# SERVICE MANUAL

# ADCOM®

# POWER AMPLIFIER

# GFA-555II

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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-555II 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-555II 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-555II 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-555II UNLESS YOU ARE TECHNICALLY QUALIFIED TO DO SO.**

# CIRCUIT DESCRIPTION

The ADCOM GFA-555II is a stereo power amplifier rated at less than 0.04% THD from 20Hz to 20kHz with 200 watts into 8 ohms and 325 watts into 4 ohms. The output stage is capable of greater than 60 amps into low impedance loads. The amplifier employs a discrete differential Class-A front- end followed by a 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, describing the Left Channel only, the input signal passes through network C101, C102 and R103 which provide a 3dB bandwidth of 1.7Hz to 500kHz 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 and Q102 form the differential input stage.

Open-loop gain is defined by R105 and the bias current through Q101 and Q102. The small-signal gain is approximately 825/(2x25)=16. The next voltage gain stage consists of Q107 with Q108 as a current-source load. DC bias is set by R116, D103 and D104. Open-loop gain is defined by R112 and R113, with R201, R301, C105, C201, and C301 providing high-frequency compensation.

Feedback is provided from the output to the base of Q102 by the network R123, R124 and C106. C106 provides a high-frequency roll-off above 200kHz, improving stability by taking high-frequency feedback before the triple Darlington.

The input stage is biased by R108, R109, R110, R122, R115, R114, R128, R116, Q103, Q105, Q108, D101 through D105, and the overtemperature LED, D903. Q105 is turned on when the B+ supply is on. A current of about 4mA flows through the thermal breaker on the heatsink and into D103 and D104. If the heatsink overheats, the breaker opens and the current flows through D105 and the THERMAL OVERLOAD LED instead. When the breaker carries the current, D103 and D104 are biased at 1.4V. This creates about 0.7V across R114; Q103 then sources about 2mA to Q101 and Q102, the differential input stage. If the negative supply fails or its fuse opens, Q103 saturates, Q101 turns off, turning off Q107, D301 turns on and Q108 saturates. This holds the input to the triple Darlington to near ground. If the positive supply fails or its fuse opens, Q105 turns off and the bias circuitry is disabled.

Any DC imbalance in the amplifier is corrected by R125, R126, R127, C107, C110 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 1.0mA through Q101 and Q102. IC101 provides the DC bias current to Q101 and can swing from ground to +10V to bring the amplifier into balance.

The bias network of R117 through R119 and Q307 form a temperature-compensated DC-bias voltage to the input of the triple-Darlington-follower output stage. Mid- and high-frequency bypassing is provided by C104.

R901 and C901 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 4 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 0.22-ohm ballast resistors to ensure current sharing and bias stability.

## TEST PROCEDURES

All tests are performed with a 120V, low-distortion (less then 2%), 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 66 watts into an 8-ohm load for at least 10 minutes.

All grounds during testing are referred to the ground of the black output terminals, **EXCEPT FOR RCA INPUT-JACK GROUNDS AND ANY SIGNAL-GENERATOR GROUND. DO NOT CONNECT RCA INPUT-JACK GROUNDS TO BLACK OUTPUT-TERMINAL BINDING POSTS, DAMAGE TO THE GROUNDING SYSTEM OF THE AMPLIFIER MAY RESULT.**

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 lo
ad, and is derived with a dual-time-based oscilloscope reading the slope of a full-power (120V peak-to- peak) 5kHz square wave. To avoid damaging output networks R901/C901 AND R951/ C951 **DO NOT OPERATE THE AMPLIFIER AT FULL-POWER, SINE-WAVE ABOVE 22kHz OR FULL-POWER (120V 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 controls (R119 and R169) 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 R119 to obtain either a + or — 10mV(± 1mV) indication on the millivolt meter.
5. Connect a millivolt meter across TP251 and TP351.
6. Adjust BIAS control R169 to obtain either a + or — 10mV (± 1mV) indication on the millivolt meter.
7. To check for proper bias setting, remove millivolt meter and apply input signal to obtain 66 watts into 8 ohms for 10 minutes with cover on.
8. Remove input signal and connect the millivolt meter as in Step 2 and step 5. Let amplifier idle until bias stabilizes and readjust to 10mV (± 1mV).

