



Technical Manual

STEREO CONTROL AMPLIFIER RC-1090

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Specification

Total Harmonic Distortion (20 Hz - 20 kHz 8 ohms)	<0.004 %
Intermodulation Distortion (60 Hz : 7 kHz 4 : 1)	<0.004 % at 1V output
Input Sensitivity / Impedance	
Phono - MC	0.25 mV / 100 ohms
Phono - MM	2.5 mV / 47 kohms
Line Level	150 mV / 18 kohms
Phono Overload (MC/MM)	16 mV / 160 mV
Output Level / Impedance	1 V / 100 ohms
Frequency Response	
Phono Input	20 Hz - 20 kHz, ± 0.2 dB
line Level Input	4 Hz - 100 kHz, ± 0.5 dB
Signal to Noise Ratio (IHF "A" weighted)	
Phono - MC / MM	70 dB / 75 dB
Line Level	100 dB
Power Requirements	
USA Version	115 volts, 60 Hz
European Version	230 volts, 50 Hz
Power Consumption	13 Watts
Dimensions (W x H x D)	430 x 125 x 345 mm
	16 ¹⁵ / ₁₆ x 4 ¹⁵ / ₁₆ x 13 ¹⁹ / ₃₂ "
Weight (net)	7.8 kg/17.2 lb.

THE ROTEL CO., LTD

SHINSEN-BLD. 4F 10-10 SHINSEN-CHO, SHIBUYA-KU,
TOKYO 150-0045, JAPAN

Serial. NO. Beginning

Parts List-1

SYMBOL	PARTS NO.	DESCRIPTION
X-1299-01 PCB ASSEMBLY		
C401.402	044 TFKP2-2A101H	CAPACITOR FILM 100V100PF
C403.404	044 FSC160V331H	CAPACITOR STYROL 160V330PF
C405.406	044 FSC160V101H	CAPACITOR STYROL 160V100PF
C407.408	044 TFKP2-2A102F	CAPACITOR FILM 100V1000PF
C409.410	041 50BGF10M	CAPACITOR ELEC.50V10UF
C411.412	044 PP160V6800PF	CAPACITOR FILM 160V6800PF
C413-420	041 25BGF100M	CAPACITOR ELEC.25V100UF
C421-424	041 ECEA1EF471	CAPACITOR ELEC.25V470UF
C425.426	041 50BGF10M	CAPACITOR ELEC.50V10UF
C427	043 TC50V473	CAPACITOR CERA.50V0.047UF
C451.452	041 UTES1E101-FB	CAPACITOR ELEC.25V100UF
C461-468	041 UTES1H100-FB	CAPACITOR ELEC.50V10UF
C501.502	041 25BGF47M	CAPACITOR ELEC.25V47UF
C503.504	044 TFKP2-2A101H	CAPACITOR FILM 100V100PF
C505.506	041 50BGF010M	CAPACITOR ELEC.50V1UF
C507.508	041 25BGF47M	CAPACITOR ELEC.25V47UF
C509-512	041 35BGF100M	CAPACITOR ELEC.35V100UF
C513-516	041 35BGF470M	CAPACITOR ELEC.35V470UF
C601.602	041 UTES1H4R7-FB	CAPACITOR ELEC.50V4.7UF
C703	043 TC50V103	CAPACITOR CERA.50V0.01UF
C720	041 UTES1E470-FB	CAPACITOR ELEC.25V47UF
C901-904	041 ALN20S1078DD ✱	CAPACITOR ELEC.63V4700UF
C905.906	043 TC500V103	CAPACITOR CERA.500V0.01UF
C908.909	041 UTES1V101-FB	CAPACITOR ELEC.35V100UF
C923-930	043 TC500V103	CAPACITOR CERA.500V0.01UF
D401-404	034 T1N4148-86	DIODE
D405.406	034 TRD18JST1	ZENER DIODE
D441-448	034 T1N4148-86	DIODE
D501-508	034 T1N4148-86	DIODE
D509.510	034 MA27W-A	VARISTOR DIODE
D511-514	034 E-562	CURRENT REGULATIVE DIODE
D541	034 T1N4148-86	DIODE
D601.602	034 T1N4148-86	DIODE
D707	034 T1N4148-86	DIODE
D901.902	034 BR84 ✱	BRIDGED DIODE
D904.905	034 T1N4148-86	DIODE
F901	036 5ST2.5 ✱	MINI FUSE 250VT2.5A
IC401.402	031 TL071CP	IC(OPE AMP)
IC403.404	031 NE5534AN-S	IC(SELECTED OPE AMP)
IC451	031 TC9163AN	IC(SWITCH ALLEY)
IC542	031 LC4966	IC(LOGIC SWITCH)
IC703	031 TC74HC595AP	IC(8BIT SHIFT REGISTER/LATCH)
IC902	031 NJM7815FA	IC(REGULATOR +15VDC)
IC903	031 NJM7915FA	IC(REGULATOR -15VDC)
PJ1-PJ6	066 4TR-2672#3	4P PINJACK
Q401-404	032 D786-RS	TRANSISTOR(2SD786-RS)
Q405.406	033 TC2362-FG	TRANSISTOR(2SC2362K-FG)
Q407.408	033 D600-EF	TRANSISTOR(2SD600K-EF)
Q409.410	033 B631-EF	TRANSISTOR(2SB631K-EF)
Q451-458	032 TA1345	TRANSISTOR(2SA1345)
Q460-467	032 TC3399	TRANSISTOR(2SC3399)
Q468	032 TA1345	TRANSISTOR(2SA1345)
Q470	032 TC3399	TRANSISTOR(2SC3399)
Q501-504	033 TC2362-FG	TRANSISTOR(2SC2362K-FG)
Q505-512	033 TA1016-FG	TRANSISTOR(2SA1016K-FG)

