

ROTEL *hiFi*

RCD-970BX

Stereo Compact Disc Player

Technical Manual

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Safety Caution

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

THIS SET EMPLOYS A LASER. THEREFORE, BE SURE TO FOLLOW CAREFULLY THE INSTRUCTIONS BELOW WHEN SERVICING.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

LASER WARNING LABEL

THE LABEL SHOWN BELOW ARE AFFIXED.

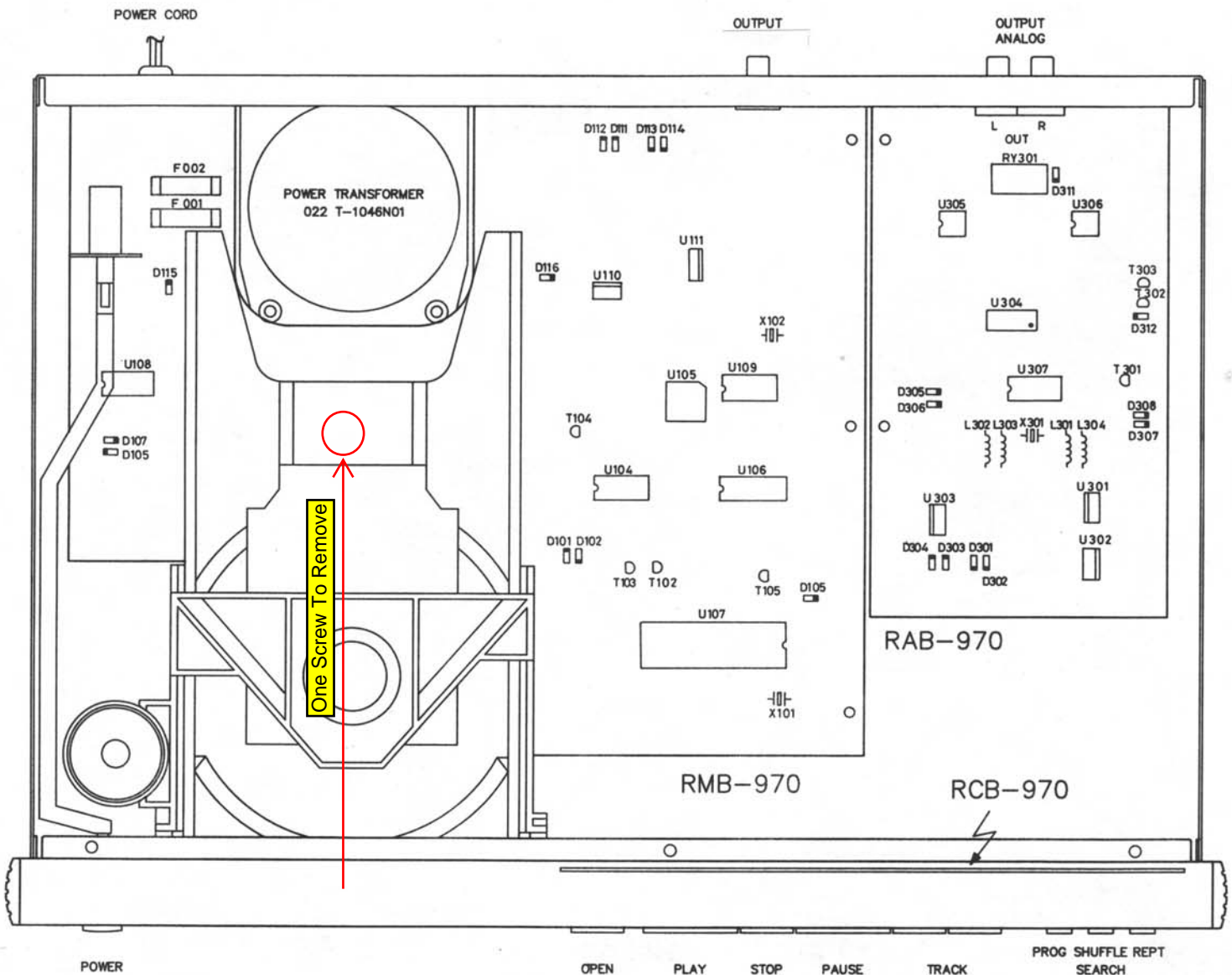
CAUTION

INVISIBLE LASER RADIATION WHEN OPEN, DO NOT STARE INTO BEAM.

DANGER

INVISIBLE LASER RADIATION WHEN OPEN, AVOID DIRECT EXPOSURE TO BEAM.