# ADCOM GFA-555II SERVICE PARTS LIST

## 1. AUDIO INPUT/DRIVER PCB ASSEMBLY

**INTEGRATED CIRCUITS**

| | | |
|---|---|---|
| IC101, IC151 | ADCOM 3A | |

**TRANSISTORS:**

| | | |
|---|---|---|
| Q101, Q102, Q151, Q152 | 2SC2362(K)(G) | |
| Q103, Q153 | 2SC2240 | |
| Q104, Q106, Q154, Q156 | 2SA1016(K)(G) | |
| Q105, Q107, Q155, Q157 | 2SA1210 | |
| Q108, Q158 | 2SC2912 | |

**DIODES:**

| | | |
|---|---|---|
| D101, D102, D103, D104, D151, D152, D153, D154 | 1SS178 | |
| D105, D155 | 1SS81 | |

**DIODES, ZENER:**

| | | |
|---|---|---|
| D106, D156 | GZA20X | 20 VOLT |

**CAPACITORS, ELECTROLYTIC:**

| | | |
|---|---|---|
| C104, C154 | 50V/4.7uF | |
| C109, C159 | 25V/470uF | |

**CAPACITORS, FILM:**

| | | |
|---|---|---|
| C103, C153 | 100V/0.1uF | |
| C107, C108, C110, C157, C158, C160 | 50V/0.1uF | |
| C101, C151 | 100V/1uF | ROEDERSTEIN MKC 1862<br>ELECTRONIC CONCEPTS 5MC22B105K |

**CAPACITORS, MICA:**

| | | |
|---|---|---|
| C102, C152 | 100V/330pF | |
| C105, C155 | 500V/15pF | |
| C106, C156 | 500V/50pF | |

**RESISTOR, VARIABLE:**

| | | |
|---|---|---|
| R119, R169 | 41-7126-0-0 | 2000 OHMS |

**RESISTORS, OXIDE METAL-FILM, 5%:**

| | |
|---|---|
| R104, R154 | ½W/100 ohms |
| R107, R157 | ½W/3.9 kohms |

**RESISTORS, METAL-FILM, 1%**

| | |
|---|---|
| R101, R151 | ¼W/1 Mohms |
| R102, R152 | ¼W/100 kohms |
| R103, R111, R124, R153, R161, R174 | ¼W/1 kohms |
| R105, R155 | ¼W/825 ohms |
| R106, R156 | ¼W/365 ohms |
| R108, R158 | ¼W/47.5 kohms |
| R109, R123, R159, R173, R180 | ¼W/22.1 kohms |
| R110, R160 | ¼W/133 ohms |
| R112, R113, R162, R163 | ¼W/33.2 ohms |
| R114, R164 | ¼W/301 ohms |
| R115, R122, R165, R172 | ¼W/10 kohms |
| R116, R166 | ¼W/100 ohms |
| R117, R167 | ¼W/381 ohms |
| R118, R168 | ¼W/1.82 kohms |
| R126, R176 | ¼W/1.5 Mohms |
| R128, R178 | ¼W/475 ohms |
| R129, R179 | ¼W/33 kohms |

**RESISTORS, FUSIBLE, 5%**

| | | |
|---|---|---|
| R120, R121, R170, R171 | ¼W/100 ohms | |

**RESISTORS, CARBON-FILM, 5%**

| | | |
|---|---|---|
| R125, R127, R175, R177 | ¼W/4.7 Mohms | |

**THERMOSTATS:**

| | | |
|---|---|---|
| S101, S151 | ⚠ 81-7014 | UP62, 85° C |

**SWITCH:**

| | | |
|---|---|---|
| S102 | 81-322-0-0 | B22JH |

## 2. LEFT CHANNEL OUTPUT PCB ASSEMBLIES

**TRANSISTORS:**

| | |
|---|---|
| Q201 | 2SC2912 |
| Q202 | 2SD1047 |
| Q203, Q204, Q205, Q206 | 2SD424 |
| Q301 | 2SA1210 |
| Q302 | 2SB817 |
| Q303, Q304, Q305, Q306 | 2SB554 |
| Q307 | 2SC2240 |