SYMBOL	PARTS NO.	DESCRIPTION
Q513-516	033 TC2362-FG	TRANSISTOR(2SC2362K-FG)
Q517.518	033 C2911-ST	TRANSISTOR(2SC2911-ST)
Q519.520	033 A1209-ST	TRANSISTOR(2SA1209-ST)
Q521.522	033 B631-EF	TRANSISTOR(2SB631K-EF)
Q523.524	033 D600-EF	TRANSISTOR(2SD600K-EF)
Q525.526	032 TC536-FG	TRANSISTOR(2SC536K-FG)
Q527.528	032 TA608-FG	TRANSISTOR(2SA608K-FG)
R401.402	054 EE10-473	RESISTOR METAL 47K
R403.404	054 EE10-101	RESISTOR METAL 100R
R405.406	054 EE10-100	RESISTOR METAL 10R
R407.408	054 TMFR4560R	RESISTOR METAL 1% 560R
R409.410	054 TMFR4047R	RESISTOR METAL 1% 47R
R411-414	054 TMFR405K6	RESISTOR METAL 1% 5.6K
R415.416	054 TMF4700	RESISTOR METAL 470R
R417.418	054 TMFR4022K	RESISTOR METAL 1% 22K
R419.420	054 TMFR4270R	RESISTOR METAL 1% 270R
R421.422	054 TMFR402K7	RESISTOR METAL 1% 2.7K
R423.424	054 TMFR4075K	RESISTOR METAL 1% 75K
R425.426	054 TMFR404K7	RESISTOR METAL 1% 4.7K
R427.428	054 TMFR4470K	RESISTOR METAL 1% 470K
R429.430	054 TMFR4100R	RESISTOR METAL 1% 100R
R431.432	054 TMFR4100K	RESISTOR METAL 1% 100K
R433.434	054 TMFR4047K	RESISTOR METAL 1% 47K
R435.436	054 TMFR401K5	RESISTOR METAL 1% 1.5K
R451-464	054 MF16-1001-A	RESISTOR METAL 1K
R465.466	054 TMFR4001K	RESISTOR METAL 1% 1K
R467-470	054 MF16-1001-A	RESISTOR METAL 1K
R471.472	053 CR14-470J-A	RESISTOR CARBON 47R
R474	053 CR14-104J-A	RESISTOR CARBON 100K
R476	053 CR14-474J-A	RESISTOR CARBON 470K
R477	053 CR14-561J-A	RESISTOR CARBON 560R
R501.502	054 EE10-101	RESISTOR METAL 100R
R503.504	054 EE10-393	RESISTOR METAL 39K
R505-512	054 TMFR401K2	RESISTOR METAL 1% 1.2K
R513-516	054 TMFR4270R	RESISTOR METAL 1% 270R
R517.518	054 TMFR4022K	RESISTOR METAL 1% 22K
R519-522	054 TMFR4470R	RESISTOR METAL 1% 470R
R523.524	054 TMF1/4-2200F	RESISTOR MRS25 220R
R525.526	054 TMF1/4-3301F	RESISTOR MRS25 3.3K
R527.528	054 TMFR4018K	RESISTOR METAL 1% 18K
R529-532	054 TMFR4010R	RESISTOR METAL 1% 10R
R533.534	054 TMFR4100R	RESISTOR METAL 1% 100R
R535.536	054 TMFR4047K	RESISTOR METAL 1% 47K
R559.560	054 TMFR4560R	RESISTOR METAL 1% 560R
R611	054 1WS330JF	RESISTOR METAL 1W 330R
R717	053 CR16-104J-A	RESISTOR CARBON 100K
R903	054 1WS120JF	RESISTOR METAL 1W 120R
R905.906	054 2WS100JF	RESISTOR METAL 2W 100R
RY451-458	063 V23106-24	RELAY(FUNCTION)
RY601.602	063 V23106-24	RELAY(MUTE)
RY901	063 DH2U-24 ✱	RELAY(POWER)
RY902	063 DG1U-24 ✱	RELAY(AC OUTLET)
S401	061 4TR-3301	PUSH SWITCH(MC/MM)
VR501	051 C-4170A33	VARIABLE RESISTOR(VOLUME)
	017 C-4401A01	SUB HEAT SINKER

