

# ROTEL *hifi*

STEREO CONTROL AMPLIFIER

# RC-970BX

# TECHNICAL MANUAL

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**THE ROTEL CO., LTD.**

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**ROTEL ELECTRONICS CO., LTD.**

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MN20002127

# Specifications

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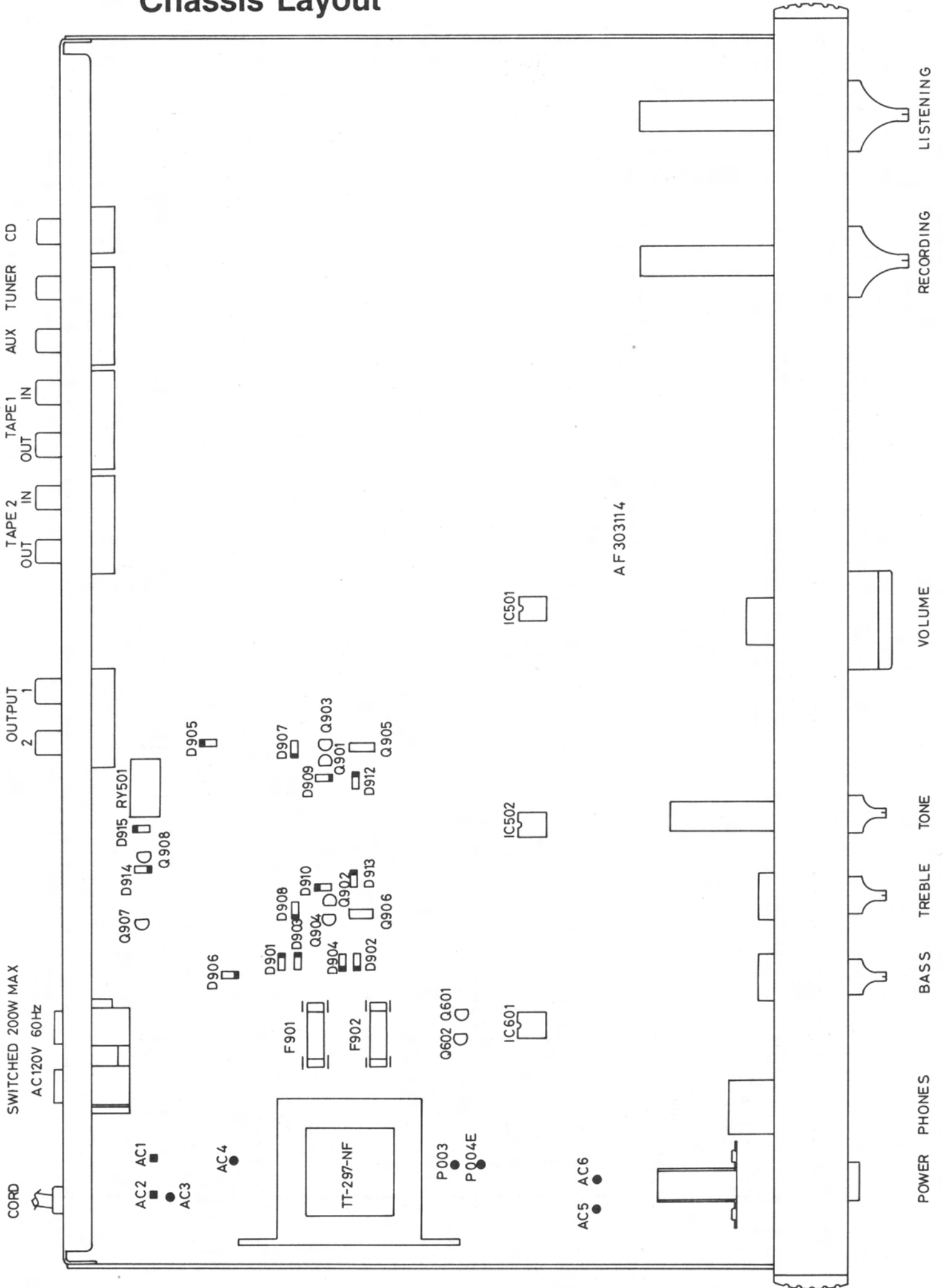
Total Harmonic Distortion ..... (CD/TUNER, 20 Hz to 20 kHz)	No more than 0.004% (Rated output)
Intermodulation Distortion ..... (CD/TUNER, 60 Hz : 7 kHz = 4:1)	No more than 0.004% (Rated output)
Output (Headphones) .....	8 to 2,000 ohms
Input Sensitivity/Impedance .....	CD, TUNER: 150 mV / 24 kohms AUX, TAPE1,2: 150 mV / 24 kohms
Output Sensitivity/Impedance .....	1.0 V / 100 ohms
Overload Level (THD 0.5 %, 1 kHz).....	CD, TUNER: 5 V AUX, TAPE1,2: 5 V
Frequency Response .....	CD, TUNER: 4 to 100 kHz, + 0 dB - 3 dB AUX, TAPE1,2: 4 to 100 kHz, + 0 dB - 3 dB
Tone Control.....	BASS: 100 Hz, $\pm$ 6 dB TREBLE: 10 kHz, $\pm$ 6 dB
Signal to Noise Ratio (IHF, A network).....	CD, TUNER: 95 dB AUX, TAPE1,2: 95 dB

