747300	TR,KSB811-YTA	KVTKSB811YT
Q902	9A07294500	TR,DTA114EST	KVTDTA114EST
Q903.906	9A05196500	TR,DTC114YST	KVTDTC114YST
Q907.908	9A05196500	TR,DTC114YST	KVTDTC114YST
Q909.910	9A03745100	TR,KSA1175-YTA	KVTKSA1175YT
Q911.912	9A05196500	TR,DTC114YST	KVTDTC114YST
RS91	9A06757900	IC,PNA4612M00HB	BRVPNA4612M00HB
S911-929	9A04882500	SW,TACT SKHV10910A	KST1A012ZT
S901	9A07326200	VR , ENCODOR	BSR2A004Z
X901	9A05193000	CRYSTAL, 08000E160C	KOX08000E160C

POWER PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07370800	POWER PCB ASS'Y [US, C]	COP11206B
	9A07370810	POWER PCB ASS'Y [E]	COP11206D
	9A07382300	POWER PCB	CUP11206Z
D307.309	9A06765100	D, MTZJ27BT	KVDMTZJ27BT
D308	9A01390600	DIODE,1N4148T	KVD1N4148T
D310-312	9A01390500	DIODE,1N4148MT	KVD1N4148MT
D402	9A05194700	DIODE,1N4003ST	KVD1N4003ST
D405-409	9A05194700	DIODE,1N4003ST	KVD1N4003ST
D410	△ 9A05193800	DIODE,ZENER MTZJ33BT	KVDMTZJ33BT
D411.412	9A05194600	DIODE,1N4003SRT	KVD1N4003SRT
D413	△ 9A06236200	DIODE,ZENER MTZJ6.2BT	KVDMTZJ6.2BT
F401	9A05328200	HOLDER,FUSE KJCF5S	KJCF5S
OUL1	△ 9A07325900	AC OUTLET	BJJ7A008Z
Q313.314	9A06236700	TR,KTC3200GRT	KVTKTC3200GRT
Q315	9A05977900	TR.,2SA1142	BVT2SA1142P
Q316	9A06760500	TR, KTC4370AY	KVTKTC4370AY
Q317	△ 9A07326800	T.R , POWER(WITH MICA SHE	BVT2SC4468-OKM
Q318	△ 9A07326700	T.R , IDLE CURRENT	BVT2SC3419Y
Q319.320	9A06236700	TR,KTC3200GRT	KVTKTC3200GRT
Q321	9A05977100	TR.,2SC2682	BVT2SC2682P
Q322	9A07326600	T.R , POWER(WITH MICA SHE	BVT2SA1695-OKM
Q323	9A03745100	TR,KSA1175-YTA	KVTKSA1175YT
Q324	9A06760600	TR, KTA1659AY	KVTKTA1659AY
Q404	9A05197200	TR,KTA1271YT	KVTKTA1271YT
R325	△ 9A07053300	RES , METAL OXIDE FILM	KRG1ANJ562H
R336	△ 9A07382600	R,FUSE 14AJ221T	KRQ14AJ221T
R337	△ 9A07331100	RES , CEMENT(*2)	KRF5EKR22HX2
R409.410	△ 9A05338300	R, FUSE 12AJR47H	KRQ12AJR47H
R420	△ 9A06761000	R,CARBON 3.3M K 1/2W	BRDERC12UGK335T

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