

Quality Uncompromised

ROTEL®

Technical Manual

STEREO INTEGRATED AMPLIFIER **RA-02**

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Specifications

Continuous Power Output (20-20 kHz, < 0.03%, 8 ohms)	40 watts/ch
Total Harmonic Distortion (20Hz - 20kHz)	< 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 Line Level Inputs	20Hz-15kHz, ±0.3dB 10Hz-40kHz, ±1dB
Damping Factor (20-20,000 Hz, 8 ohms)	180
Input Sensitivity / Impedance Phono Input Line Level Inputs	2.5mV / 47 kOhms 150 mV / 24 kOhms
Input Overload Phono Input Line Level Inputs	180mV 5V
Premp Output / Impedance	1V / 470 Ohms
Tone Controls - Bass / Treble	±6 dB at 100Hz / 10kHz
Signal to Noise Ratio (IHF "A" weighted) Phono Input Line Level Inputs	80 dB 100 dB
Power Requirements USA Version European Version	115 Volts, 60 Hz 230 Volts, 50 Hz
Power Consumption	220 Watts
Dimensions (W x H x D)	435 x 72 x 342 mm 17 1/8 x 2 7/8 x 13 1/2"
Panel Height	60 mm / 2 3/8"
Weight (net)	5.9 kg, 13 lbs.

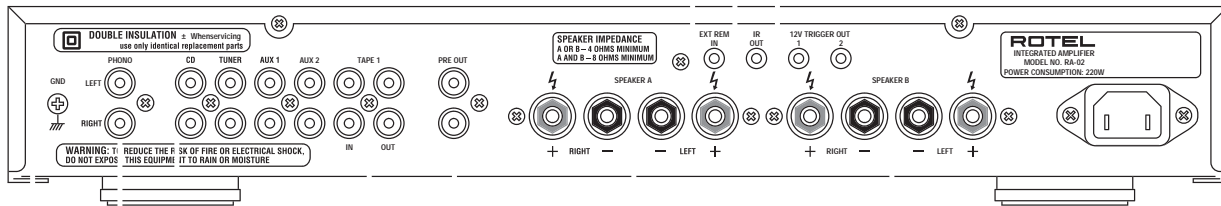
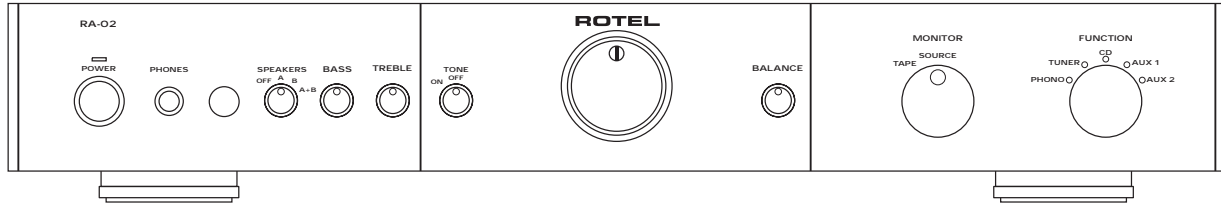
THE ROTEL CO., LTD