Chassis Layout



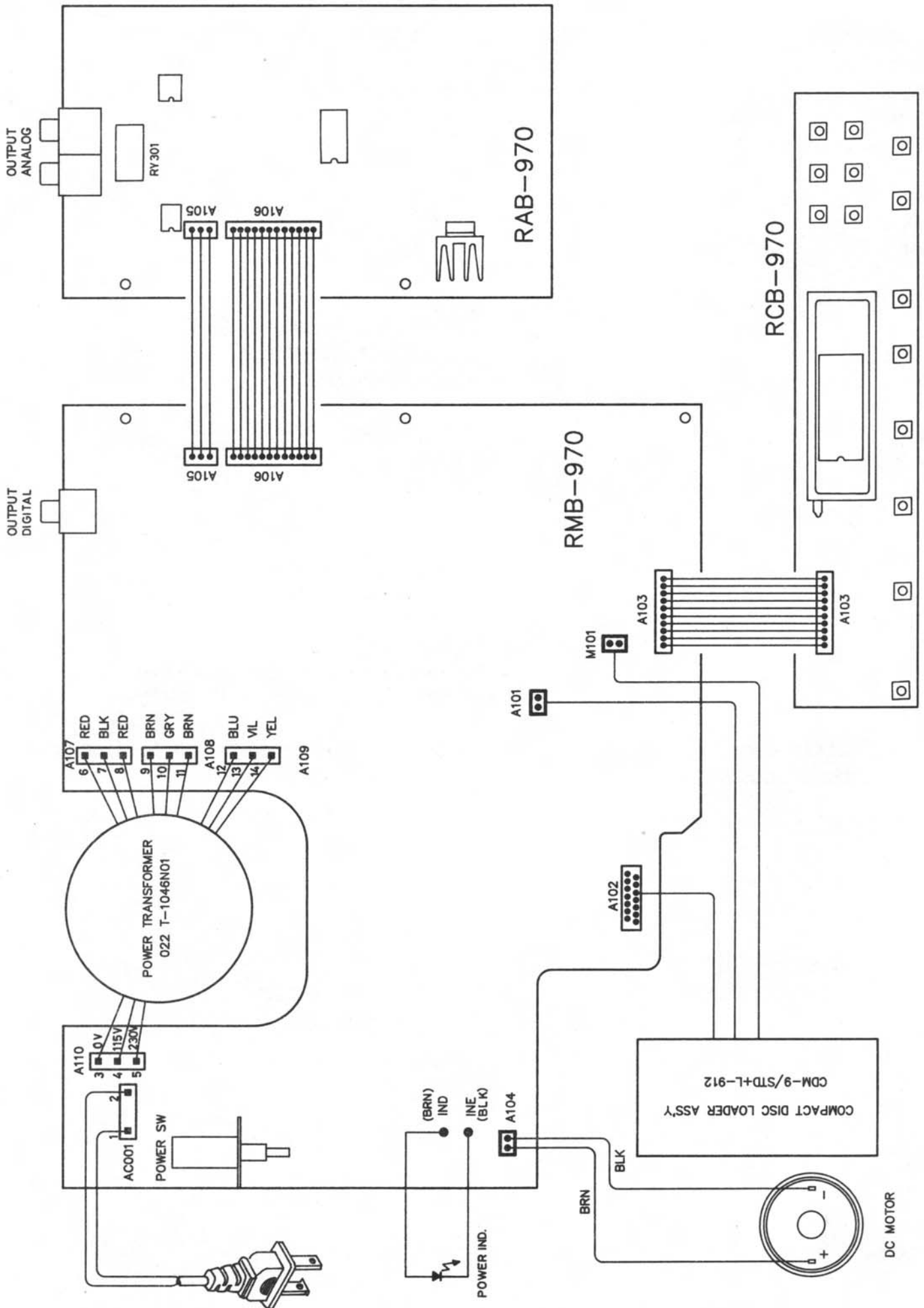
SPECIFICATIONS

RCD 970BX COMPACT DISC PLAYER

Frequency Response	20-20,000 Hz \pm 0.05 dB
Channel Balance	\pm 0.5 dB
Phase Linearity	\pm 0.5 degree
Total Harmonic Distortion + Noise	0.0025% @ 1 kHz
Intermodulation Distortion	0.0025 % @ 1 kHz
Channel Separation	> 100 dB @ 1 kHz
Signal to Noise Ratio	> 105 dB
Dynamic Range	> 100 dB
Digital to Analog Converter	Multibit Bitstream Continuous Calibration (MBCC)
Digital Filter	20 Bit, 16x Oversampling
Speed Accuracy, Wow and Flutter	Quartz crystal precision
Output Level	2.0 Volts rms
Output Impedance	200 Ohms
Digital Output	0.5 Volt P.P.
Load Impedance	75 Ohms
Power Requirements	115 volts AC 50/60 Hz 230 volts AC 50/60 Hz
Power Consumption	30 watts
Weight	4.9 Kgs / 10.8 Lbs
Dimensions	440 mm (W) x 72 mm (H) x 316 mm (D) 17-3/8" (W) x 2-7/8" (H) x 12-7/16" (D)

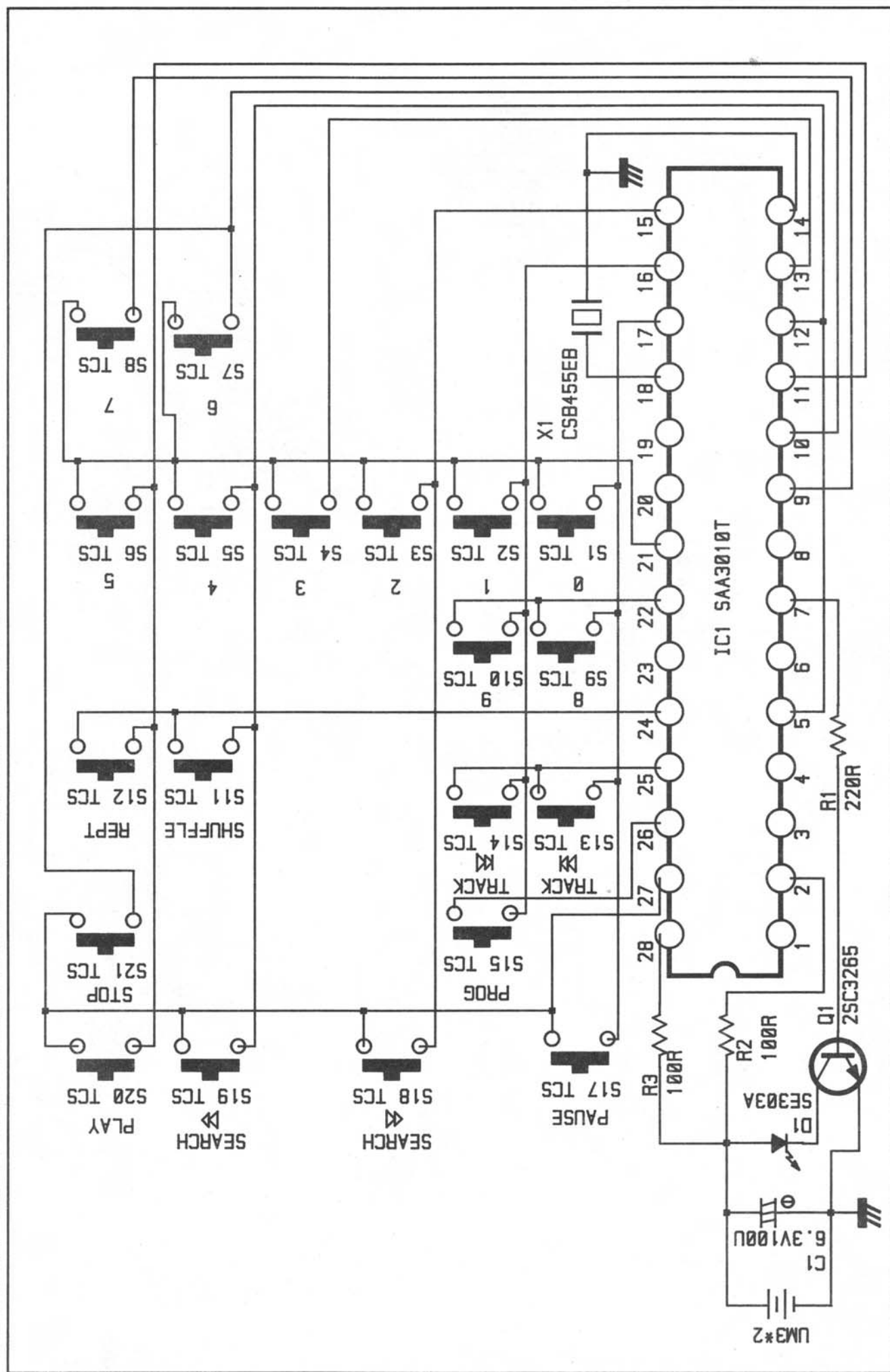
All specifications are accurate at the time of printing. Rotel reserves the right to make improvements without notice.