## GENERAL

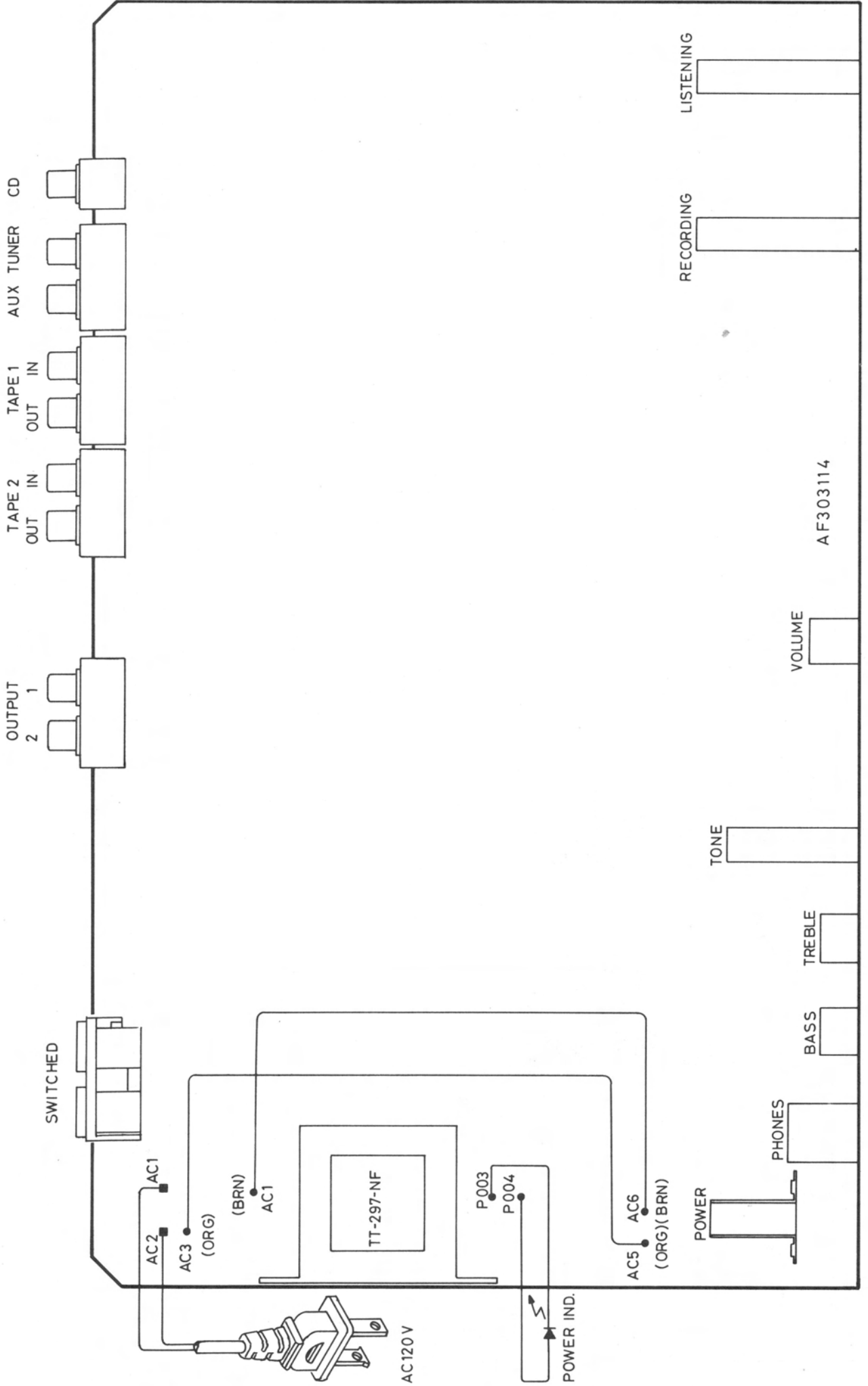
Power Requirement .....	120 V/60 Hz, 220-240 V/50 Hz (depending on destination)
Power Consumption.....	10 watts
Dimension (overall) .....	440 (W) x 70 (H) x 325 (D) mm 17-1/3" (W) x 2-3/4" (H) x 12-4/5" (D)
Weight (net).....	4.0 kg / 8.8 lbs