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

Serial. NO.
Beginning

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Parts List 1/3

SYMBOL	PARTS NO.	DESCRIPTION
016 X-1326A01-06 PCB ASSY		
	501 X-1326	PCB ASSY
PJ1,PJ5	066 4TR-2166#4	2P PIN JACK AU (WHT.RED)
HJ2-5	065 YKB21-5103A	3.5Φ MINI JACK
PJ2-PJ4	066 4TR-2408#3	4P PIN JACK AU (WHT.RED)
R917	053 CR14-104J-A	CARBON RESISTOR 1/4W 100K
R913	053 CR14-222J-A	CARBON RESISTOR 1/4W 2.2K
R644	053 CR14-272J-A	CARBON RESISTOR 1/4W 2.7K
R643	053 CR14-223J-A	CARBON RESISTOR 1/4W 22K
R717,719,720	053 CR14-472J-A	CARBON RESISTOR 1/4W 4.7K
R914	053 CR14-822J-A	CARBON RESISTOR 1/4W 8.2K
R709,754	053 CR16-100J-A	CARBON RESISTOR 1/6W 10
R708,753	053 CR16-101J-A	CARBON RESISTOR 1/6W 100
R703,704,711-714,716	053 CR16-104J-A	CARBON RESISTOR 1/6W 100K
R705	053 CR16-124J-A	CARBON RESISTOR 1/6W 120K
R915	053 CR16-154J-A	CARBON RESISTOR 1/6W 150K
R707,710,751,752	053 CR16-102J-A	CARBON RESISTOR 1/6W 1K
R756	053 CR16-223J-A	CARBON RESISTOR 1/6W 22K
R755	053 CR16-333J-A	CARBON RESISTOR 1/6W 33K
R701,702,715,718	053 CR16-472J-A	CARBON RESISTOR 1/6W 4.7K
R918	053 CR16-474J-A	CARBON RESISTOR 1/6W 470K
R706	053 CR16-473J-A	CARBON RESISTOR 1/6W 47K
C902-905,908,909	043 TC500V103	CERAMIC CAPACITOR 500V0.01uF
C707-709	043 TC50V103	CERAMIC CAPACITOR 0.01uF
C415	043 TC50V473	CERAMIC CAPACITOR 0.047uF
C609,610	043 TC50V151	CERAMIC CAPACITOR 150pF
C607,608	043 TC50V331	CERAMIC CAPACITOR 330pF
C701,702	043 TC50VCH330	CERAMIC CAPACITOR 33pF
D903,904	034 T1N4003-TB	DIODE 1N4003-E
D601-608,706-726,751,902,908	034 T1N4148-86	DIODE 1N4148TAP-50
C911	041 TUTES1C471-TF	ELECTROLYTIC CAPACITOR 16V470uF
C413,414,505,506,529,530,920,921	041 TEEUFC1E101SB	ELECTROLYTIC CAPACITOR 25V100uF
C605,606,922,923	041 TEEUFC1E101SB	ELECTROLYTIC CAPACITOR 25V100uF
C914,915,917	041 TUTES1E101-TF	ELECTROLYTIC CAPACITOR 25V100uF
C403,404	041 U25V10LN	ELECTROLYTIC CAPACITOR 25V10uF
C706,710	041 TUTES1E470-TF	ELECTROLYTIC CAPACITOR 25V47uF
C918,919	041 EEUFC1V102	ELECTROLYTIC CAPACITOR 35V1000uF
C521,522	041 TEEUFC1V101B	ELECTROLYTIC CAPACITOR 35V100uF
C601,602	041 35ZA10MTZ	ELECTROLYTIC CAPACITOR 35V10uF
C913	041 TUTES1V471-TS	ELECTROLYTIC CAPACITOR 35V470uF
C910	041 TUTES1H102-TS	ELECTROLYTIC CAPACITOR 50V1000uF
C411,412,501,502,515,516,523,524,527,528	041 TEEUFC1H100LB	ELECTROLYTIC CAPACITOR 50V10uF
C916	041 TUTES1H010-TF	ELECTROLYTIC CAPACITOR 50V1uF
C711	041 TUTES1H2R2-TF	ELECTROLYTIC CAPACITOR 50V2.2uF
C703	041 TUTES1H4R7-TF	ELECTROLYTIC CAPACITOR 50V4.7uF
C906,907	041 50USP682	ELECTROLYTIC CAPACITOR 50V6800uF
C705	041 TUTES0J222-TS	ELECTROLYTIC CAPACITOR 6.3V2200uF
F601,602	036 5ST4	FUSE 250VT4A
F901,902	036 5ST5	FUSE 250VT5A
IC702	031 TC74HC595AP	IC (8BIT SHIFT REGISTER/LATCH)
IC703	031 LB1641	IC (MOTOR DRIVE)
IC401	031 NE5532AN	IC (OPEAMP DUAL)
IC504	031 NJM2114D	IC (OPEAMP DUAL)
IC503	031 OPA2134PA	IC (OPEAMP DUAL)
IC502	031 OPA2604AP	IC (OPEAMP DUAL)
IC751	031 PC817B	IC (PHOTO COUPLER)
IC901	031 NJM78L05A	IC (REGULATOR +5VDC)
IC704	031 SBX3010-52B	IC (REMOTE EYE)
IC501	031 TC9163AN	IC (SWITCH ARRAY)
IC701	031 TMP47C400BN-1	IC (TMP47C400BN-1A57)