**DIODES:**

| | |
|---|---|
| D201, D301 | EPG50D |

**CAPACITORS, MICA:**

| | |
|---|---|
| C201, C301 | 500V/68pF |

**CAPACITORS, ELECTROLYTIC:**

| | | |
|---|---|---|
| C202, C302 | 160V/47uF | ECEA2AGE-470 |

**RESISTORS, OXIDE METAL-FILM:**

| | |
|---|---|
| R202 | ½W/470 ohms |
| R203, R302 | ½W/1 kohms |
| R204 | ½W/33 ohms |

**RESISTORS, METAL-FILM:**

| | |
|---|---|
| R201, R301 | ¼W/47 ohms |
| R205, R207, R209, R211, R303, R305, R307, R309 | ¼W/10 ohms |

**RESISTORS, CEMENTED WIRE-WOUND:**

| | |
|---|---|
| R206, R208, R210, R212, R304, R306, R308, R310 | 2W/0.22 ohms |

**THERMISTOR:**

| | |
|---|---|
| TH901 | TD5-C310DA |

## 3. RIGHT CHANNEL OUTPUT PCB ASSEMBLIES

**TRANSISTORS:**

| | |
|---|---|
| Q251 | 2SC2912 |
| Q252 | 2SD1047 |
| Q253, Q254, Q255, Q256 | 2SD424 |
| Q257 | 2SC2240 |
| Q351 | 2SA1210 |
| Q352 | 2SB817 |
| Q353, Q354, Q355, Q356 | 2SB554 |

**DIODES:**

| | |
|---|---|
| D251, D351 | EPG50D |

**CAPACITORS, MICA:**

| | | |
|---|---|---|
| C251, C351 | 500V/68pF | |

**CAPACITORS, ELECTROLYTIC:**

| | | |
|---|---|---|
| C252, C352 | 160V/47uF | ECEA2AGE-470 |

**RESISTORS, OXIDE METAL-FILM:**

| | |
|---|---|
| R252 | ½W/470 ohms |
| R253, R352 | ½W/1 kohms |
| R254 | ½W/33 ohms |

**RESISTORS, METAL-FILM:**

| | |
|---|---|
| R251, R351 | ¼W/47 ohms |
| R255, R257, R259, R262, R353, R355, R357, R359 | ¼W/10 ohms |

**RESISTORS, CEMENTED WIRE-WOUND:**

| | |
|---|---|
| R256, R258, R261, R263, R354, R356, R358, R360 | 2W/0.22 ohms |

**THERMISTOR:**

| | |
|---|---|
| TH902 | TD5-C310DA |

## 4. FILTER CAPACITOR PCB ASSEMBLIES

**RESISTORS, OXIDE METAL-FILM:**

| | |
|---|---|
| R801, R802, R803, R804 | 3W/3.9 kohms |
| R805 | 2W/8.2 kohms |

**CAPACITORS, FILM:**

| | |
|---|---|
| C806, C807, C808, C809 | 100V/0.01uF |

## 5. CHASSIS-MOUNTED COMPONENTS

**AC POWER SWITCH:**

| | | |
|---|---|---|
| S801 | ⚠ 12005C | BLACK, CARLING RGSCC-711-R-B-B-O |
| | ⚠ 12005CW | WHITE, CARLING RGSCC-711-R-W-W-O |