NOTE: Specifications and design are subject to possible modification without notice.

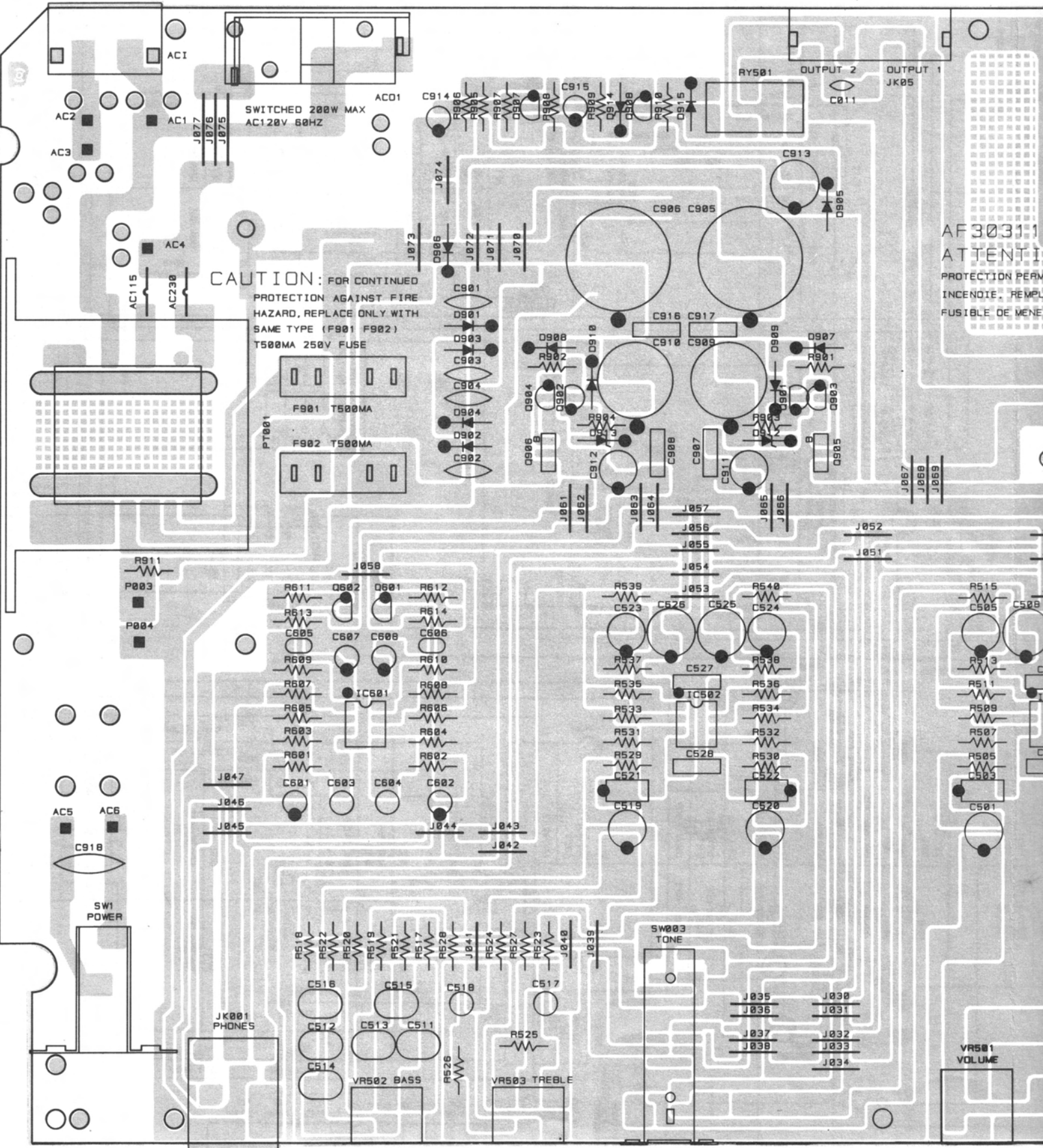
# Chassis Layout



# Wiring Diagram



# Printed Circuit Boards



**CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE (F901 F902) T500MA 250V FUSE

F901 T500MA  
F902 T500MA

JK001 PHONES

VR502 BASS

VR503 TREBLE

SW003 TONE

VR501 VOLUME

AF30311  
ATTENTION  
PROTECTION PERMA  
INCENDIE. REMPLA  
FUSIBLE DE MENE

SWITCHED 200W MAX  
AC120V 60HZ

RY501 OUTPUT 2 OUTPUT 1  
JK05

R911  
P003  
P004

J047  
J046  
J045

J050

J043  
J042

J061  
J062  
J063  
J064

J057  
J056  
J055  
J054

J052  
J051

J067  
J068  
J066

J035  
J036  
J037  
J038

J030  
J031  
J032  
J033  
J034

OUTPUT 1  
JK05

TAPE 2 OUT

TAPE 2 IN  
JK04

TAPE 1 OUT

TAPE 1 IN  
JK03

AUX

TUNER

JK02

CO

JK01

C001

C002

C003

C004

C005

C006

C007

C010

R504

R503

R502

R501

C009

C008

AF303114

ATTENTION: AFIN D' ASSURER UNE  
PROTECTION PERMANENTE CONTRE LES RISQUES D'  
INCENDIE, REMPLACER UNIQUEMENT PAR UN  
FUSIBLE DE MENE TYPE, (F901 F902) 1500MA 250V

