



# Technical Manual

# STEREO POWER AMPLIFIER RHB10

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### Specifications

Continuous Power Output ..... 200 watts per channel, Min. RMS, both channels driven into 8 ohms from 20 to 20,000Hz with no more than 0.03% total harmonic distortion

Continuous Power Output ..... 330 watts per channel, Min. RMS, both channels driven into 4 ohms from 20 to 20,000Hz with no more than 0.03% total harmonic distortion

Total Harmonic Distortion (20-20,000Hz) ..... No more than 0.03% (continuous rated power output)

Intermodulation Output (60Hz:7kHz=4:1) ..... No more than 0.03% (continuous rated power output)

Output Speaker ..... 4- 8 ohms  
 Peak Current (0.1 ohms, 10μsec, 1 Puls) ..... 150 A

Slew Rate ..... ± 40V/μsec  
 Damping Factor ..... 550 (20 to 20,000Hz, 8 ohms)

Input Sensitivity/ Impedance ..... 0.775V/30 kohms  
 Frequency Response ... 10-130,000Hz, +0dB, - 1dB  
 Single-to-Noise Ratio (IHF, A Network) ..... 130dB  
 Crosstalk (20-20kHz) .... 100dB  
 Power Requirement ..... 120V/60Hz, 220V/50Hz, 240V/50Hz  
 Power Requirement ..... 550 watts  
 Dimensions (overall) ..... 470(W) × 195(H) × 375(D) mm  
 18-1/2" × 7-11/16" × 14-25/32"  
 Weight (net) ..... 28.5kg/62.7 lbs

- Specifications and design subject to possible modification without notice.
- \* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers (applicable to the U.S.A. only).