**POWER TRANSFORMER:**

| | | |
|---|---|---|
| T801 | ⚠ 23-2044-0-0 | ADCOM |

**CAPACITORS, ELECTROLYTIC:**

| | | |
|---|---|---|
| C802, C803, C804, C805 | ⚠ 100V/15000uF | ADCOM |

**CAPACITORS, FILM:**

| | | |
|---|---|---|
| C901, C951 | 100V/0.01uF | |

**CAPACITORS, SPARK-KILLER:**

| | | |
|---|---|---|
| C801 | ⚠ 400V/0.01uF | ECKDNS103ZV |

**RESISTORS, OXIDE-METAL FILM, 5%:**

| | |
|---|---|
| R901, R951 | 2W/10 ohms |

**SILICON RECTIFIERS:**

| | | |
|---|---|---|
| D801, D802 | ⚠ 400V/25A | KBP2504 |

**RCA JACKS:**

| | | |
|---|---|---|
| J901, J951 | VTW-J5MI | ADCOM |

**SPEAKER TERMINALS:**

| | | |
|---|---|---|
| J902, J952 | R33729 | RED, ADCOM |
| J903, J953 | B33729 | BLACK, ADCOM |

**FUSE HOLDERS:**

| | |
|---|---|
| FH801 | FH052 |
| FH802, FH803, FH804, FH805 | FH032 |

**FUSES:**

| | | |
|---|---|---|
| FU801 (120V UNIT)* | ⚠ ABC-12/250V | BUSSMAN |
| | 3AB314012/250V | LITTELFUSE |
| | CES6-12A/125V | SOC |
| FU801 (220V UNIT)* | ⚠ AGC-7/250V | BUSSMAN |
| | 3AG312007/250V | LITTLEFUSE |
| FU801 (240V UNIT)* | ⚠ AGC-6/250V | BUSSMAN |
| | 3AG312006/250V | LITTELFUSE |
| | CES14-6A/250V | SOC |
| FU802, FU803, FU804, FU805* | ⚠ AGC-7/250V | BUSSMAN |
| | 3AG312007/250V | LITTELFUSE |
| | 3AG 7A/125V | BEL |

**LEDs:**

| | | |
|---|---|---|
| D803 | LTL2201 | RED, POWER INDICATOR |
| D903 | LTL2201 | RED, THERMAL PROTECTION |
| D901, D902 | LTL2251 | YELLOW, INSTANTANEOUS DISTORTION ALERT |

## 6. 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 |

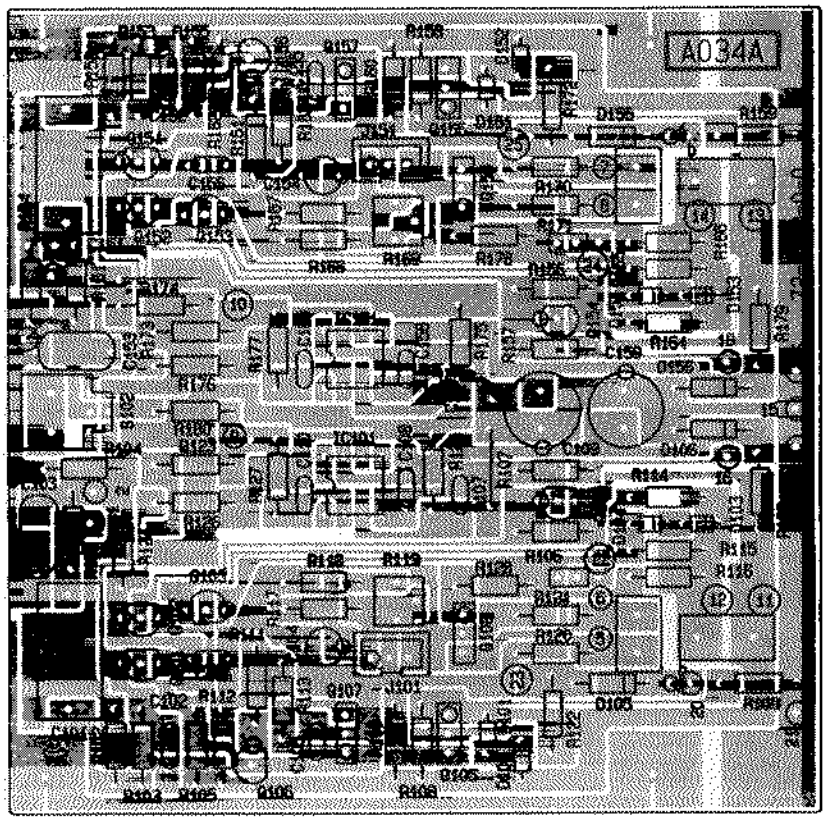
**RESISTORS, CARBON-FILM, 5%:**

| | |
|---|---|
| R601, 604 | ¼W/7.5 kohms |
| R602 | ¼W/9.1 kohms |
| R603, R605, R606 | ¼W/24 kohms |
| R607 | ¼W/150 kohms |
| R608 | ¼W/10 kohms |
| R609 | ¼W/1 kohms |

