

ROTEL *hiFi*

RA-985BX

Stereo Integrated Amplifier

Technical Manual

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THE ROTEL CO., LTD.

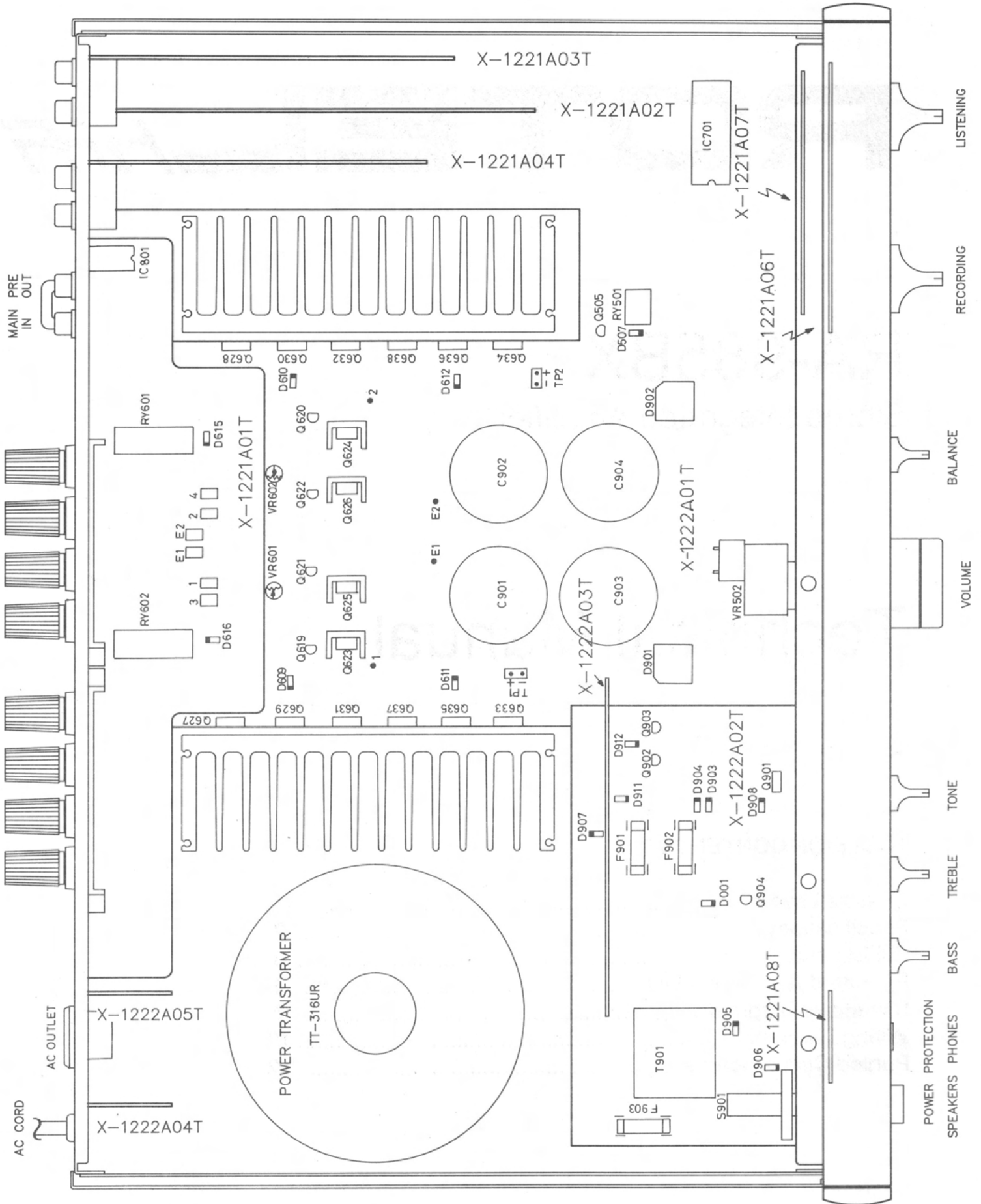
1-36-8, OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

ROTEL ELECTRONICS CO., LTD.

3F-2, NO.35, FU HSING NORTH ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

MN20002243

Chassis Layout



SPECIFICATIONS

RA 985BX REMOTE CONTROL STEREO INTEGRATED AMPLIFIER

Continuous Power Output (RMS both channels driven into 8 ohms from 20-20,000 Hz with no more than 0.03% total harmonic distortion **)	100 watts a channel ** Measured pursuant to FTC Trade Regulation Rule or Power Claims for Amplifiers, applicable in the USA only.
DIN Output (1 kHz @ 4 ohms @ 1% THD) Total Harmonic Distortion (at rated power, 1/2 power or 1 watt)	190 watts a channel < 0.03%
Intermodulation Distortion (at rated power, 1/2 power or 1 watt)	<0.05%
Frequency Response (All inputs)	4-100,000 Hz +1.0, -3.0 dB
Peak Current Output (0.1 ohm load, 10 microseconds, 1 pulse)	80 Amps
Damping Factor (20-20,000 Hz)	> 400
Speaker Impedance	4 ohms minimum load
Headphone Impedance	8-2,000 Ohms
Input Sensitivity and Input Impedance (Aux 1, Aux 2, CD, Tuner, Tape 1, Tape 2)	150 mV @ 15 kohms
Input Overload Level (THD 0.5%, 1 kHz)	5 Volts
Bass Tone Control	± 6.0 dB @ 100 Hz
Treble Tone Control	± 6.0 dB @ 10 kHz
Signal to Noise Ratio (IHF A network)	97 dB
Preamplifier Output Voltage, Max.	1 Volt
ZONE Output Voltage, Max.	1 Volt
Preamplifier Output Impedance	100 ohms
Power Amplifier Input Impedance	33 k ohms
Power Requirements	115 volts, AC 50/60 Hz 230 volts, AC 50/60 Hz
Power Consumption, Max.	400 watts
Weight	10.1 kgs / 22.22 Lbs
Dimensions	440 mm (W) x 121 mm (H) x 347 mm (D) 17-3/8" (W) x 4-13/16" (H) x 13-11/16" (D)

All specifications are accurate at the time of printing. Rotel reserves the right to make improvements without notice.

* **Video Link** and **Xantech** are **Trademarks of Xantech Corp.**

Instruments: DC milli-voltmeter

Notes: Prior to Bias Adjustment, run about 5 minutes with rated output (8 ohm) and warm up Power Transistor and Heat Sink.
Set Volume control to minimum.

Step	Coupling		Adjust	Adjust for
	Plus Lead	Minus Lead		
1	TP1 +	TP1 -	VR601	DC milli-voltmeter reads 8 mV
2	TP2 +	TP2 -	VR602	

Parts List

NOTE: THE COMPONENTS IDENTIFIED BY Δ MARK ARE FOR SAFETY. REPLACE ONLY WITH ORIGINAL PARTS. DO NOT SUBSTITUTE.

SYMBOL	PARTS NO.	DESCRIPTION
	016X-1221A01T PCB ASSEMBLY	
R649, 650	RM91009322	R, METAL OXIDE 10 J 3W
R673, 674	RL82202611	R, METAL MK20220KFE
R675, 676	RD53900821	R, CARBON 390 J 1/4W
R690, 691	RS21008248	R, SQUARE TYPE MPC70-1F
R801, 802	RD54709820	R, CARBON 47 J 1/4W
C617, 618	CP61008321	CAP, M.P 100V 0.1uF
C801	CE41005105	CAP, ELEC. 10V 100uF
C802	CC41009462	CAP, CERAMIC 50V 0.01uF
RY601, 602	LY00000435	RELAY DH2TU Δ
L601, 602	LC23860002	SPEAKER COIL TRL-386
D615, 616	DD80000021	DIODE IN4148-86
IC801	IC00003756	TC74HC238AP
	016X-1221A02T PCB ASSEMBLY	
R305-312	RL81001610	R, METAL MK2001KFE
R317, 318	RL84702611	R, METAL MK2047KFE
R319, 320	RL81003618	R, METAL MK2100KFE
R321, 322	RL81001610	R, METAL MK2001KFE
R323, 324	RL85601619	R, METAL MK205K6FE
R325, 326	RL84700614	R, METAL MK2470RFE
R337	RD51003820	R, CARBON 100K 1/4W J
R338	RD52201820	R, CARBON 2.2K 1/4W J
C301, 302	CS31011310	CAP, POLYSTYRENE 160V 100PF
C303, 304	CE41005257	CAP, ELEC. 25V 100uF
C307, 308	CE41005257	CAP, ELEC. 25V 100uF
C309	CY23308427	CAP, LAYER 50V 0.33uF
Q307	TR11000064	TRANSISTOR 2SA1345-AC
Q314	TR31000101	TRANSISTOR 2SC3399-AC
D307, 308	DD80000021	DIODE IN4148-86
IC301	IC00003150	IC TC9213P
IC302, 303	IC00001693	IC NE5532AN
IC304	IC00002983	IC TC9163N
	016X-1221A03T PCB ASSEMBLY	
R329-332	RD51201824	R, CARBON 1.2K 1/4W J
RY301-304	LY00000423	RELAY EA2-24 Δ
Q301-306	TR11000064	TRANSISTOR 2SA1345-AC
Q308-311	TR31000101	TRANSISTOR 2SC3399-AC
D301-304	DD80000021	DIODE IN4148-86
	016X-1221A04T PCB ASSEMBLY	
R313-316	RL81001610	R, METAL MK2001KFE
R327, 328	RL81003618	R, METAL MK2100KFE
R333, 334	RD56800825	R, CARBON 680 1/4W J
R335, 336	RD51002827	R, CARBON 10K 1/4W J
C305, 306	CE54700478	CAP, ELEC. 50BGF4R7M
RY305, 306	LY00000460	RELAY EG2-24NU Δ
Q312, 313	TR31000101	TRANSISTOR 2SC3399-AC
Q315, 316	TR31000149	TRANSISTOR 2SC2878-A/B
D305, 306	DD80000021	DIODE IN4148-86
	016X-1221A05T PCB ASSEMBLY	
R811-813	RD51009822	R, CARBON 10 1/4W J
R814	RD51003820	R, CARBON 100K 1/4W J
R815, 816	RD51002827	R, CARBON 10K 1/4W J
R817	RD51000820	R, CARBON 100 1/4W J
C811	CE41005105	CAP, ELEC. 10V 100uF
Q811	TR11000015	TRANSISTOR 2SA608KF
Q812	DD70000061	PHOTO COUPLER PC817B
	016X-1221A06T PCB ASSEMBLY	
R351, 352	RD51001823	R, CARBON 1K 1/4W J
C351, 352	CC41009462	50V 0.01uF
D351-356	DD40001440	LED LN38GCPP
D357-363	DD40001452	LED LN48YCPC
IC351	IC00003045	IC TC9173P