Parts List 2/3

SYMBOL	PARTS NO.	DESCRIPTION
D701-705	034 SEL2E10C	LED (BLUE) 1X5
C613,614,704	044 KT18-2A104K	M.P CAPACITOR MKT1818-410/015
R405,406	054 TMFR401K2	METAL FILM RESISTOR 1/4W 1.2K
R533,534	054 TMFR4100R	METAL FILM RESISTOR 1/4W 100
R417,418,525,526	054 TMFR4100K	METAL FILM RESISTOR 1/4W 100K
R635,636	054 TMFR4012K	METAL FILM RESISTOR 1/4W 12K
R401,402,415,416	054 TMFR4001K	METAL FILM RESISTOR 1/4W 1K
R531,532	054 TMFR4220K	METAL FILM RESISTOR 1/4W 220K
R553,554,557,558,561,562,565,566	054 TMFR4027K	METAL FILM RESISTOR 1/4W 27K
R619,620	054 TMFR402K2	METAL FILM RESISTOR 1/4W 2K2
R633,634	054 TMFR4033K	METAL FILM RESISTOR 1/4W 33K
R407,408	054 TMFR404K7	METAL FILM RESISTOR 1/4W 4.7K
R541,542,551,552,555,556,559	054 TMFR4470R	METAL FILM RESISTOR 1/4W 470
R560,563,564,611,612,921,922	054 TMFR4470R	METAL FILM RESISTOR 1/4W 470
R403,404,603,604	054 TMFR4047K	METAL FILM RESISTOR 1/4W 47K
R601,602	054 TMFR4560R	METAL FILM RESISTOR 1/4W 560
R409,410	054 TMFR4056K	METAL FILM RESISTOR 1/4W 56K
R413,414	054 TMFR4680R	METAL FILM RESISTOR 1/4W 680
R411,412	054 TMFR4910K	METAL FILM RESISTOR 1/4W 910K
R605,606	054 TMF1501	METAL FILM RESISTOR 1/4W 1.5K
R615,616	054 TMF1000	METAL FILM RESISTOR 1/4W 100
R503,504	054 TRC55Z1003F	METAL FILM RESISTOR 1/4W 100K
R903	054 TMF1003	METAL FILM RESISTOR 1/4W 100K
R613,614,902	054 TMF1002	METAL FILM RESISTOR 1/4W 10K
R527,528	054 TMF1001	METAL FILM RESISTOR 1/4W 1K
R507,508,909,910	054 TMF2701	METAL FILM RESISTOR 1/4W 2.7K
R625-628,907,908	054 TMF2200	METAL FILM RESISTOR 1/4W 220
R911,912	054 TMF2700	METAL FILM RESISTOR 1/4W 270
R905	054 TMF3301	METAL FILM RESISTOR 1/4W 3.3K
R637,638	054 TMF3300	METAL FILM RESISTOR 1/4W 330
R621,622	054 TMF47R0	METAL FILM RESISTOR 1/4W 47
R501,502,529,530	054 TRC55Z4700F	METAL FILM RESISTOR 1/4W 470
R505,506,607,608	054 TMF4700	METAL FILM RESISTOR 1/4W 470
R901	054 TMF4702	METAL FILM RESISTOR 1/4W 47K
R617,618	054 TRC55Z6801F	METAL FILM RESISTOR 1/4W 6.8K
R609,610	054 TMF6801	METAL FILM RESISTOR 1/4W 6.8K
R535,536	054 MF16-1201-A	METAL FILM RESISTOR 1/6W 1.2K
R515,516,519,520	054 MF16-1501-A	METAL FILM RESISTOR 1/6W 1.5K
R523,524,539,540	054 MF16-1003-A	METAL FILM RESISTOR 1/6W 100K
R517,518	054 MF16-1502-A	METAL FILM RESISTOR 1/6W 15K
R509,510	054 MF16-2201-A	METAL FILM RESISTOR 1/6W 2.2K
R513,514	054 MF16-2202-A	METAL FILM RESISTOR 1/6W 22K
R511,512,537,538	054 MF16-2001-A	METAL FILM RESISTOR 1/6W 2K
R521,522	054 MF16-4700-A	METAL FILM RESISTOR 1/6W 470
R639,640	054 1WS10JF	MOF RESISTOR 1W 10
R906	054 1WS10KJF	MOF RESISTOR 1W 10K
R904	054 1WS150JF	MOF RESISTOR 1W 150
R916	054 1WS220JF	MOF RESISTOR 1W 220
R641,642	054 1WS330JF	MOF RESISTOR 1W 330
R919,920	054 1WS820JF	MOF RESISTOR 1W 820
C513,514	044 TP50V152J	MYLAR CAPACITOR 0.0015uF
C517,518	044 TP50V472J	MYLAR CAPACITOR 0.0047uF
HJ1	065 YKB26-5265	PHONE JACK 3P 6.5MM W/MOUNT PLATE
C503,504	044 PP630V47PF	POLYPROPYLENE CAPACITOR 2222 464-44709(F)
C603,604,519,520	044 FSC160V101H	POLYSTYLENE CAPACITOR 160V100pF
C401,402	044 FSC160V151H	POLYSTYLENE CAPACITOR 160V150pF
C503,504,611,612	044 FSC160V221H	POLYSTYLENE CAPACITOR 160V220pF
D901	034 BR84	POWER DIODE 8A 400V
S901	061 C-4176A08	POWER SWITCH PS3-22SPA-P7AZ TV-8
RY603	063 A24W-K	RELAY A-24W-K 24V
RY901	063 DH2U-24	RELAY DH24D2-O(M)