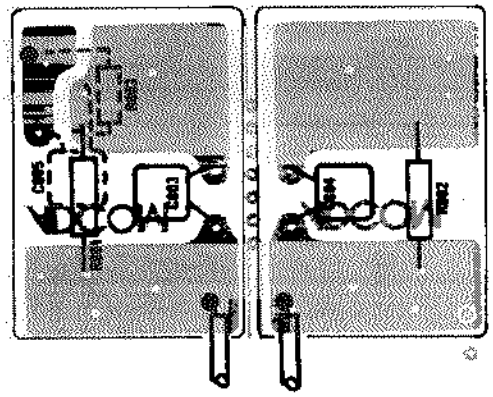
* The fuses listed, and their time-current blowing points, have been carefully selected and thoroughly tested to deliver optimal performance while still accomplishing their protective functions. Replace these fuses, individually, only with the specific types listed. **DO NOT USE ANY SUBSTITUTE FUSES WITH DIFFERENT RATINGS,TIME-CURRENT CURVES OR VALUES.** These 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.

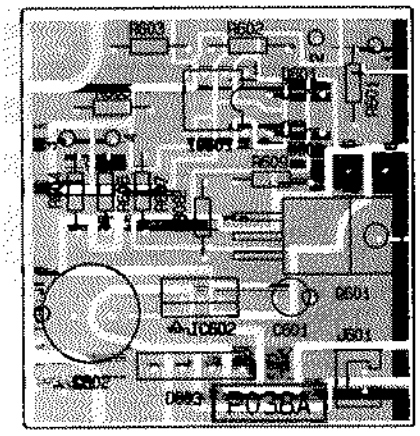
## GFA-555II AUDIO INPUT/DRIVER PCB ASSEMBLY