Serial No.  
Beginning

# Parts List

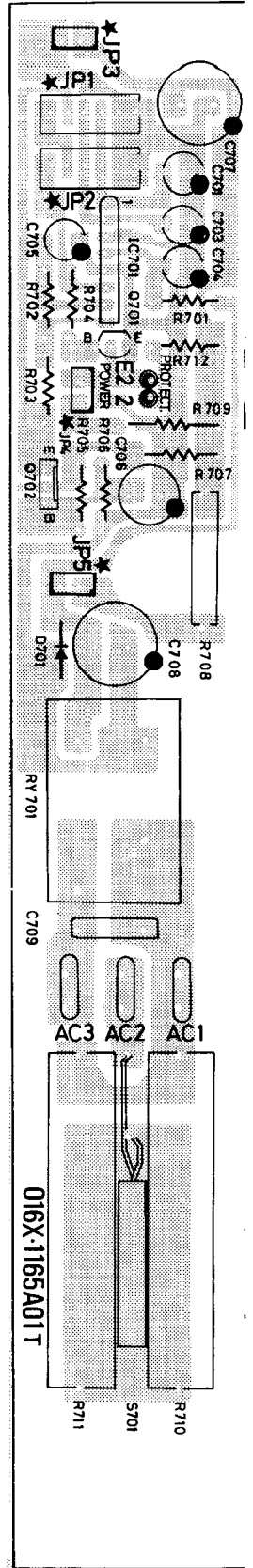
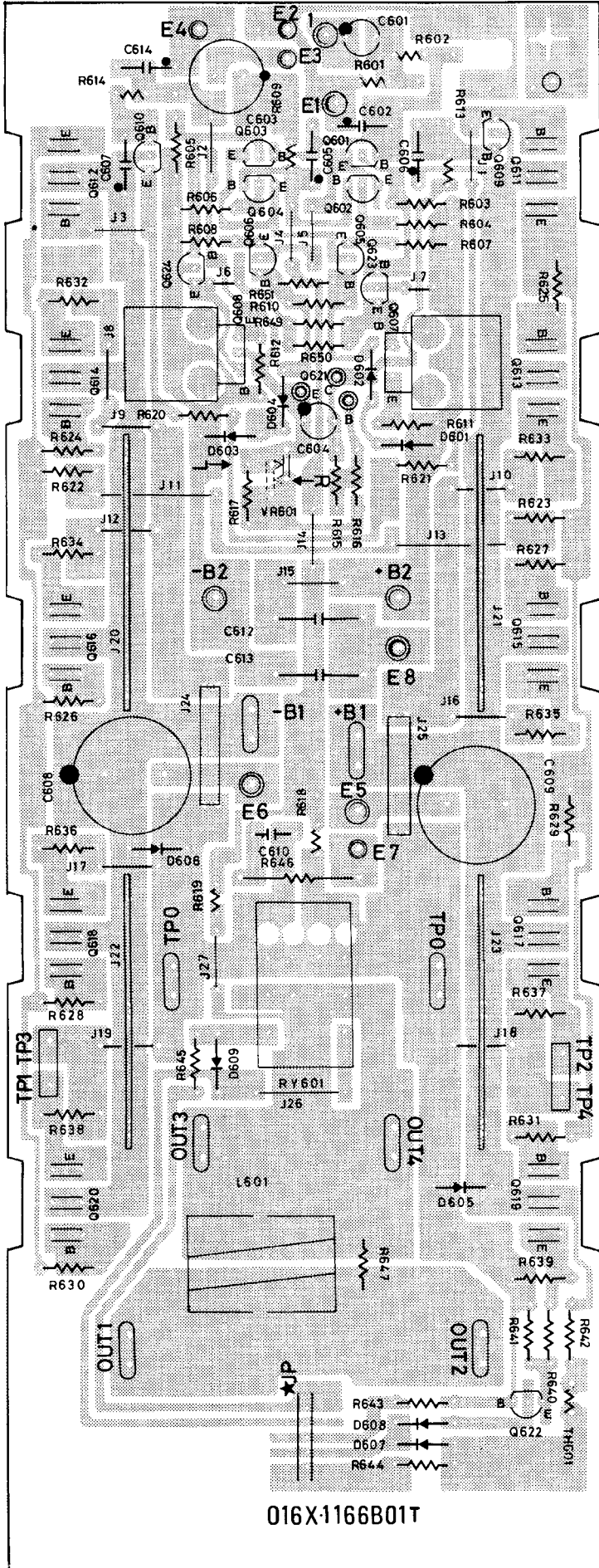
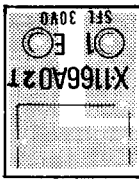
| SYMBOL                     | PARTS NO.        | DESCRIPTION               |
|----------------------------|------------------|---------------------------|
| <u>X-1165 PCB ASSEMBLY</u> |                  |                           |
|                            | 068 C-4274A05    | JUMPER CONNECTOR          |
|                            | 068 C-3963#11    | WIRE WITH LED CONNECTOR   |
|                            | 069 C-4370A00    | PCB TYPE SCREW TERMINAL   |
|                            | 069 4TR-2641#2   | FASTON TAB                |
| C701                       | 041 U10V22       | CAP,ELEC.10V22UF          |
| C703                       | 041 U10V220      | CAP,ELEC.10V220UF         |
| C704                       | 041 U50V4.7      | CAP,ELEC.50V4.7UF         |
| C705                       | 041 U10V47       | CAP,ELEC.10V47UF          |
| C706                       | 041 U100V10      | CAP,ELEC.100V10UF         |
| C707,C708                  | 041 U100V100     | CAP,ELEC.100V100UF        |
| C709                       | 044 DE7150F472M  | SPARK KILLER              |
| C901,C902                  | 043 500VZF103    | CAP,CERAMIC 500V0.01UF    |
| C903,C904                  | 043 500VZF103    | CAP,CERAMIC 500V0.01UF    |
| C905,C906                  | 044 ML400V0.01   | CAP,METAL FILM 400V0.01UF |
| C907,C908                  | 044 ML400V0.01   | CAP,METAL FILM 400V0.01UF |
| C909,C910                  | 044 ML400V0.01   | CAP,METAL FILM 400V0.01UF |
| C911,C912                  | 044 ML400V0.01   | CAP,METAL FILM 400V0.01UF |
| C913,C914                  | 041 LGS1K682MHS  | CAP,ELEC.80V6800MF GS     |
| C915,C916                  | 041 LGS1K682MHS  | CAP,ELEC.80V6800MF GS     |
| D701,D711                  | 034 1N4003       | DIODE                     |
| D710,D712                  | 034 SEL121ORD    | LED 3F RED                |
| D713                       | 034 SEL121ORD    | LED 3F RED                |
| D901,D902                  | 034 BR84         | DIODE                     |
| D903,D904                  | 034 BR84         | DIODE                     |
| F901,F902                  | 036 (J)250V8A    | FUSE                      |
| F903,F904                  | 036 (J)250V8A    | FUSE                      |
| IC701                      | 031 MPC1237HA    | IC                        |
| Q701                       | 031 2SC2362K     | TRANSISTOR                |
| Q702                       | 031 2SD600K-EF   | TRANSISTOR                |
| R701                       | 053 103J         | R,CARBON 1/4W 10K         |
| R702                       | 053 683J         | R,CARBON 1/4W 68K         |
| R703                       | 053 153J         | R,CARBON 1/4W 15K         |
| R704                       | 053 824J         | R,CARBON 1/4W 820K        |
| R705                       | 053 562J         | R,CARBON 1/4W 5.6K        |
| R706                       | 053 273J         | R,CARBON 1/4W 27K         |
| R707                       | 054 RSS1X-180F   | R,METAL 1W 180            |
| R708                       | 054 RSS3X-1.3KF  | R,METAL 3W 1.3K           |
| R709                       | 054 RSS2X-3.9KF  | R,METAL 2W 3.9K           |
| R710,R711                  | 054 ERF10AJ100   | R,METAL 10W 10R           |
| R712                       | 053 103J         | R,CARBON 1/4W 10K         |
| R901,R903                  | 054 ERQ14AJ2R2P  | R,FUSIBLE 1/4W 2.2        |
| R905,R906                  | 054 RSS2X-6.8KF  | R,METAL 2W 6.8K           |
| R907,R908                  | 054 RSS2X-6.8KF  | R,METAL 2W 6.8K           |
| RY701                      | 063 G4W-1112P-VD | RELAY DC24V TV-8          |
| S701                       | 063 UI300B       | THERMOSTAT UI-2           |
| S702                       | 061 4TR-2763     | PUSH SW                   |
| S703                       | 061 C-4176A01    | POWER SW                  |