J060

J059

J050

J049

J048

R515

R516

C505

C506

C508

C507

R513

R514

R511

R512

C509

IC501

R509

R510

R507

R508

R505

R506

C503

C504

C510

C501

C502

VR501  
VOLUME

J029

SW002  
RECORDING

J027

J028

J025

J013

J012

J011

J010

J009

J017

J023

J024

J018

J019

J020

J021

J022

SW001  
LISTENING

J004

J003

J002

J001

J006

J005

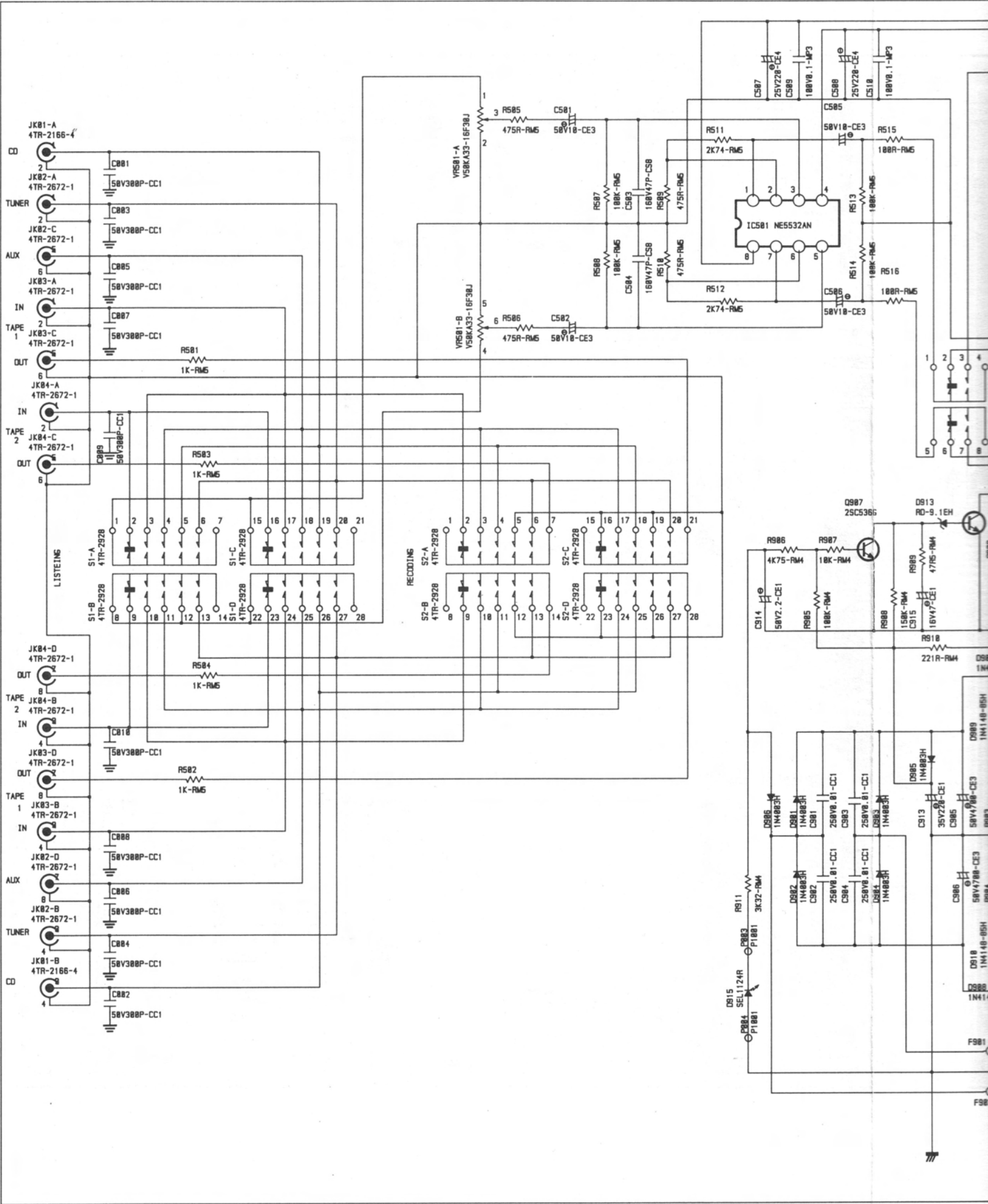
J008

J007

101

# Schematic Diagram

SCHEMATIC DIAGRAM MODEL NO. RC-970BX







# Parts List

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

SYMBOL	PARTS NO.	DESCRIPTION	SYMBOL	PARTS NO.	DESCRIPTION
PCB ASSEMBLY					
AC01	SA00002193	AC INLET SOCKET C-4372A00 $\Delta$	R531-532	RM81003610	RESISTOR MK2100KFE CZ. METAL
C001-10	CC03011436	CAP. 50V 300PF SL CERAMIC	R533-534	RM81211618	RESISTOR MK21K21FE CZ. METAL
C501-502	CE51006477	CAP. 50BGF10M ELEC.	R535-536	RM82211614	RESISTOR MK22K21FE CZ. METAL
C503-504	CS34712311	CAP. 160V 47PF STYROL	R537-538	RM81003610	RESISTOR MK2100KFE CZ. METAL
C505-506	CE51006477	CAP. 50BGF10M ELEC.	R539-540	RM81000619	RESISTOR MK2100RFE CZ. METAL
C507-508	CE72205256	CAP. ECEA1EF221 ELEC.	R601-602	RM54752810	RES. 47.5K F 1/4W METAL
C509-510	CP61008321	CAP. MKT18-100V104K M.P	R603-604	RM51003813	RES. 100K F 1/4W METAL
C511-512	CM01008423	CAP. 50V 104J MYLAR	R605-606	RM51001816	RES. 1K F 1/4W METAL
C513-514	CM01208424	CAP. 50V 124J MYLAR	R607-608	RM51002810	RES. 10K F 1/4W METAL
C515-516	CM01008423	CAP. 50V 104J MYLAR	R609-610	RM51500810	RES. 150 F 1/4W METAL
C517-518	CS41510426	CAP. 50V 1500PF (J) STYROL	R611-612	RM52741819	RES. 2.74K F 1/4W METAL