Parts List 3/3

SYMBOL	PARTS NO.	DESCRIPTION
S701	062 C-4174A13	ROTARY SWITCH SRRM1C7900 (FUNCTION)
S501,502	062 4TR-2780	ROTARY SWITCH SRRZS42N23 (MONITOR, TONE)
S601	062 4TR-3089	ROTARY SWITCH SRRZS44N01(SPEAKER)
VR601,602	051 SFR002-222	SEMI-FIXED RESISTOR 2.2KB
C901	044 DE1307E472M	SPARK KILLER 4700pF
L601,602	021 TRL-332	SPEAKER COIL 1F 23T
RY601,602	063 DH2TU-24	SPEAKER RELAY DH24D2-OT(M)
SPA,SPB	067 C-4493A00	SPEAKER TERMINAL (RBBR)
C507-512	044 50MSAN104J	STACKED FILM CAPACITOR 50V0.1uF
C405,406	044 S50V1000PG	STYROL CAPACITOR 50V1000pF (G)
C407,408	044 S50V200PG	STYROL CAPACITOR 50V200pF (G)
C525,526	044 S50V220PJ	STYROL CAPACITOR 50V220pF
C409,410	044 S50V4300PG	STYROL CAPACITOR 50V4300pF (G)
Q601-608,905	032 TA1016-FG	TRANSISTOR 2SA1016KAA-FG
Q609,610,901	032 B631-EF	TRANSISTOR 2SB631K-EF
Q617,618	033 B631-EF	TRANSISTOR 2SB631K-EF
Q611,612	032 TC1941-KL	TRANSISTOR 2SC1941-T-KL
Q904	032 TC2362-FG	TRANSISTOR 2SC2362KAA-FG
Q903	032 TC3708-ST	TRANSISTOR 2SC3708AA-ST
Q623,751,902,908	032 TC536-FG	TRANSISTOR 2SC536KAA-FG
Q906	032 D600-EF	TRANSISTOR 2SD600K-EF
Q615,616	033 D600-EF	TRANSISTOR 2SD600K-EF
VR501	051 4TR-2776	VARIABLE RESISTOR 100KMN (BALANCE)
VR503,504	051 4TR-2774	VARIABLE RESISTOR 20KBX2 (TONE)
VR502	051 C-4170A35	VARIABLE RESISTOR W/MOTOR 50KAX2 (VOLUME)
D907	034 TRD12JST1	ZENER DIODE 12V
D909,910	034 TRD15JST1	ZENER DIODE 15V
D905,906	034 TRD18JST1	ZENER DIODE 18V
D727	034 TRD5.6JST1	ZENER DIODE 5.6V
OTHERS		
	505 FRA-02-B	FRONT PANEL ASSY (BLACK)
	505 FRA-02-S	FRONT PANEL ASSY (SILVER)
	069 C-4629A01	AC 2P INLET 6102.3100
	072 C-4622A01	AC CORD SET for AUSTRALIA
	072 C-4624A01	AC CORD SET for EUROPE
	072 C-4623A01	AC CORD SET for U.K
	072 C-4620A01	AC CORD SET for USA SVT AWG18/2C
	069 C-3647	GROUND SCREW UB-0060
	082 UB3-11A00	INSIDE CARTON
	012 C-4767A01	KNOB 10 Φ (BLACK)
	012 C-4767A00	KNOB 10 Φ (SILVER)
	012 C-4710A01	KNOB 25 Φ (BLACK)
	012 C-4771A01	KNOB 25 Φ (SILVER)
	012 C-4710A02	KNOB 25 Φ NO MARK (BLACK)
	012 C-4771A02	KNOB 25 Φ NO MARK (SILVER)
	012 C-4790A01	KNOB 33 Φ (BLACK)
	012 C-4768A01	KNOB 33 Φ (SILVER)
	082 OMRA-02-1	OWNER'S MANUAL(EFGIDSSw)
	019 4TSH-19#2	PLASTIC FOOT 50 Φ
	022 T-1084U01	POWER TRANSFORMER
	012 RV4-09A00	PUSH BUTTON 14 Φ (BLACK)
	012 RV4-09A01	PUSH BUTTON 14 Φ (SILVER)
	092 RR-AT92	REMOTE CONTROL UNIT
	081 UB3-12A00	SHIPPING CARTON
	081 TZ-167	STYROL SIDE MOULDING
	014 C-4550A26	UPPER COVER (BLACK)
	014 C-4550A23	UPPER COVER (SILVER)

