



# Technical Manual

## STEREO INTEGRATED AMPLIFIER RA-932

### Table of Contents

Specification.....	1
Parts List.....	2,3,4
Adjustment.....	4
Case Outlines.....	4
PCB Assembly.....	5,6
Schematic Diagram.....	7,8

### Specification

Continuous Power Output (20 - 20 kHz, <0.03 %, 8 ohms)	35 watts/ch
Total Harmonic Distortion (20 Hz - 20k Hz)	<0.03 % at rated power, 1/2 power or 1 watt
Intermodulation Distortion (60 Hz : 7 kHz, 4:1)	<0.03 % at rated power, 1/2 power or 1 watt
Frequency Response	
Phono Input	20 Hz - 15 kHz, ± 0.3 dB
Line Level Input	10 Hz - 40 kHz, ± 1 dB
Dampning Factor (20 - 20,000 Hz, 8 ohms)	180
Input Sensitivity / Impedance	
Phono Input	2.5 mV / 47 Ohms
Line Level Input	150 mV / 20 kOhms
Input Overload	5 V
Phono Input	180 mV
Line Level Input	5 V
Tone Controls - Bass/Treble	± 6 dB at 100 Hz / 10 kHz
Signal to Noise Ratio(IHF"A"weighted)	
Phono Input	80 dB
Line Level Input	100 dB
Power Requirements	
USA Version	115 volts, 60 Hz
European version	230 volts, 50 Hz
Power Consumption	180 Watts
Dimensions(W x H x D)	440 x 92 x 347 mm 17 <sup>3</sup> / <sub>8</sub> " x 5 <sup>5</sup> / <sub>8</sub> " x 13 <sup>11</sup> / <sub>16</sub> "
Weight	5.5 kg / 12.1 lbs.

### THE ROTEL CO., LTD

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

Serial. NO.  
Beginning

Y-323A-00015C/S-S

### Parts List-1

SYMBOL	PARTS NO.	DESCRIPTION
<b>X-1284-01 PCB ASSEMBLY</b>		
C401,402	044 FSC160V151H	CAP,STYROL 160V150PF
C403,404	041 U25V10LN	CAP,ELEC.25V10UF
C405,406	044 S50V1000PG	CAP,STYROL 50V1000PF
C407,408	044 S50V200PG	CAP,STYROL 50V200PF
C409,410	044 S50V4300PG	CAP,STYROL 50V4300PF
C411,412	044 U50V10RC2	CAP,ELEC.50V10UF
C413,414	041 TVX1E101	CAP,ELEC.25V100UF
C415	043 TC50V473	CAP,CERA.50V0.047UF
C501,502	041 U50V10RC2	CAP,ELEC.50V10UF
C503,504	044 FSC160V221H	CAP,STYROL 160V220PF
C505,506	041 TVX1E101	CAP,ELEC.25V100UF
C507,508	044 50MSAN104J	CAP,FILM 50V0.1UF
C509,510	044 50MSAN124J	CAP,FILM 50V0.12UF
C511,512	044 50MSAN104J	CAP,FILM 50V0.1UF
C513,514	044 S50V1500PJ	CAP,STYROL 50V1500PF
C515,516	041 U50V10RC2	CAP,ELEC.50V10UF
C601,602	041 U50V10RC2	CAP,ELEC.50V10UF
C603,604	044 FSC160V101H	CAP,STYROL 160V100PF
C605,606	041 U6.3V100RC2	CAP,ELEC.6.3V100UF
C607,608	043 TC50V331	CAP,CERA.50V330PF
C609,610	043 TC50V151	CAP,CERA.50V150PF
C611,612	044 FSC160V221H	CAP,STYROL 160V220PF
C613,614	044 MKT18-2A104K	CAP,FILM 100V0.1UF
C701	041 UTSS1H010-FB	CAP,ELEC.50V1UF
C702,703	043 TC50VCH330	CAP,CERA.50V33PF
C704	043 TC50V473	CAP,CERA.50V0.047UF
C705	041 UTSS1H4R7-FB	CAP,ELEC.50V4.7UF
C706	042 TP50V103J	CAP,MYLAR 50V0.01UF
C707	043 TC50V103	CAP,CERA.50V0.01UF
C901	044 DE1307E472M	SPARK KILLER
C902-905	043 TC500V103	CAP,CERA.500V0.01UF
C906,907	041 50USP682	CAP,ELEC.50V6800UF
C908,909	043 TC500V103	CAP,CERA.500V0.01UF
C910	041 UTSS1H102	CAP,ELEC.50V1000UF
C911	041 UTES1C471-FB	CAP,ELEC.16V470UF
C912	041 UTSS1E100-FB	CAP,ELEC.25V10UF
C913	041 UTSS1V471	CAP,ELEC.35V470UF
C914,915	041 UTSS1E101-FB	CAP,ELEC.25V100UF
C916	041 UTSS1H010-FB	CAP,ELEC.50V1UF
C917	041 UTSS1E101-FB	CAP,ELEC.25V100UF
C918,919	041 VX1V102	CAP,ELEC.35V1000UF
C920,921	041TVX1E101	CAP,ELEC.25V100UF
D601-605	034 T1N4148-86	DIODE
D701-706	034 T1N4148-86	DIODE
D707	034 TRD5.6JST1	ZENER DIODE
D901	034 BR84	BRIDGED DIODE
D902	034 T1N4148-86	DIODE
D903,904	034 T1N4003-TB	DIODE
D905,906	034 TRD18JST1	ZENER DIODE
D907,908	034 TRD12JST1	ZENER DIODE

