

SERVICE MANUAL

ADCOM[®]

POWER AMPLIFIER

GFA-565

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INTRODUCTION

This service manual is intended to assist trained and qualified technical personnel in verifying the performance of, adjusting, and repairing the ADCOM GFA-565 power amplifier. The procedures described here are not intended for persons unfamiliar with the appropriate safety and test procedures.



WARNING

THERE ARE POTENTIALLY LETHAL VOLTAGES WITHIN THE GFA-565 AMPLIFIER WHICH WILL BE ACCESSIBLE ONCE ITS TOP COVER IS REMOVED. **DO NOT ATTEMPT FAMILIARIZATION, INSPECTION OR ANY PROCEDURE WHATSOEVER UNLESS YOU HAVE DISCONNECTED THE GFA-565 FROM THE WALL AC OUTLET OR OTHER SOURCE OF AC POWER AND THE POWER-SUPPLY CAPACITORS ARE COMPLETELY DISCHARGED.** PLEASE TAKE NOTE THAT THE POWER-SUPPLY CAPACITORS TAKE AS LONG AS 5 MINUTES TO DISCHARGE. THESE INSTRUCTIONS ARE PROVIDED FOR USE ONLY BY COMPETENT TECHNICAL PERSONNEL. **DO NOT UNDERTAKE ANY SERVICE PROCEDURES IN THE GFA-565 UNLESS YOU ARE TECHNICALLY QUALIFIED TO DO SO.**

CIRCUIT DESCRIPTION

The ADCOM GFA-565 is a monaural power amplifier rated at $<0.02\%$ THD from 20Hz to 20kHz with 300 watts into 8 ohms, 450 watts into 4 ohms, and 850 watts into 2 ohms. The output stage is capable of greater than 60 amps into low-impedance loads. The amplifier employs a discrete dual-differential cascode Class-A front-end followed by a dual cascode Class-A voltage gain stage which amplify the input signal to the voltage required at the output of the amplifier. This high-voltage signal drives the high-current triple-Darlington-follower output stage which amplifies the current by a factor of about 50,000.

Referring to the accompanying schematic, the input signal passes through network C101, C102, R102, and R103 which provides a 3dB bandwidth of 0.7Hz to 700kHz to the input of the amplifier. C101 is an extremely high quality capacitor and serves to protect the amplifier and the speakers connected to it from DC faults at the output of the preamplifier. **WE DO NOT RECOMMEND THAT C101 BE SHORTED OUT.** Q101, Q103, Q105, and Q107 form one differential/cascode input stage and Q102, Q104, Q106, and Q108 form the other. R108, R109, R112, and R113 provide local feedback to control the input-stage open-loop gain. Open-loop gain is defined by R106, R110, and C103 on one side, and R107, R111, and C104 on the other. The next voltage-gain stage consists of Q109 and Q111 on one side and Q110 and Q112 on the other. DC bias is set by R125, D103 through D108, R131, R132, and R126. Open-loop gain is defined by R125, R126, R133, and R134, with R135 through R138, C110, and C111 providing high-frequency compensation.

Feedback is provided from the output to the bases of Q105 and Q106 by the network R119, R120, and C105. C105 provides a high-frequency rolloff above 80kHz. D101, D102, D109 through D112, Q113, Q114, R122 through R124, and C106 provide an anti-saturation feedback path to the input stage. For example, when the cascode voltage gain stage approaches saturation to the positive supply, D101 begins to conduct, turning Q113 on. Current flows through D803, the INSTANTANEOUS DISTORTION ALERT LED, through D112 and R123. When the error voltage across D109/D110 becomes great enough, D109 begins to conduct, forcing the input stage to reduce the drive to the voltage-gain stage.

The input stage is biased by R144 through R154, Q115 through Q119, Q501, D113 through D115, and D804. Q501 is turned on by the amplifier bias delay circuitry on the AC input power supply board. A current of about 2mA flows through the thermal breakers on the heatsinks and into the emitter of Q119. If the heatsinks overheat, the breakers open and the current flows through D804, the THERMAL PROTECTION LED, instead. When Q119 is carrying the current, D115 is biased at 2.5V. This creates about 1.8V across R149, Q118 then sources about 3mA through D114, which develops about 2.2V across it. About 1.6V is developed across R144 and R146. Q117 conducts about 1.3mA through D113 and Q115 conducts about 3mA to the PNP differential input stage. D113 develops about 2.2V across it, causing about 1.6V across R145. Q116 conducts about 3mA to the NPN differential input stage. If the negative 80V supply fails or its fuse opens, Q119 turns off, turning off all the amplifier bias circuitry. If the positive 80V supply fails or its fuse opens, again Q119 turns off and the bias circuitry is disabled. Using LEDs for the bias circuitry causes rough temperature compensation of the amplifier Class-A DC bias current.

Any DC imbalance in the amplifier is corrected by R117, R118, C107, C108, and IC101. Any DC error at the amplifier output is servoed back through IC101 to adjust the DC current through the input transistors. DC bias is nominally 1.5mA through Q101, Q102, Q105, and Q106. IC101 can modify this by up to 0.3mA to bring the amplifier into balance.

The bias network of R139 through R143, Q201 and Q301 forms a temperature-compensated DC-bias voltage to the input of the triple-Darlington-follower output stage. Mid- and high-frequency bypassing is provided by C109.

R158 and C111 provide a load for the amplifier at high frequencies, stabilizing the amplifier under varying load conditions. D201 and D301 provide a high-current return to the power supply for backlash current from the load.

The output stage consists of two sets of 10 parallel transistors operated as emitter followers, driven by another pair of emitter followers. This configuration minimizes distortion caused by varying load impedances. The output transistors have 0.33-ohm ballast resistors for current sharing and bias stability.

The AC input power supply board includes a power-on delay relay to reduce the turn-on current surge in the AC power line, jumpers to set the supply voltage range, and an amplifier bias delay.

CAUTION

DO NOT use any type of variable AC supply, such as a variac, to slowly turn on the GFA-565 without first shorting R506 (4.7 ohm/20 watt). R506 is an integral part of the turn-on, inrush-suppression circuit and failure to comply will **burn out** R506.

TEST PROCEDURES

All tests are performed with a 120V, low-distortion (less than 2% THD), AC-power source, 8-ohm resistive load (except slew rate), and a signal source of not more than 600 ohms.

Tests are performed after warming up the amplifier at 100 watts into an 8-ohm load for at least 10 minutes.

All grounds during testing are referred to the ground of the black output terminal.

80kHz low-pass filter is employed during THD distortion measurements.

Signal-to-noise measurements are "A" weighted.

Damping factor is measured by comparing the 20-watt-output voltage with and without an 8-ohm load.

Slew rate is measured with an inductive load, and is derived with a dual-time-based oscilloscope reading the slope of a full-power (135V peak-to-peak) 5kHz square wave. To avoid damaging output network R158 and C121, **DO NOT OPERATE THE AMPLIFIER AT FULL-POWER SINE WAVE ABOVE 22kHz OR FULL-POWER (135V PEAK-TO-PEAK) SQUARE WAVE ABOVE 5kHz.**

IMPORTANT

BEFORE PROCEEDING WITH ADJUSTMENTS, MAKE SURE AMPLIFIER IS AT ROOM TEMPERATURE.

BIAS ALIGNMENT

1. With set-up as per the first paragraph of TEST PROCEDURES and with **NO SIGNAL IN**, set bias control (R143) to midpoint.
2. Connect a millivolt meter across TP201 and TP301.
3. Turn amplifier on and allow a 3 to 5 minute settling period.
4. Adjust BIAS control to obtain either a + or - 24mV (± 1 mV) indication on the millivolt meter.
5. To check for proper bias setting, remove millivolt meter and apply input signal to obtain 100 watts into 8 ohms for 10 minutes with cover on.
6. Remove input signal and connect the millivolt meter as in Step 2. Let amplifier idle until bias stabilizes and readjust to 24mV (± 1 mV).

ADCOM GFA-565 SERVICE PARTS LIST

1. AUDIO INPUT/DRIVER PCB ASSEMBLY

INTEGRATED CIRCUITS:

IC101 ADCOM 2A

TRANSISTORS:

| | | |
|------------------------|-------------|---------------------------|
| Q104, Q108, Q115, Q117 | 2SA1376 (K) | |
| Q111 | 2SA1210 | |
| Q109 | 2SA1015 | |
| Q113, Q119 | 2SA970 | |
| Q103, Q107, Q116, Q118 | 2SC3478 (K) | |
| Q112 | 2SC2912 | |
| Q114 | 2SC2240 | |
| Q110 | 2SC1815 | |
| Q101, Q105 | MPS-A13 |] ——— ADCOM MATCHED PAIRS |
| Q102, Q106 | MPS-A63 | |

DIODES, ZENER:

| | |
|------------------------|----------|
| D116, D117, D118, D119 | ADCOM J2 |
| D115 | ADCOM J6 |

DIODES:

| | |
|------------------------------------|--------|
| D101, D102 | 1SS82 |
| D103, D104, D109, D110, D111, D112 | 1SS178 |

DIODES, VARISTOR:

| | |
|------------|-------|
| D107, D108 | KB262 |
| D105, D106 | KB362 |

LEDs:

| | |
|------------|---------|
| D113, D114 | SLP246B |
|------------|---------|

CAPACITORS, ELECTROLYTIC:

| | |
|------------------|------------|
| C114, C115 | 100V/100uF |
| C109, C118, C119 | 25V/220uF |

CAPACITORS, FILM:

| | | |
|------------------------|--------------|-----------------------|
| C103, C104 | 50V/3900pF | PANASONIC ECQB1H332JF |
| C107, C108, C120 | 50V/0.1uF | PANASONIC ECQV1H104J2 |
| C121 | 100V/0.047uF | UMS |
| C112, C113, C116, C117 | 100V/1uF | PANASONIC ECQE1105KF |
| C101 | 100V/4.7uF | ROEDERSTEIN MKC1862 |
| | | ELECTRONIC CONCEPTS |
| | | 5MC22B505K |