Parts List-2

SYMBOL	PARTS NO.	DESCRIPTION
	019 TO-126	INSULATION SHEET
	069 C-3417A	FUSE CLIP
	069 C-4372A01 ※	AC OUTLET for STD
	X-1299-02 PCB ASSEMBLY	
C603.604	044 S50V47PJ	CAPACITOR STYROL 50V47PF
C605.606	042 TP50V103J	CAPACITOR MYLAR 50V0.01UF
C607.608	041 UTES1E101-FB	CAPACITOR ELEC.25V100UF
C704.705	043 TC50V103	CAPACITOR CERA.50V0.01UF
C907	043 TC500V103	CAPACITOR CERA.500V0.01UF
C910	041 UTES1H010-FB	CAPACITOR ELEC.50V1UF
C911	041 UTES1V101-FB	CAPACITOR ELEC.35V100UF
C912	041 UTES1A101-FB	CAPACITOR ELEC.10V100UF
C913	041 UTES1H470-FB	CAPACITOR ELEC.50V47UF
C914	043 TC500V103	CAPACITOR CERA.500V0.01UF
C915	041 UTES1V102	CAPACITOR ELEC.35V1000UF
C916.917	041 UTES1E101-FB	CAPACITOR ELEC.25V100UF
D713	034 TRD5.6JST1	ZENER DIODE
D903	034 T1N4003-TB ※	DIODE
D906	034 TRD4.7JST1	ZENER DIODE
D907	034 T1N4148-86	DIODE
D909	034 TRD30JST1	ZENER DIODE
D910	034 TRD9.1JST1	ZENER DIODE
D911	034 TRD12JST1	ZENER DIODE
D913	034 T1N4003-TB ※	DIODE
HJ601	065 C-3399#3	PHONE JACK
IC601	031 NJM4556AD	IC(DUAL OPE)
IC704	031 LB1641	IC(MOTOR DRIVE)
IC901	031 NJM7805FA	IC(REGULATOR +5VDC)
Q901	033 TC3708-ST	TRANSISTOR(2SC3708-ST)
Q902	033 TA1016-FG	TRANSISTOR(2SA1016K-FG)
Q903	032 TC536-FG	TRANSISTOR(2SC536K-FG)
Q904	032 TD863-EF	TRANSISTOR(2SD863-EF)
R601.602	054 TMFR4100K	RESISTOR METAL 1% 100K
R603.604	054 TMFR4330K	RESISTOR METAL 1% 330K
R605.606	054 TMFR4033K	RESISTOR METAL 1% 33K
R607.608	054 TMFR4150R	RESISTOR METAL 1% 150R
R609.610	054 TMFR4047K	RESISTOR METAL 1% 47K
R612	053 CR14-821J-A	RESISTOR CARBON 820R
R716	053 CR16-100J-A	RESISTOR CARBON 10R
R721	053 CR14-103J-A	RESISTOR CARBON 10K
R901	054 ERQ14AJ2R2P ※	FUSIBLE RESISTOR 2.2R
R902	054 1WS180JF	RESISTOR METAL 1W 180R
R904	054 1WS330JF	RESISTOR METAL 1W 330R
R907	053 CR14-153J-A	RESISTOR CARBON 15K
R908	053 CR14-472J-A	RESISTOR CARBON 4.7K
R909	053 CR14-682J-A	RESISTOR CARBON 6.8K
R910	053 CR14-473J-A	RESISTOR CARBON 47K
R911-913	053 CR14-223J-A	RESISTOR CARBON 22K
R916	053 CR14-104J-A	RESISTOR CARBON 100K
R917	054 1WS68JF	RESISTOR METAL 1W 68R
R918	053 CR14-272J-A	RESISTOR CARBON 2.7K
R919	054 1WS180JF	RESISTOR METAL 1W 180R
R927	054 ERQ14AJ2R2P ※	FUSIBLE RESISTOR 2.2R
R928.929	053 CR16-2R2J-A	RESISTOR CARBON 2.2R