SYMBOL	PARTS NO.	DESCRIPTION
IC352	IC00001838	IC TC9174P
	X16X-1221A07T PCB ASSEMBLY	
D321-335	DD80000021	DIODE IN4148-86
S321-322	SH30000626	FUNCTION SW C-4174A13
	016X-1221A08T PCB ASSEMBLY	
C821	CE44706106	CAP, ELEC. 10V 47uF
IC801	IC00002030	IC SBX1610-02
	016X-1222A01T PCB ASSEMBLY	
R503, 504	RM61500015	R, METAL 150R F T-1
R505, 506	RL82701615	R, METAL MK202K7FE
R507, 508	RL84700614	R, METAL MK2470RFE
R301-304	RL81001610	R, METAL MK2001KFE
R509, 510	RM61003019	R, METAL 100K F T-1
R511, 512	RL81000617	R, METAL MK2100RFE
R513, 514	RL81003618	R, METAL MK2100KFE
R515, 516	RL81000617	R, METAL MK2100RFE
R517, 518	RL81003618	R, METAL MK2100KFE
R519, 520	RL82201618	R, METAL MK202K2FE
R521, 522	RL81201611	R, METAL MK201K2FE
R523, 524	RL81003618	R, METAL MK2100KFE
R525, 526	RL81500614	R, METAL MK2150RFE
R527-530	RL81501618	R, METAL MK201K5FE
R531, 532	RL81502611	R, METAL MK2015KFE
R533, 534	RL82202611	R, METAL MK2022KFE
R535, 536	RL82201618	R, METAL MK202K2FE
R537, 538	RL82001617	R, METAL MK2002KFE
R545	RD51003820	R, CARBON 100K 1/4W J
R546	RD53001826	R, CARBON 3K 1/4W J
C001	CC31009465	CAP, CERAMIC 50V 0.01uF
C501, 502	CE51006477	CAP, ELEC. 50BGF10M
C503, 504	CS34712311	CAP, POLYSTYRENE 160V 47PF
C505-508	CE51006477	CAP, ELEC. 50BGF10M
C509, 510	CS34712311	CAP, POLYSTYRENE 160V 47PF
C511, 512	CE51006477	CAP, ELEC. 50BGF10M
C513, 514	CM11510425	CAP, MYLAR 50V 152 J
C515-518	CY21008428	CAP, LAYER 50MSA104J
C519, 520	CM14710425	CAP, MYLAR 50V 472 J
C521, 522	CY21008428	CAP, LAYER 50MSA104J
C523-526	CE72205645	CAP, ELEC. 25V 220uF
VR501	RV10001887	R, VARIABLE C-4170A22 50KMN
VR502	RV10001875	R, VARIABLE C-4170A24 50KAx2
VR503, 504	RV10001541	R, VARIABLE 4TR-2774 20KBx2
RY501	LY00000460	RELAY EG2-24NU Δ
S501	SH30000500	FUNCTION SW 4TR-2780
D507	DD80000021	DIODE IN4148-86
IC501, 502	IC00002454	IC AD712JN
Q505	TR31000083	TRANSISTOR 2SC2363F
R601, 602	RL83302613	R, METAL MK2033KFE
R603, 604	RL81001610	R, METAL MK2001KFE
R605, 612	RL81501618	R, METAL MK201K5FE
R613-616	RL82200614	R, METAL MK2220RFE
R617, 618	RL85600615	R, METAL MK2560RFE
R619, 620	RL84702611	R, METAL MK2047KFE
R621-624	RL81000617	R, METAL MK2100RFE
R625, 626	RL86801616	R, METAL MK206K8FE
R627, 628	RL81201611	R, METAL MK201K2FE
R631, 632	RL81001610	R, METAL MK2001KFE
R633, 634	RL84709617	R, METAL MK2047RFE
R635, 636	RL84702611	R, METAL MK2047KFE
R637-648	RS20228230	R, SQUARE TYPE MPC70-0.22 F
R651, 652	RD55600828	R, CARBON 560 1/4W J
R653, 654	RD52202824	R, CARBON 22K 1/4W J
R655, 656	RD51502824	R, CARBON 15K 1/4W J
R657, 658	RD51201824	R, CARBON 1.2K 1/4W J

Parts List

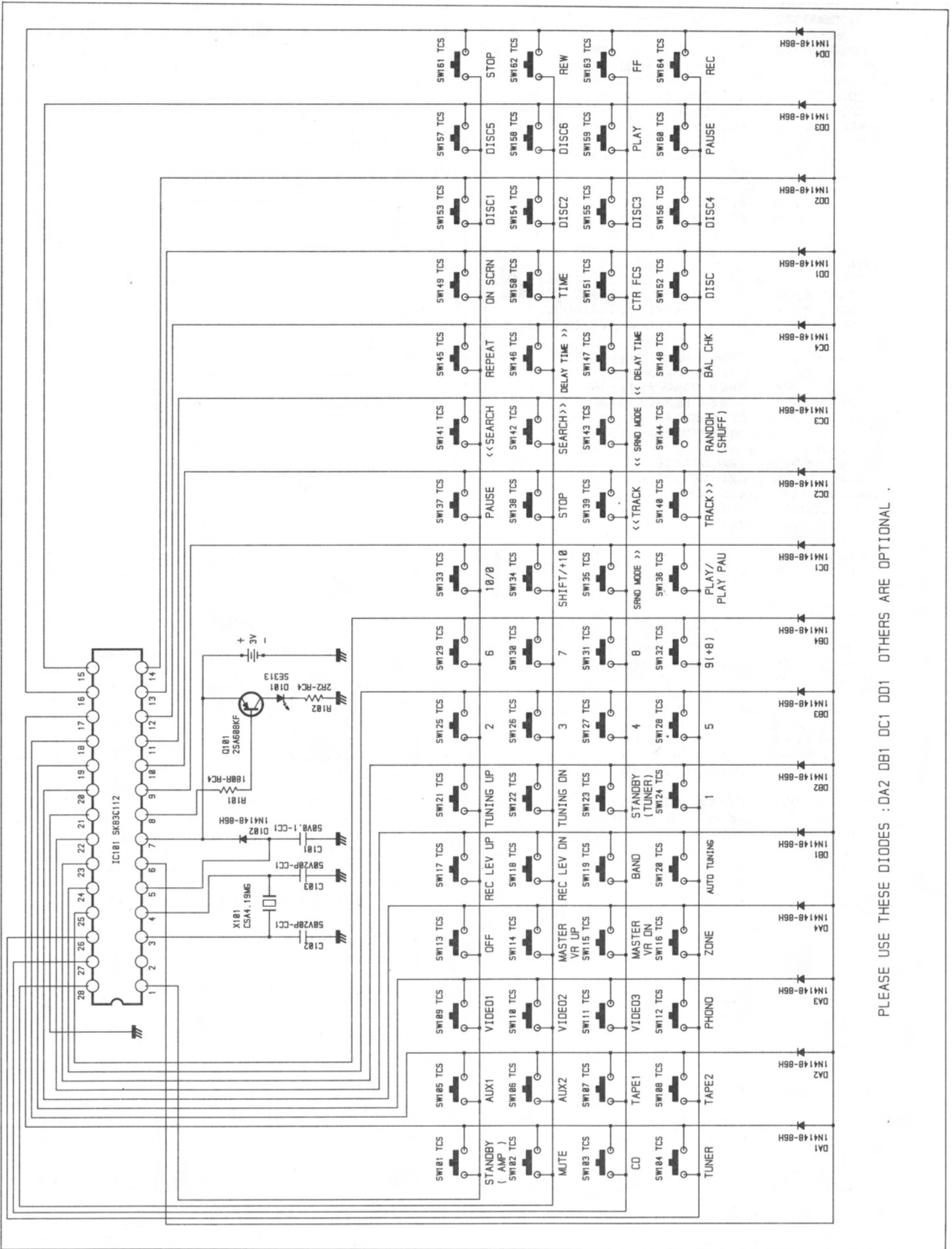
SYMBOL	PARTS NO.	DESCRIPTION
R659, 660	RD54702824	R, CARBON 47K 1/4W J
R661, 662	RD51502824	R, CARBON 15K 1/4W J
R663, 664	RD53300829	R, CARBON 330 1/4W J
R665	RD54702824	R, CARBON 47K 1/4W J
R666	RD51003820	R, CARBON 100K 1/4W J
R667	RD55602825	R, CARBON 56K 1/4W J
R668	RD51003820	R, CARBON 100K 1/4W J
R669, 670	RD51203821	R, CARBON 120K 1/4W J
R671	RD51802820	R, CARBON 18K 1/4W J
R672	RD51000820	R, CARBON 100 1/4W J
R677, 678	RM53320810	R, METAL OXIDE 332 F 1/4W
R683-686	RL86800612	R, METAL MK2680RFE
VR601, 602	RV40000060	R, SEMI-FIXED VM6CKPV-1S 1KB
RY603	LY00000265	RELAY VS-24MC-NR
S601	SH30000638	FUNCTION SW 4TR-3089
C601, 602	CP76811359	CAP, P.P TFKP2-100V681H
C603, 604	CE54707478	CAP, ELEC. 50BGF4R7M
C605, 606	CS32211306	CAP, POLYSTYRENE 160V 220PF
C607, 608	CE51005679	CAP, ELEC. 25BGF100M
C609, 610	CE51006477	CAP, ELEC. 50BGF10M
C611, 612	CS33311310	CAP, POLYSTYRENE 160V 330PF
C613-616	CS32211306	CAP, POLYSTYRENE 160V 220PF
C619	CE41006500	CAP, ELEC. 50V 10uF
C620	CE43306467	CAP, ELEC. 50V 33uF
C621	CE41005257	CAP, ELEC. 25V 100uF
C622	CK00000035	SPARK KILLER DE7150F472M Δ
D601-608	DD80000021	DIODE IN4148-86
D609-612	DD80000010	DIODE IN4003-TB
D613, 614	DD80000021	DIODE IN4148-86
D617	DD80000010	DIODE IN4148-86
Q601-604	TR31000083	TRANSISTOR 2SC2363F
Q605-610	TR11000039	TRANSISTOR 2SA1016F
Q611, 612	TR31000083	TRANSISTOR 2SC2363F
Q613, 614	TR10000217	TRANSISTOR 2SA1209-ST
Q615, 616	TR30000571	TRANSISTOR 2SC2911-ST
Q617, 618	TR40000124	TRANSISTOR 2SD600K
Q619, 620	TR31000137	TRANSISTOR T2SC3478T-LKU
Q621, 622	TR11000076	TRANSISTOR T2SA1376T-LKU
Q623, 624	TR30000560	TRANSISTOR 2SC4381 (O, Y) 03
Q625, 626	TR10000291	TRANSISTOR 2SA1667 (O, Y)
Q627-632	TR40000045	POWER TRANSISTOR 2SD1047D/E
Q633-638	TR20000040	POWER TRANSISTOR 2SB817D/E
Q639, 640	TR31000083	TRANSISTOR 2SC2363F
Q641-643	TR11000039	TRANSISTOR 2SA1016F
IC601	IC00000860	IC MPC1237HA
TH601, 602	DD60000260	THERMISTOR TD5C350D
R701	RD54702824	R, CARBON 47K 1/4W J
R702	RD51003820	R, CARBON 100K 1/4W J
R704	RD51000820	R, CARBON 100 1/4W J
R705, 706	RD51001823	R, CARBON 1K 1/4W J
R707	RD51003820	R, CARBON 100K 1/4W J
R708	RN31003067	THICK FILM RS NETWORK SE6104JFU
R709, 710	RN31003031	THICK FILM RS NETWORK SE3104JFU
R711	RN31003055	THICK FILM RS NETWORK SE5104JFU
R712	RD51009822	R, CARBON 10 1/4W J
C701	CE02204068	CAP, ELEC. 6.3V 220uF Δ
C702	CP61008321	CAP, M.P 100V 0.1uF
C703	CE41007503	CAP, ELEC. 50V 1uF
C704, 705	CC53312419	CAP, CERAMIC 50V 33PF
C708	CC41009462	CAP, CERAMIC 50V 0.01uF
C709	CE41005257	CAP, ELEC. 25V 100uF
X701	LF00000490	CERAMIC RESONATOR CSA4.19MG
IC701	IC00003781	IC TMP47C400BN-H691
IC702	IC00002260	IC LB1641
IC703	IC00000974	IC NJM78M12
D701, 702	DD80000021	DIODE IN4148-86
D703	DS20000478	DIODE RD5.6JS-T1