Adjustment

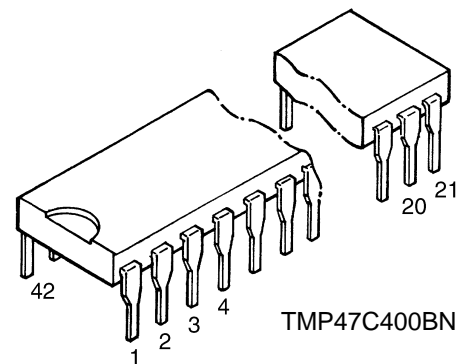
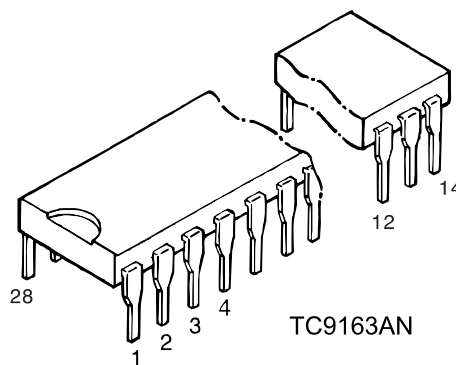
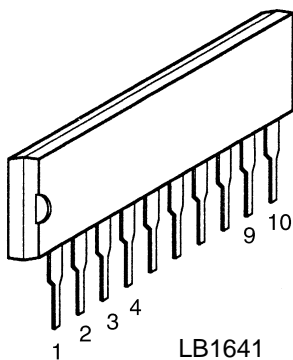
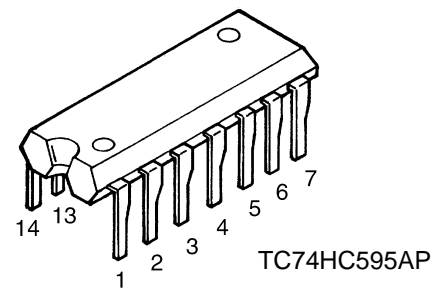
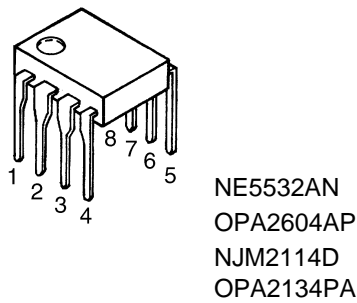
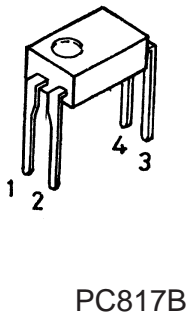
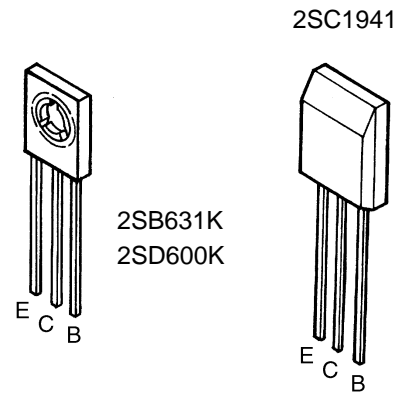
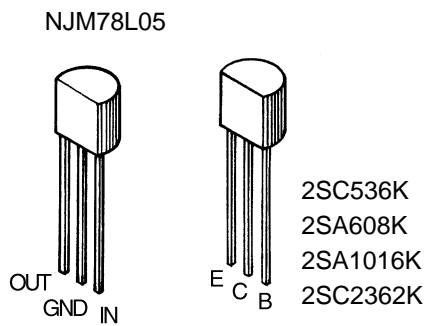
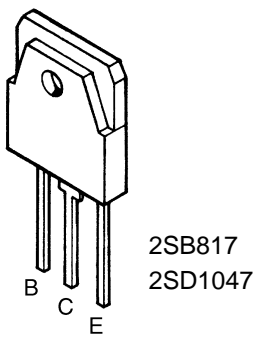
RA-02