Wiring Diagram

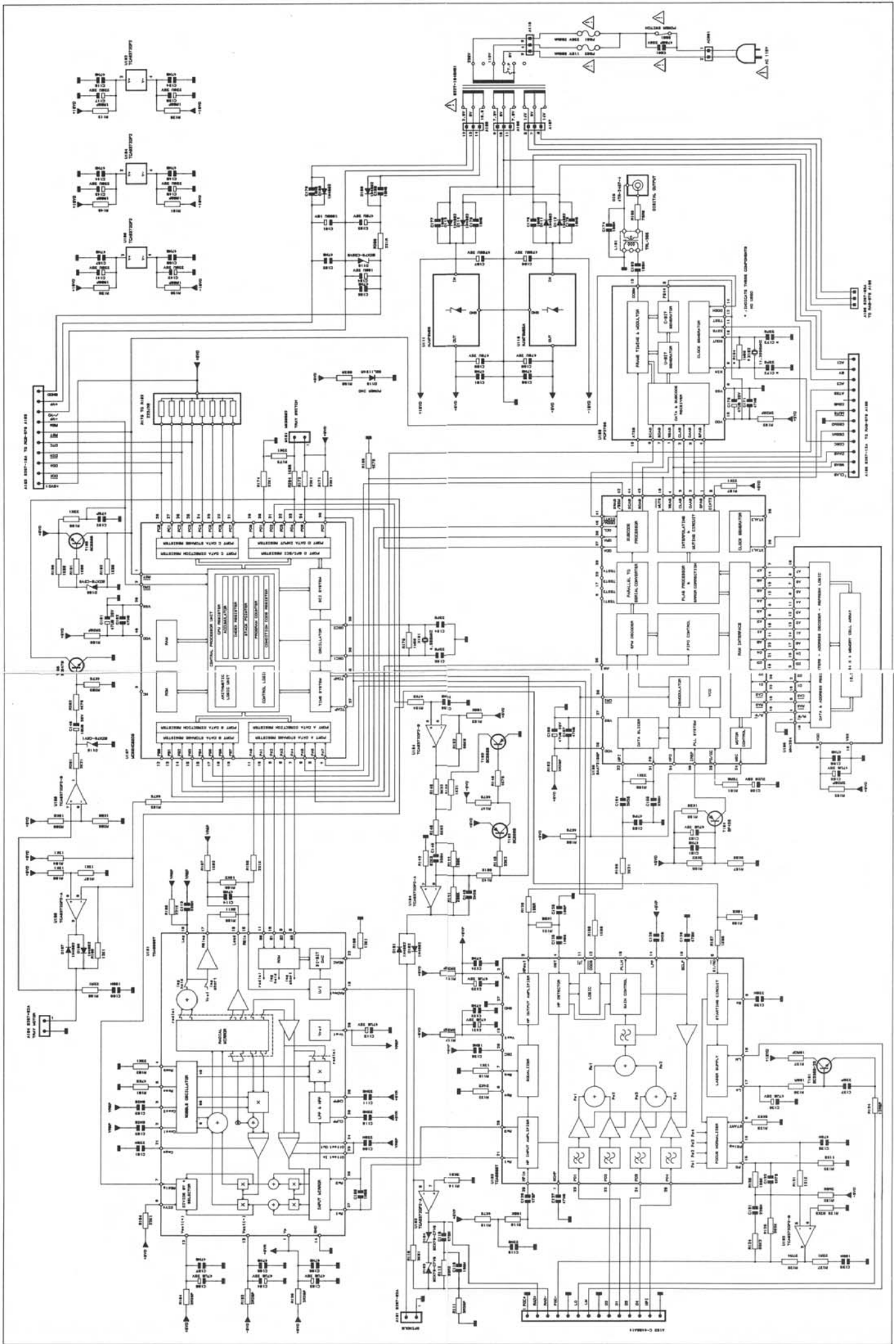


REMOTE CONTROL HANDSET

REMOTE CONTROL SCHEMATIC DIAGRAM: RR-923

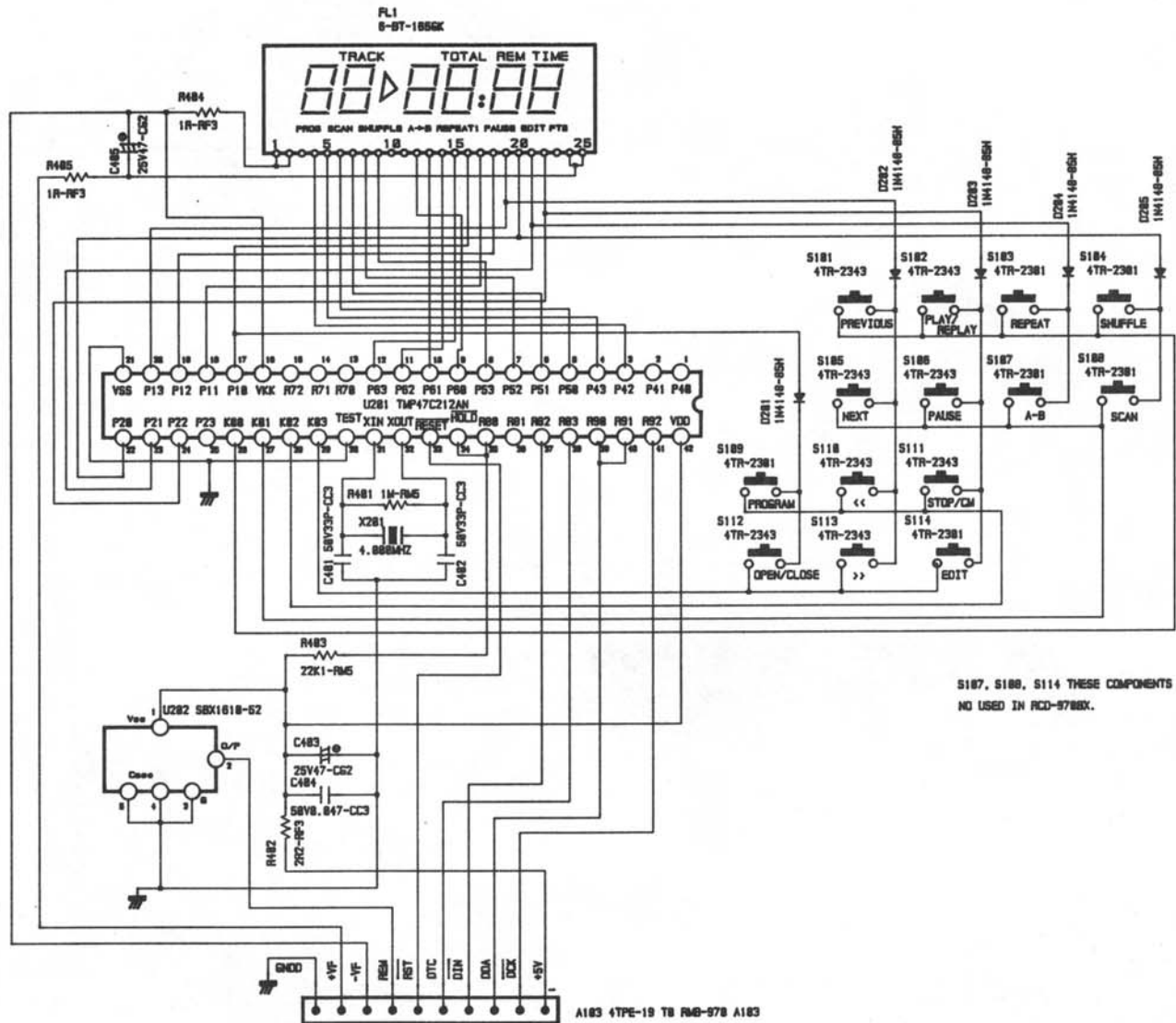


SCHEMATIC DIAGRAM MODEL NO. RCD-970BX (1/3)



Schematic Diagram

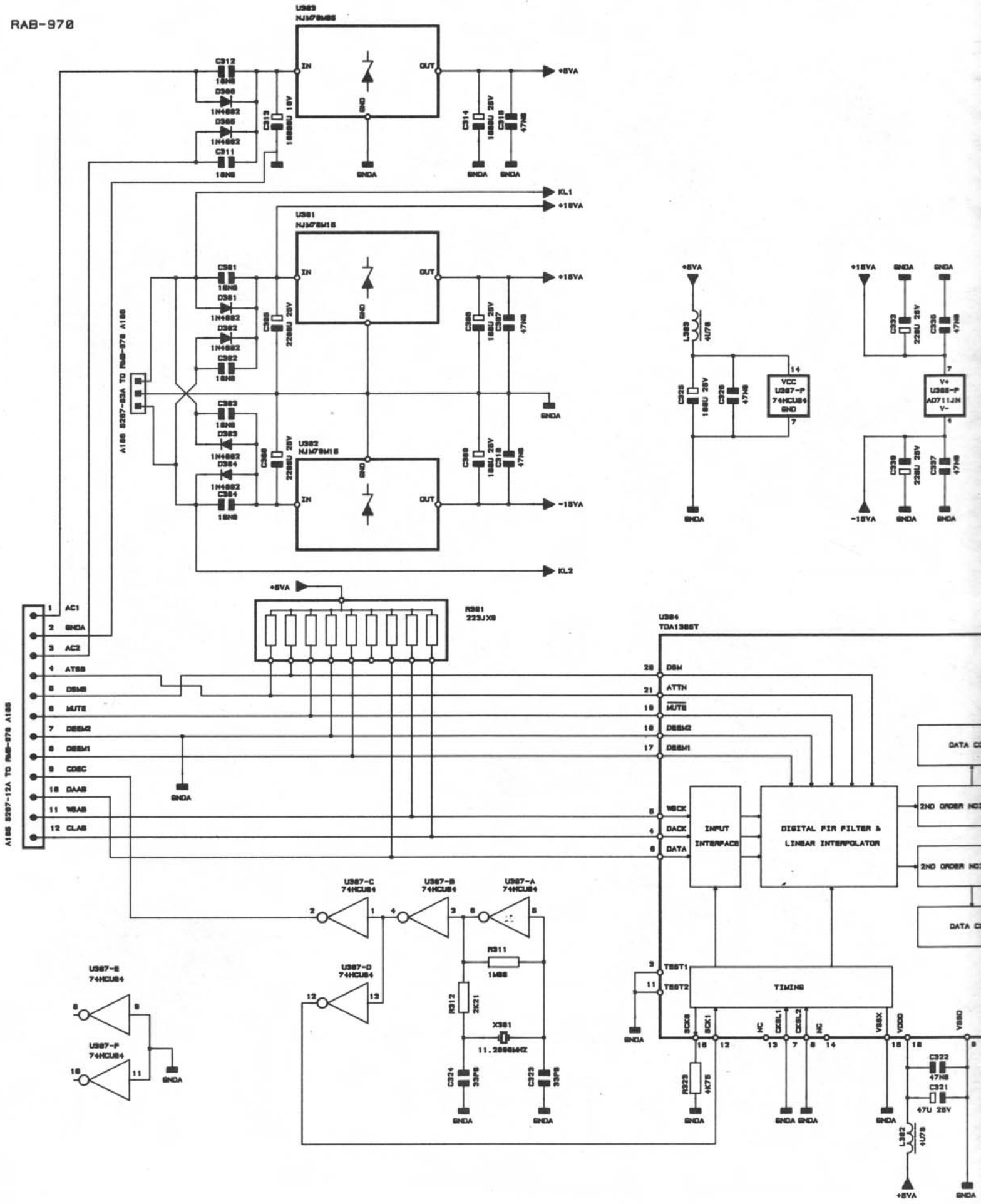
SCHEMATIC DIAGRAM MODEL NO. RCD-970BX (2/3)