CAPACITORS, MICA:

| | | |
|------------------|------------|------|
| C105, C106 | 100V/82pF | Z-05 |
| C102, C110, C111 | 100V/220pF | Z-08 |

RESISTORS, VARIABLE:

| | | |
|------|-----------|-------------|
| R143 | 41-7122-0 | PK502H101H0 |
|------|-----------|-------------|

RESISTORS, CEMENTED WIRE-WOUND:

| | | |
|------|------------|-------|
| R158 | 3W/6.8ohms | RGCW3 |
|------|------------|-------|

RESISTORS, OXIDE METAL-FILM, 5%:

| | | |
|------------|---------|---------|
| R155, R156 | 27kohms | RS1/2FS |
| R151, 152 | 39kohms | RS1/2FS |

RESISTORS, METAL-FILM, 1%:

| | | |
|---|----------------|---------|
| R110, R111, R137, R138 | 1/4W/10ohms | RN14K2E |
| R108, R109, R112, R113 | 1/4W/33.2ohms | RN14K2E |
| R125, R126 | 1/4W/49.9ohms | RN14K2E |
| R141 | 1/4W/82.5ohms | RN14K2E |
| R142 | 1/4W/147ohms | RN14K2E |
| R139 | 1/4W/280ohms | RN14K2E |
| R140 | 1/4W/365ohms | RN14K2E |
| R114, R145 | 1/4W/499ohms | RN14K2E |
| R149 | 1/4W/825ohms | RN14K2E |
| R103, R106, R107, R116, R119, R122, R127, R128 | 1/4W/1kohms | RN14K2E |
| R146, R153, R154 | 1/4W/1.21kohms | RN14K2E |
| R147, R148, R150 | 1/4W/4.75kohms | RN14K2E |
| R123 | 1/4W/6.81kohms | RN14K2E |
| R120, R124, R129, R130, R133, R134 | 1/4W/22.1kohms | RN14K2E |
| R104, R105, R114, R115 | 1/4W/33.2kohms | RN14K2E |
| R131, R132 | 1/4W/39.2kohms | RN14K2E |
| R102 | 1/4W/49.9kohms | RN14K2E |
| R101, R117, R118 | 1/4W/1Mohms | RN14K2E |

RESISTORS, FUSIBLE, 5%:

| | | |
|------------|-------------|--------|
| R121, R157 | 1/4W/10ohms | RFC1/4 |
| R135, R136 | 1/4W/82ohms | RFC1/4 |

THERMOSTAT:

| | | |
|------------|-----------|------------|
| S101, S102 | △ 81-7014 | UP62, 85°C |
|------------|-----------|------------|

2. LEFT OUTPUT PCB ASSEMBLIES**TRANSISTORS:**

| | |
|-------------------|-------------|
| Q201 | 2SA1376 (K) |
| Q202 | 2SC3298B |
| Q203 | 2SC3907 |
| Q204 THROUGH Q213 | 2SD424 |

DIODES:

| | |
|------|--------|
| D201 | EGP50D |
|------|--------|

CAPACITORS, FILM:

| | | |
|------|-----------|-----------------------|
| C201 | 50V/0.1uF | PANASONIC ECQV1H104J2 |
| C202 | 50V/1uF | PANASONIC ECQV1F105J2 |

CAPACITORS, ELECTROLYTIC:

| | | |
|------|-----------|-----------------------|
| C203 | 100V/47uF | PANASONIC ECEA2AGE470 |
|------|-----------|-----------------------|

RESISTORS, FUSIBLE, 5%:

| | | |
|--|-------------|--------|
| R203, R205, R207, R209, R211, R213, R215, R217, R219, R221 | 1/4W/10ohms | RFC1/4 |
|--|-------------|--------|

RESISTORS, OXIDE METAL-FILM, 5%:

| | | |
|------|--------------|---------|
| R201 | 1/2W/68ohms | RS1/2FS |
| R202 | 1/2W/7.5ohms | RS1/2FS |
| R223 | 1/2W/750ohms | RS1/2FS |

RESISTORS, CEMENTED WIRE-WOUND:

| | | |
|--|-------------|-------|
| R204, R206, R208, R210, R212, R214, R216, R218, R220, R222 | 5W/0.33ohms | RGC5T |
|--|-------------|-------|

3. RIGHT OUTPUT PCB ASSEMBLIES

TRANSISTORS:

| | |
|-------------------|-------------|
| Q301 | 2SC3478 (K) |
| Q302 | 2SA1306B |
| Q303 | 2SA1516 |
| Q304 THROUGH Q313 | 2SB554 |

DIODES:

| | |
|------|--------|
| D301 | EGP50D |
|------|--------|

CAPACITORS, ELECTROLYTIC:

| | | |
|------|-----------------|-----------------------|
| C302 | 100V/47 μ F | PANASONIC ECEA2AGE470 |
|------|-----------------|-----------------------|

CAPACITORS, FILM:

| | | |
|------|-----------------|-----------------------|
| C301 | 50V/0.1 μ F | PANASONIC ECQV1H104J2 |
|------|-----------------|-----------------------|

RESISTORS, FUSIBLE, 5%:

| | | |
|--|-------------|--------|
| R303, R305, R307, R309, R311, R313, R315, R317, R319, R321 | 1/4W/10ohms | RFC1/4 |
|--|-------------|--------|

RESISTORS, OXIDE METAL-FILM, 5%:

| | | |
|------|--------------|---------|
| R301 | 1/2W/68ohms | RS1/2FS |
| R302 | 1/2W/7.5ohms | RS1/2FS |

RESISTORS, CEMENTED WIRE-WOUND:

| | | |
|--|-------------|-------|
| R304, R306, R308, R310, R312, R314, R316, R318, R320, R322 | 5W/0.33ohms | RCG5T |
|--|-------------|-------|

THERMISTOR:

| | |
|-------|-------------|
| TH301 | TD5-C310 DA |
|-------|-------------|

4. FILTER CAPACITOR PCB ASSEMBLIES

RESISTORS, OXIDE METAL-FILM, 5%:

| | | |
|------------|--------------|---------|
| R801, R802 | 2W/8.2kohms | RS2FB |
| R803 | 1/2W/100ohms | RS1/2FS |

CAPACITORS, FILM:

| | | |
|------------|------------------|----------------------|
| C803, C804 | 100V/0.1 μ F | UMS |
| C805 | 100V/1 μ F | PANASONIC ECQE1105KF |

5. AC INPUT/BIAS TIME-DELAY

RELAY:

| | | |
|-------|-------------------|----------------|
| RY501 | Δ 81-629-0 | 125V/30A/24VDC |
|-------|-------------------|----------------|

TRANSISTORS:

| | |
|------|---------|
| Q501 | 2SA1015 |
| Q502 | 2SC1815 |

DIODES:

| | |
|------------|-----------------|
| D501, D502 | Δ IN4004 |
| D503 | ISS178 |

DIODES, ZENER:

D504 ADCOM J2

PHOTO COUPLER:

PC501 Δ PS2505-1

CAPACITORS, ELECTROLYTIC:

C502 Δ 100V/1uF
 C501 Δ 50V/220uF
 C504 25V/220uF

CAPACITORS, SPARK-KILLER:

C503 Δ 400V/0.01uF PANASONIC ECKDNS103ZV

RESISTORS, CEMENTED WIRE-WOUND:

R506 Δ 20W/4.7ohms CR20P
 R502 Δ 10W/680ohms CR10P

RESISTORS, CARBON-FILM, 5%:

R507 1/4W/1.8kohms
 R501 1/4W/3.3kohms
 R505 1/4W/5.1kohms
 R504 1/4W/10kohms
 R508 1/4W/47kohms
 R503 1/4W/68kohms

6. CHASSIS-MOUNTED COMPONENTS**AC POWER SWITCH:**

S701 Δ 12005C BLACK,CARLING
 RGSCC-711-R-B-B-O
 Δ 12005CW WHITE,CARLING
 RGSCC-711-R-W-W-O

POWER TRANSFORMER:

T801 Δ ADCOM 23-2043-0-0

CAPACITORS, ELECTROLYTIC:

C801, C802 Δ ADCOM 100V/35,000uF

SILICON RECTIFIER:

D801 Δ 400V/35A KBPC3504P

RCA JACK:

J705 ADCOM VTW-J5MI

SPEAKER TERMINALS:

J701, J703 ADCOM R33729 RED
 J702, J704 ADCOM B33729 BLACK

FUSE HOLDERS:

FH801, FH802, FH803 FH052

FUSES:

FU802, FU803* Δ ABC-12/250V BUSSMAN
 3AG314012/250V LITTELFUSE
 CES6-12A/125V SOC
 FU801* Δ ABC-15/250V BUSSMAN
 3AG314015/250V LITTELFUSE
 CES6-15A/125V SOC

7. FRONT PANEL ASSEMBLY

FRONT PANEL:

| | |
|-----------|-------|
| 63-6305-0 | BLACK |
| 63-6305-1 | WHITE |

LEDs:

| | | |
|------|---------|---|
| D802 | LTL2201 | RED, POWER INDICATOR |
| D804 | LTL2201 | RED, THERMAL PROTECTION |
| D803 | LTL2251 | YELLOW, INSTANTANEOUS DISTORTION ALERT |