SYMBOL	PARTS NO.	DESCRIPTION
R930	053 CR16-103J-A	RESISTOR CARBON 10K
S901	061 4TR-2947	PUSH SWITCH(STANDBY)
	X-1299-03 PCB ASSEMBLY	
C517.518	041 25BGF47M	CAPACITOR ELEC.25V47UF
C519.920	041 25BGF100M	CAPACITOR ELEC.25V100UF
C918.919	041 25BGF470M	CAPACITOR ELEC.25V470UF
D908	034 TRD16JST1	ZENER DIODE
D912	034 TRD16JST1	ZENER DIODE
DJ1.DJ2	066 C-4516A01	3P CANNON SOCKET(MALE)
IC501	031 AD712JN	IC(DUAL OPE)
Q529.530	032 TC536-FG	TRANSISTOR(2SC536K-FG)
Q905	033 TA1450-ST	TRANSISTOR(2SA1450-ST)
Q906	033 TC3708-ST	TRANSISTOR(2SC3708-ST)
R537-540	054 TMFR4010K	RESISTOR METAL 1% 10K
R541-544	054 TMFR4100R	RESISTOR METAL 1% 100R
R545.546	054 TMFR4047K	RESISTOR METAL 1% 47K
R557	053 CR14-104J-A	RESISTOR CARBON 100K
R558	053 CR14-331J-A	RESISTOR CARBON 330R
R920.921	054 TMFR401K5	RESISTOR METAL 1% 1.5K
RY501	063 V23106-24	RELAY(BALANCED)
S501	064 4TR-2341	SLIDE SWITCH(BALANCED)
	X-1299-04 PCB ASSEMBLY	
C521-524	041 25BGF100M	CAPACITOR ELEC.25V100M
DJ3.DJ4	066 C-4575A01	3P CANNON JACK(FEMALE)
IC502.503	031 AD711JN	IC(OPE AMP)
R547-550	054 TMFR4022K	RESISTOR METAL 1% 22K
R551-554	054 TMFR4010K	RESISTOR METAL 1% 10K
R555.556	054 TMFR4001K	RESISTOR METAL 1% 1K
S502	064 4TR-2341	SLIDE SWITCH(BALANCED)
	X-1300-01 PCB ASSEMBLY	
C701.702	043 TC50V473	CAPACITOR CERA.50V0.047UF
C706	044 50MSAN104J	CAPACITOR FILM 50V0.1UF
C708	041 FYD0H224Z	CAPACITOR 5.5V0.22F
C709-712	043 TC50V101	CAPACITOR CERA.50V100PF
C718	041 UTES1H100-FB	CAPACITOR ELEC.50V10UF
C719	041 UTES1HR22-FB	CAPACITOR ELEC.50V0.22UF
C721	043 TC50V101	CAPACIOTR CERA.50V100PF
C722	041 UTES1A101-FB	CAPACITOR ELEC.10V100UF
D701-706	034 T1N4148-86	DIODE
D708	034 T1N4148-86	DIODE
D714	034 T1N4148-86	DIODE
FL701	035 SVR-12MM18	FL TUBE
IC701	031 CXP82832-311Q	IC(FL DRIVE)
Q701	032 TC536-FG	TRANSISTOR(2SC536K-FG)
R702	053 CR16-101J-A	RESISTOR CARBON 100R
R703-707	053 CR16-102J-A	RESISTOR CARBON 1K
R709-713	053 CR16-473J-A	RESISTOR CARBON 47K
R714	053 CR16-472J-A	RESISTOR CARBON 4.7K
R715	053 CR16-104J-A	RESISTOR CARBON 100K
R718	053 CR16-102J-A	RESISTOR CARBON 1K
R719	054 SE4473J	THICK FILM RS NETWORK 47K
R720	053 CR16-473J-A	RESISTOR CARBON 47K