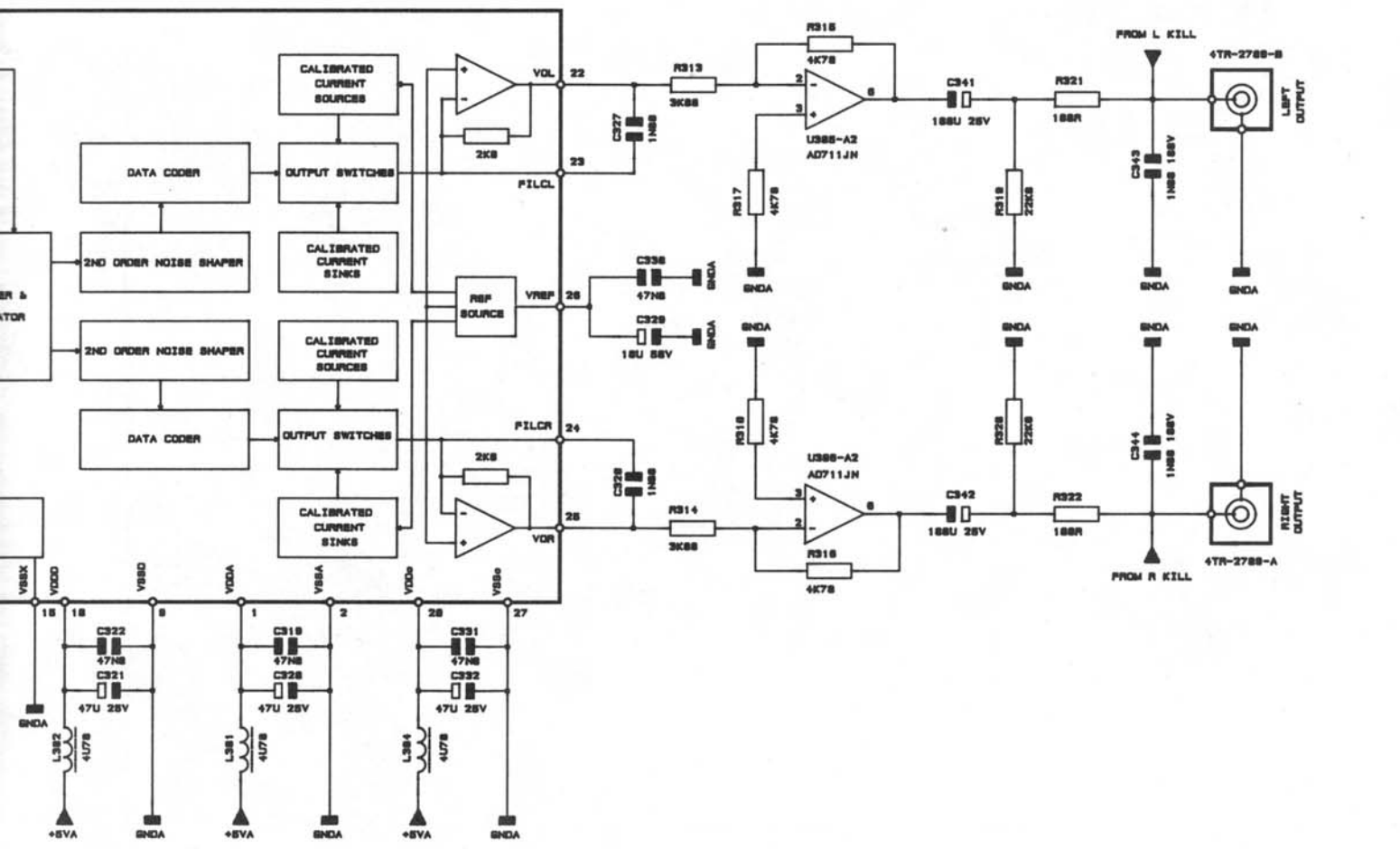
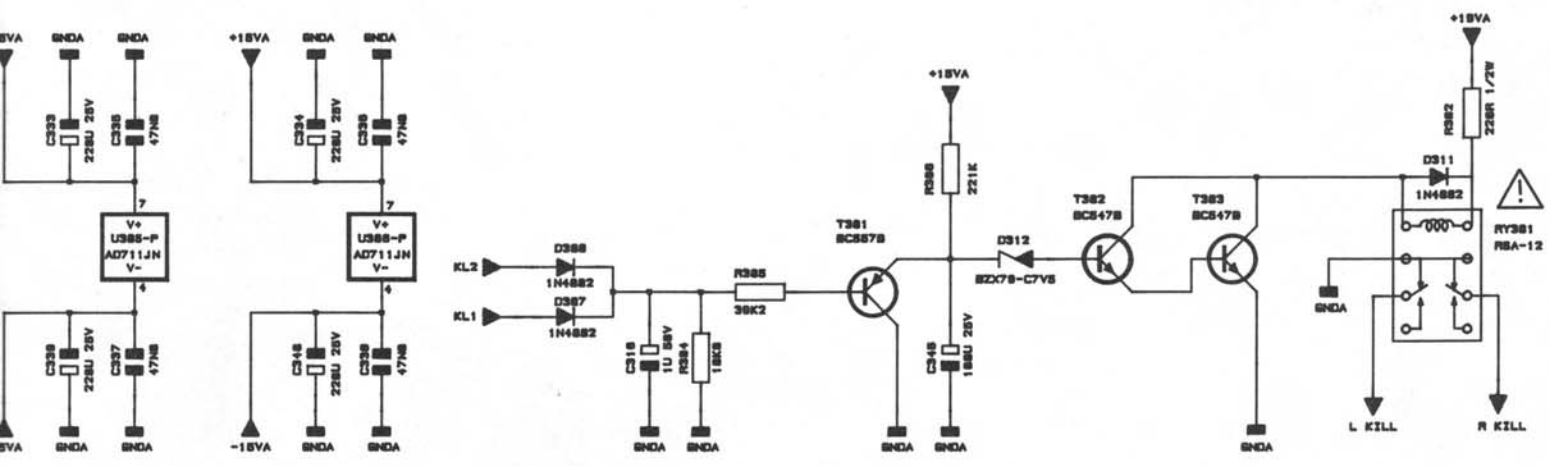


S107, S108, S114 THESE COMPONENTS
NO USED IN RCD-970BX.