8. PACKING AND ACCESSORIES

| | | |
|------------------|-------------|-------------|
| CARTON | 94-2042-0-3 | |
| STYROFOAM FILLER | 94-1116-0-0 | FOUR PIECES |
| STYROFOAM PADS | 94-1121-0-0 | TWO PIECES |

9A. POWER SUPPLY PCB ASSEMBLY FOR OPTIONAL FAN MOTOR, ISSUE "A"

INTEGRATED CIRCUITS:

| | |
|-------|------------|
| IC601 | NJM78M24FA |
|-------|------------|

TRANSISTORS:

| | |
|------------|---------|
| Q603 | 2SA1469 |
| Q601, Q602 | 2SC945 |

DIODES:

| | |
|------|--------|
| D601 | 1SS178 |
| D602 | DBA10B |

CAPACITORS, ELECTROLYTIC:

| | |
|------|------------|
| C603 | 35V/1000uF |
| C601 | 25V/100uF |
| C602 | 25V/47uF |

RESISTORS, CARBON-FILM, 5%:

| | |
|------------|---------------|
| R603 | 1/4W/1kohms |
| R604 | 1/4W/2.4kohms |
| R607 | 1/4W/7.5kohms |
| R602 | 1/4W/10kohms |
| R601, R605 | 1/4W/24kohms |
| R606 | 1/4W/160kohms |

9B. POWER SUPPLY PCB ASSEMBLY FOR OPTIONAL FAN MOTOR, ISSUE "B"

INTEGRATED CIRCUITS:

| | |
|-------|------------|
| IC601 | NJM4558 |
| IC602 | NJM78M24FA |

TRANSISTORS:

| | |
|------|----------|
| Q601 | 2SA1469R |
|------|----------|

DIODES:

| | |
|------|--------|
| D601 | 1SS178 |
| D602 | DBA10B |

CAPACITORS, ELECTROLYTIC:

| | |
|------|------------|
| C601 | 50V/10uF |
| C602 | 35V/1000uF |

RESISTORS, CARBON-FILM, 5%:

| | |
|------------------|---------------|
| R601, 604 | 1/4W/7.5kohms |
| R602 | 1/4W/9.1kohms |
| R603, R605, R606 | 1/4W/24kohms |
| R607 | 1/4W/150kohms |
| R608 | 1/4W/10kohms |
| R609 | 1/4W/1kohms |

**10. OPTIONAL BALANCED INPUT
PCB ASSEMBLY****XLR INPUT JACK:**

| | | |
|------|-----------|---------|
| J808 | NC3FP-1-B | NEUTRIK |
|------|-----------|---------|

INTEGRATED CIRCUITS:

| | |
|--------------|----------|
| IC701, IC702 | ADCOM 6A |
|--------------|----------|

TRANSISTORS:

| | |
|------|--------|
| Q701 | 2SD414 |
| Q702 | 2S8548 |

DIODES:

| | |
|------------|--------|
| D702, D704 | IN4002 |
|------------|--------|

DIODES, ZENER:

| | |
|------------|--------|
| D701, D703 | 6ZA18Z |
|------------|--------|

CAPACITORS, ELECTROLYTIC:

| | |
|------------|-----------|
| C707, C710 | 25V/56uF |
| C708, C711 | 25V/470uF |

CAPACITORS, MICA:

| | |
|------------|-----------|
| C701 | 100V/47pF |
| C702 | 100V/12pF |
| C703, C705 | 100V/15pF |

CAPACITORS, CERAMIC:

| | |
|------------|------------|
| C706, C709 | 50V/0.01uF |
|------------|------------|

CAPACITORS, VARIABLE:

| | | |
|------|------------|--------|
| C704 | 2pF to 7pF | 36-133 |
|------|------------|--------|

RESISTORS, METAL-FILM, 1%:

| | | |
|------|----------------|---------|
| R702 | 1/4W/45.3ohms | RN14K2E |
| R704 | 1/4W/7.5kohms | RN14K2E |
| R705 | 1/4W/13.3kohms | RN14K2E |
| R706 | 1/4W/4.99kohms | RN14K2E |

RESISTORS, OXIDE METAL-FILM, 5%:

| | | |
|------------|-------------|-------|
| R708, R710 | 2W/2.7kohms | RS2FS |
| R709, R711 | 2W/16kohms | RS2FS |

RESISTORS, ARRAY:

| | | |
|------|-------------|--------------------|
| R701 | 20kohms x 8 | BECKMAN 698-3-R20K |
|------|-------------|--------------------|

RESISTORS, VARIABLE:

| | | |
|------|---------|---------|
| R703 | 100ohms | 41-7123 |
|------|---------|---------|

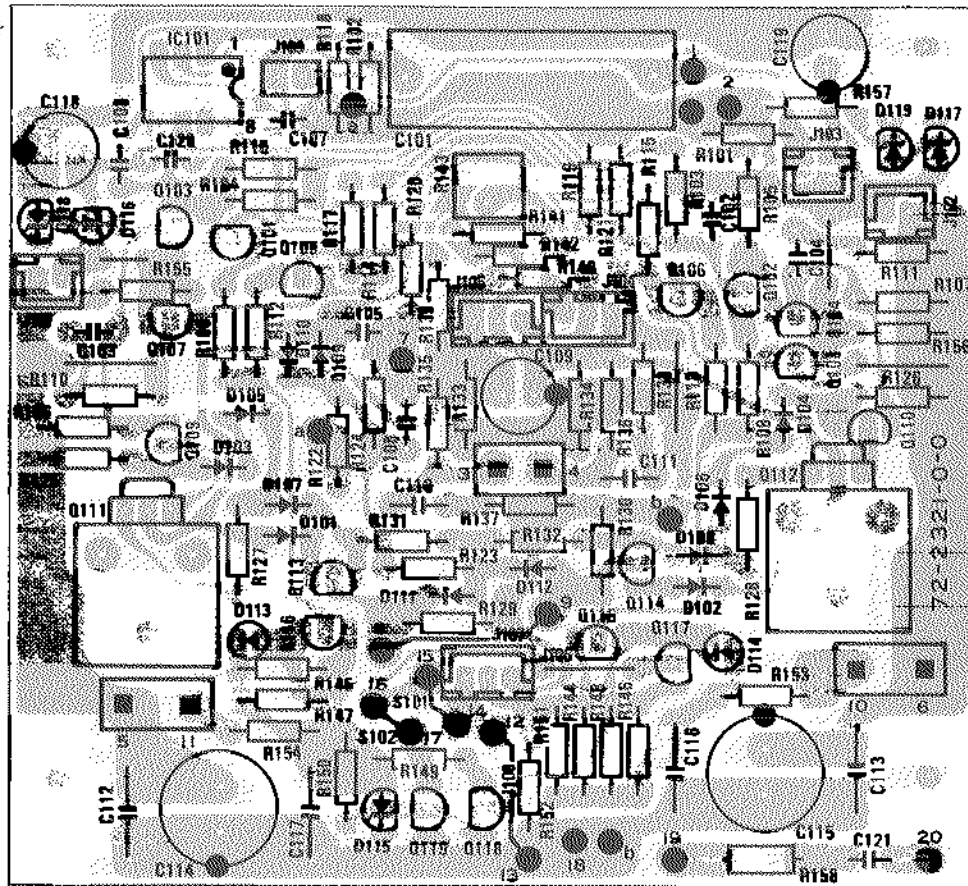
SWITCHES:

| | | |
|------|---------|--------|
| S701 | SRBM 14 | 81-197 |
|------|---------|--------|

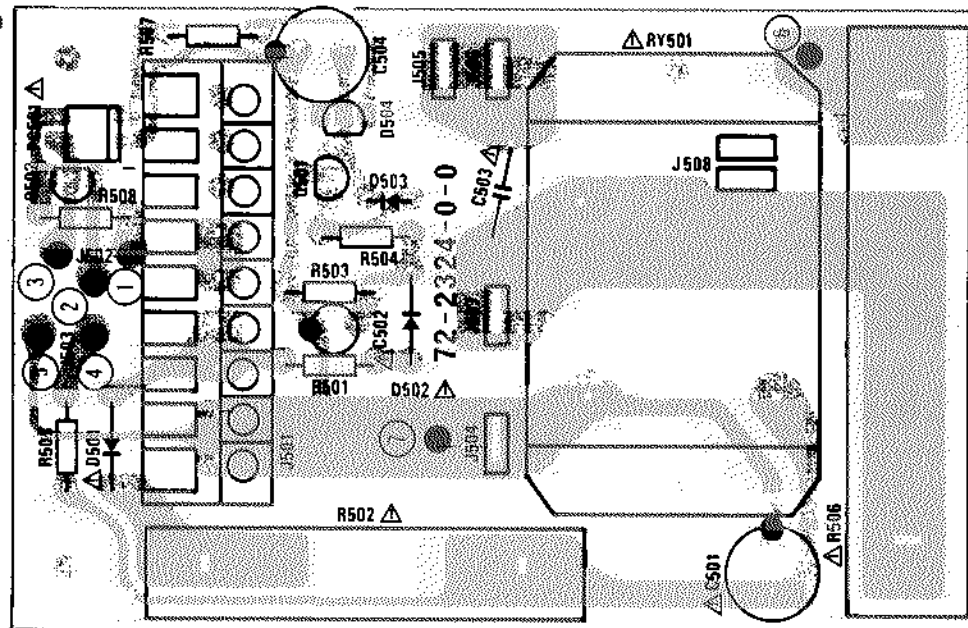
* The fuses listed, and their time-current blowing points, have been carefully selected and thoroughly tested to deliver optimal performance while still accomplishing their protective functions. Replace these fuses, individually, only with the specific types listed. **DO NOT USE ANY SUBSTITUTE FUSES WITH DIFFERENT RATINGS, TIME-CURRENT CURVES OR VALUES.** Failure to comply may cause serious damage to the amplifier circuits and **MAY CREATE A FIRE HAZARD.**

⚠ **Because of fire, shock and/or other hazards, parts identified by, and listed with, this sign MUST** be replaced with the **IDENTICAL FACTORY PART** listed in the SERVICE PARTS LIST. No substitutions with other "equivalent" parts can be made.