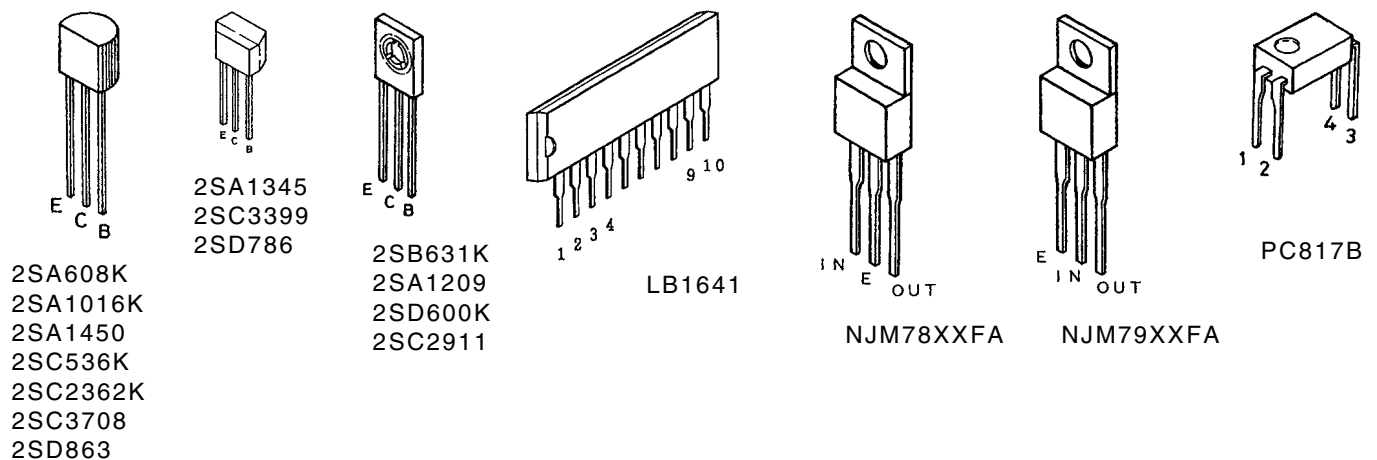
Parts List-3

SYMBOL	PARTS NO.	DESCRIPTION
R791	054 SE8104J	THICK FILM RS NETWORK 100K
R792	054 SE7104J	THICK FILM RS NETWORK 100K
R793	054 SE8104J	THICK FILM RS NETWORK 100K
S701-708	061 C-4679A03	TACT SWITCH
S711-718	061 C-4679A03	TACT SWITCH
X701	023 CST10.0MTW	CERAMIC RESONATOR
X-1300-02 PCB ASSEMBLY		
C713-717	041 UTES1H010-FB	CAPACITOR ELEC.50V1UF
D709-712	034 TRD12JST1	ZENER DIODE
D914	034 T1N4148-86	DIODE
HJ901-905	065 YKB21-5103A	MINI JACK
IC702	031 HIN232CP	IC(TRANSMITTER RECEIVER)
IC904	031 PC817B	IC(PHOTO COUPLER)
Q907	032 TC536-FG	TRANSISTOR(2SC536K-FG)
R914	053 CR16-332J-A	RESISTOR CARBON 3.3K
R915	053 CR16-103J-A	RESISTOR CARBON 10K
R922.923	053 CR16-102J-A	RESISTOR CARBON 1K
R924.925	053 CR16-100J-A	RESISTOR CARBON 10R
R926	053 CR16-101J-A	RESISTOR CARBON 100R
SKT1	066 SY010-8P/K	COMPUTER I/O TERMINAL
X-1300-03 PCB ASSEMBLY		
C707	041 UTES1E470-FB	CAPACITOR ELEC.25V47UF
IC705	031 SBX3010-52B	IC(REMOTE EYE)
R701	053 CR16-101J-A	RESISTOR CARBON 100R

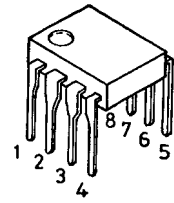
SYMBOL	PARTS NO.	DESCRIPTION
OTHERS		
011	FP-533	SUB PANEL ASSY
011	TH3-01A00	H/S PANEL
012	C-4711A01	KNOB ASSY 43F
012	RV4-09A00	PUSH KNOB 14F
014	C-4723A02	UPPER COVER
014	TH3-10A00	BOTTOM BOARD
015	RP-384B	REAR CHASSIS
019	PK4-07A00T	METAL FOOT ASSY 60F
022	T-1077T01 ※	POWER TRANSFORMER
034	SEL1124R	LED 1X5
069	C-4629A01 ※	AC INLET
072	C-4621A01 ※	AC CORD SET for STD
072	C-4622A01 ※	AC CORD SET for AUSTRALIA
072	C-4623A01 ※	AC CORD SET for UK
072	C-4624A01 ※	AC CORD SET for CEE
081	TH3-11A00	INSIDE CARTON
081	Z-204	STYROL MOULDING
092	RR-969	REMOTE UNIT

NOTE ON SAFETY : Symbol ※ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ※ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

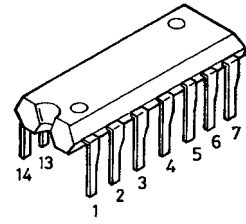
Case Outlines



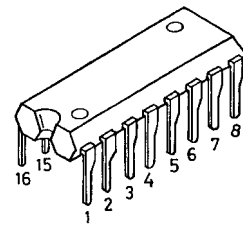
PCB Assembly



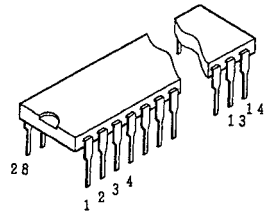
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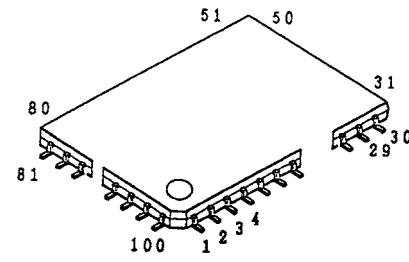
LC4966