Instruments : DC milli-voltmeter

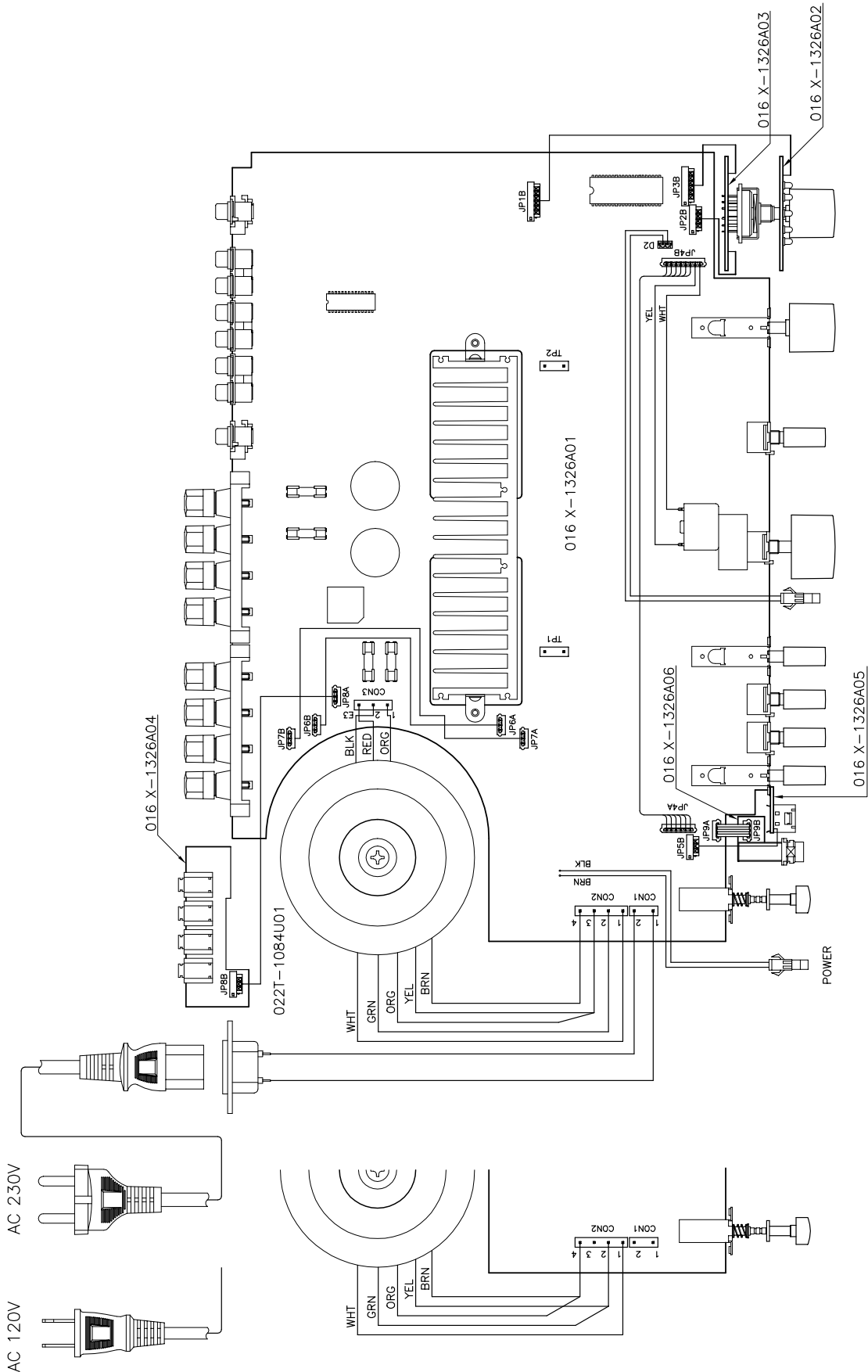
Notes : Prior to Bias Adjustment, run about 5minutes with rated output(8ohms) and warm up Power Transistor and Heat Sink. Set input off.

Step	Coupling	Location	Adjust	Adjust for
1	TP1	X-1341-01 PCB	VR601	DC milli-voltmeter reads 4mV
2	TP2	X-1341-01 PCB	VR602	