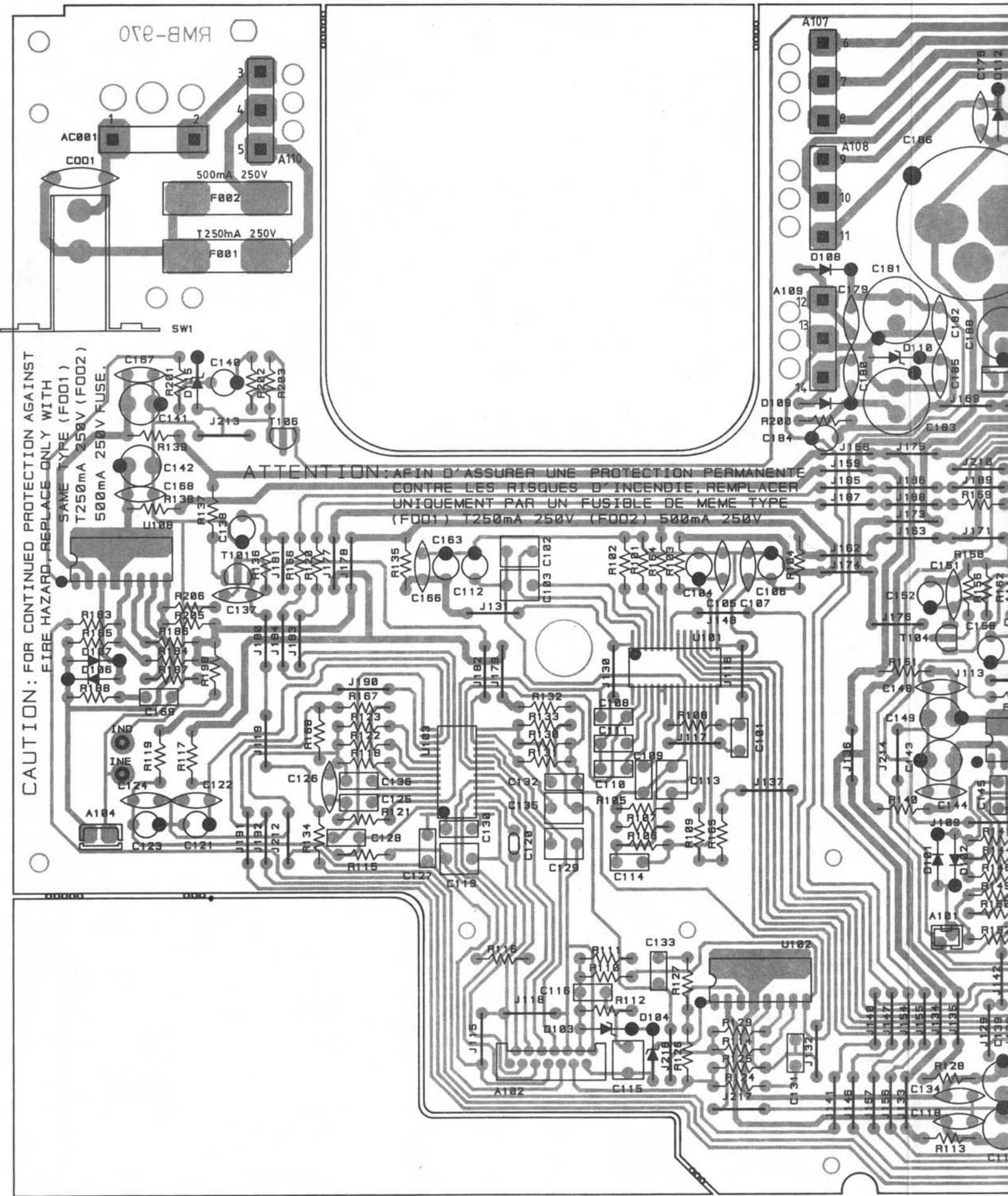
SCHEMATIC DIAGRAM MODEL NO. RCD-970BX (3/3)

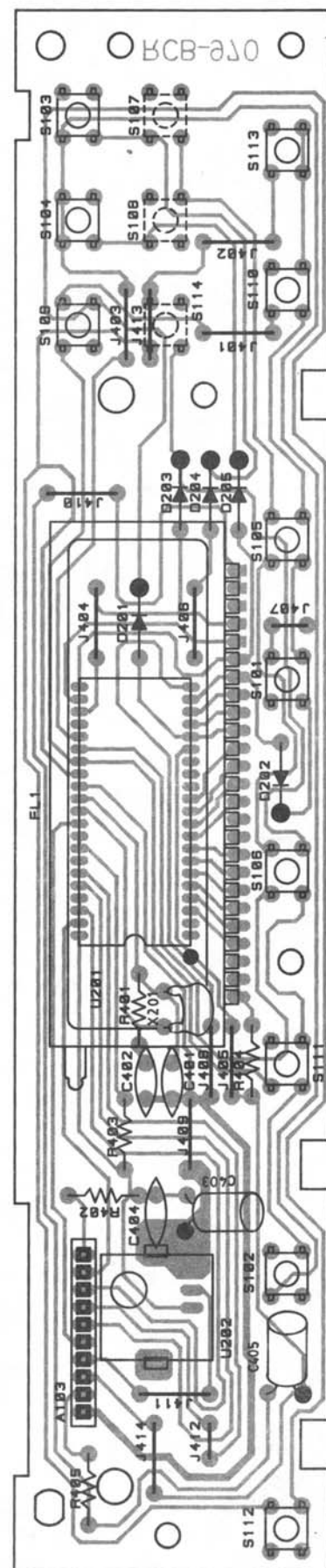
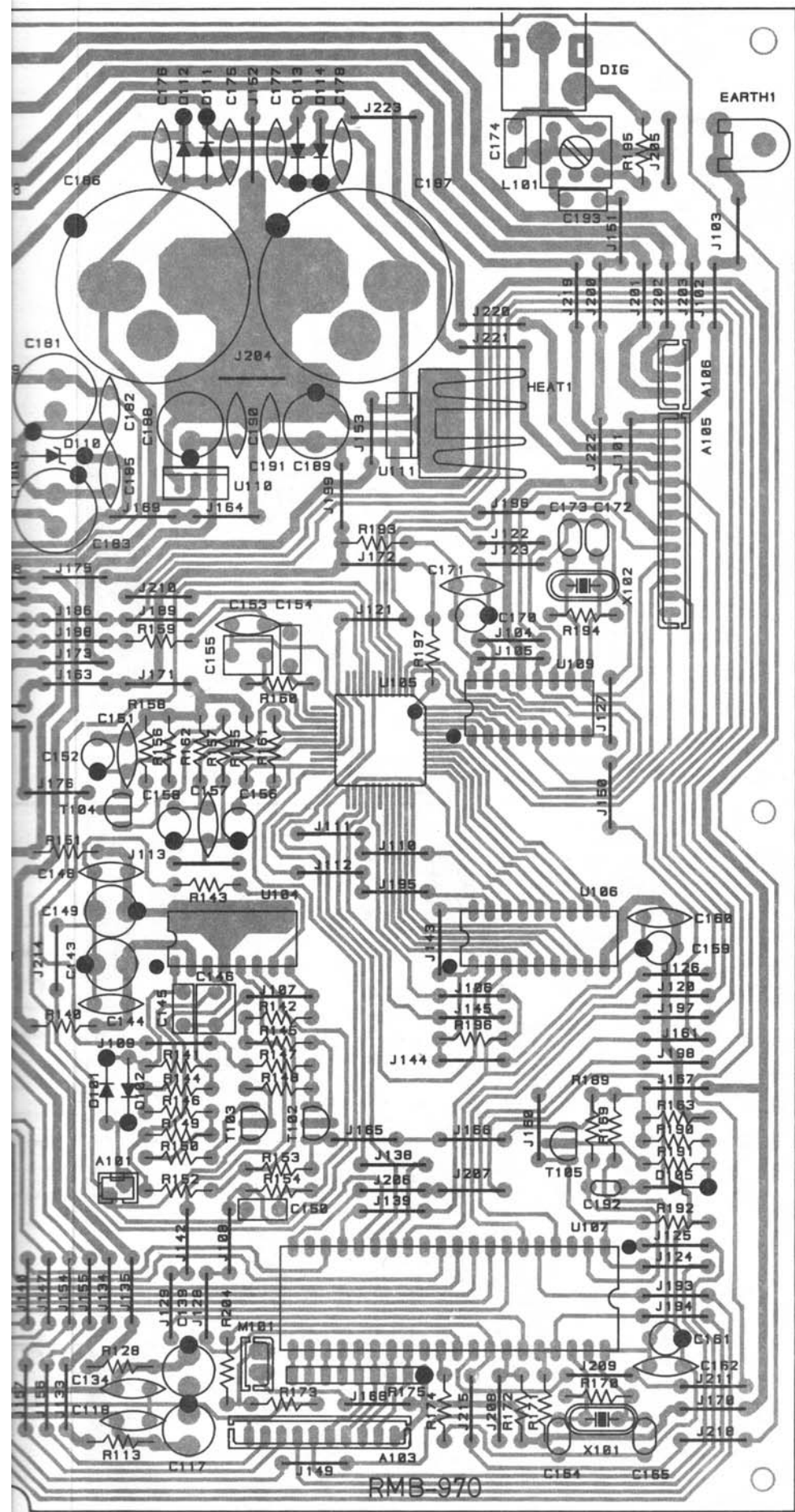
RAB-970