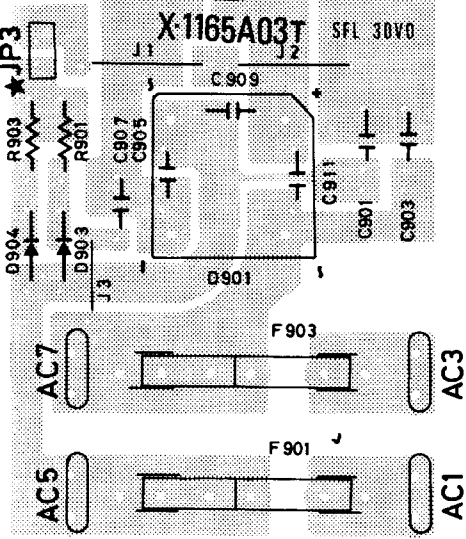
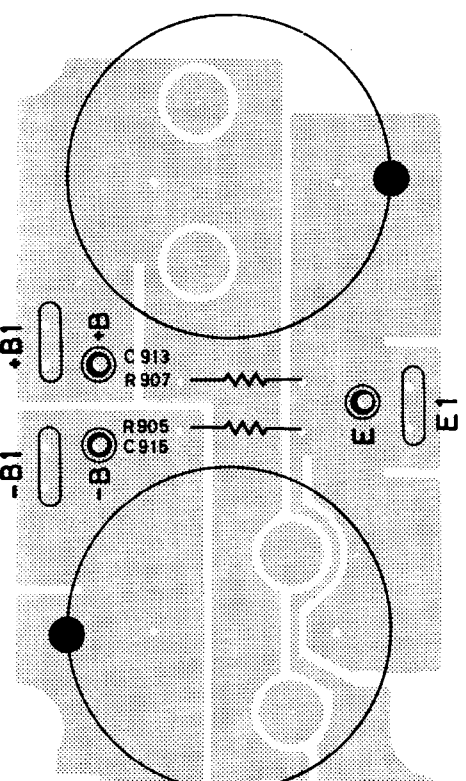
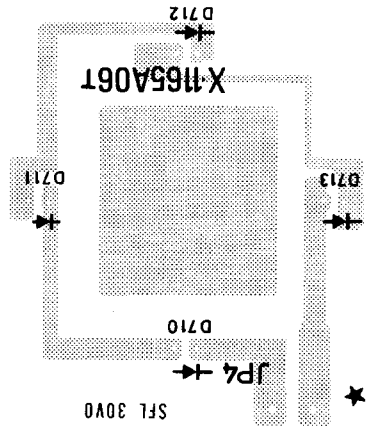
| SYMBOL                          | PARTS NO.         | DESCRIPTION            |
|---------------------------------|-------------------|------------------------|
| <u>X-1166(L/R) PCB ASSEMBLY</u> |                   |                        |
|                                 | 068 C-4349A04     | WIRE WITH TR CONNECTOR |
|                                 | 069 4TR-2742A     | TR LAG TERMINAL        |
|                                 | 019 C-4377A05     | JAMPER HOUSING         |
|                                 | 017 C-4378A01     | HEAT SINKER            |
|                                 | 066 PK4-32A00T    | 1P RCA PIN JACK        |
|                                 | 019 BUSH2SD1062   | 2SD1062 TYPE BUSH      |
| C601                            | 041 50BGF4R7M     | CAP,ELEC.50V4.7UF      |
| C602                            | 044 FKP100V681H   | CAP,P.PFILM 100V680P   |
| C603                            | 041 25BGF100M     | CAP,ELEC.25V100UF      |
| C604                            | 041 50BGF10M      | CAP,ELEC.50V10UF       |
| C605,C606                       | 044 #S50V221J     | CAP,STYROL 105-062     |
| C607                            | 044 #S50V221J     | CAP,STYROL 105-062     |
| C608,C609                       | 041 UVX2A102M     | CAP,ELEC.100V1000UF    |
| C610                            | 044 MKT18-100V104 | CAP,METAL 100V0.1UF-K  |
| C612,C613                       | 044 MKT22-100V105 | CAP,METAL 100V1UF-K    |
| C614                            | 044 #S50V331J     | CAP,STYROL 105-063     |
| D601,D602                       | 034 1N4148        | DIODE                  |
| D603,D604                       | 034 1N4148        | DIODE                  |
| D605,D606                       | 034 1N4003        | DIODE                  |
| D607,D608                       | 034 1N4148        | DIODE                  |
| D609                            | 034 1N4148        | DIODE                  |
| L161                            | 021 RL-161        | SPEAKER COIL           |
| Q601,Q602                       | 033 2SA1016K      | TRANSISTOR             |
| Q603,Q604                       | 033 2SC2362K      | TRANSISTOR             |
| Q605,Q622                       | 033 2SA1016K      | TRANSISTOR             |
| Q606                            | 033 2SC2362K      | TRANSISTOR             |
| Q607                            | 033 2SA1011-DE    | TRANSISTOR             |
| Q608                            | 033 2SC2344-DE    | TRANSISTOR             |
| Q609,Q623                       | 033 2SC2910-RST   | TRANSISTOR             |
| Q610,Q624                       | 033 2SA1208-RST   | TRANSISTOR             |
| R601                            | 054 VSH333        | R,METAL 33K            |
| R602                            | 054 VSH101        | R,METAL 1K             |
| R603,R604                       | 054 MK21K54FECZ   | R,METAL 1% 1.54K       |
| R605,R606                       | 054 MK21K54FECZ   | R,METAL 1% 1.54K       |
| R607,R608                       | 054 MK2221RFECZ   | R,METAL 1% 221R        |
| R609                            | 054 VSH561        | R,METAL 560R           |
| R610,R651                       | 054 MK2100KFECZ   | R,METAL 1% 100K        |
| R611,R612                       | 054 MK2100RFECZ   | R,METAL 1% 100R        |
| R613,R614                       | 054 VSH101        | R,METAL 100R           |
| R615                            | 054 MK25K62FECZ   | R,METAL 1% 5.62K       |
| R616                            | 054 MK21K21FECZ   | R,METAL 1% 1.21K       |
| R618                            | 054 VSH753        | R,METAL 75K            |
| R619                            | 054 VSH473        | R,METAL 47K            |
| R620,R621                       | 054 MK2511RFECZ   | R,METAL 1% 511R        |
| R622,R623                       | 054 MK222R1FECZ   | R,METAL 1% 22.1R       |
| R624,R625                       | 054 VSH100        | R,METAL 10R            |
| R626,R627                       | 054 VSH100        | R,METAL 10R            |
| R628,R629                       | 054 VSH100        | R,METAL 10R            |