SYMBOL	PARTS NO.	DESCRIPTION
D901, 902	DD10000147	DIODE KBPC-802 Δ
D903-907	DD80000010	DIODE IN4003-TB
D909	DD80000021	DIODE IN4148-86
C901-904	CE61003631	CAP, CERAMIC 63V 10000uF Δ
C905-912	CC01009256	CAP, CERAMIC 250V 0.01uF Δ
016X-1222A02T PCB ASSEMBLY		
R901	RM98209225	R, METAL OXIDE FILM 2W 82J
R902	RD53901825	R, CARBON 3.9K 1/4W J
R903	RD52702821	R, CARBON 27K 1/4W J
R904	RD52201820	R, CARBON 2.2K 1/4W J
R905	RD51002827	R, CARBON 10K 1/4W J
R906	RD54702824	R, CARBON 47K 1/4W J
R907	RD51003820	R, CARBON 100K 1/4W J
R921, 922	RL85600615	R, METAL MK2560RFE
R923, 924	RL83901612	R, METAL MK203K9FE
C913-916	CC01009256	CAP, CERAMIC 250V 0.01uF Δ
C917	CE01005635	CAP, ELEC. 63V 100uF
C918	CE02205358	CAP, ELEC. 35V 220uF
C919	CE01005350	CAP, ELEC. 35V 100uF
C920	CE04705358	CAP, ELEC. 35V 470uF
C921	CE04705164	CAP, ELEC. 16V 470uF
C922	CE41005105	CAP, ELEC. 10V 100uF
C923	CE44707500	CAP, ELEC. 50V 4.7uF
C924-927	CE41005257	CAP, ELEC. 25V 100uF
Q901	TR40000124	TRANSISTOR 2SD600K
Q902	TR41000011	TRANSISTOR 2SD863E/F
Q903	TR21000018	TRANSISTOR 2SB764E/F
Q904	TR31000034	TRANSISTOR 2SC536C-NP-AA
Q905	TR31000071	TRANSISTOR 2SC2274E/F-AA
IC901	IC00000615	IC NJM78M05
D908	DD20000636	DIODE RD30JS-T1
D911, 912	DD20000570	DIODE RD15JS-T1
F901, 902	FU25000053	FUSE 125V 8A UL Δ
	FU23000189	FUSE 036 (J) T8A Δ
F903	FU25000016	FUSE 250V 500mA UL/CSA Δ
	FU23000360	FUSE 250V T 500mA S Δ
S901	SH11000460	1KEY PUSH SW 4TR-2947
T901	PT23110108	SUB TRANSFORMER TT-231NF Δ
016X-1222A03T PCB ASSEMBLY		
R539-542	RL83300616	R, METAL MK2330RFE
R543, 544	RL83301610	R, METAL MK203K3FE
C531, 532	CE54705640	CAP, ELEC. 25BGF470M
D501, 502	DD20000594	DIODE RD18JS-T1
D503-506	DD80000021	DIODE IN4148-86
Q501, 502	TR31000071	TRANSISTOR 2SC2274E/F-AA
Q503, 504	TR11000027	TRANSISTOR 2SA984KE/KF-AA
OTHERS		
AB00000845	BOTTOM BOARD QT3-05B01T	
AF20000350	FRONT CHASSIS QT3-02A00T	
AR20000760	PRINTED REAR CHASSIS TRP-658	
AS01000476	SIDE CHASSIS QT4-12COOT	
BU00000803	RUBBER BUSH 4TR-2544 15F	
FT00000229	PLASTIC FOOT 4TSH-19#2 50Fx14H	
SC00000120	AC CORD STOPPER SR-5KN-4 Δ	
SP10006909	P.T SUPPORT 4TR-3001A#2	
SP10007150	JACK SUPPORT QT4-13A00T	
SP10007227	P.T SUPPORT QT4-04B01T	
SR00001187	RUBBER SPACER 4TR-2927#1	
SR00001266	SILICON RUBBER SPACER 4TR-3000A#2 75F	
CD00000220	AC CORD SPT-2 AWG#16 4TR-670#5 Δ (U, C, A, J)	

SYMBOL	PARTS NO.	DESCRIPTION
CD00000322		AC POWER CORD OKA 4TR-2757 (D) ⚠
CD00000048		AC POWER CORD 4TR-1037 (H,E,S1,Y) ⚠
CD00000516		AC CORD 4TR-3061 (K1) ⚠
CD00000115		AC POWER CORD C-3763T(G1) ⚠
NP00001949		AC120V 4TR-2828A#1 (U,C)
NP00002012		AC100V 4TR-2828A#6 (J)
NP00002188		AC220-240V 4TR-2828A#15 (K1)
NP00002140		AC220-240V 4TR-2828A#11
SA00001796		AC OUTLET SOCKET S-I6536#1 (H,E,S1,Y,D) ⚠
SA00001980		AC OUTLET SOCKET S2-741T-110/120 (K1,G1) ⚠
SP30000732		ACO MASK QJ4-08A02T TRP-661
AA20000798		FRONT PANEL QT3-01A00T
AW00000654		SENSOR WINDOW PT4-12A00T
BU00001145		POWER RING W/LED 4TQF-13 14x14
BU00001224		KNOB RING PR4-12A00T 46F
KB20002681		POWER BUTTON 4TQF-15 14x14
OM10001284		ORNAMENTAL SIDE BOARD 4TR-2797#3 H=109MM
DD40000095		LED SEL1124R
DD40001282		LED SEL1824D
BU00001420		LED BUSH QT4-18A00T
OM70000065		PUSH BUTTON CONNECTOR 4TTL-15
SA00003008		LED HOLDER QT4-11A00T
SN00000179		BUTTON SPRING 4TR-1988A#2 10F
AG00000482		REMOTE CONTROL HANDSET RR-927B
AU00001225		TOP COVER 3TUV-6#6
KB10001886		KNOB W/LED QT4-08A00T 43F
KB10001898		KNOB QT4-09A00T 25F
KB10001904		KNOB 17F QT4-10A00T
DD40000095		LED SEL1124R
FE00000067		FELT 4TR-1083B#1 22F
FE00000432		FELT 4TR-1083B#5 58F
SR00000882		UPPER COVER SPACER 4TR-2418
PL00001051		STYROL SIDE MOULDING 2TR-2800B TZ-183
TN10004724		INSIDE CARTON RA-985BX