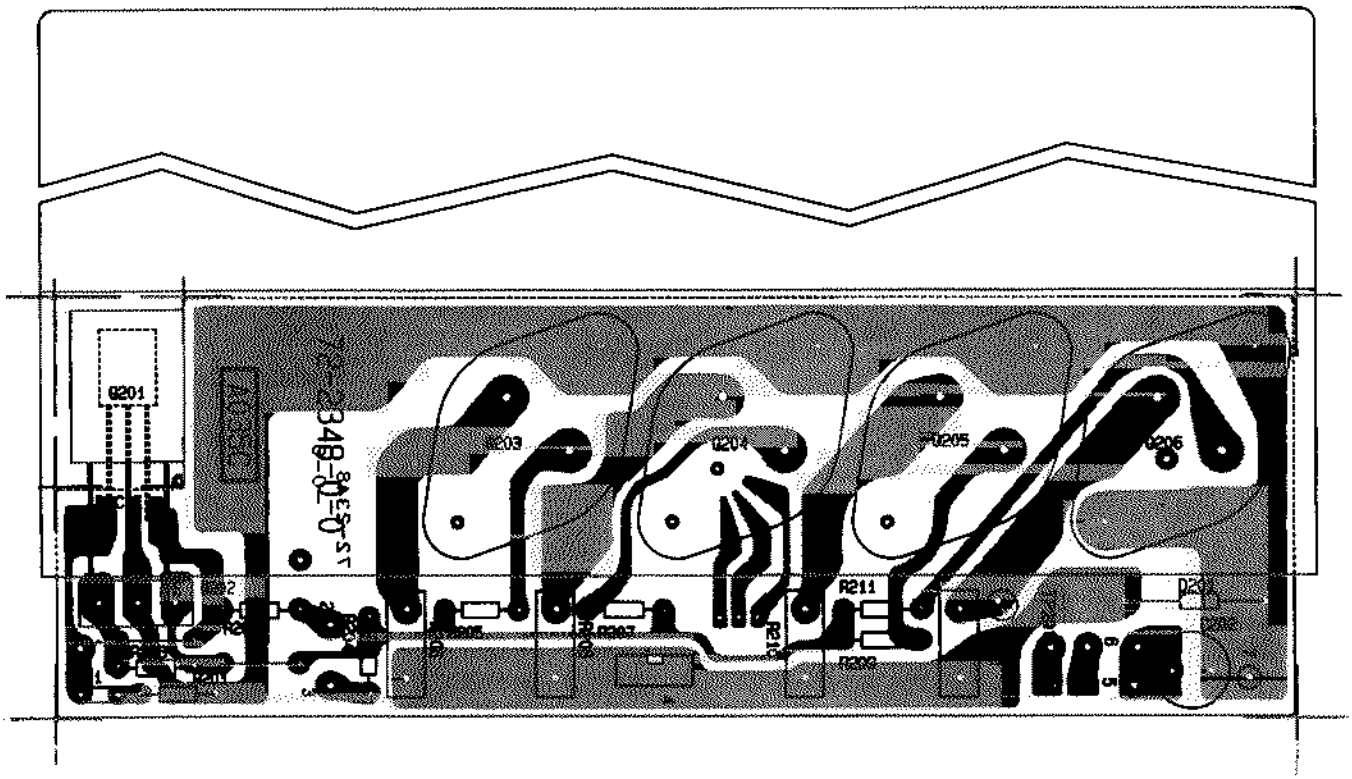

## GFA-555II FILTER CAPACITOR PCB ASSEMBLIES



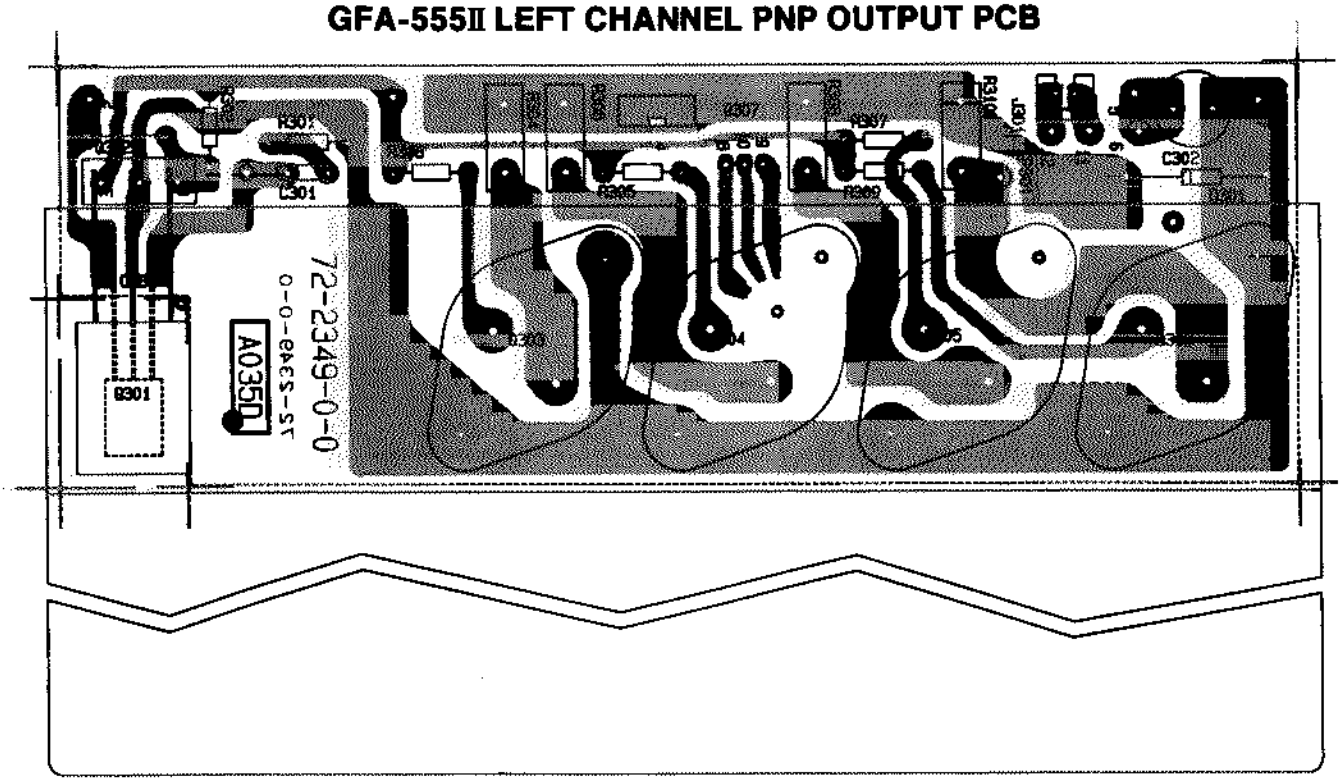
## GFA-555II POWER SUPPLY PCB ASSEMBLY FOR OPTIONAL FAN MOTOR, ISSUE "B"