| SYMBOL                     | PARTS NO.         | DESCRIPTION              |
|----------------------------|-------------------|--------------------------|
| R630,R631                  | 054 VSH100        | R,METAL 10R              |
| R632,R633                  | 054 MPC74-0.22F   | R,METAL 5W0.22R          |
| R634,R635                  | 054 MPC74-0.22F   | R,METAL 5W0.22R          |
| R636,R637                  | 054 MPC74-0.22F   | R,METAL 5W0.22R          |
| R638,R639                  | 054 MPC74-0.22F   | R,METAL 5W0.22R          |
| R640                       | 054 MK2100RFECZ   | R,METAL 1% 100R          |
| R641                       | 054 MK282R5FECZ   | R,METAL 1% 82.5R         |
| R642,R643                  | 054 TMK256K2FECZ  | R,METAL 1% 56.2K         |
| R644,R617                  | 054 MK2001KFECZ   | R,METAL 1% 1K            |
| R645                       | 054 MK2010RFECZ   | R,METAL 1% 10R           |
| R646                       | 054 RSS3X-10F     | R,METAL 3W10R            |
| R647                       | 054 MPC71-1F      | R,METAL 5W1R             |
| R649,R650                  | 054 MK268K1FECZ   | R,METAL 1% 68.1K         |
| RY601                      | 063 MY4Z-02       | RELAY DC24V              |
| TH601                      | 034 TD5C350D      | THERMISTOR               |
| VR601                      | 051 VM6CKPH1S2.2K | R,SEMI FIXED             |
| <u>HEAT SINK" ASSEMBLY</u> |                   |                          |
|                            | 017 PM3-06A00     | HEAT SINKER              |
| Q611                       | 033 2SD1047-DE    | TRANSISTOR               |
| Q612                       | 033 2SB817-DE     | TRANSISTOR               |
| Q613,Q615                  | 033 2SC3858-GY    | POWER TRANSISTOR         |
| Q614,Q616                  | 033 2SA1494-GY    | POWER TRANSISTOR         |
| Q617,Q619                  | 033 2SC3858-GY    | POWER TRANSISTOR         |
| Q618,Q620                  | 033 2SA1494-GY    | POWER TRANSISTOR         |
| Q621                       | 032 2SD600K-F     | TRANSISTOR               |
| <u>OTHER</u>               |                   |                          |
|                            | 015 TRP-573       | PRINTED REAR CHASSIS     |
|                            | 019 C-2654A#9     | 26F RUBBER SHEET         |
|                            | 019 C-4418A00     | 26F FOOT                 |
|                            | 067 C-4425A01     | SPEAKER TERMINAL WHT     |
|                            | 067 C-4425A02     | SPEAKER TERMINAL RED     |
|                            | 069 4TR-2786      | AC INLET                 |
|                            | 011 PM2-01A00     | FRONT PANEL              |
|                            | 012 PK4-16A00     | 15X15 PUSH BUTTON        |
|                            | 019 PK4-19A00T    | 15X15 BUTTON RING        |
|                            | 019 PM4-08A00T    | PUSH RING                |
|                            | 019 PM4-09A00T    | LED REFLECTOR            |
|                            | 019 PM4-13A00T    | SPRING                   |
|                            | 019 4TTL-15       | BUTTON CONNECTOR         |
|                            | 034 LTL2201A      | LED 1X5 RED              |
|                            | 013 PM4-18A00T    | JOINT SUPPORT            |
|                            | 013 PM4-14A01T    | ORNAMENTAL BOARD SUPPORT |
|                            | 013 PM4-14A02T    | ORNAMENTAL BOARD SUPPORT |
|                            | 014 PM4-15A01T    | ORNAMENTAL SIDE BOARD    |
|                            | 013 PM2-05B00T    | TRANS" SUPPORT           |
|                            | 013 PM3-20B00T    | SUB CHASSIS              |