HIN232CP
TC74HC595AP



TC9163AN

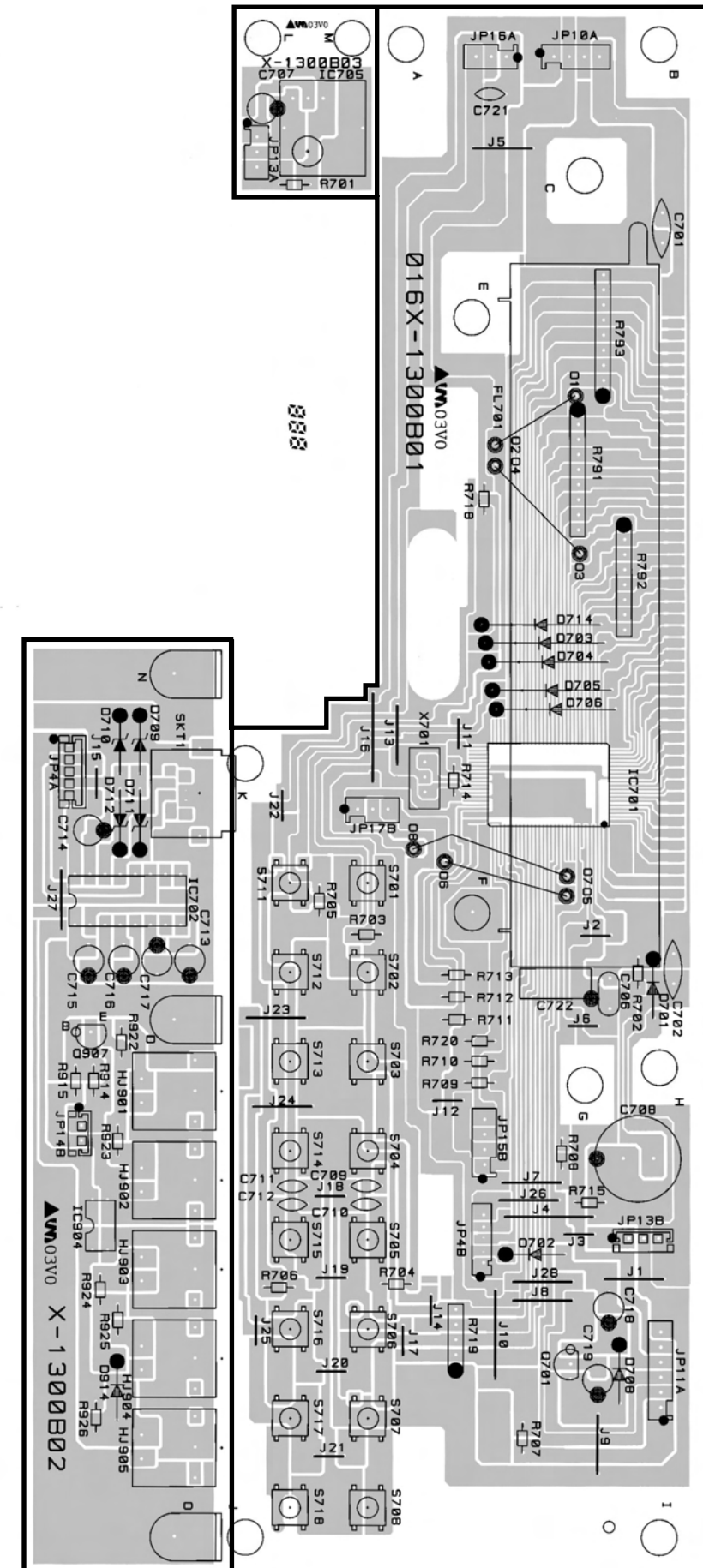


CXP82832

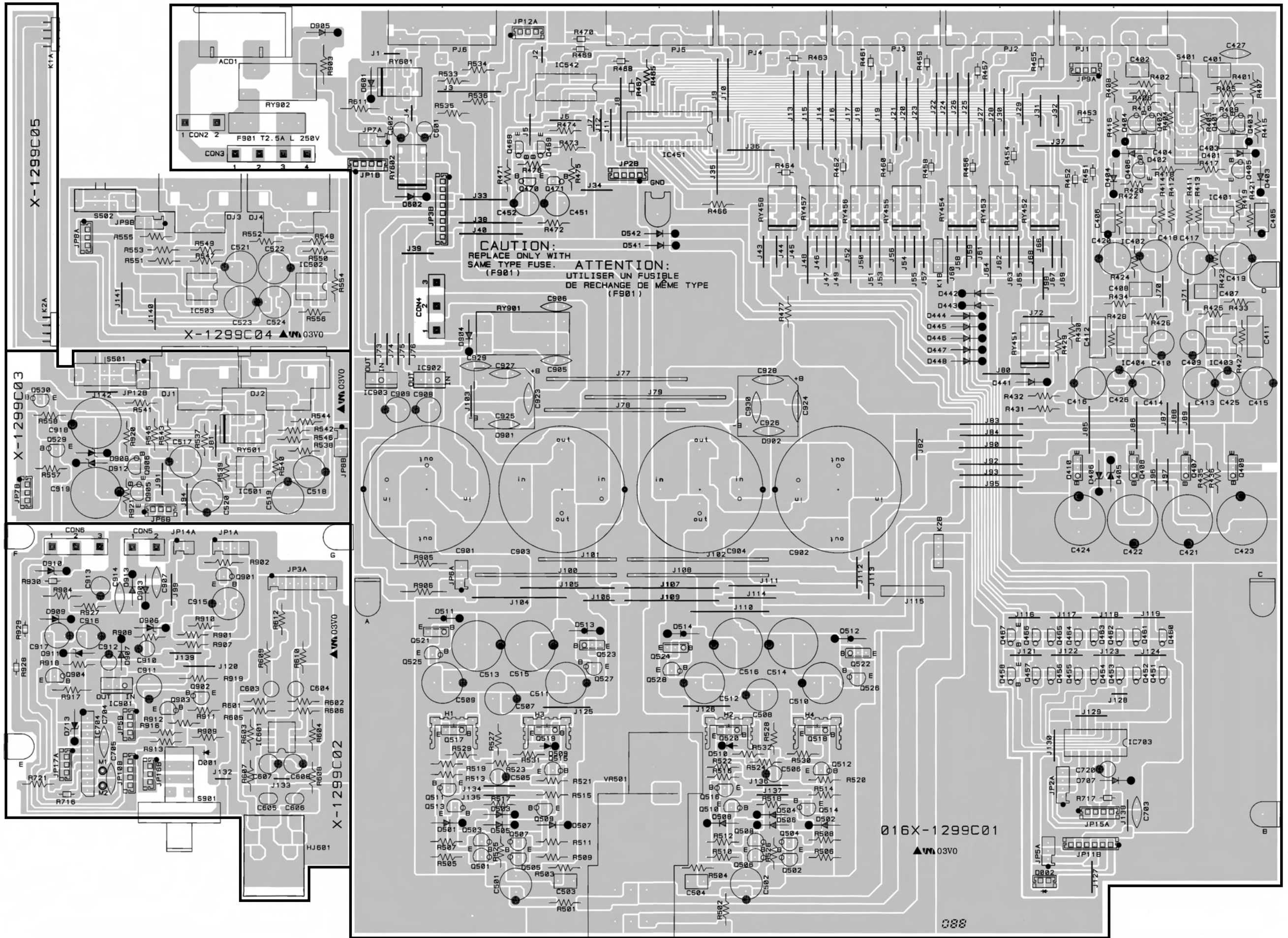
Safety Caution

Cautions during Inspection and Repair

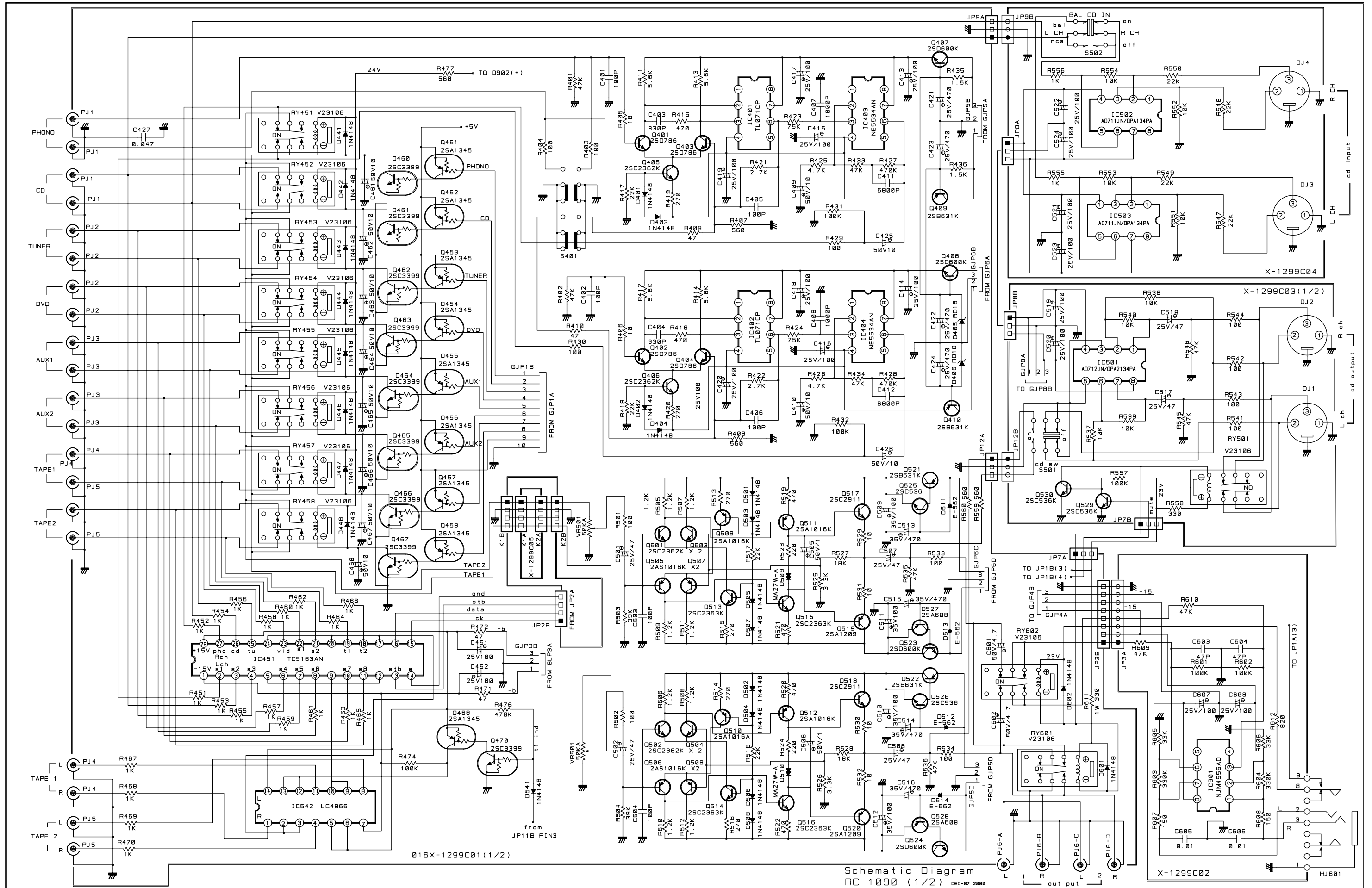
1. Keep in mind the safety warnings
The safety instructions are shown as the labels or printings on the exterior, the inside chassis or the parts, etc. Refer to the instructions when proceeding with inspection or repair.
2. Use only the specified parts for replacement
The selected parts are used at critical area to reduce fire hazard or electrical shock. So when replacing these parts where designaged with **⚠ marks or marks on the schematic diagram or the parts list**, ensure to use only the same parts.
3. Ensure to dress back the AC (Mains) cord to the original position
If for some reason, the AC cord is moved or partially disassembled, ensure to re-route or assemble back to the original position. The AC cord area is protected and secured by tubing and insulation materials for the sake of safety, so that no loose wire will touch and cause fire hazard and electrical shock.
4. Check for safety aspects after inspection or repair
Ensure all parts, such as screws or wires, removed during inspection or repair are secured back to the original positions, and check visually for any anomaly. Also check for any electrical leakage or resistance to maintain the safety.