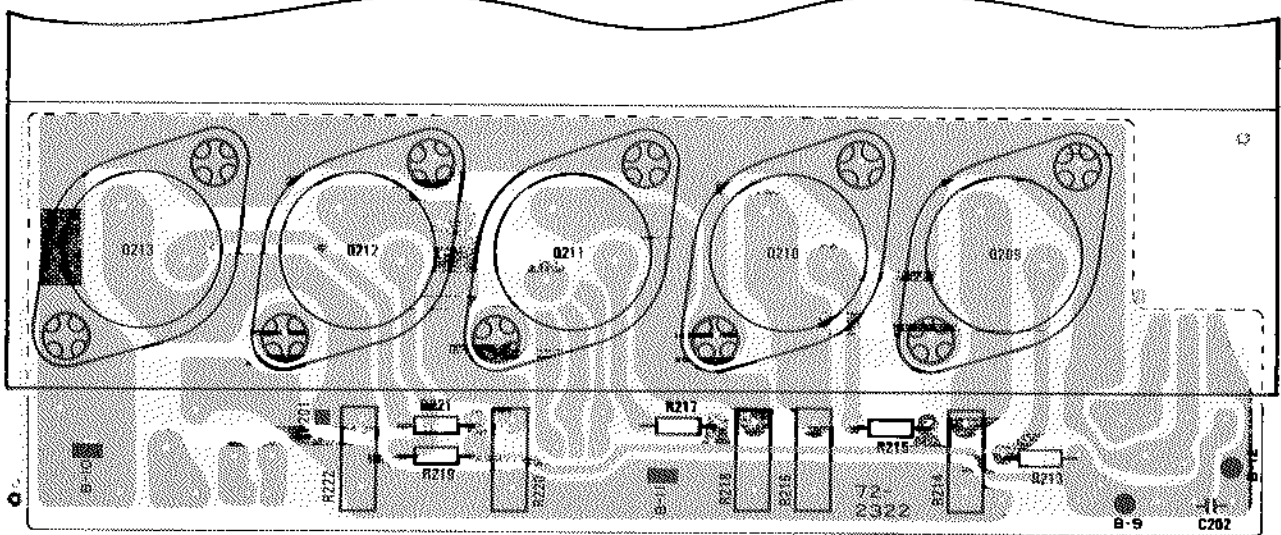
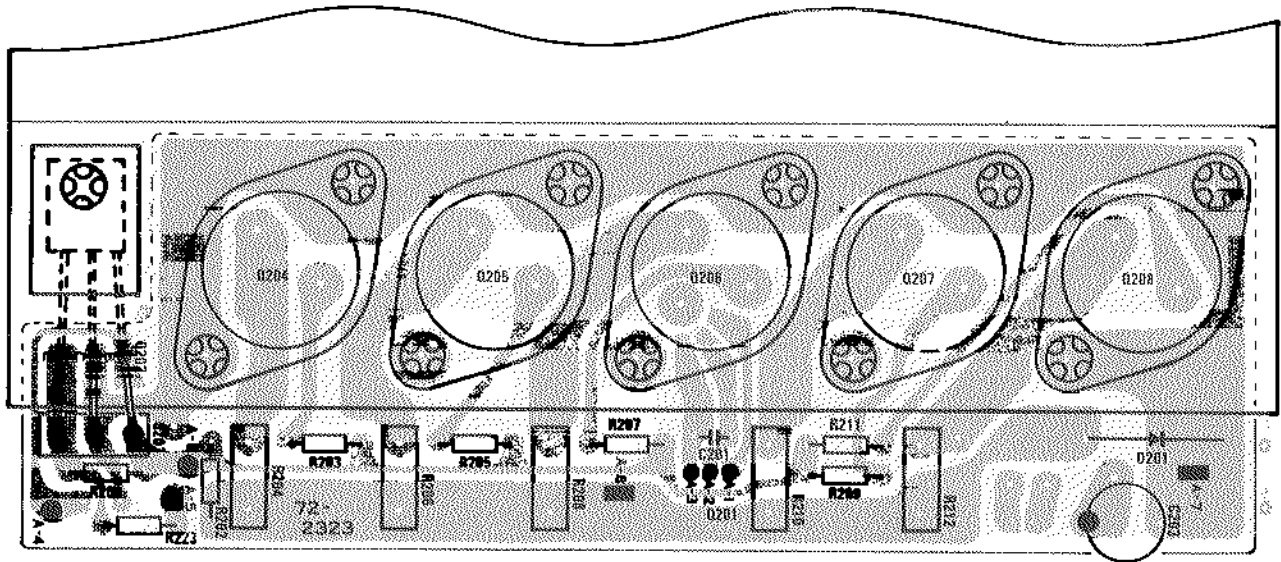
AUDIO INPUT/DRIVER PCB ASSEMBLY



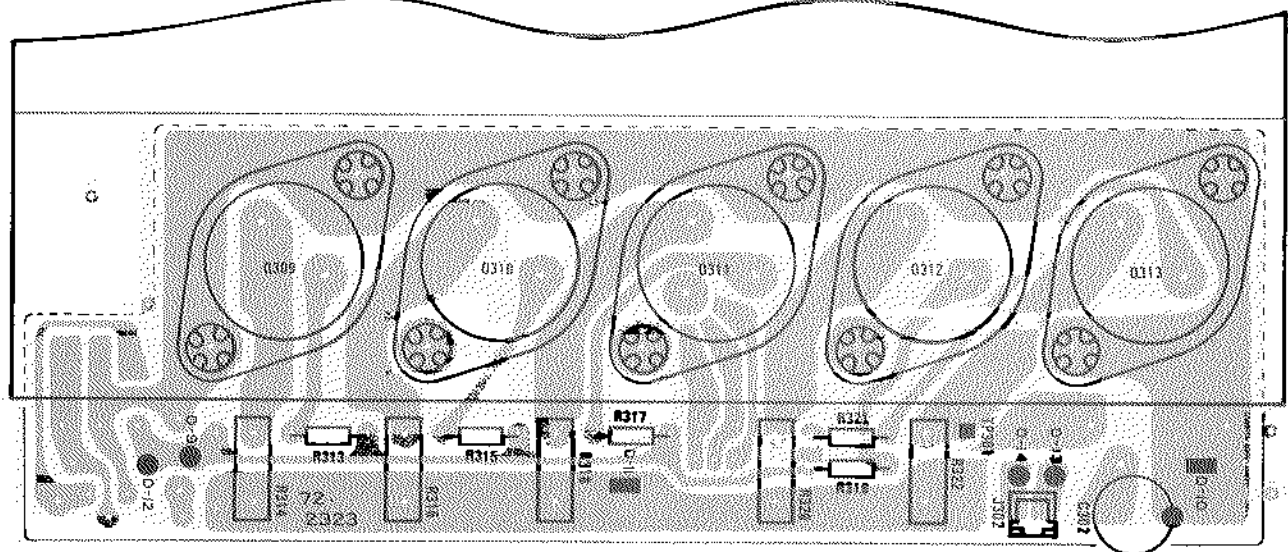
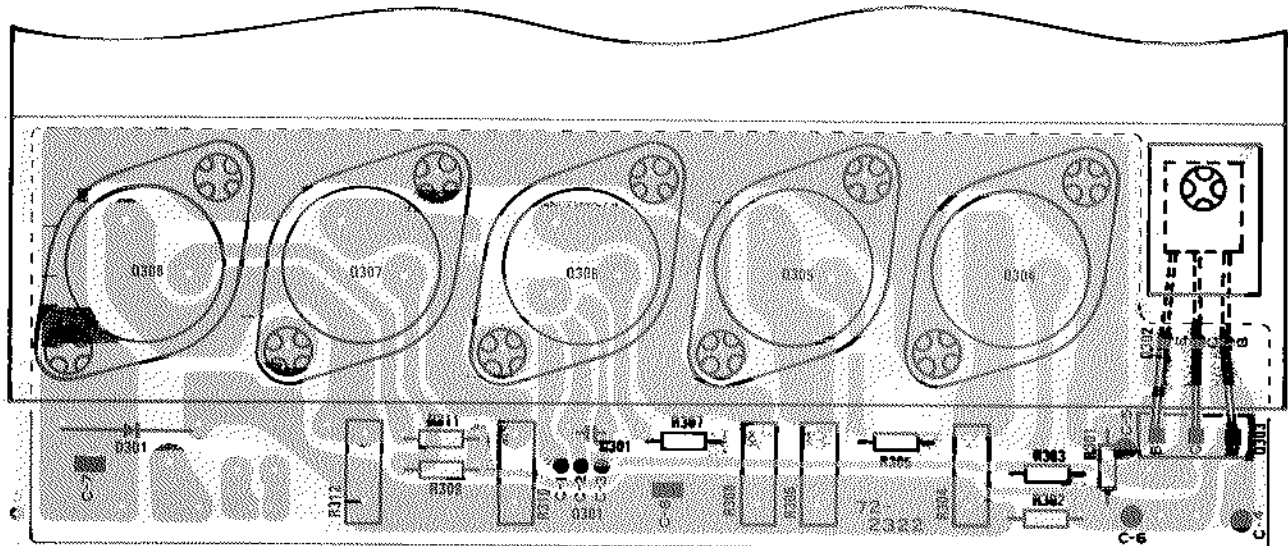
AC INPUT/BIAS TIME DELAY PCB