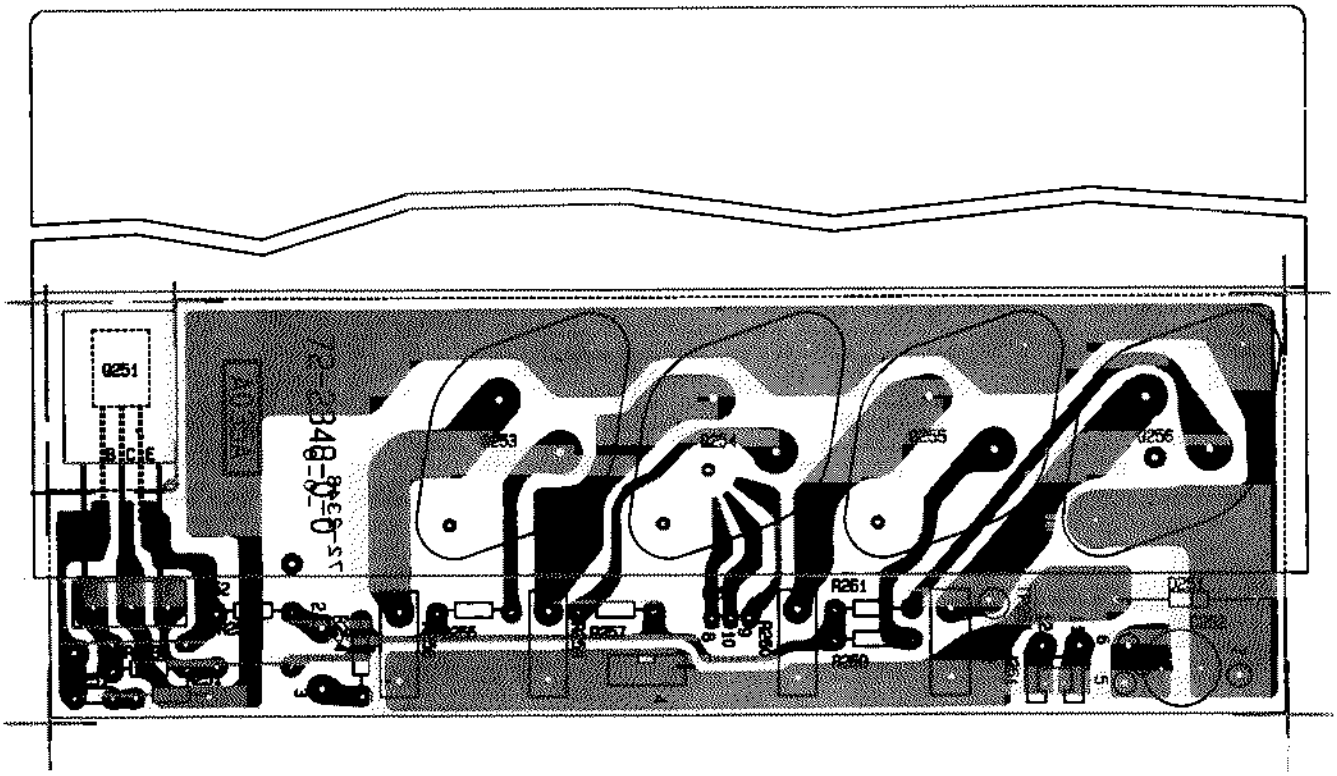
## GFA-555II LEFT CHANNEL NPN OUTPUT PCB