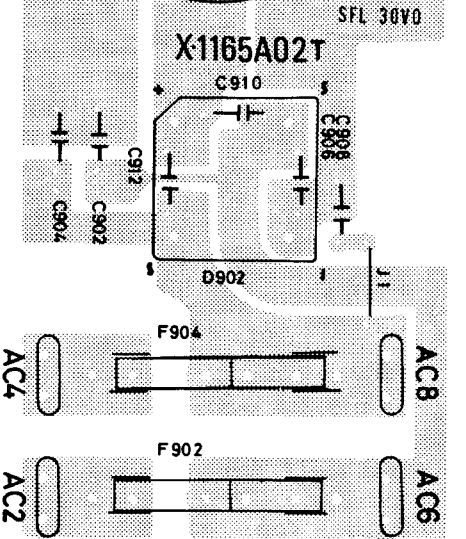
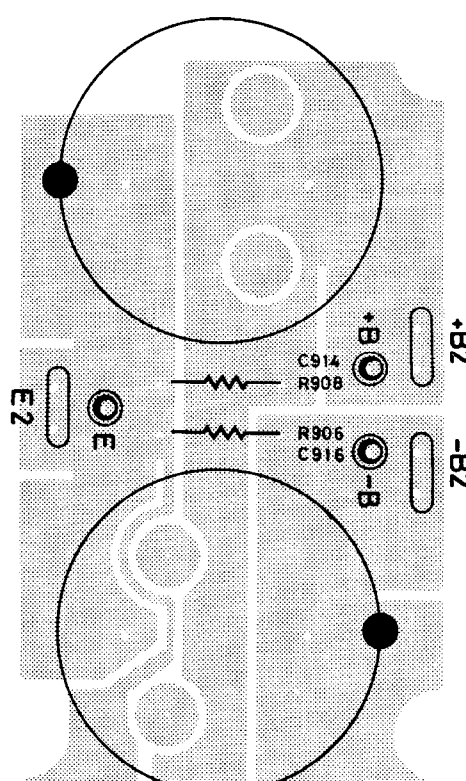
| SYMBOL    | PARTS NO.      | DESCRIPTION                    |
|-----------|----------------|--------------------------------|
|           | 013 PM4-10A00T | EARTH BOARD                    |
|           | 013 PM4-12B00T | SW JOINT SUPPORT               |
|           | 013 PM4-16A00T | BOTTOM COVER                   |
|           | 013 PM4-19A00T | PCB SUPPORT                    |
|           | 015 PM2-02B00T | FRONT CHASSIS                  |
|           | 018 PM2-03B00T | MAIN CHASSIS                   |
|           | 019 PK4-07A00T | METAL FOOT                     |
| T001,T002 | 022 T-1032M01  | POWER TRANSFORMER              |
| D001,D002 | 034 BR154      | POWER DIODE                    |
| C001,C002 | 041 C-4405A01  | C,ELEC.80V22000UF GS           |
| C003,C004 | 041 C-4405A01  | C.ELEC.80V22000UF GS           |
|           | 014 PM2-17B00T | TOP COVER                      |
|           | 019 C-4406A01  | PREVENTIONAL VIBRATION - SHEET |
|           | 019 JHG-010    | RCA PINJACK CAP                |
|           | 081 C-4123A04  | STYROL BOARD 220X435X30        |
|           | 081 C-4123A05  | STYROL BOARD 435X550X30        |
|           | 081 C-4123A06  | STYROL BOARD 140X440X40        |
|           | 081 PM4-22A00  | INSIDE CARTON                  |
|           | 081 PM4-23A00  | PACKING                        |
|           | 081 PM4-25A00  | OUTSIDE CARTON                 |