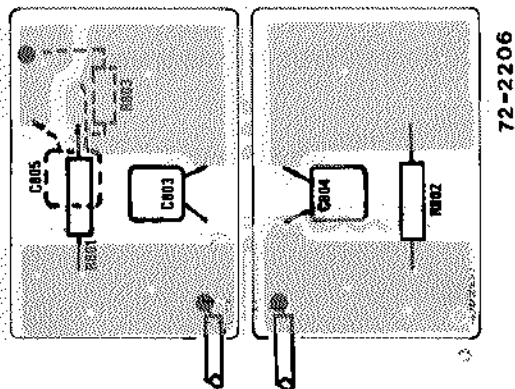
LEFT OUTPUT PCB ASSEMBLIES



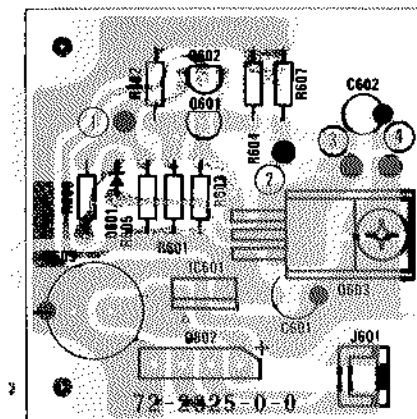
RIGHT OUTPUT PCB ASSEMBLIES



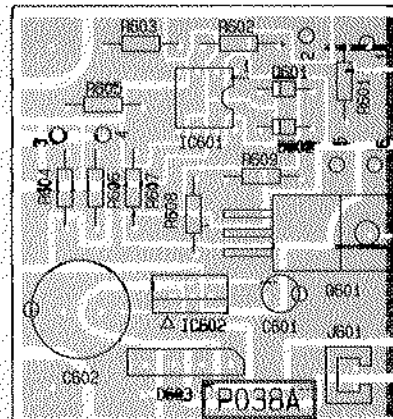
FILTER CAPACITOR PCB ASSEMBLIES



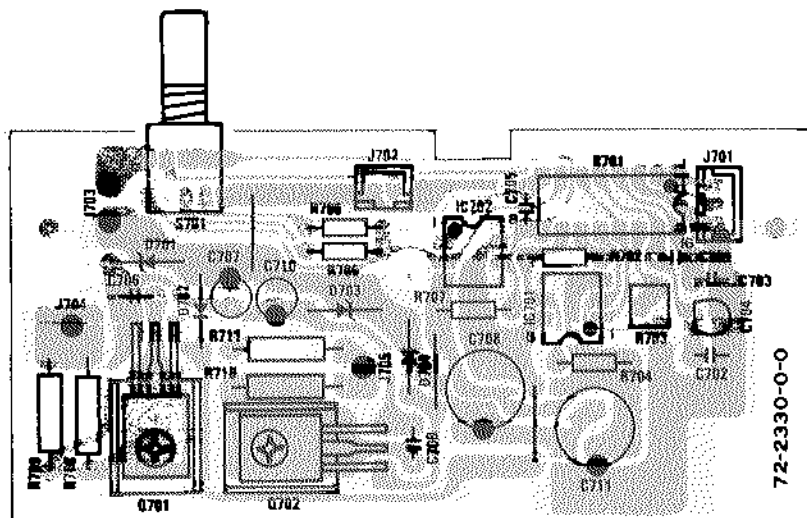
**POWER SUPPLY PCB ASSEMBLY
FOR OPTIONAL FAN MOTOR (ISSUE "A")**



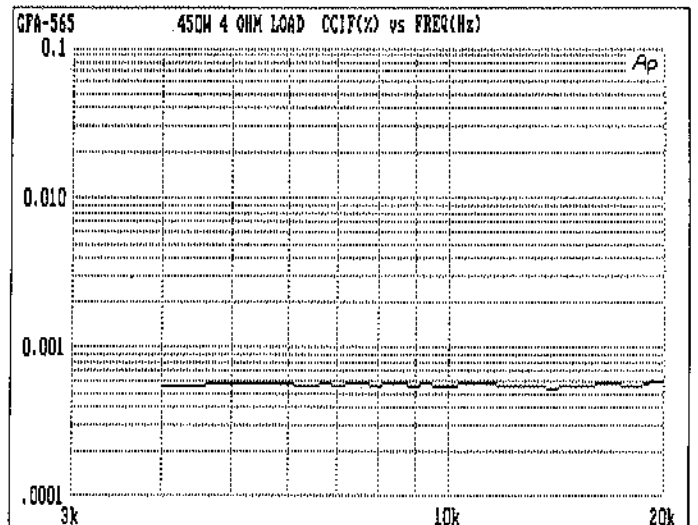
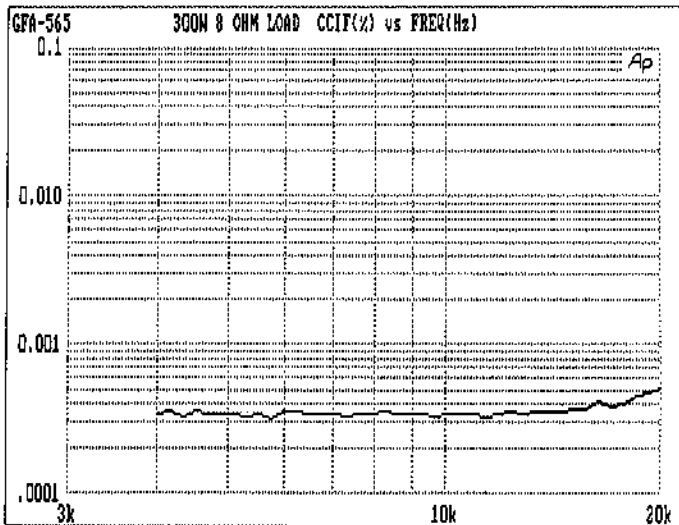
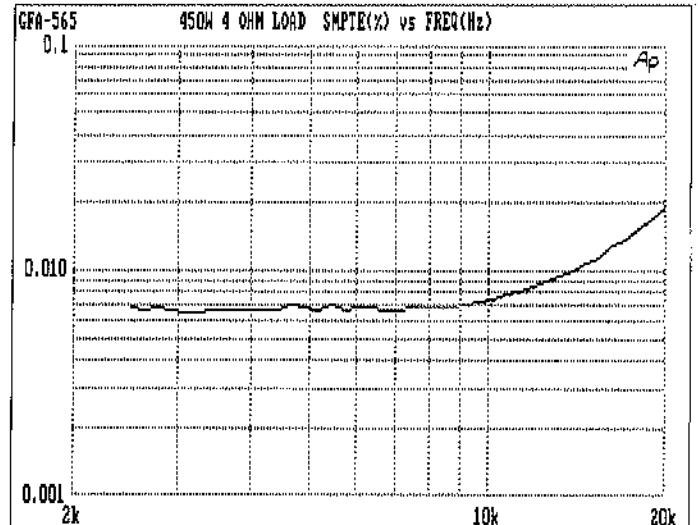
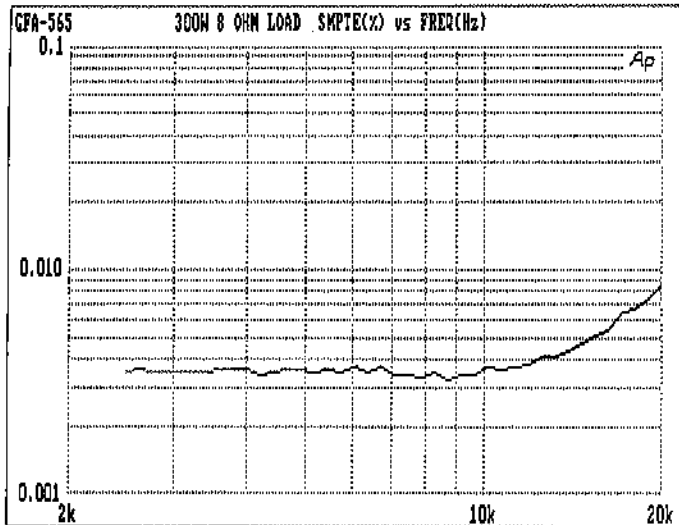
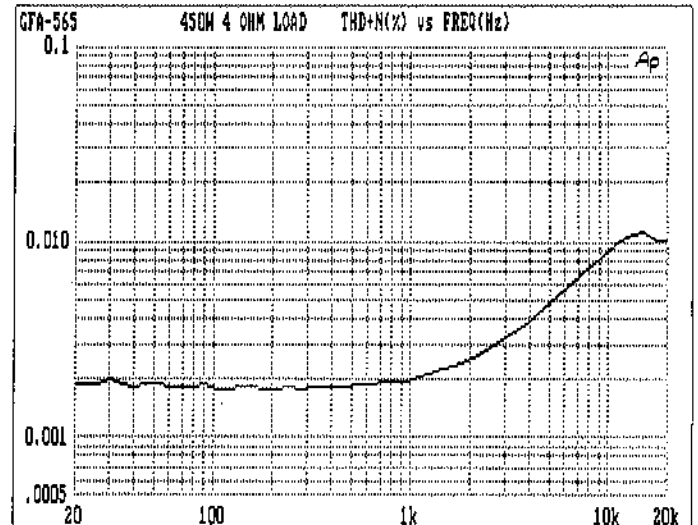
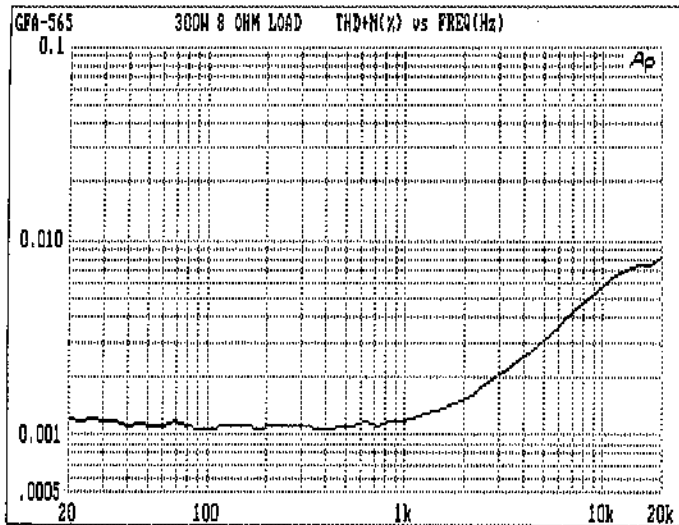
**POWER SUPPLY PCB ASSEMBLY
FOR OPTIONAL FAN MOTOR (ISSUE "B")**