SYMBOL	PARTS NO.	DESCRIPTION
D909,910	034 T1N4148-86	DIODE
F601,602	036 5ST4	MINI FUSE 250VT4A
F901,902	036 5ST5	MINI FUSE 250VT5A
HJ601	065 C-3399#3	PHONE JACK
IC401	031 NE5532AN	IC
IC501	031 OPA2604AP	IC
IC701	031 TMP47C400BN	IC
IC702	031 LB1641	IC
IC703	031 TC74HCU04AP	IC
IC901	031 NJM78L05	IC
LY601	063 DH2TU-24	RELAY
LY901	063 DH2U-24	RELAY
PJ1	066 4TR-2408#3	4P PINJACK
PJ2,3	066 4TR-2408#1	4P PINJACK
Q601-608	032 TA1016-FG	TRANSISTOR
Q609,610	032 B631-EF	TRANSISTOR
Q611,612	032 TC1941-KL	TRANSISTOR
Q615,616	033 D600-EF	TRANSISTOR
Q617,618	033 B631-EF	TRANSISTOR
Q701	032 TC536-FG	TRANSISTOR
Q702	032 TA608-FG	TRANSISTOR
Q901	032 B631-EF	TRANSISTOR
Q902	032 TC536-FG	TRANSISTOR
Q903	032 TC3708-ST	TRANSISTOR
Q904	032 TC2362-FG	TRANSISTOR
Q905	032 TA1016-FG	TRANSISTOR
Q906	032 D600-EF	TRANSISTOR
Q907,908	032 TC536-FG	TRANSISTOR
R401,402	054 TMK2001KFECZ	R,METAL 1% 1K
R403,404	054 TMK2047KFECZ	R,METAL 1% 47K
R405,406	054 TMK201K2FECZ	R,METAL 1% 1.2K
R407,408	054 TMK204K7FECZ	R,METAL 1% 4.7K
R409,410	054 TMK2056KFECZ	R,METAL 1% 56K
R411,412	054 TMK2910KFECZ	R,METAL 1% 910K
R413,414	054 TMK2680RFECZ	R,METAL 1% 680R
R415,416	054 TMK2001KFECZ	R,METAL 1% 1K
R417,418	054 TMK2100KFECZ	R,METAL 1% 100K
R501,502	054 TMK2470RFECZ	R,METAL 1% 470R
R503,504	054 TMK2100KFECZ	R,METAL 1% 100K
R505,506	054 TMF1001	R,METAL 1K
R507,508	054 TMF1802	R,METAL 18K
R509,510	054 TMF2201	R,METAL 2.2K
R511,512	054 TMF1801	R,METAL 1.8K
R513,514	054 TMF2202	R,METAL 22K
R515,516	054 TMF1501	R,METAL 1.5K
R517,518	054 TMF8201	R,METAL 8.2K
R519,520	054 TMF1501	R,METAL 1.5K
R521,522	054 TMK2033KFECZ	R,METAL 1% 33K
R523,524	054 TMK2022KFECZ	R,METAL 1% 22K
R525,526	054 TMK2100KFECZ	R,METAL 1% 100K