C519-520	CE51006477	CAP. 50BGF10M ELEC.	R613-614	RM51502817	RES. 15K F 1/4W METAL
C521-522	CS34712311	CAP. 160V 47PF STYROL	R901-902	RM51000812	RES. 100 F 1/4W METAL
C523-524	CE51006477	CAP. 50BGF10M ELEC.	R903-904	RM81002616	RES. MK2010KFE CZ. METAL
C525-526	CE72205256	CAP. ECEA1EF221 ELEC.	R905	RM51003813	RES. 100K F 1/4W METAL
C527-528	CP61008321	CAP. MKT18-100V104K M.P	R906	RM54751816	RES. 4.75K F 1/4W METAL
C601-602	CE04707252	CAP. SK 25V 4.7UF ELEC.	R907	RM51002810	RES. 10K F 1/4W METAL
C603-604	CS44712423	CAP. 50V 47PF (J) STYROL	R908	RM51503810	RES. 150K F 1/4W METAL
C605-606	CM01009427	CAP. 50V 103J MYLAR	R909	RM54759815	RES. 47.5 F 1/4W METAL
C607-608	CE01005167	CAP. SK 16V 100UF ELEC.	R910	RM52210814	RES. 221 F 1/4W METAL
C901-904	CC01009256	CAP. 250V 0.01UF CERAMIC	R911	RM53321814	RES. 3.32K F 1/4W METAL
C905-906	CE54704477	CAP. 50VRS4700A ELEC.	RJ501	LY00000277	RELAY RY-24W-KJ(DPDT)
C907-908	CP61008321	CAP. MKT18-100V104K M.P	S1-2	SH30000572	FUNCTION SW 4TR-2928
C909-910	CE71004255	CAP. ECEA1EF102 ELEC.	SW003	SH30000500	FUNCTION SW 4TR-2780
C911-912	CE71005259	CAP. ECEA1EFS101 ELEC.	SW1	SH40000155	POWER SW C-4176A01 TV-5
C913	CE02205358	CAP. SK 35V 220UF ELEC.	VR501	RV10001577	VR C-4170A17 50KAX2 VOLUME
C914	CE02207501	CAP. SK 50V 2.2UF ELEC.	VR502-503	RV10001541	VR 4TR-2774 20KBX2 TONE
C915	CE04706168	CAP. SK 16V 47UF ELEC.			
C918	CK00000035	CAP. DE7150F742M SPARK KILLER $\Delta$			
D901-906	DD10000068	DIODE 1N4003 1A 140V RTFR			OTHERS
D907-910	DD10000100	DIODE 1N4148 1A 75V DETECT	AB00000705		PAINTED BOTTOM BOARD 4TQN-12B#3