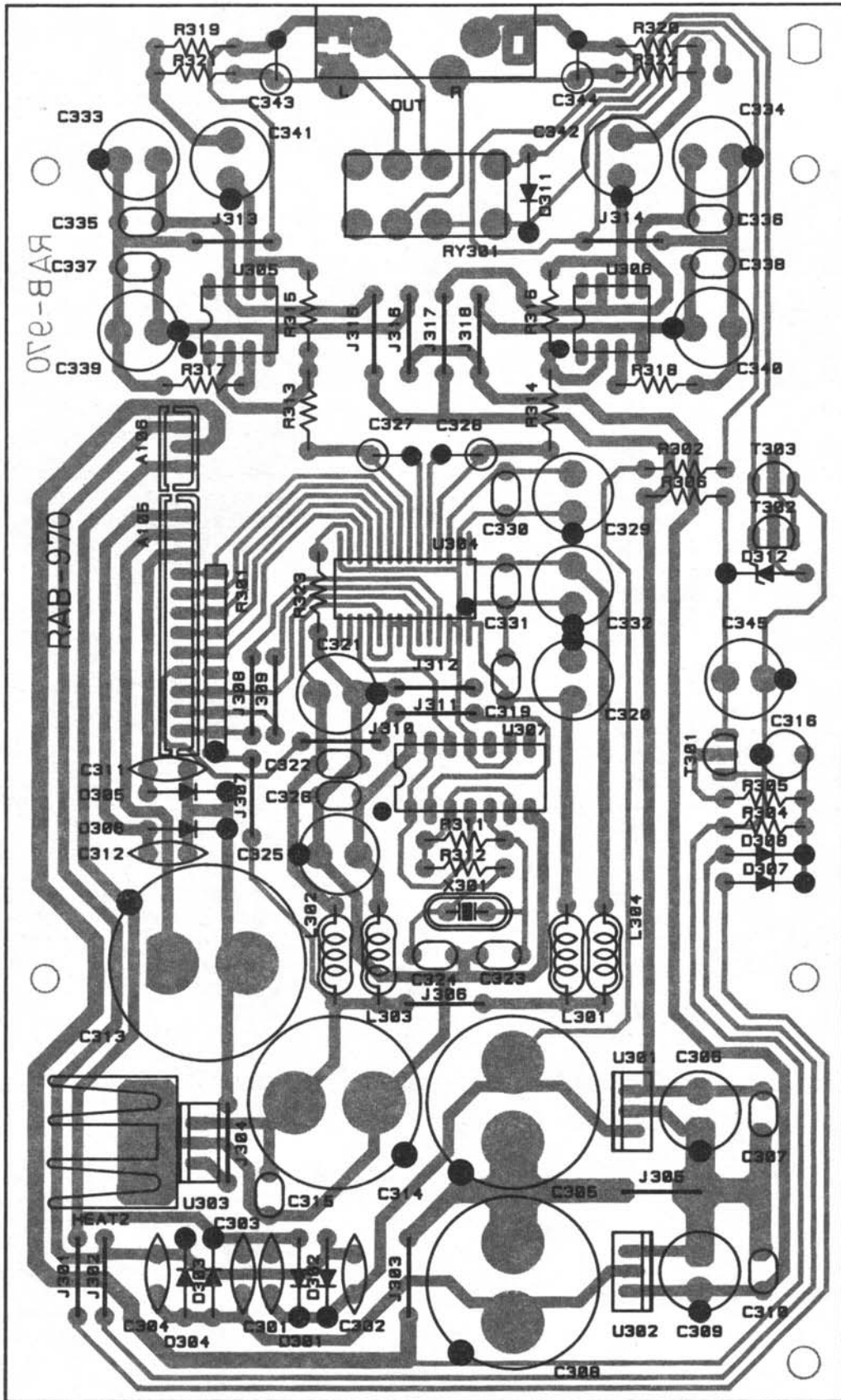


Printed Circuit Boards





Printed Circuit Boards



Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION
	RMB-970	PCB ASSEMBLY
R101	RM54752810	R, METAL 47.5K 1/4W F
R102	RM52212811	R, METAL 22.1K 1/4W F
R103, 104	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R105	RM52213815	R, METAL 221K 1/4W F
R106	RM51822812	R, METAL 18.2K 1/4W F
R107	RM51821819	R, METAL 1.82K 1/4W F
R108	RM51212815	R, METAL 12.1K 1/4W F
R109	RM55111811	R, METAL 5.11K 1/4W F
R110	RM53011813	R, METAL 3.01K 1/4W F
R111	RF53308022	R, FUSIBLE NFR253R3 (J) 0.33W
R112	RM53329813	R, METAL 33.2K 1/4W F
R113	RF51008023	R, FUSIBLE NFR251R (J) 0.33W
R114	RM53011813	R, METAL 3.01K 1/4W F
R115	RM54751816	R, METAL 4.75K 1/4W F
R116	RM51003813	R, METAL 100K 1/4W F
R117	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R118	RM51212815	R, METAL 12.1K 1/4W F
R119	FR52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R120	RM51000812	R, METAL 100 1/4W F
R121	RM51001816	R, METAL 1K 1/4W F
R122	RM52432811	R, METAL 24.3K 1/4W F
R123	RM55621813	R, METAL 5.62K 1/4W F
R124	RM55622817	R, METAL 56.2K 1/4W F
R125	RM53923824	R, METAL 392K 1/4W F
R126	RM52749818	R, METAL 27.4K 1/4W F
R127	RM52219817	R, METAL 22.1 1/4W F
R128	RF51008023	R, FUSIBLE NFR251R (J) 0.33W
R129	RM58252818	R, METAL 82.5K 1/4W F
R130	RM51503810	R, METAL 150K 1/4W F
R131	RM51213819	R, METAL 121K 1/4W F
R132	RM53924818	R, METAL 3.9M 1/4W F
R133	RM51132819	R, METAL 11.3K 1/4W F
R134	RF51209028	R, FUSIBLE NFR2512R (J) 0.33W
R135	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R136	RM51000812	R, METAL 100 1/4W F
R137	RF51809020	R, FUSIBLE NFR2518R (J) 0.33W
R138-140	RF51008023	R, FUSIBLE NFR251R (J) 0.33W
R141	RM52003810	R, METAL 200K 1/4W F
R142	RM56813813	R, METAL 681K 1/4W F
R143	RM58252818	R, METAL 82.5K 1/4W F
R144	RM51503810	R, METAL 150K 1/4W F
R145	RM53322818	R, METAL 33.2K 1/4W F
R146	RM55621813	R, METAL 5.62K 1/4W F
R14, 148	RM54751816	R, METAL 4.75K 1/4W F
R149	RM53321814	R, METAL 3.32K 1/4W F
R150	RM51211811	R, METAL 1.21K 1/4W F
R151	RF51008023	R, FUSIBLE NFR251R (J) 0.33W
R152	RM59092811	R, METAL 90.9K 1/4W F
R153	RM51003813	R, METAL 100K 1/4W F
R154	RM54752810	R, METAL 47.5K 1/4W F
R155	RM54751816	R, METAL 4.75K 1/4W F
R156	RM53921817	R, METAL 3.92K 1/4W F
R157	RM59091818	R, METAL 9.09K 1/4W F
R158	RM51581810	R, METAL 1.58K 1/4W F
R159	RM52211818	R, METAL 2.21K 1/4W F
R160	RM52212811	R, METAL 22.1K 1/4W F
R161	RM57509810	R, METAL 75R 1/4W F
R162, 163	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R164	RM52212811	R, METAL 22.1K 1/4W F
R165	RM52213815	R, METAL 221K 1/4W F
R166, 167	RM51001816	R, METAL 1K 1/4W F