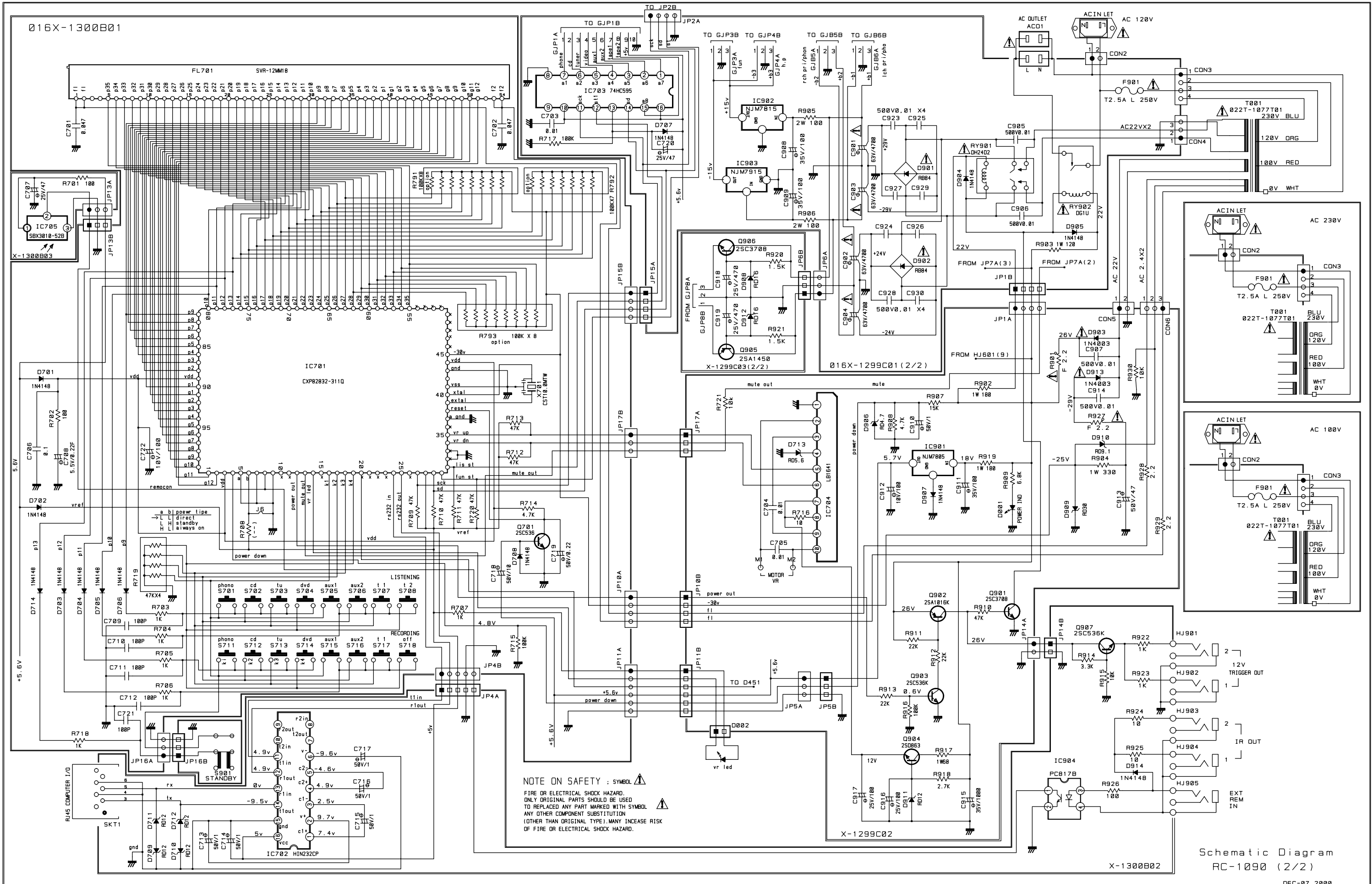
PCB Assembly



Schematic Diagram



Schematic Diagram



Schematic Diagram
 RC-1090 (2/2)