D911-912	DD20000041	DIODE RD-18E (B3) ZENER	AF20000260		FRONT CHASSIS 2TQI-2A
D913	DD20000132	DIODE RD-9.1E (B3) ZENER	AR20000700		PRINTED REAR CHASSIS TRP-629
D914	DD10000068	DIODE 1N4003 1A 140V RTFR			
D915	DD40000095	DIODE SEL1124R 1X5 RED	AS01000385		SIDE CHASSIS 3TQG-1C#3
F901-902	FU23000360	FUSE BEL 5ST 250V 500MA $\Delta$	FT00000229		PLASTIC FOOT 4TSH-19#2 50Fx14H
IC501-502	IC00001693	IC NE5532AN DUAL OP AMP	SB00000868		P.V.C. SHIELD PLATE 4TR-2986A
IC601	IC00001474	IC NJM4556D DUAL OP AMP			
JK001	JH00000070	HEAD PHONE JACK C-3399#3	SB00000947		P.V.C SHIELD PLATE 4TQI-5#2
JK01	JP02000211	2P PIN JACK 4TR-2166#4	SC00000027		AC CORD STOPPER SR-4N-4 $\Delta$
JK02-4	JP04000187	4P PIN JACK 4TR-2672#1	NP00001949		NAME STICKER AC120V 4TR-2828A#1 TNP-382
JK05	JP04000205	4P PIN JACK 4TR-2672#3	NP00001974		NAME STICKER AC120V-C 4TR-2828A#4 TNP-385
PT001	PT29710109	POWER TRANSFORMER TT-297-NF $\Delta$	NP00001962		NAME STICKER AC240V 4TR-2828A#3 TNP-384
Q601	TR30000121	TRANSISTOR 2SC2274(E.F)	NP00001998		NAME STICKER AC230V 4TR-2828A#5 TNP-389
Q602	TR10000140	TRANSISTOR 2SA984K(E.F)	NP00002012		NAME STICKER AC100V 4TR-2828A#6 TNP-391
Q901	TR10000126	TRANSISTOR 2SA608K(F.G)	NP00001950		NAME STICKER AC220V 4TR-2828A#2 TNP-383
Q902-903	TR30000327	TRANSISTOR 2SG536G-NP	CD00000218		AC CORD SPT-2 4TR-670#4 (C,U,A,J) $\Delta$
Q904	TR10000126	TRANSISTOR 2SA608K(F.G)	CD00000322		AC POWER CORD 4TR-2757 (D) $\Delta$
Q905	TR10000047	TRANSISTOR 2SB631K(E.F)			
Q906	TR40000069	TRANSISTOR 2SD600K(E.F)	CD00000048		AC POWER CORD 4TR-1037 (H,E,Y1,Y2,S1) $\Delta$
Q907-908	TR30000327	TRANSISTOR 2SG536G-NP	CD00000085		AC POWER CORD C-2504A (K1) $\Delta$