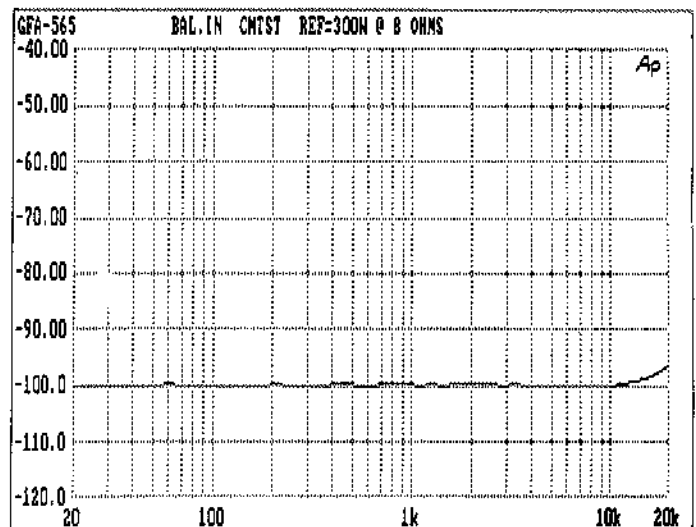
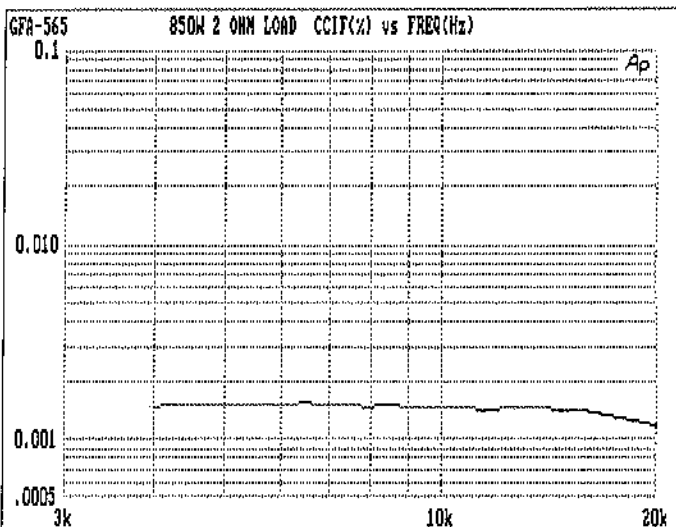
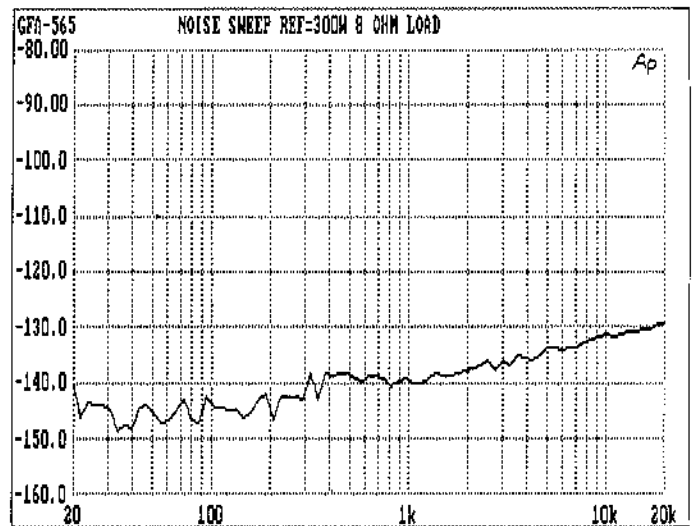
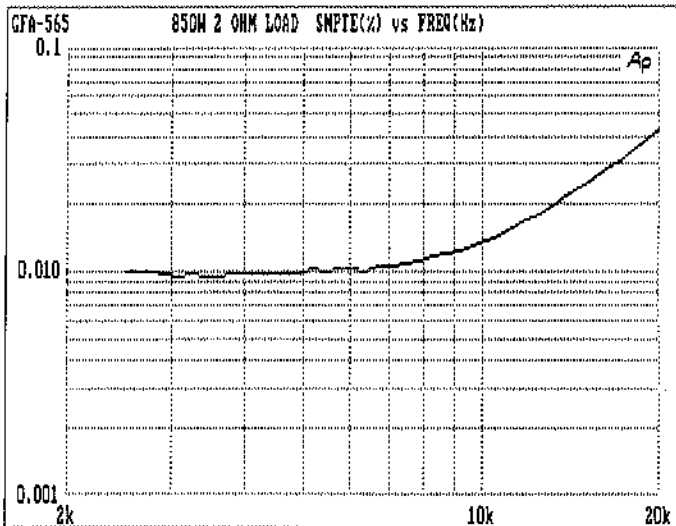
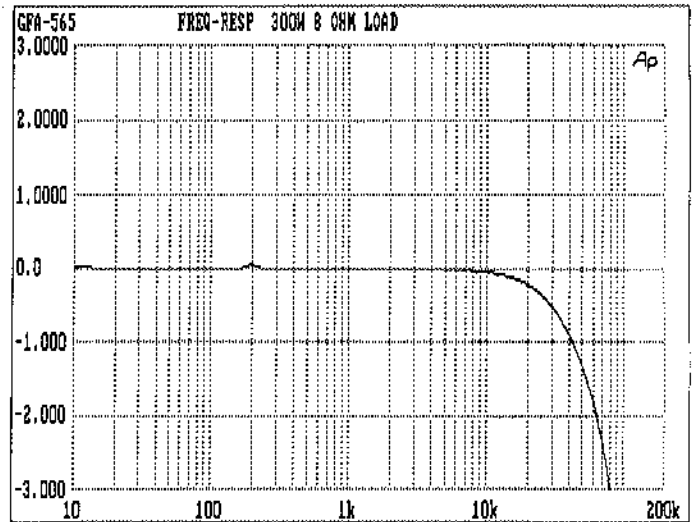
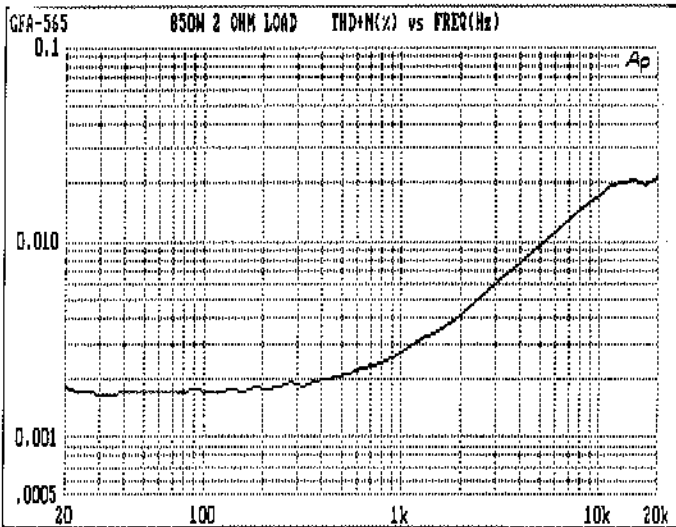
OPTIONAL BALANCED INPUT PCB ASSEMBLY



GFA-565 TYPICAL PERFORMANCE DATA



GFA-565 TYPICAL PERFORMANCE DATA



GFA-565 SPECIFICATIONS

Power Rating (To FTC Requirements)

- 300 watts continuous average power into 8 ohms, any frequency between 20Hz and 20kHz, @ less than 0.02% THD.
- 450 watts continuous average power into 4 ohms, any frequency between 20Hz and 20kHz, @ less than 0.02% THD.
- 850 watts continuous average power into 2 ohms, any frequency between 20Hz and 20kHz, @ less than 0.02% THD. *
- * With fan option installed.