# Parts List-1

SYMBOL	PARTS NO.	DESCRIPTION
R527,528	054 TMF1001	R,METAL 1K
R601,602	054 TMK201K8FECZ	R,METAL 1% 1.8K
R603,604	054 TMK2047KFECZ	R,METAL 1% 47K
R605,606	054 TMF1501	R,METAL 1.5K
R607,608	054 TMF4700	R,METAL 470R
R609,610	054 TMF6801	R,METAL 6.8K
R611,612	054 TMF1/4-4700F	R,MRS25 470R
R613,614	054 TMF1002	R,METAL 10K
R615,616	054 TMF1000	R,METAL 100R
R617,618	054 TMF1/4-6801F	R,MRS25 6.8K
R619,620	054 TMF1/4-2201F	R,MRS25 2.2K
R621,622	054 TMF47R0	R,METAL 47R
R623,624	054 TMF1/4-3302F	R,MRS25 33K
R625-628	054 TMF2200	R,METAL 220R
R629-632	054 NIR2-0.22JF	R,METAL 2W 0.22R
R633,634	054 TMF3302	R,METAL 33K
R635,636	054 TMK2012KFECZ	R,METAL 1% 12K
R637,638	054 TMF3300	R,METAL 330R
R639,640	054 1WS10JF	R,METAL 1W 10R
R641,642	054 1WS330JF	R,METAL 1W 330R
R701,702	053 CR14-104J-A	R,CARBON 100K
R703	053 CR14-473J-A	R,CARBON 47K
R704-708	053 CR14-104J-A	R,CARBON 100K
R709	053 CR14-100J-A	R,CARBON 10R
R710	053 CR14-101J-A	R,CARBON 100R
R711	053 CR14-391J-A	R,CARBON 390R
R712	053 CR14-104J-A	R,CARBON 100K
R713	053 CR14-152J-A	R,CARBON 1.5K
R714	053 CR14-822J-A	R,CARBON 8.2K
R715	053 CR14-223J-A	R,CARBON 22K
R716	053 CR14-474J-A	R,CARBON 470K
R717	053 CR14-475J-A	R,CARBON 4.7M
R718	053 CR14-473J-A	R,CARBON 47K
R901	053 CR14-473J-A	R,CARBON 47K
R902	053 CR14-103J-A	R,CARBON 10K
R903	053 CR14-104J-A	R,CARBON 100K
R904	054 1WS10JF	R,METAL 1W 10R
R905	053 CR14-332J-A	R,CARBON 3.3K
R906	054 1WS3.9KJF	R,METAL 1W 3.9K
R907,908	054 TMF2200	R,METAL 220R
R909,910	054 TMF2701	R,METAL 2.7K
R911,912	054 TMF2700	R,METAL 270R
R913	053 CR14-222J-A	R,CARBON 2.2K
R914	053 CR14-822J-A	R,CARBON 8.2K
R915	053 CR14-224J-A	R,CARBON 220K
R916	054 1WS220JF	R,METAL 1W 220R
R917	053 CR14-151J-A	R,CARBON 150R
R918	053 CR14-103J-A	R,CARBON 10K
R919	053 CR14-222J-A	R,CARBON 2.2K
R920	054 1WS680JF	R,METAL 1W 680R

SYMBOL	PARTS NO.	DESCRIPTION
S501	062 C-4174A18	ROTARY SWITCH(MONITOR)
S502	062 C-4174A16	ROTARY SWITCH(FUNCTION)
S503	062 4TR-2780	ROTARY SWITCH(TONE)
S901	061 C-4176A08	POWER SWITCH
SP1,2	067 4TR-3090	SPEAKER TERMINAL
VR501	051 C-4170A30	VARIABLE RESISTOR(VOLUME)
VR502,503	051 4TR-2774	VARIABLE RESISTOR(TONE)
VR601,602	051 SFR002-222	SEMI-FIXED RESISTOR 2.2K
X701	023 CSA4.19MHZ	CERAMIC RESONATOR
	069 C-3417A	FUSE CLIP
<b>X-1284-02 PCB ASSEMBLY</b>		
TJ1	065 YKB21-5103A	MINI JACK
<b>X-1284-03 PCB ASSEMBLY</b>		
C708	041 UTS1C4700	CAP,ELEC.16V47UF
IC704	031 SBX1810-52	IC
<b>X-1284-04 PCB ASSEMBLY</b>		
AC01	069 C-4497A00	AC OUTLET
C001	044 DE1307E472M	SPARK KILLER
D003	034 T1N4148-86	DIODE
LY001	063 DG1U-24	RELAY
<b>HEAT SINKER ASSEMBLY</b>		
Q613,614	032 D600-EF	TRANSISTOR
Q619,620	033 D1047-DE	POWER TRANSISTOR
Q621,622	033 B817-DE	POWER TRANSISTOR
	017 SQ4-13A00	HEAT SINKER BOARD
	019 TO-126	INSULATION SHEET(S)
	019 TO-3P	INSULATION SHEET(L)
<b>OTHERS</b>		
	011 FP-513B	FRONT PANEL ASSY
	012 SD4-16A00	PUSH BUTTON 12F
	012 3TQU-5	KNOB ASSY 33F
	012 4TR-3134	KNOB 25F
	012 4TR-3136	KNOB 13F
	014 C-4550A09	UPPER COVER
	014 1TQF-5	BOTTOM BOARD
	015 RP-368B	PRINTED REAR CHASSIS
	019 4TR-2807	PLASTIC FOOT CAP
	022 T-1071U01	POWER TRANSFORMER
	034 SEL1124R	LED
	069 C-4629A01	AC INLET
	072 C-4620A01	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 SQ4-21A00	INSIDE CARTON
	081 TZ-183	STYROL MOULDING
	092 CR2032	BUTTON BATTERY
	092 RR-AT91	REMOTE UNIT