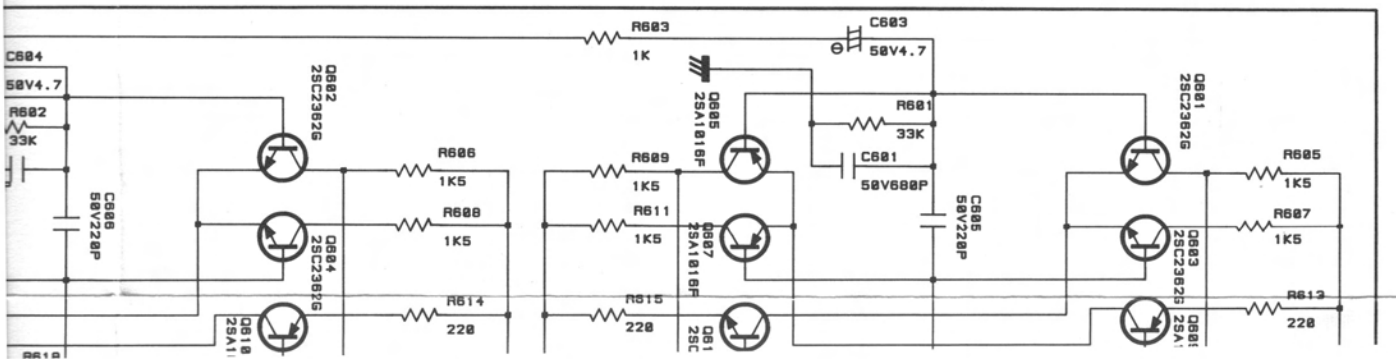
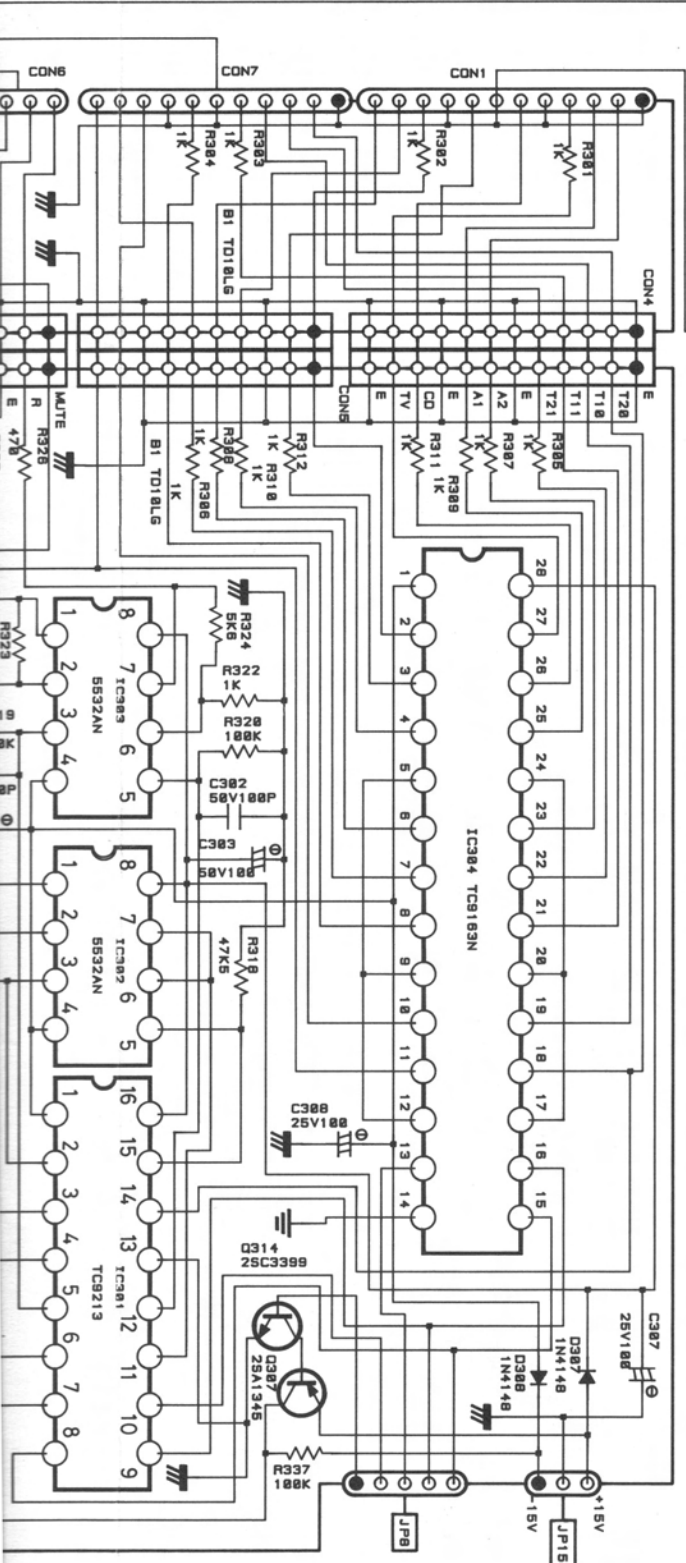
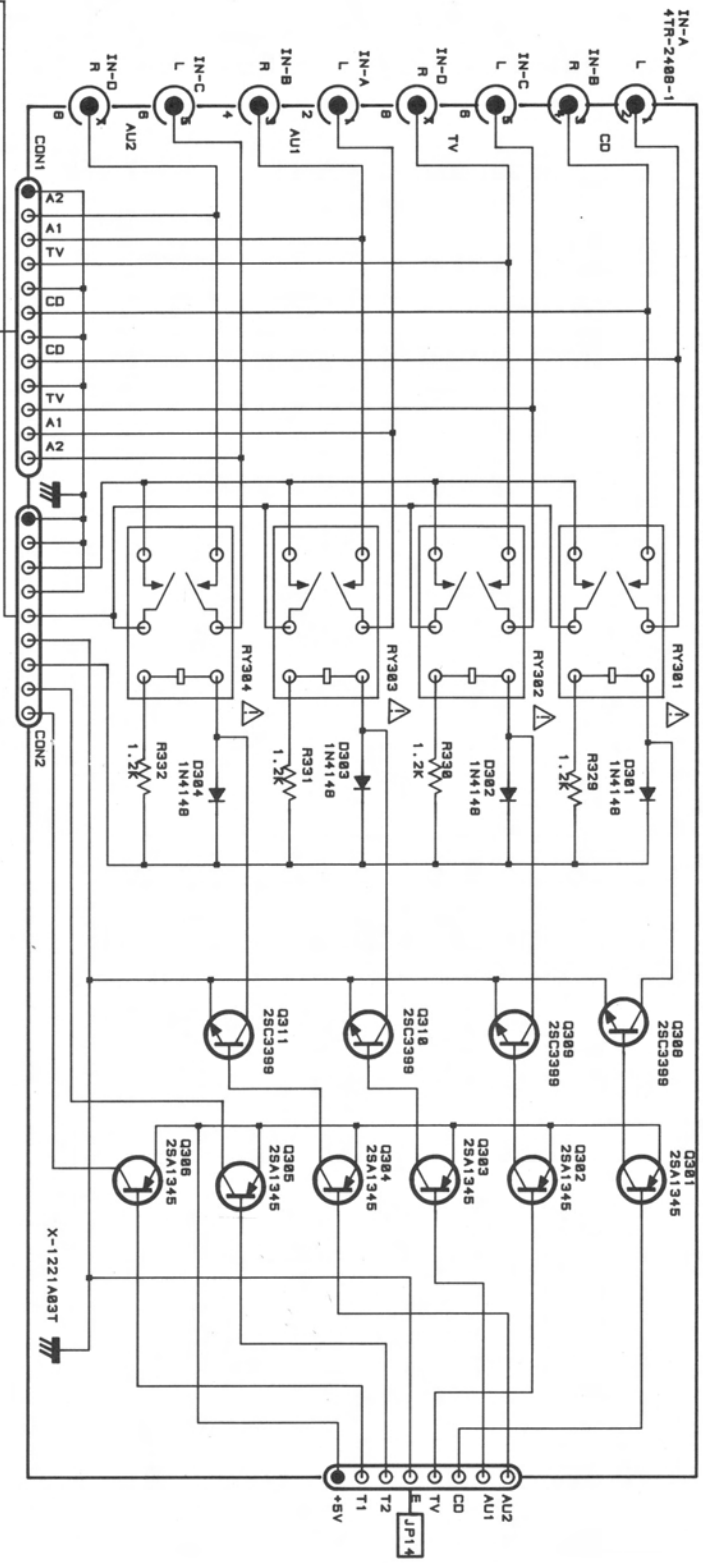
REMOTE CONTROL HANDSET