IM Distortion (SMPTE)

- 1 watt to 300 watts into 8 Ohms 0.005%
- 1 watt to 450 watts into 4 Ohms 0.007%
- 1 watt to 850 watts into 2 Ohms 0.009%

IM Distortion (CCIF, Any Combination from 4kHz to 20kHz)

- 300 watts into 8 Ohms 0.002%
- 350 watts into 4 ohms 0.003%
- 850 watts into 2 ohms 0.004%

THD + Noise @ 300 Watts into 8 Ohms

- 20Hz 0.002%
- 1kHz 0.002%
- 10kHz 0.004%
- 20kHz 0.010%

THD + Noise @ 450 Watts into 4 Ohms

- 20Hz 0.003%
- 1kHz 0.003%
- 10kHz 0.007%
- 20kHz 0.015%

THD + Noise @ 850 Watts into 2 Ohms

- 20Hz 0.003%
- 1kHz 0.003%
- 10kHz 0.009%
- 20kHz 0.018%

Frequency Response @ 1 Watt into 8 Ohms

- 10Hz to 20kHz +0, -0.5dB

Power Bandwidth (-3dB) 0.7Hz to 80kHz

Dynamic Headroom into 4 Ohms 1.6dB

Signal-to-Noise Ratio, "A" Weighted

- 300 watts into 8 Ohms >115dB

Gain 27dB

Input Impedance 50,000 ohms

Input Sensitivity

- 300 watts into 8 Ohms 2.15V rms
- 1 watt into 8 Ohms 130mV rms

Damping Factor

- 20Hz to 20kHz >1000

Rise Time

- 5kHz, 120V peak-to-peak square wave, 20% to 80% 2.9us

Semiconductor Complement 47 transistors, 6 zener diodes, 17 diodes, 1 IC, 1 diode bridge

Power Consumption (Continuous)

| | |
|-----------------------------|--------|
| Quiescent | 84VA |
| Maximum | 1800VA |
| 300 watts into 8 Ohms | 420VA |
| 450 watts into 4 Ohms | 700VA |
| 850 watts into 2 Ohms | 1330VA |

BALANCED INPUT OPTION

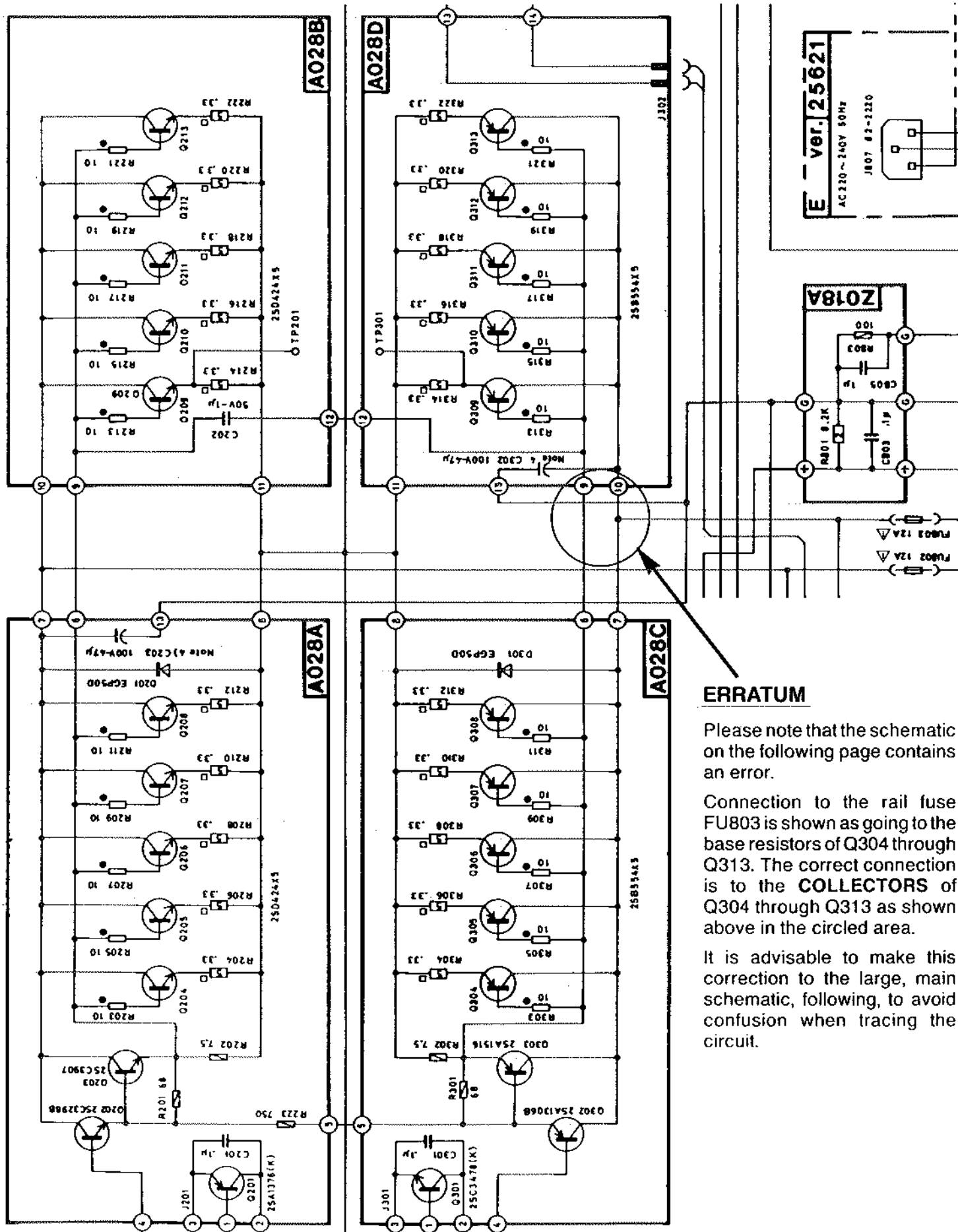
| | |
|---|-----------------|
| Frequency Response, 10Hz to 40kHz | +0, -0.5dB |
| THD + Noise @ 2V Out, 20Hz to 20kHz | 0.005% |
| IM Distortion (SMPTE) @ 2V Out | 0.002% |
| IM Distortion (CCIF, Any Combination from 4kHz to 20kHz) @ 2V out | 0.005% |
| Common-Mode Rejection, 10Hz to 20kHz | >85dB |
| Input Impedance (Bridging, DC to 20kHz) | >100,000 ohms |
| Input, Non-Inverting, Positive-Going, XLR | PIN 3 |
| Input Sensitivity (Selectable, 0dBm, +8dBm, +14dBm) | |
| 300 watts into 8 ohms (0dBm position) | +8.8dBm(2.15V) |
| 1 watt into 8 ohms (0dBm position) | -15.5dBm(130mV) |
| 300 watts into 8 ohms (+8dBm position) | +16.8dBm(5.23V) |
| 1 watt into 8 ohms (+8dBm position) | -7.5dBm(327mV) |
| 300 watts into 8 ohms (+14dBm position) | +22.8dBm(10.7V) |
| 1 watt into 8 ohms (+14dBm position) | -1.5dBm(650mV) |

GENERAL

| | |
|--|--|
| Power (available in 220V or 240V on special order) | 120VAC/50-60Hz |
| Chassis Dimensions | 8"(203mm) x 17"(432mm) x 12-3/16"(310mm) |
| Maximum Dimensions | 8-3/8"(213mm) x 17"(432mm) x 12-3/16"(310mm) |
| Weight | 41 lbs.(18.7kg) |
| Weight,Packed | 45 lbs.(20.5kg) |