# PCB Assembly





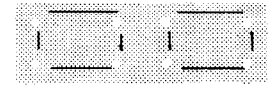
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE WITH SAME TYPE 250V FUSES ONLY.



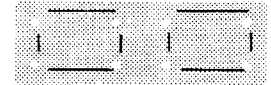
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### X-1165A05T

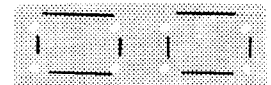
SFL 30V0  
100V



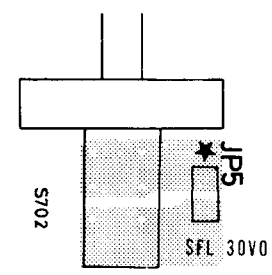
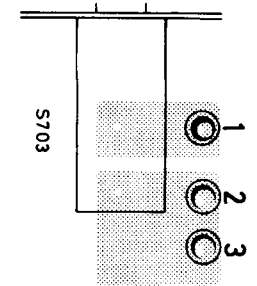
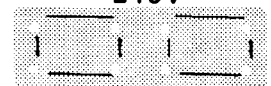
120V



220V



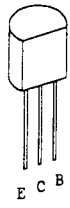
240V



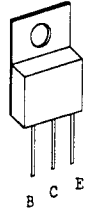
### X-1165A04T

## INSTRUCTIONS FOR SERVICING PERSONNEL

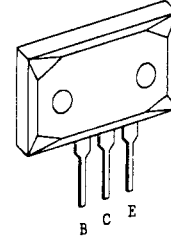
- 1) USE ONLY THE REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.
- 2) TAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE SUFFICIENTLY INSULATED FROM THE POWER SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO CUSTOMER.