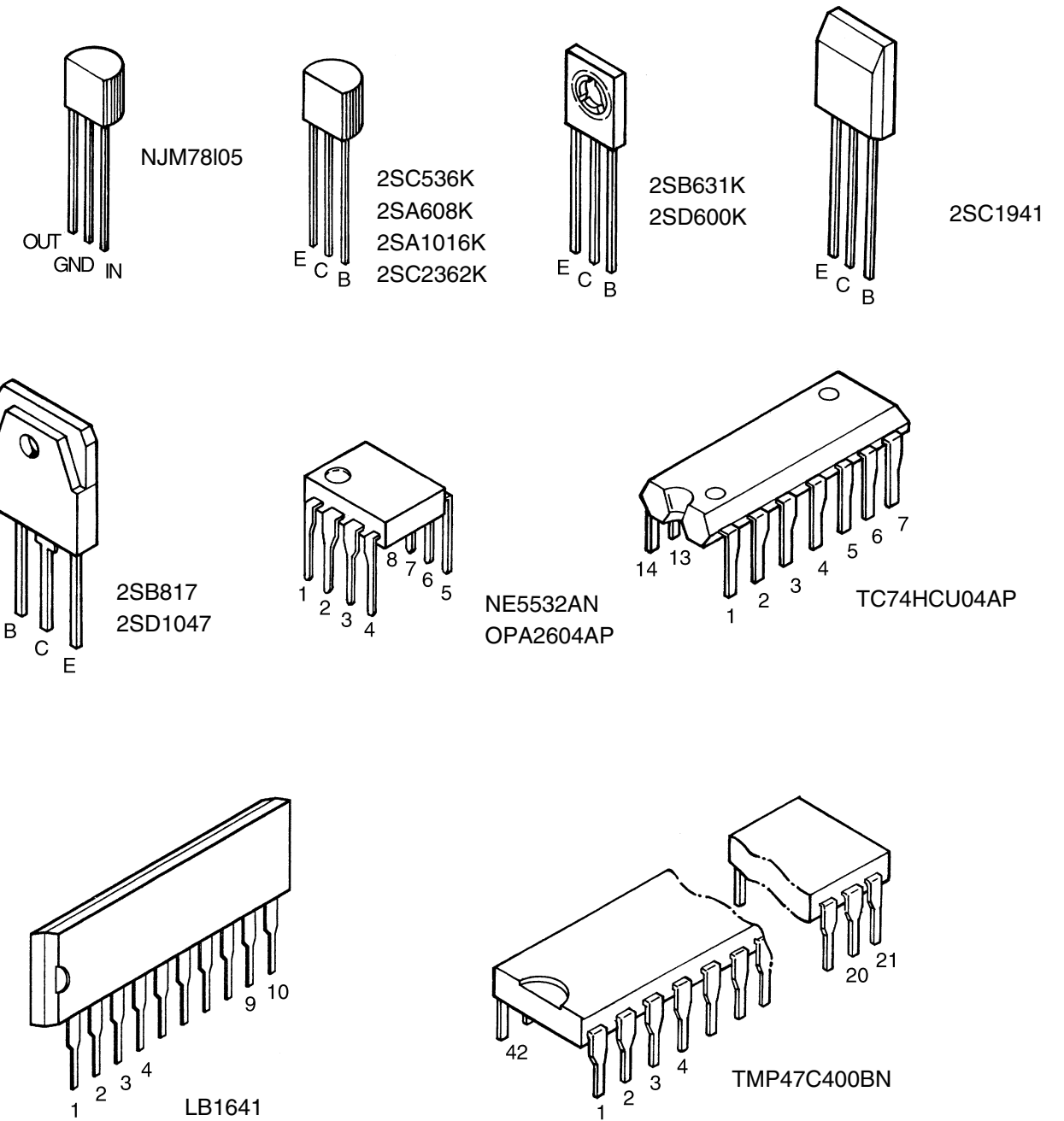
## Adjustment

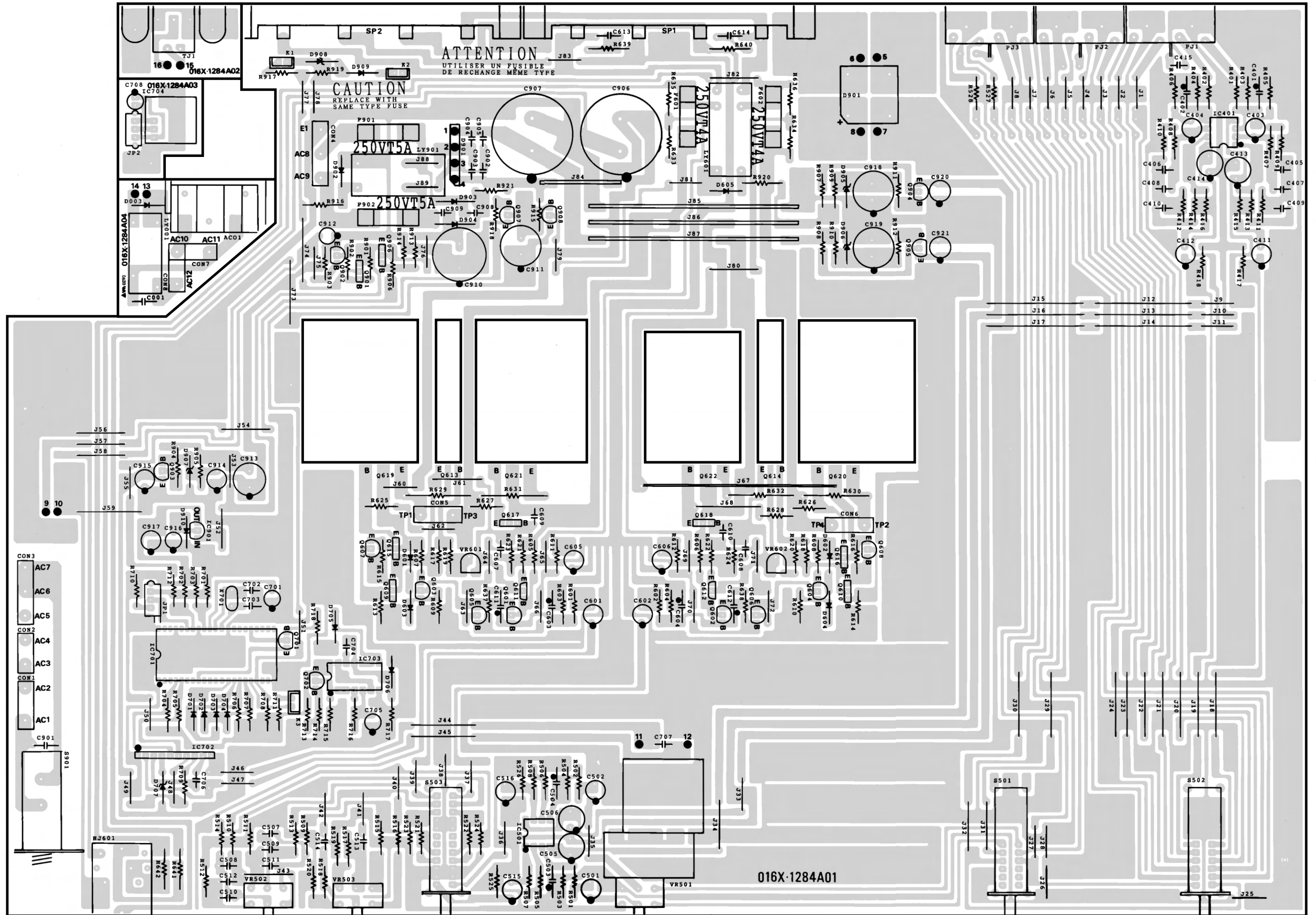
Instruments : DC milli-voltmeter

Notes : Prior to Bias Adjustment, run about 5minutes with rated output(8ohms) and warm up Power Transistor and Heat Sink. Set input off.