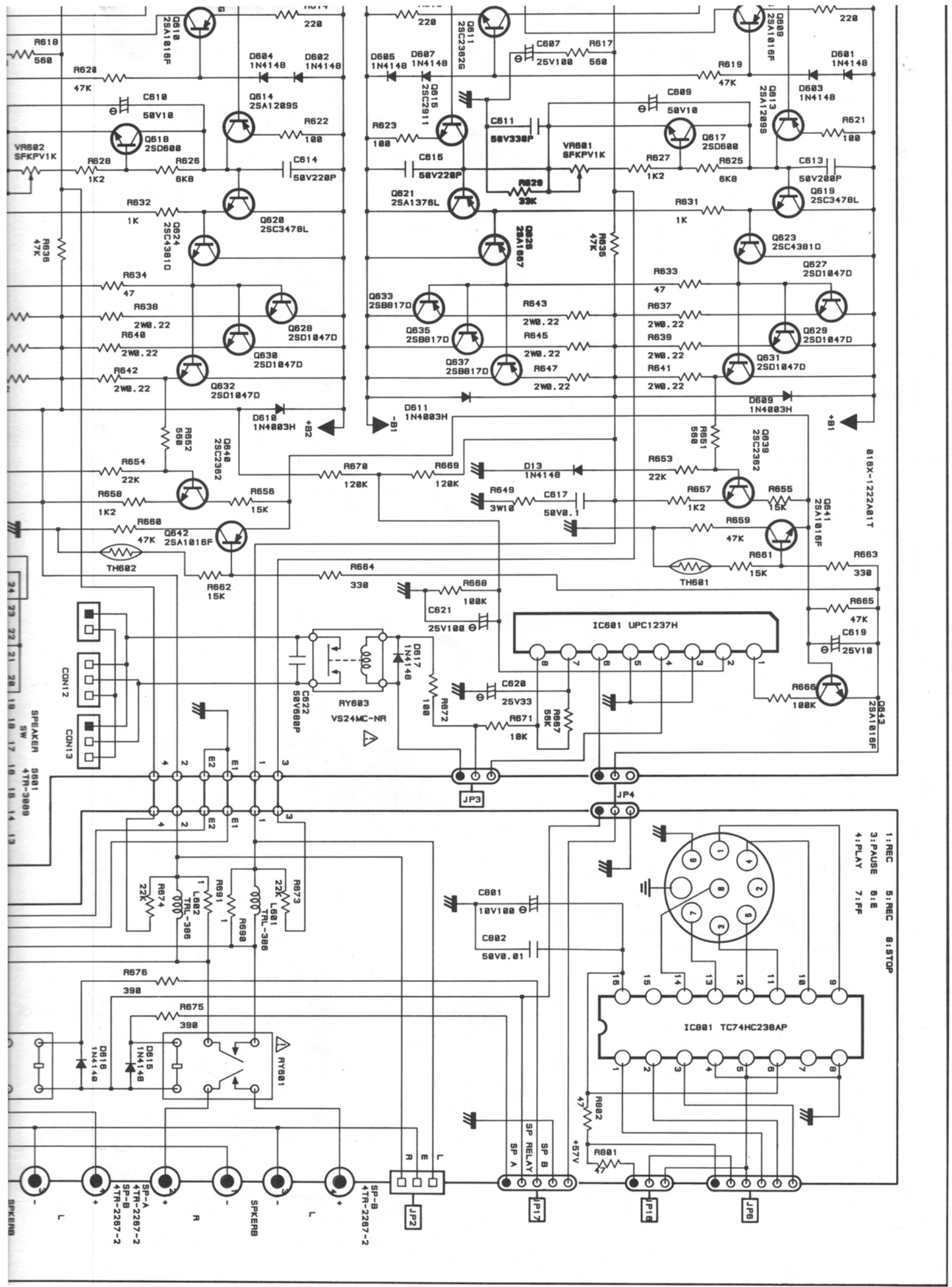
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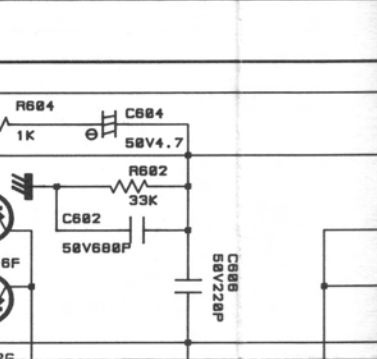
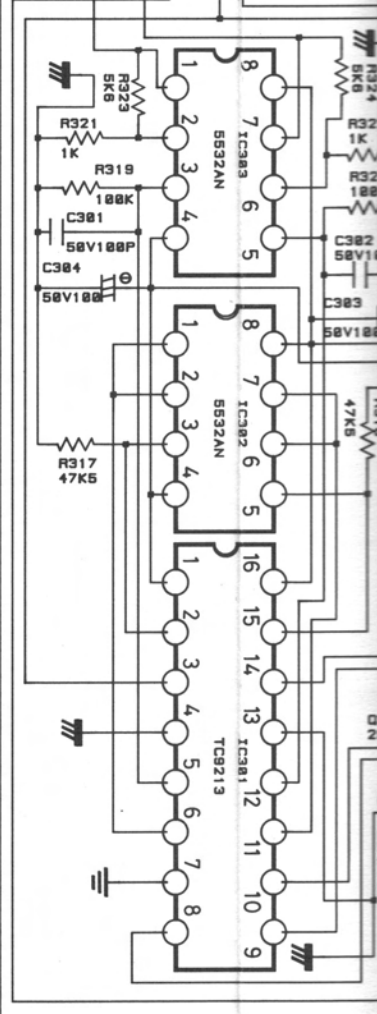
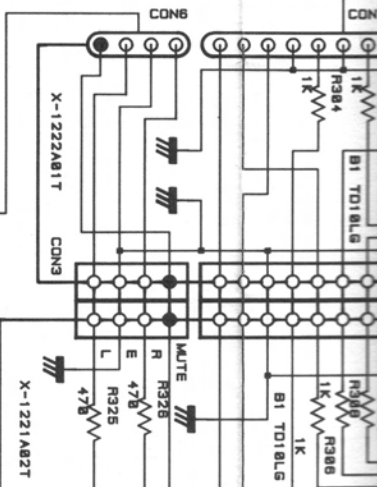
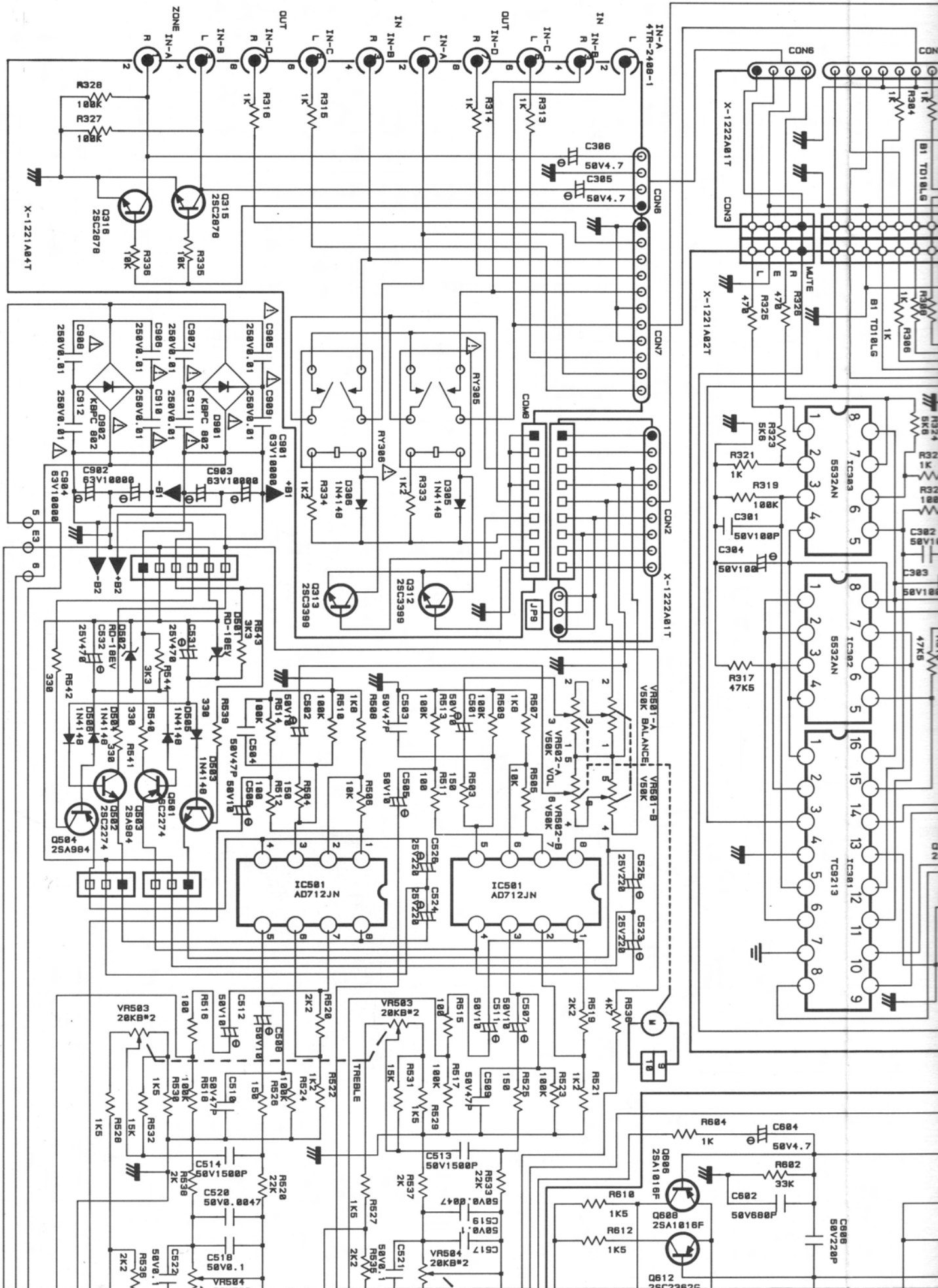