SYMBOL	PARTS NO.	DESCRIPTION
R168	RM51002810	R, METAL 10K 1/4W F
R169	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R170	RM11004717	R, METAL 1M 1/4W F
R171-174	RM52212811	R, METAL 22.1K 1/4W F
R175	RN32202081	THICK FILM RS NETWORK SE8223J FU
R183	RM54751816	R, METAL 4.75K 1/4W F
R184-187	RM51212815	R, METAL 12.1K 1/4W F
R188	RM52219817	R, METAL 22.1 1/4W F
R189	RM52212811	R, METAL 22.1K 1/4W F
R190-192	RM51001816	R, METAL 1K 1/4W F
R193	RF52208020	R, FUSIBLE NFR252R2 (J) 0.33W
R195	RM57509810	R, METAL 75R 1/4W F
R196	RM54751816	R, METAL 4.75K 1/4W F
R197	RM52212811	R, METAL 22.1K 1/4W F
R198	RM55620810	R, METAL 562 1/4W F
R200	RM52210814	R, METAL 221 1/4W F
R201	RM52211818	R, METAL 2.21K 1/4W F
R202, 203	RM54751816	R, METAL 4.75K 1/4W F
R204	RM51001816	R, METAL 1K 1/4W F
R205	RM51502817	R, METAL 15K 1/4 W F
R206	RM51001816	R, METAL 1K 1/4W F
C001	CK00000035	SPARK KILLER DE7150F472M Δ
C101	CQ62208423	CAP, M.P 63V 220NF
C102, 103	CP58210404	CAP, P.P TKP30-63V822F
C104	CE44706258	CAP, ELEC. 25V 47uF
C105	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C106	CE44706258	CAP, ELEC. 25V 47uF
C107	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C108	CQ61010421	CAP, M.P 63V 1000PF
C109	CQ62208423	CAP, M.P 63V 220NF
C110, 111	CQ63309429	CAP, M.P 63V 33000PF
C112	CE44706258	CAP, ELEC. 25V 47uF
C113	CQ63308425	CAP, M.P 63V 330NF
C114	CQ64709427	CAP, M.P 63V47000PF
C115	CQ64708423	CAP, M.P 63V 470NF
C116	CQ61008426	CAP, M.P 63V 100NF
C117	CE02205255	CAP, ELEC. 25V 220uF
C118	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C119	CQ62209427	CAP, M.P 63V 22000PF
C120	CC64711410	CAP, CERAMIC 550V471J NPO
C121	CE44706258	CAP, ELEC. 25V 47uF
C122	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C123	CE44706258	CAP, ELEC. 25V 47uF
C124	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C125	CQ61010421	CAP, M.P 63V 1000PF
C126	CC11011417	CAP, CERAMIC 50V 100P
C127	CQ64709427	CAP, M.P 63V 47000PF
C128	CQ62210429	CAP, M.P 63V 2200PF
C129	CQ64708423	CAP, M.P 63V 470NF
C130	CQ61009420	CAP, M.P 63V 10000PF
C131	CQ62208423	CAP, M.P 63V 220NF
C132	CQ64710429	CAP, M.P 63V 4700PF
C133	CQ61008426	CAP, M.P 63V 100NF
C134	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C135	CQ64708423	CAP, M.P 63V 470NF
C136	CQ62208423	CAP, M.P 63V 220NF
C137	CC52211425	CAP, CERAMIC 50V 220PF
C138	CE44706258	CAP, ELEC. 25V 47uF
C139	CE02205255	CAP, ELEC. 25V 220uF
C140	CE41006500	CAP, ELEC. 50V 10uF
C141-143	CE02205255	CAP, ELEC. 25V 220uF
C144	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C145	CQ62210429	CAP, M.P 63V 2200PF
C146	CQ63308425	CAP, M.P 63V 330NF
C148	CC44709422	CAP, CERAMIC DSXE65TKY473Z
C149	CE02205255	CAP, ELEC. 25V 220uF

Parts List

SYMBOL	PARTS NO.	DESCRIPTION
C150	CQ61809423	CAP,M.P 63V 18000PF
C151	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C152	CE44706258	CAP,ELEC. 25V 47uF
C153	CC54712429	CAP,CERAMIC 50V 47P
C154	CQ62210429	CAP,M.P 63V 2200PF
C155	CQ63308425	CAP,M.P 63V 330NF
C156	CE42207500	CAP,ELEC. 50V 2.2uF
C157	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C158,159	CE44706258	CAP,ELEC. 25V 47uF
C160	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C161	CE44706258	CAP,ELEC. 25V 47uF
C162	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C163	CE44706258	CAP,ELEC. 25V 47uF
C164,165	CC63312416	CAP,CERAMIC T50V330J
C166	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C168	CC44709422	CAP,CERAMIC DSXE15TKY473Z
C169	CQ61008426	CAP,M.P 63V 100NF
C170	CE44706258	CAP,ELEC. 25V 47uF
C171	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C174	CQ61008426	CAP,M.P 63V 100NF
C175-180	CC01009256	CAP,CERAMIC 250V 0.01uF Δ
C181	CE01004163	CAP,ELEC. 16V 1000uF Δ
C182	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C183	CE04705255	CAP,ELEC. 25V 470uF
C184	CE41005257	CAP,ELEC. 25V 100uF
C185	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C186,187	CE14704259	CAP,ELEC. 25V 1700uF
C188,189	CE04705255	CAP,ELEC. 25V 470uF
C190,191	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C192	CC64711410	CAP,CERAMIC T50V 471J
C193	CQ61008426	CAP,M.P 63V 100NF
D101,102	DD80000033	DIODE IN4002-TB
D103,104	DD20000375	DIODE BZX79-C7V5
D105	DD20000399	DIODE BZX79-C3V9
D106-109	DD80000033	DIODE IN4002-TB
D110	DD20000429	DIODE BZX79C-C20
D111-114	DD80000033	DIODE UN4002-TB
D115	DD20000430	DIODE BZX79-C5V1
X101	DD60000350	CERAMIC RESONATOR 4.0000MHZ
T101	TR70000066	TRANSISTOR BC338-25
T102,103	TR70000110	TRANSISTOR BC558B
T104	TR70000121	TRANSISTOR BF450
T105	TR70000110	TRANSISTOR BC558B
T106	TR70000194	TRANSISTOR BC547B
U101	IC00002879	IC TDA8809T/C2
U102	IC00002806	IC TCA0372/DP2
U103	IC00002867	IC TDA8808T/C3
U104	IC00002806	IC TCA372/DP2
U105	IC00002909	IC SAA7310GP
U106	IC00002764	IC MN4264P-15
U107	IC00003501	IC MC68HCO5D9P/P132
U108	IC00002806	IC TCA0372/DP2
U109	IC00003537	IC PCF2705P
U110	IC00002778	IC NJM79M05A
U111	IC00000615	IC NJM78M05
L101	LC23850008	COIL TRL-385
SW1	SH40000120	POWER SW C-3600B-T
RCB-970 PCB ASSEMBLY		
D201-205	DD80000021	DIODE IN4148-86
C401-402	CC53312419	CAP,CERAMIC 50V 33P
C403	CE44706258	CAP,ELEC. 25V 47uF
C404	CC44709422	CAP,CERAMIC DSXE65TKY473Z
C405	CE44706258	CAP,ELEC. 25V 47uF
R401	RM51004817	R,METAL 1M 1/4W F
R402	RF52208020	R,FUSIBLE NFR252R2 0.33W
R403	RM52212811	R,METAL 22.1K 1/4W F
R404,405	RF51008023	R,FUSIBLE NFR251R 0.33W
S101,102	SH60000240	KEY BOARD SW 4TR-2343