R501-504	RM81001612	RESISTOR MK2001KFE CZ. METAL	CD00000115		AC POWER CORD C-3763-T (G) $\Delta$
R505-506	RM84750619	RESISTOR MK2475RFE CZ. METAL	SP30000185		ACO MASK 4TTD-26 (H,E,K,G,D,Y1,Y2)
R507-508	RM81003610	RESISTOR MK2100KFE CZ. METAL	AA20000749		FRONT PANEL 2TQI-1#2 TFP-696
R509-510	RM84750619	RESISTOR MK2475RFE CZ. METAL	BU00001145		POWER RING 4TQF-13 14x14
R511-512	RM82741615	RESISTOR MK22K74FE CZ. METAL			
R513-514	RM81003610	RESISTOR MK2100KFE CZ. METAL			
R515-516	RM81000619	RESISTOR MK2100RFE CZ. METAL			
R517-518	RM82211614	RESISTOR MK22K21FE CZ. METAL			
R519-520	RM81821615	RESISTOR MK21K82FE CZ. METAL			
R521-522	RM82212618	RESISTOR MK222K1FE CZ. METAL			
R523-524	RM81501610	RESISTOR MK201K5FE CZ. METAL			
R525-526	RM81002616	RESISTOR MK2010KFE CZ. METAL			
R527-528	RM81501610	RESISTOR MK201K5FE CZ. METAL			
R529-530	RM84750619	RESISTOR MK2475RFE CZ. METAL			

# Parts List

SYMBOL	PARTS NO.	DESCRIPTION
	BU00001169	KNOB RING 4TQF-17 39F
	KB20002618	POWER BUTTON 4TQF-15 14x14
	OM10001260	ORNAMENTAL SIDE BOARD 4TR-2797#1 H=60mm
	DD40000095	LED SEL1124R
	OM70000065	PUSH BUTTON CONNECTOR 4TTL-15
	SN00000179	BUTTON SPRING 4TR-1988A#2 10F
	AU00001183	TOP COVER POLY 3TTE-6#3 H=60MM
	KB10001722	KNOB 4TQF-18 13F
	KB10001734	KNOB 4TQF-19 24F
	KB10001746	KNOB 4TQF-20 33F
	KB10001758	KNOB 4TQF-21 33F
	FE00000067	FELT 4TR-1083B#1 22F
	FE00000079	FELT 4TR-1083B#3 46F
	FE00000092	FELT 4TR-1083B#2 30F
	SR00000882	UPPER COVER SPACER 4TR-2418
	MN10003050	OWNER'S MANUAL RC-970BX
	PL00001087	STYROL SIDE MOULDING 2TTE-8B#2 TZ-164-1