PLEASE USE THESE DIODES : DA2 DB1 DC1 DD1 OTHERS ARE OPTIONAL

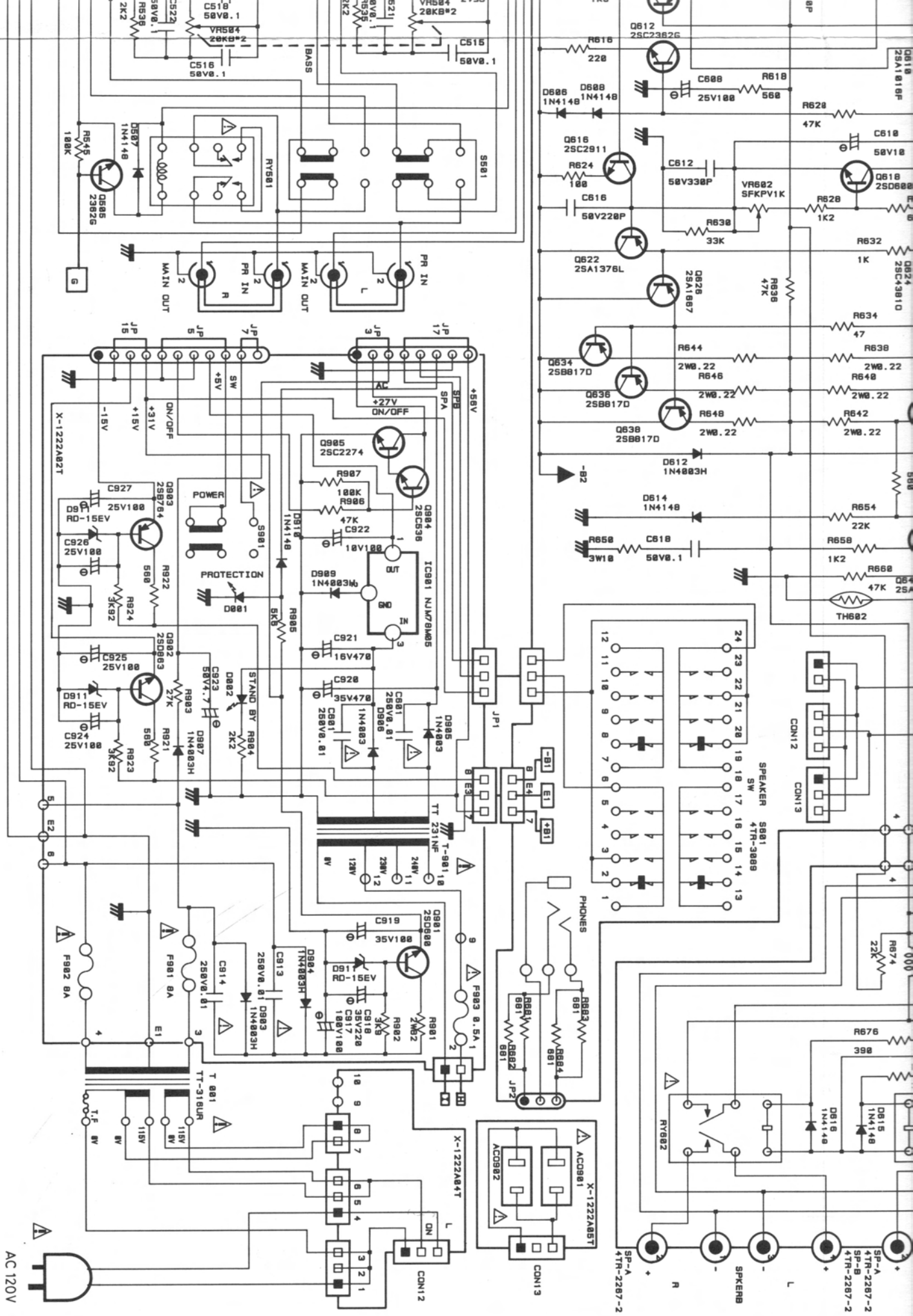
SCHEMATIC DIAGRAM MODEL NO. RA-985BX (1/2)





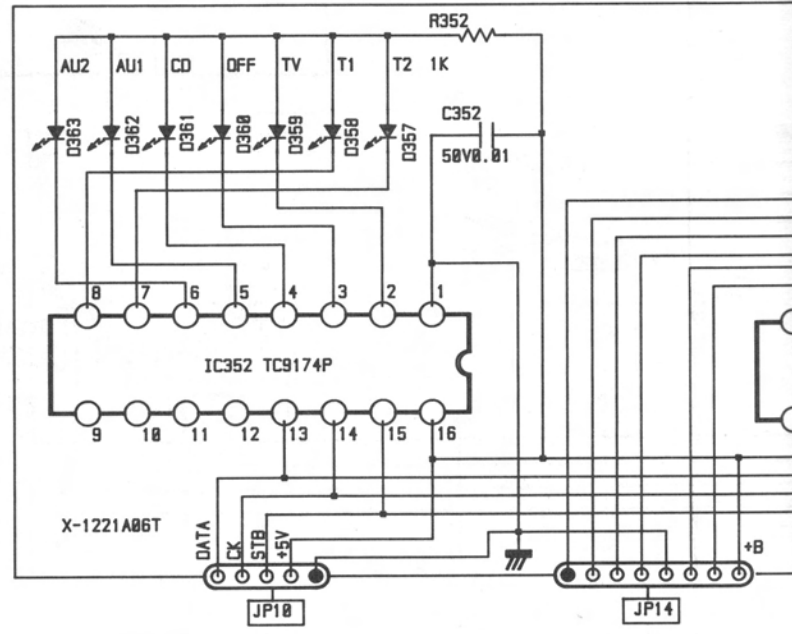
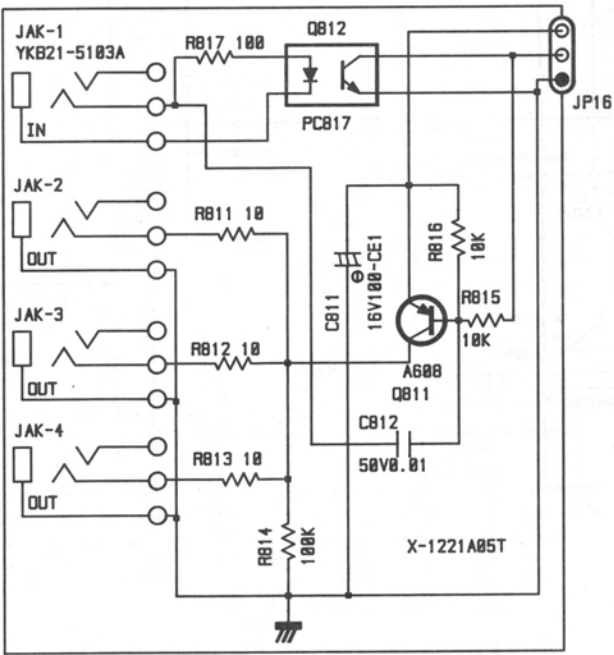
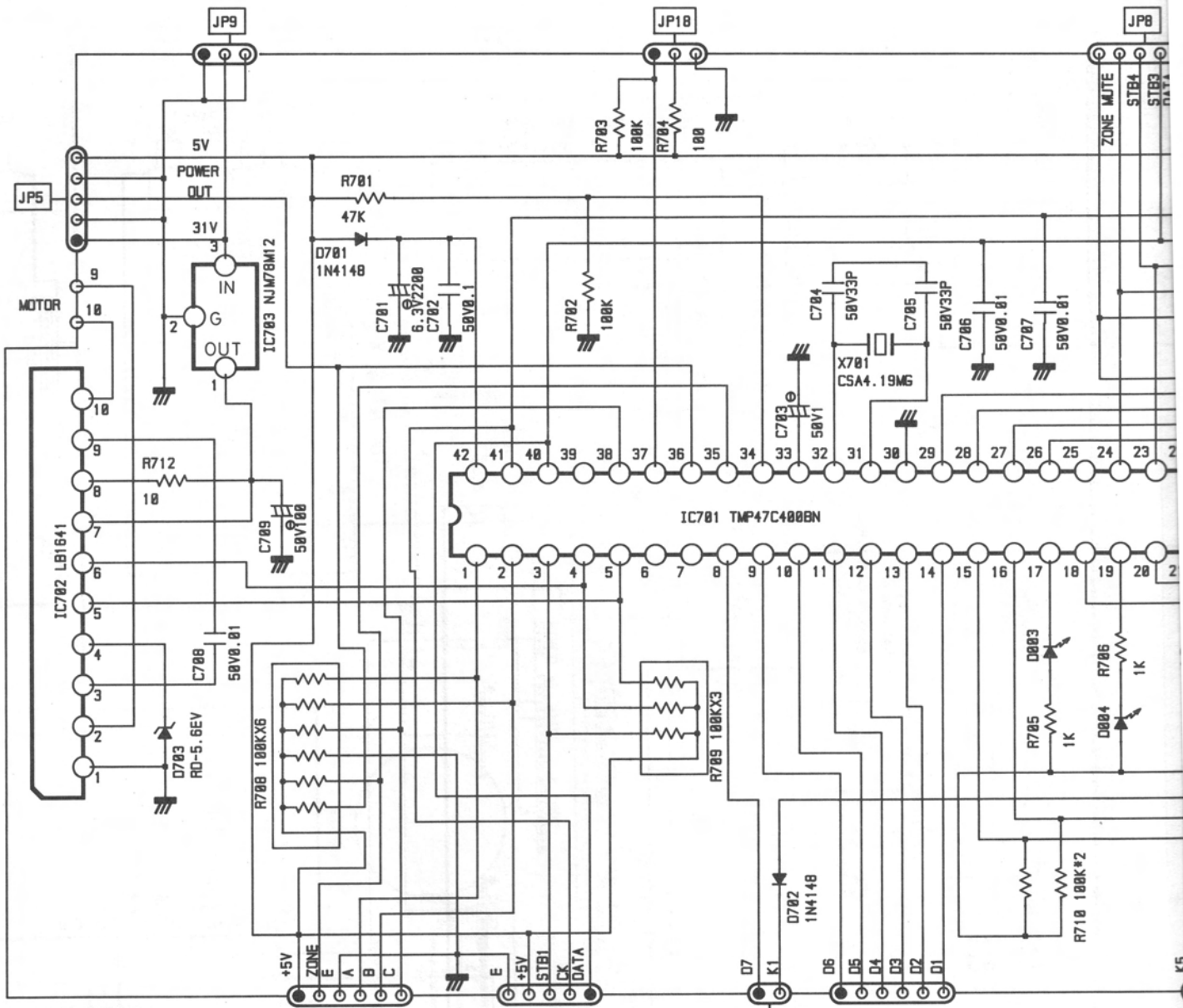