Case Outlines

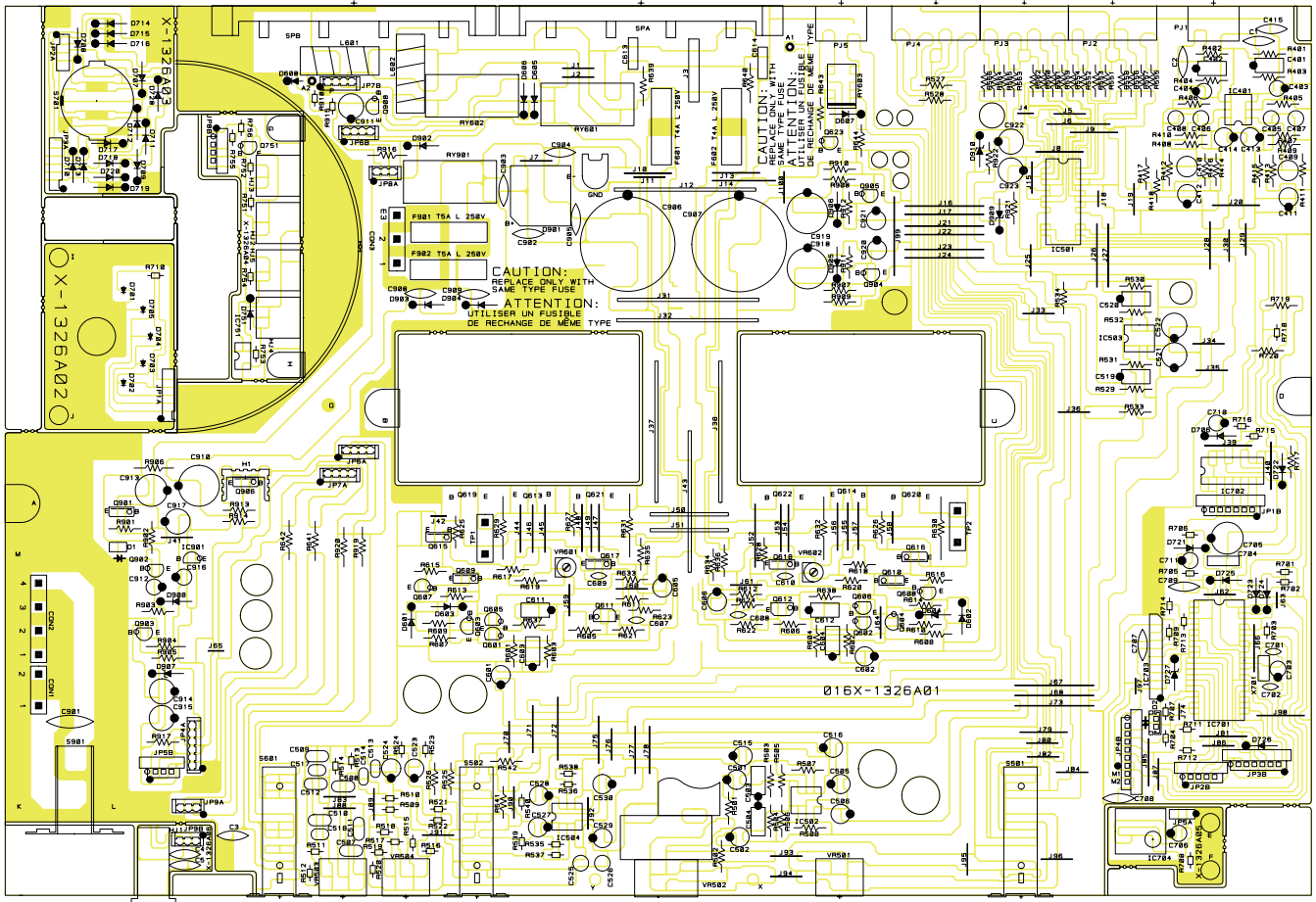


Wiring Diagram

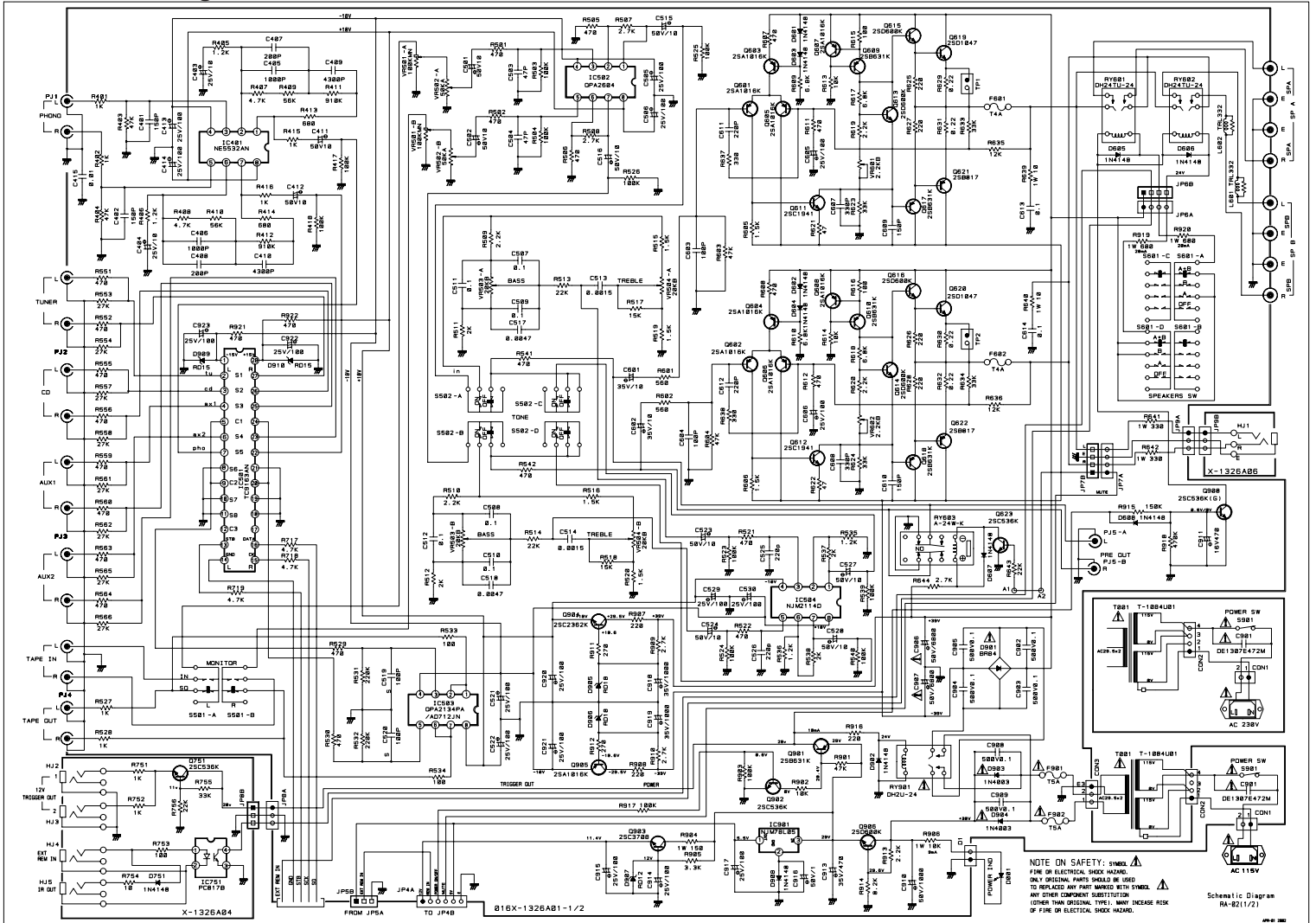


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