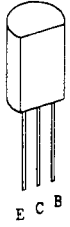
2SA1016  
2SC2362



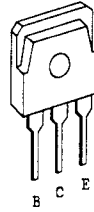
2SA1011  
2SC2344



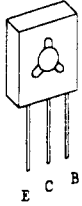
2SA1494  
2SC3858



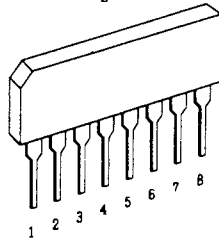
2SA2910  
2SC1208



2SA1186  
2SC2837



2SD600K



μPC 1237H

## Adjustment

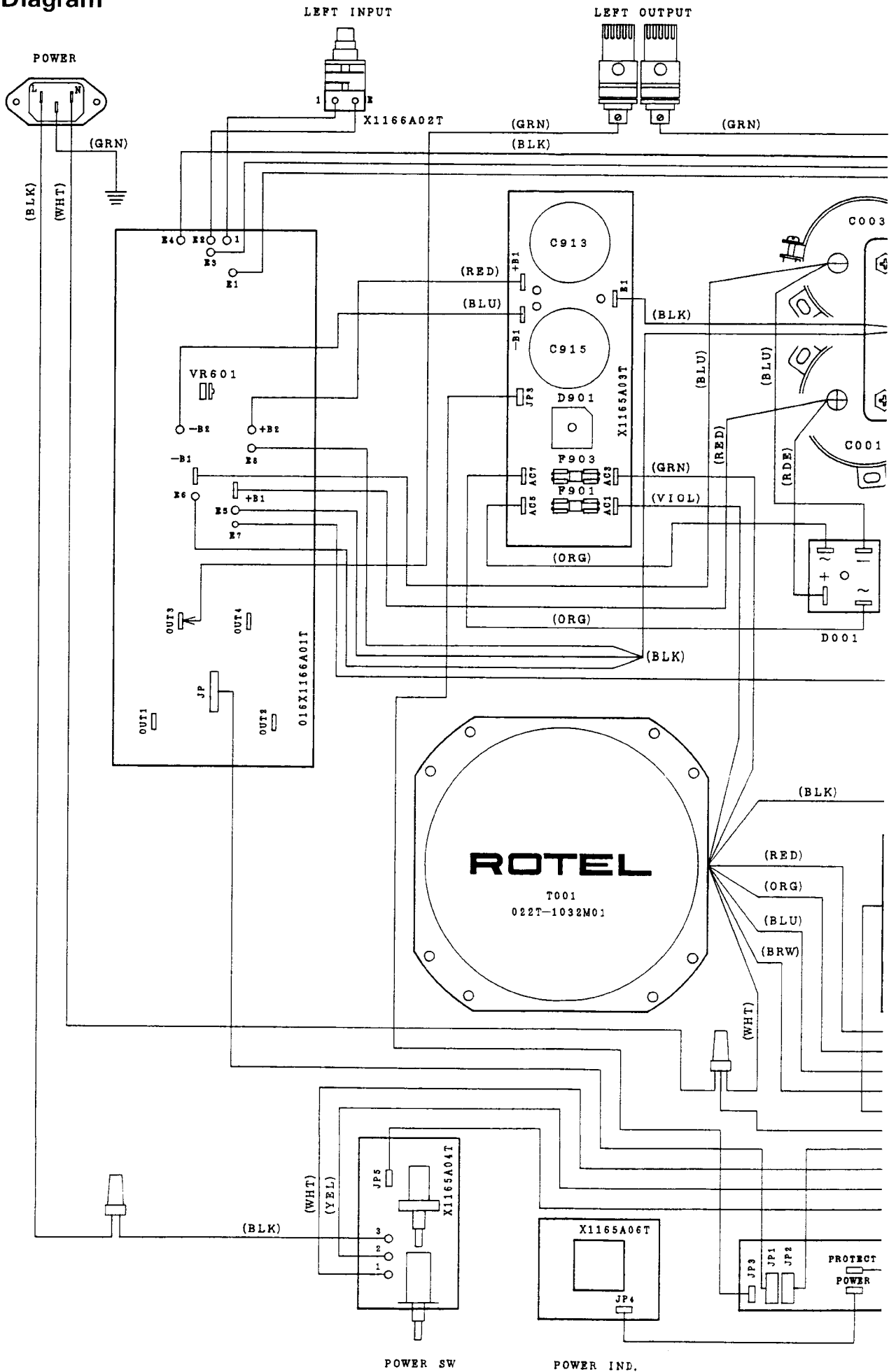
### Power Amplifier Bias Adjustment

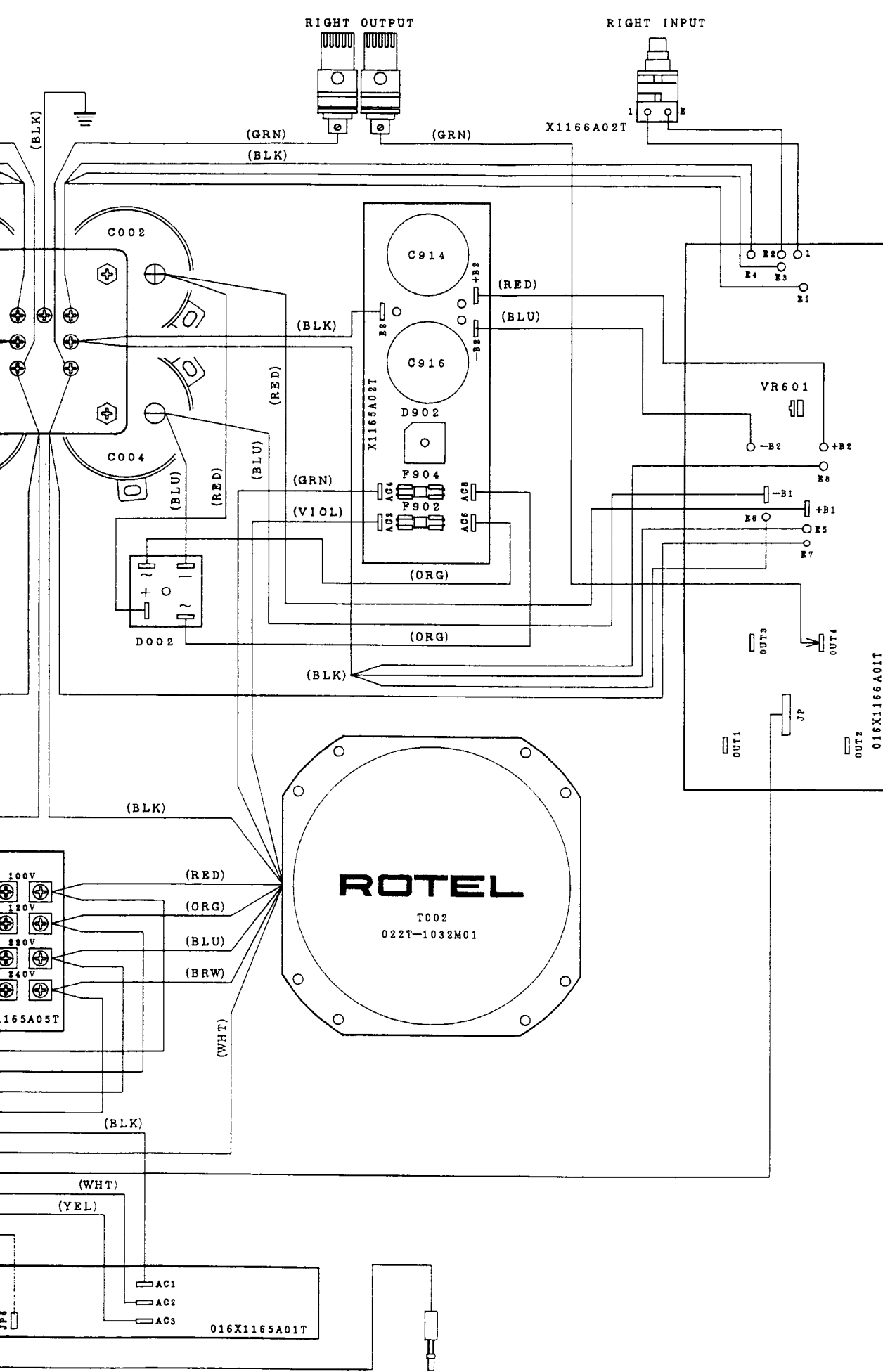
Instruments : DC milli-voltmeter

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

| Step | Coupling  |            | Location      | Adjust | Adjust for                     |
|------|-----------|------------|---------------|--------|--------------------------------|
|      | Plus Lead | Minus Lead |               |        |                                |
| L-CH | TP3       | TP1        | 016X-1166 PCB | VR601  | DC milli-voltmeter reads 10 mV |
| R-CH | TP4       | TP2        | 016X-1166 PCB | VR601  |                                |

# Wiring Diagram





PROTECTION IND.



# Schematic Diagram

## RHB-10 STEREO POWER AMPLIFIER