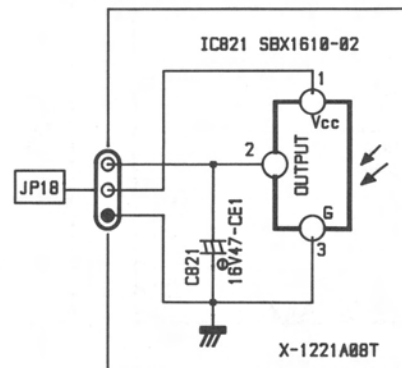
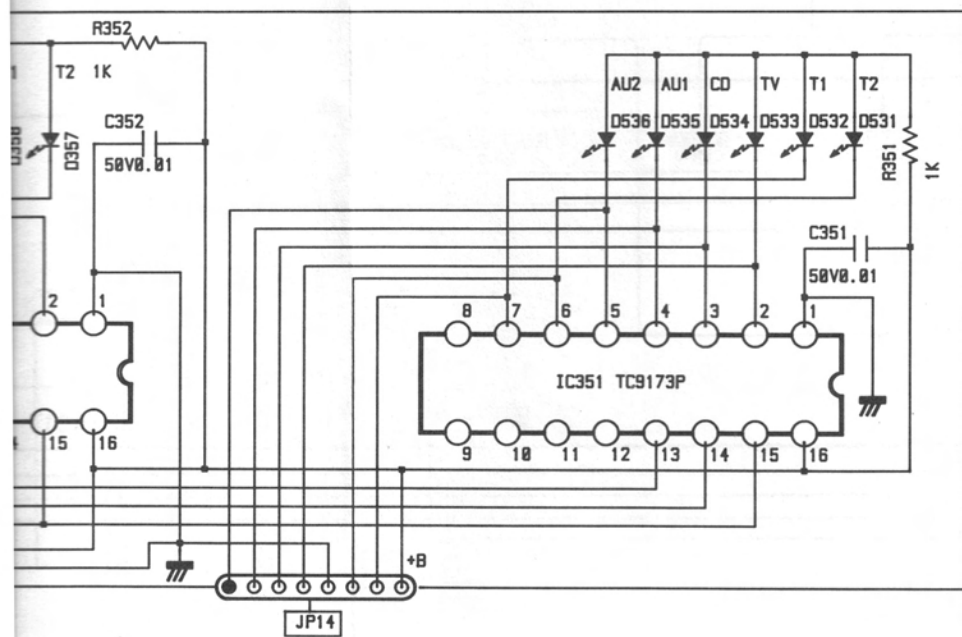
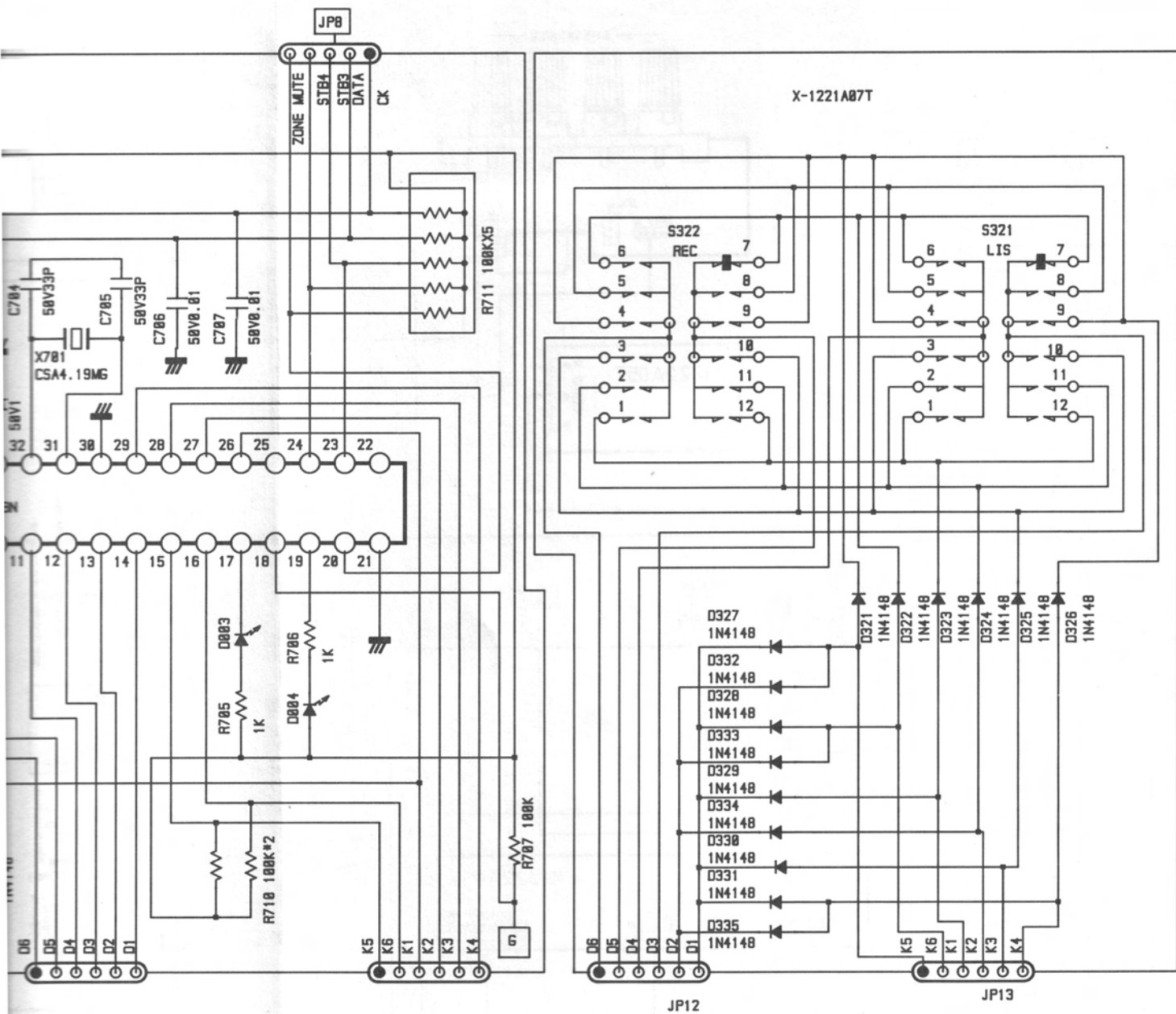
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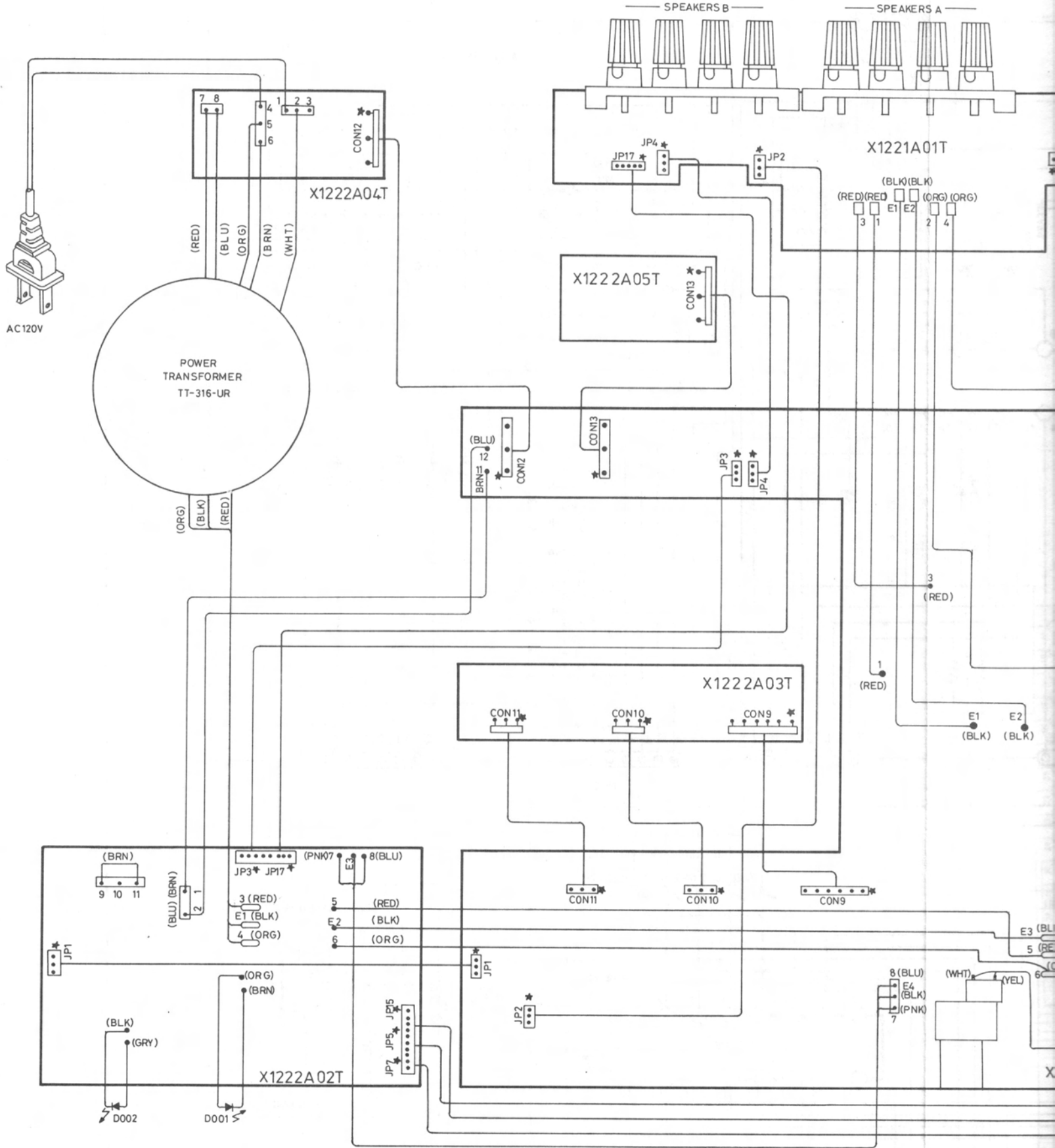
Schematic Diagram