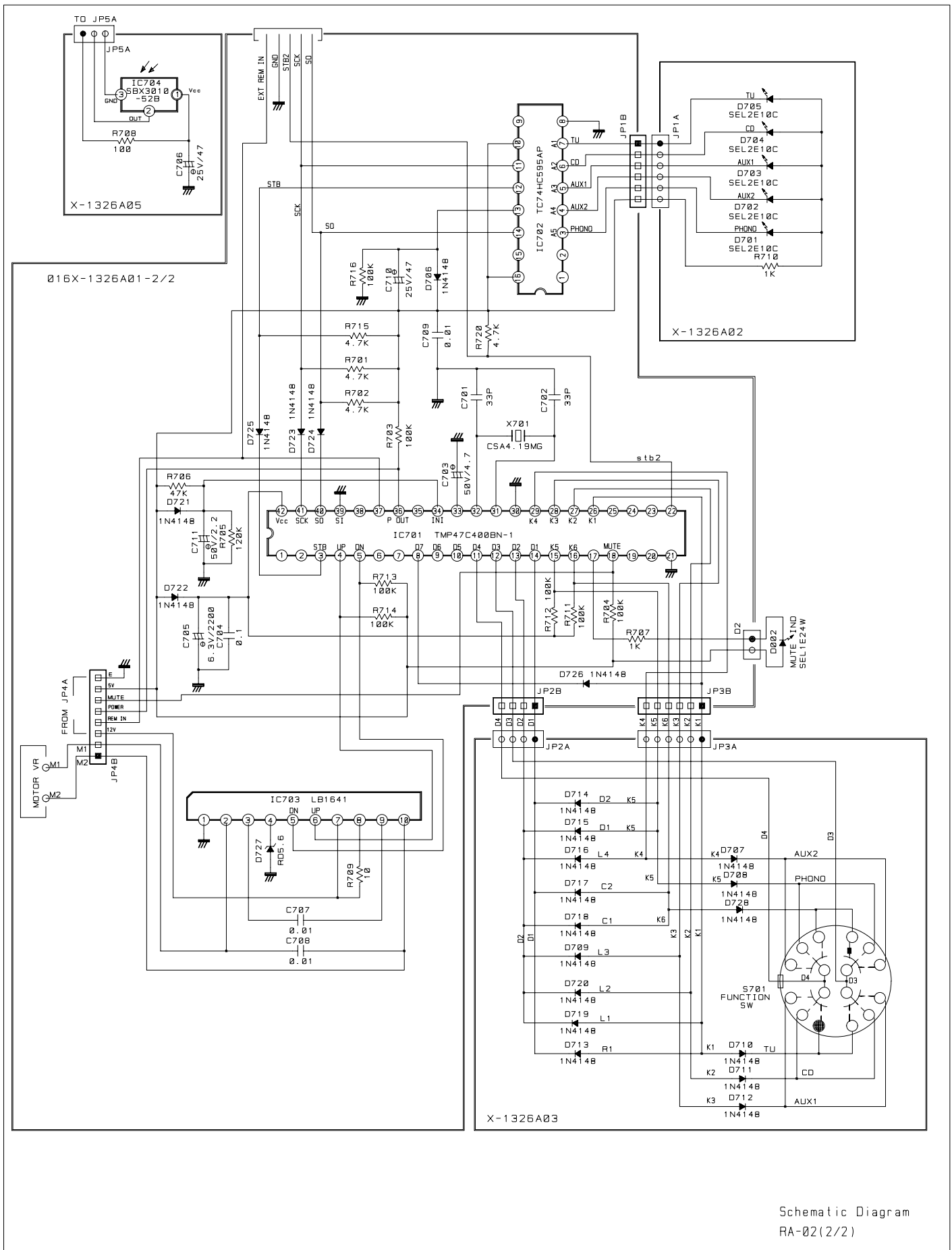
PCB Assembly



Schematic Diagram - 1



Schematic Diagram - 2



Schematic Diagram
RA-02(2/2)