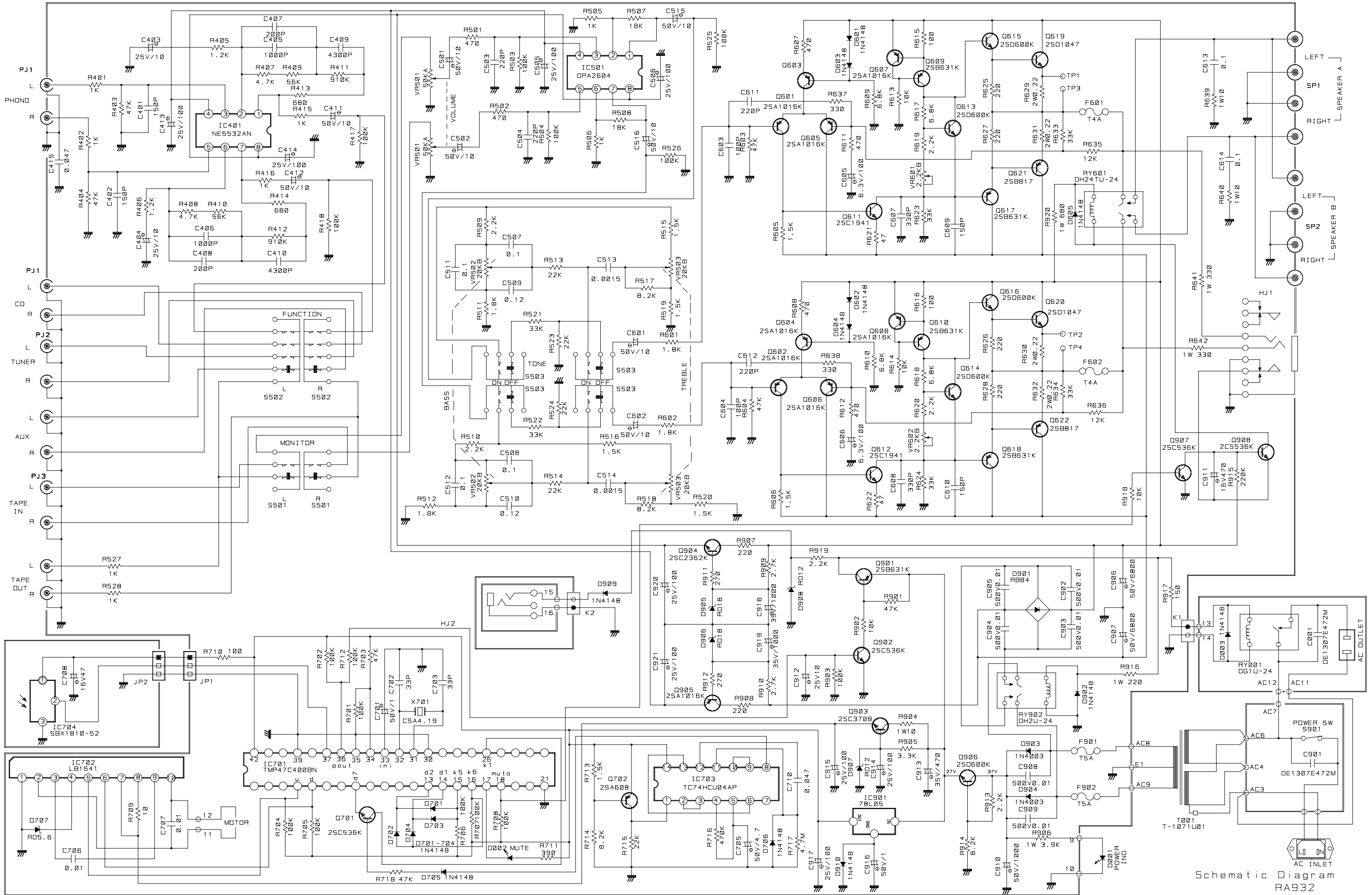
Step	Coupling		Location	Adjust	Adjust for
	Plus Lead	Minus Lead			
1	TP1	TP3	X-1284-01 PCB	VR601	DC milli-voltmeter reads 4mV
2	TP2	TP4	X-1284-01 PCB	VR602	

## Case Outlines





# Schematic Diagram



Schematic Diagram RA932