ADCOM

11 Elkins Road
East Brunswick, NJ 08816
Telephone (908) 390-1130
Fax (908) 390-9152

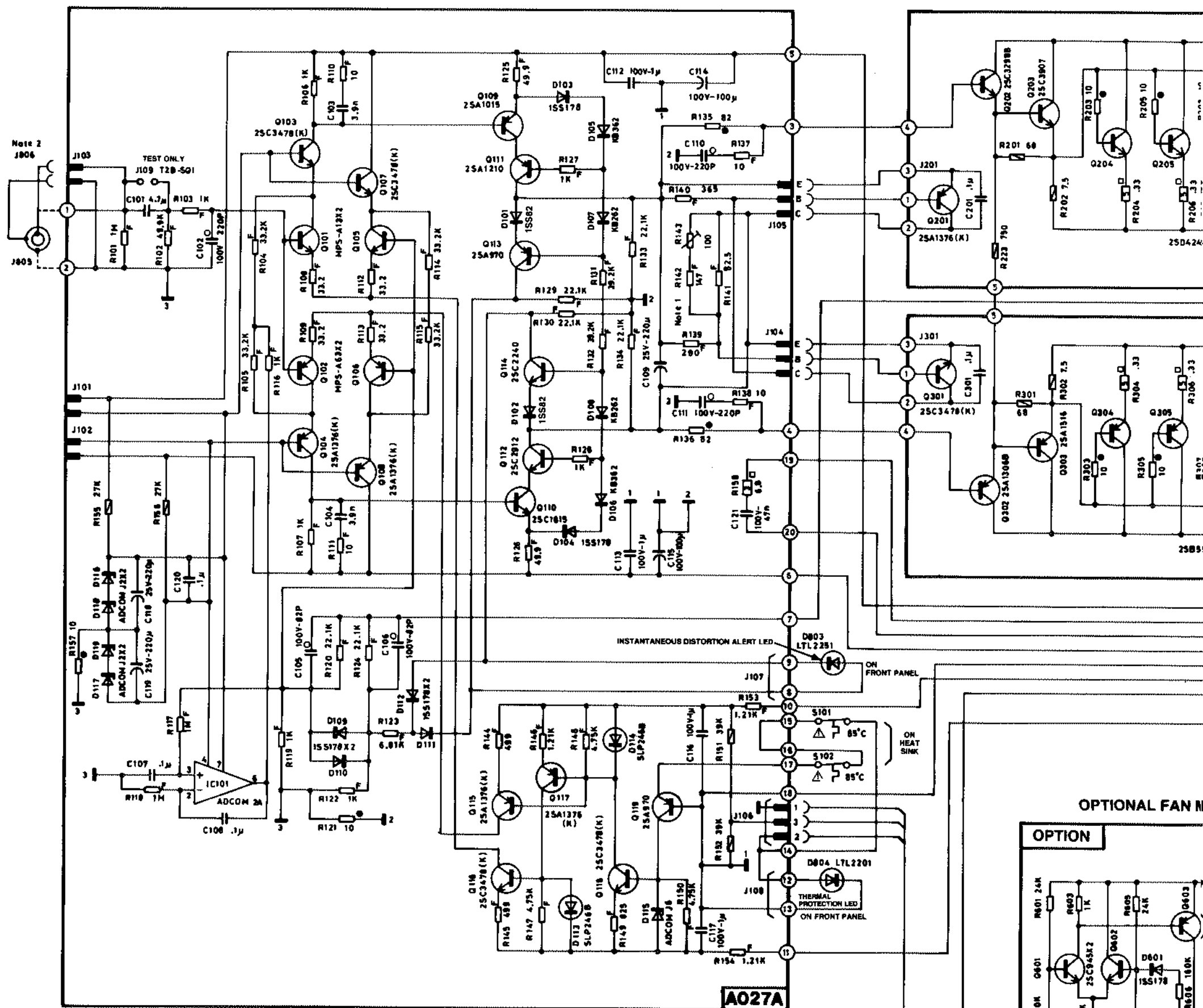


ERRATUM

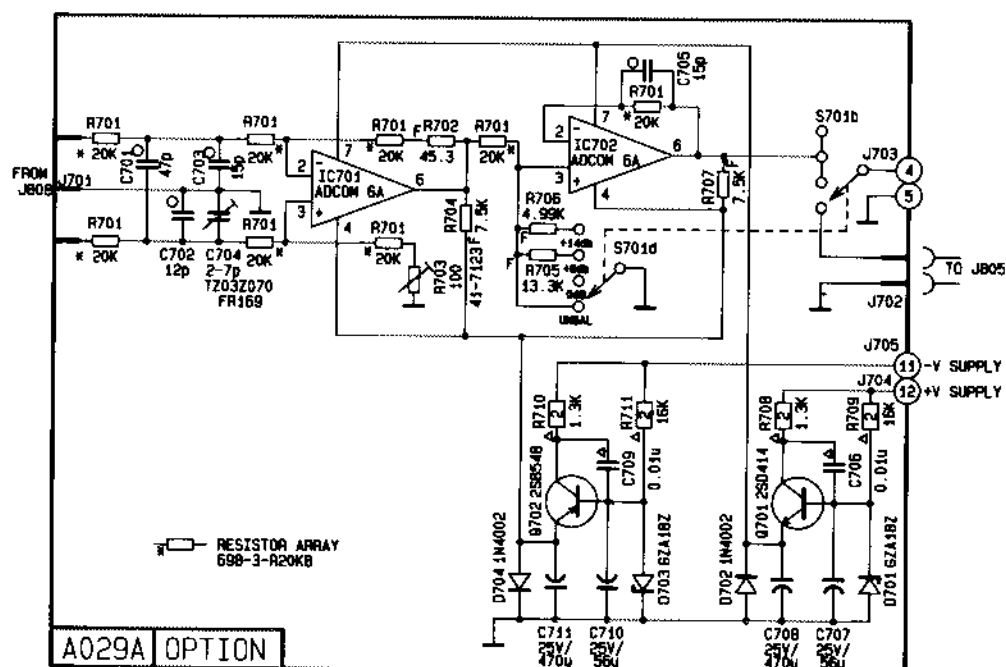
Please note that the schematic on the following page contains an error.

Connection to the rail fuse FU803 is shown as going to the base resistors of Q304 through Q313. The correct connection is to the **COLLECTORS** of Q304 through Q313 as shown above in the circled area.

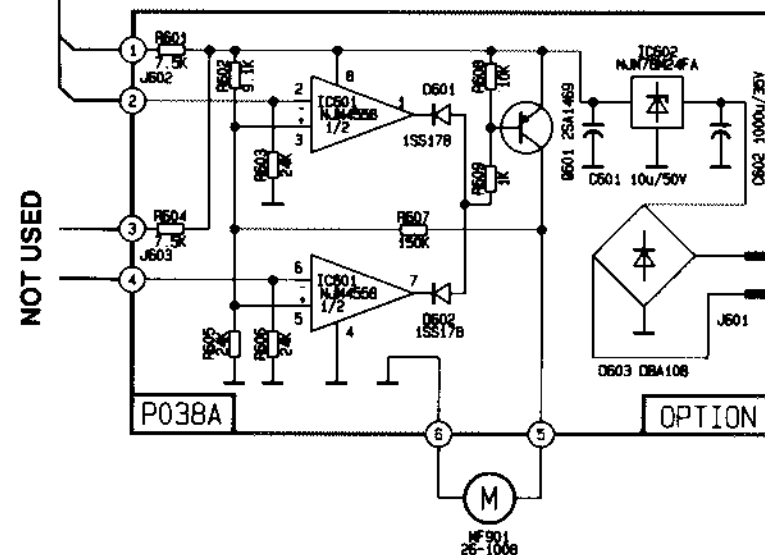
It is advisable to make this correction to the large, main schematic, following, to avoid confusion when tracing the circuit.

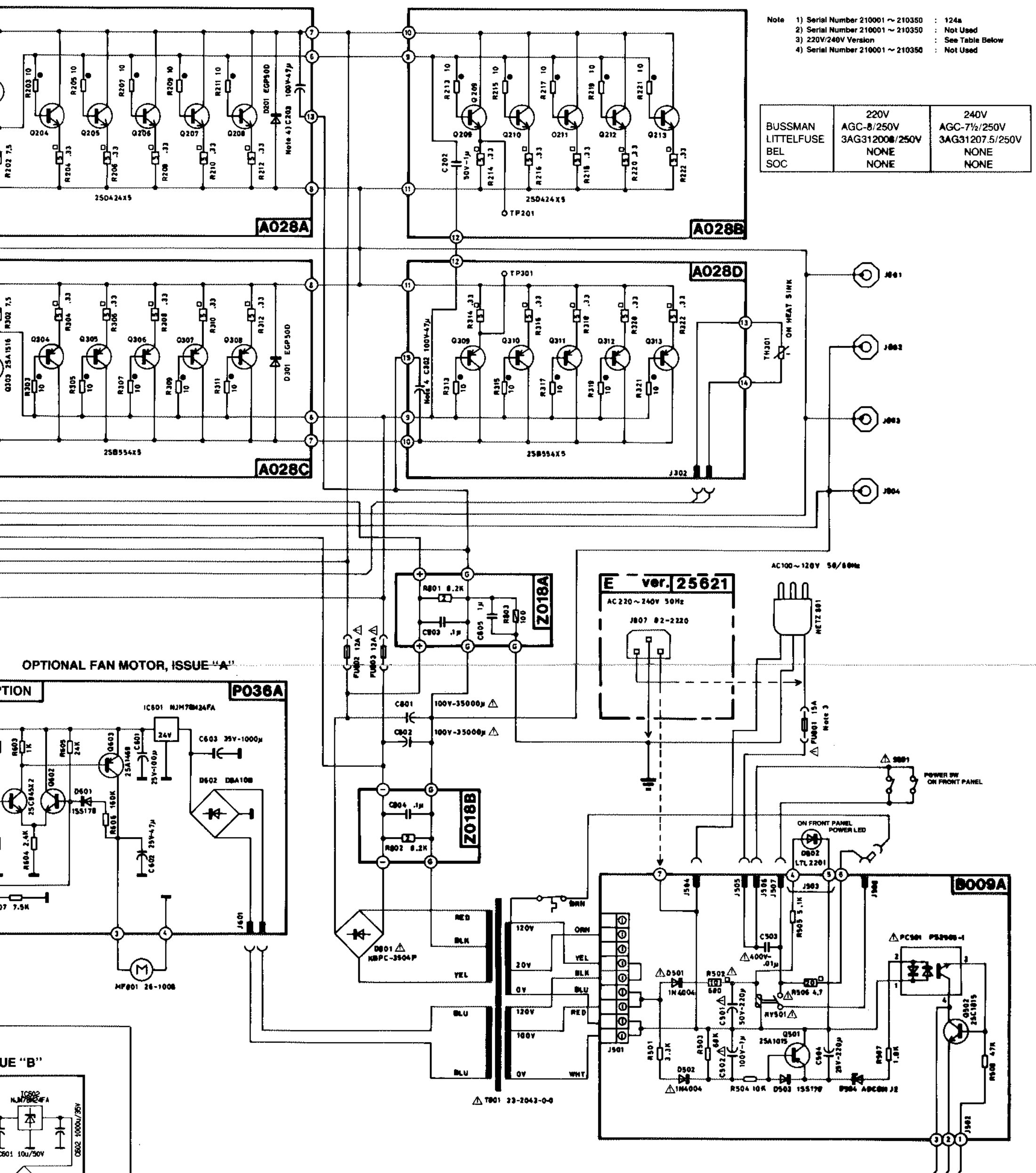


OPTIONAL BALANCED INPUT



OPTIONAL FAN MOTOR, ISSUE "B"





TYPE OF CAPACITORS

ELECT
FILM
MICA

TYPE OF RESISTORS

1/4
1/2
CEMENT
METAL FILM

FUSIBLE
NO MARK, CARBON
NUMBER - W