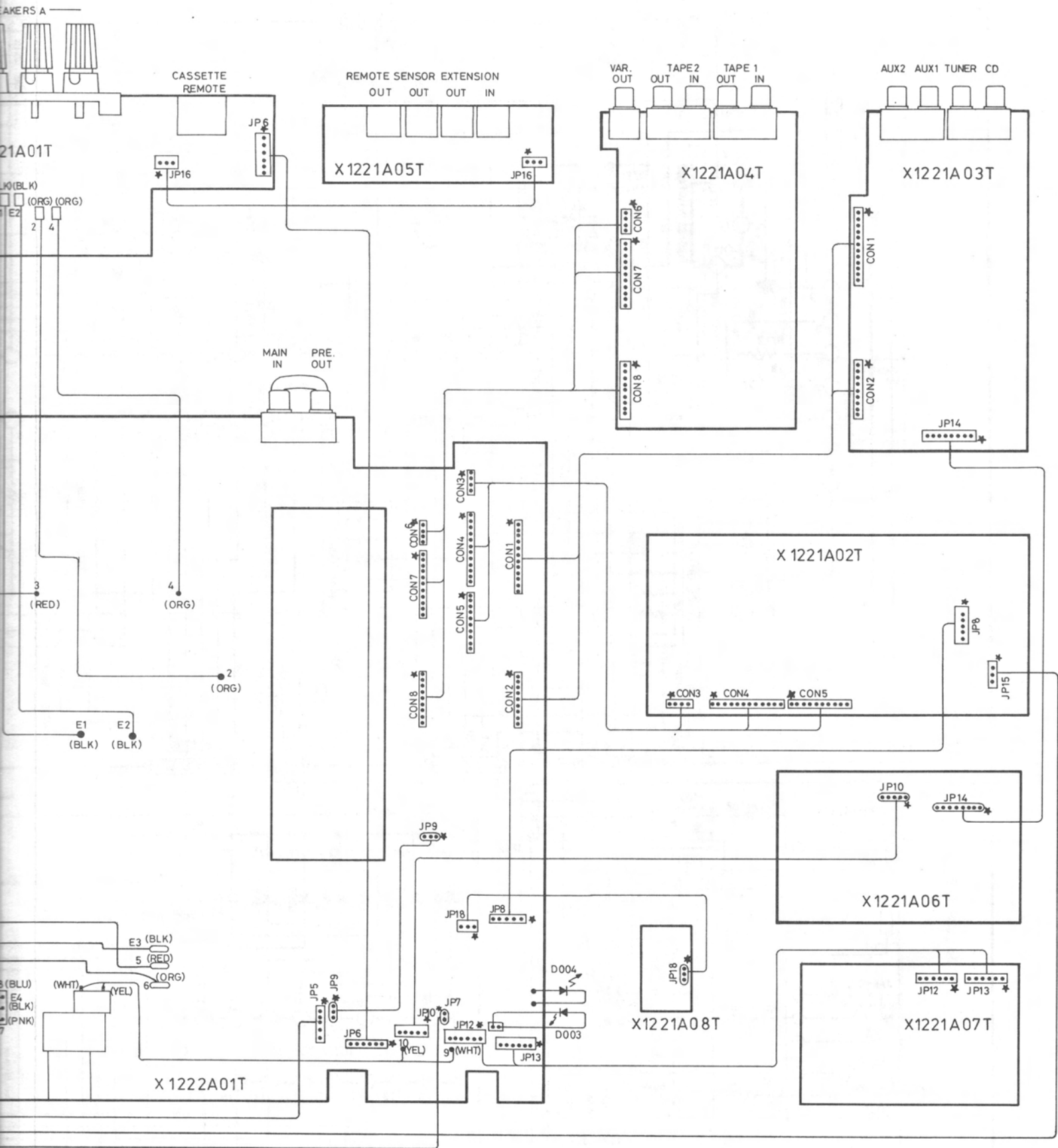
SCHEMATIC DIAGRAM MODEL NO. RA-985BX (2/2)

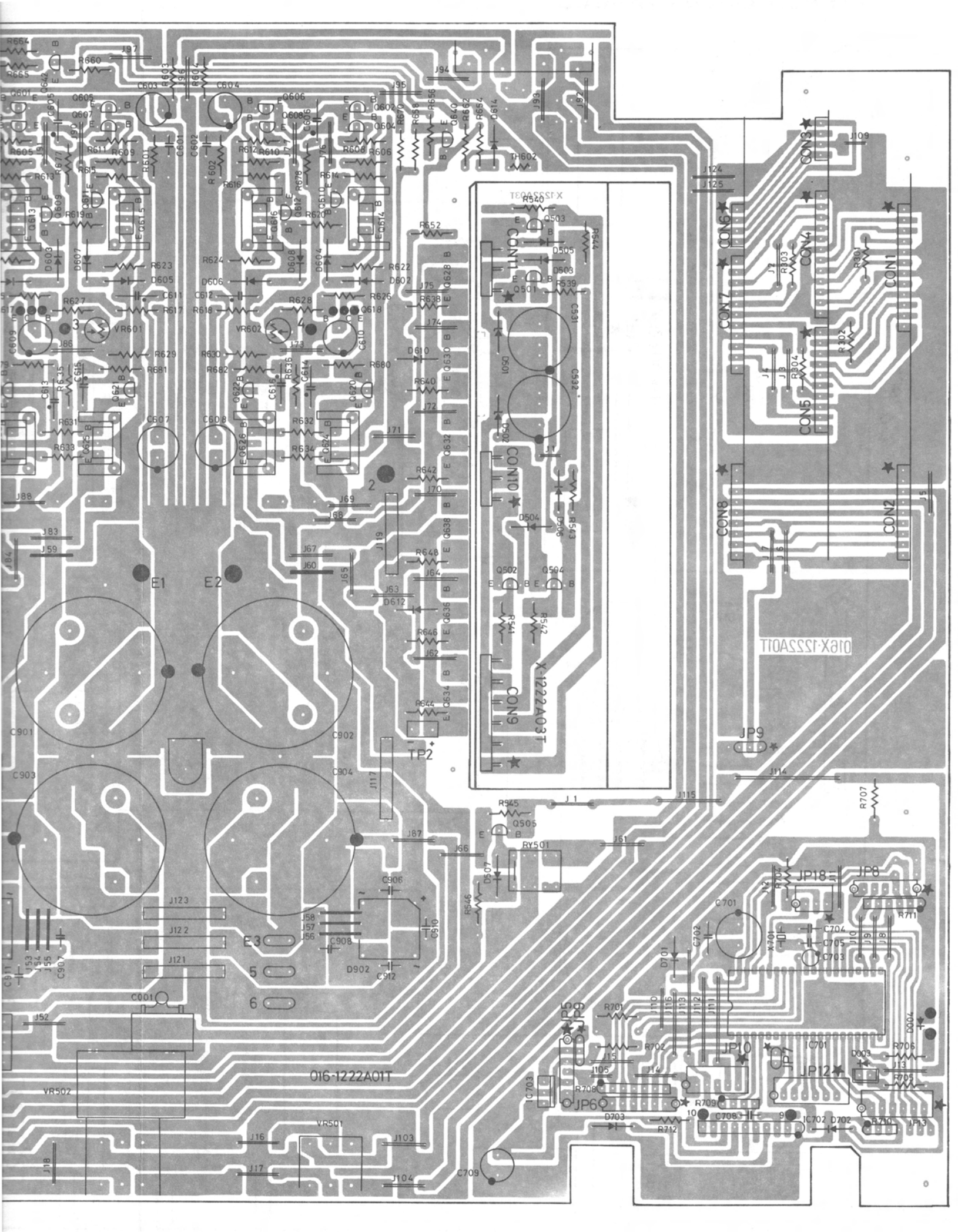




Wiring Diagram







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