SYMBOL	PARTS NO.	DESCRIPTION
S103,104	SH60000380	KEY BOARD SW 4TR-3185
S105,106	SH60000240	KEY BOARD SW 4TR-2343
S109	SH60000380	KEY BOARD SW 4TR-3185
S101-113	SH60000240	KEY BOARD SW 4TR-2343
RAB-970 PCB ASSEMBLY		
R301	RN32202093	THICK FILM RS NETWORK SE9223JFU
R302	RM92200923	R,METAL 220 1/2W J
R304	RM51002810	R,METAL 10K 1/4W F
R305	RM53922810	R,METAL 39.2K 1/4W F
R306	RM52213815	R,METAL 221K 1/4W F
R311	RM11004717	R,METAL MRS251M 0.6W
R312	RM52211818	R,METAL 2.21K 1/4W F
R313,314	RH13001016	R,METAL 003K F T-1
R315,316	RH14701010	R,METAL 04K7 F T-1
R317,318	RM14701711	R,METAL MRS254K7 0.6W
R319,320	RM11003713	R,METAL MRS25100K 0.6W
R323	RM54751816	R,METAL 4.75K 1/4W F
C301-304	CC01009256	CAP,CERAMIC 250V 0.01uF Δ
C305	CE02204251	CAP,ELEC. 25V 2200uF Δ
C306	CE51005679	CAP,ELEC. 25BGF100M
C307	CC64709439	CAP,LAYER CER. 064 T50V473K
C308	CE02204251	CAP,ELEC. 25V 2200uF Δ
C309	CE51005679	CAP,ELEC. 25BGF100M
C310	CC64709439	CAP,LAYER CER. 046 T50V473K
C311,312	CC01009256	CAP,CERAMIC 250V 0.01uF Δ
C313	CE51003774	CAP,ELEC. 16V 10000uF Δ
C314	CE71004255	CAP,ELEC. 041 ECEA1EF102
C315	CC64709439	CAP,LAYER CER. 046 T50V473K
C316	CE41007503	CAP,ELEC. 50V 1uF
C319	CC64709439	CAP,LAYER CER. 046 T50V473K
C320,321	CE64706677	CAP,ELEC. 25BGF47M
C322	CC64709439	CAP,LAYER CER. 046 T50V473K
C323,324	CC63312416	CAP,LAYER CER. 046 T50V330J
C325	CE51005679	CAP,ELEC. 25BGF100M
C326	CC64709439	CAP,LAYER CER. 046 T50V473K
C327,328	CS31010317	CAP,POLYSTYRENE 160V 1000PF
C329	CE51006477	CAP,ELEC. 50BGF10M
C330,331	CC64709439	CAP,LAYER CER. 046 T50V473K
C332	CE64706677	CAP,ELEC. 25BGF47M
C333,334	CE51005679	CAP,ELEC 25BGF100M
C335-338	CC64709439	CAP,LAYER CER. 046 T50V473K
C339,340	CE51005679	CAP,ELEC. 25BGF100M
C341,342	CE61005743	CAP,ELEC. 16BGF100M
C343,344	CS31010317	CAP,POLYSTYRENE 160V 1000PF
C345	CE41005257	CAP,ELEC. 25V 100uF
D301-308	DD80000033	DIODE IN4002-TB
D311	DD80000033	DIODE IN4002-TB
D312	DD20000375	DIODE ZENER BZX79-C7V5
X301	DD60000337	CRYATAL OSC. 11.2896MHZ
T301	TR70000200	TRANSISTOR BC557B
T302,303	TR70000194	TRANSISTOR BC547B
U301	IC00001267	IC NJM78M15
U302	IC00001565	IC NJM79M15
U303	IC00000615	IC NJM78M05
U304	IC00003914	IC TDA1305T2X/2Y
U305,306	IC00003021	IC AD711JN
U307	IC00003689	IC TC74HCU04AP
L301-304	LM00000486	MICRO INDUCTOR 4.7UH
RY301	LY00000459	RELAY RSA-12 Δ
OTHERS		
AB00000791		BOTTOM BOARD 2TPE-18
AF50000066		FRONT CHASSIS 2TPE-3
AR50000113		PRINTED REAR CHASSIS TRP-654
AS01000464		SIDE CHASSIS (L) 3TPE-16#1
AS02000277		SIDE CHASSIS (R) 3TPE-16#2

Parts List

SYMBOL	PARTS NO.	DESCRIPTION
DI00001399		COMPACT DISC LOADER ASS'Y
		L912-04/CDM-9 STD
FT00000229		PLASTIC FOOT (BK) 4TSH-19#2
		50Fx14H
OM70000442		POWER BUTTON CONNECTOR 3TPE-7A
SB00001113		P.V.C SHIELD PLATE 4TPE-12
SC00000027		AC CORD STOPPER SR-4N-4 Δ
SG00000950		EVA SPONGE 4TR-2871#1 60F
SP10007112		P.C.B SUPPORT 3TPE-17
SP10007239		P.T SUPPORT 3TPE-23
SR00001333		SILICON RUBBER SPACER
		4TR-3131 1.5T
CD00000218		AC CORD SPT-2 AWG#18
		4TR-670#4-U,C,A,J Δ
CD00000048		AC POWER CORD 4TR-1037
		H,E,Y1,Y2,S1 Δ
CD00000528		AC CORD HO3VVH2-F 4TR-3083
		K1 Δ
CD00000322		AC POWER CORD OKA 4TR-2757-D Δ
CD00000115		AC POWER CORD C-3763-T-G1 Δ
NP00001949		AC 120V 4TR-2828A#1 TNP-382
NP00002012		AC 110V 4TR-2828A#6 TNP-391
NP00002140		AC 240V 4TR-2828A#11 TNP-398
FU25000016		FUSE 250V 500mA UL/CSA Δ
PT00000370		POWER TRANSFORMER T-1046NO1 Δ
AA50000144		FRONT PANEL 2TPE-1#1 TFP-722
AW00000745		PANEL WINDOW 4TPE-8
BU00001145		POWER RING W/LED 4TQF-13
KB20002681		POWER BUTTON 4TQF-15 14x14
KB20002796		TACT BUTTON 3 KEY 3TQP-2
KB20003119		TACT BUTTON 3TPE-6 6 KEY
KB20003120		TACT BUTTON 4TPE-10 2 KEY
OM10001260		ORNAMENTAL SIDE BOARD
		4TR-2797#1
DD40000095		LED SEL1224R
OM70000065		PUSH BUTTON CONNECTOR 4TTL-15
SN00000179		BUTTON SPRING 4TR-1988A#2 10F
AG00000445		REMOTE CONTROL HANDSET RR-923
AU00001250		TOP COVER 3TTE-6#4
OM10001727		CD PLASTIC DOOR 3TPE-5
OM10001776		CD ALUM. DOOR 4TPE-11
OM10001788		FL ORNAMENTAL PLATE 4TPE-9#1
OM70000168		FILTER BOARD 4TSJ-9#2
OM70000193		FILTER BOARD 4TSJ-9#3
SR00000882		UPPER COVER SPACER 4TR-2418
MN10003505		OWNER'S MANUAL RCD-970BX
PL00001294		STYROL SIDE MOULDING
		2TPE-22#1 TZ-194
TN10004610		INSIDE CARTON RCD-970BX
		4TPE-14