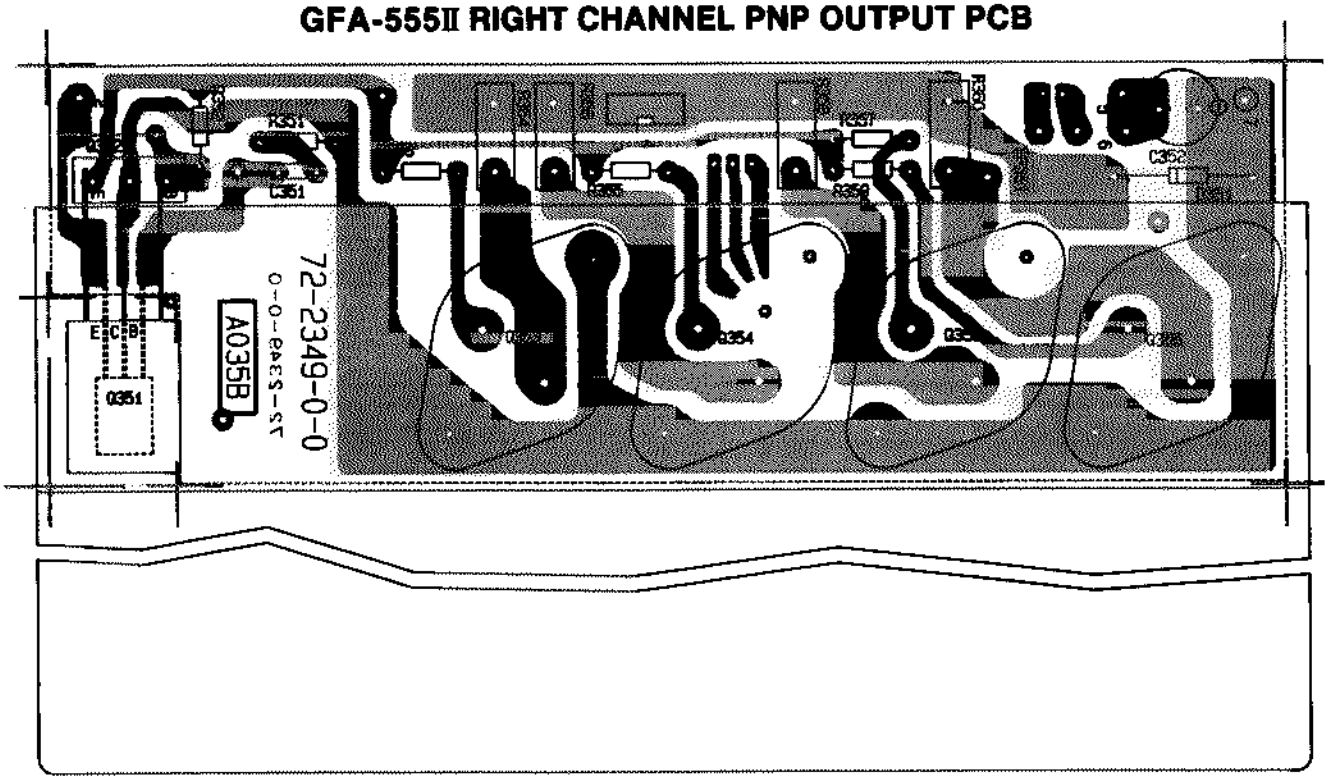

## GFA-555II LEFT CHANNEL PNP OUTPUT PCB



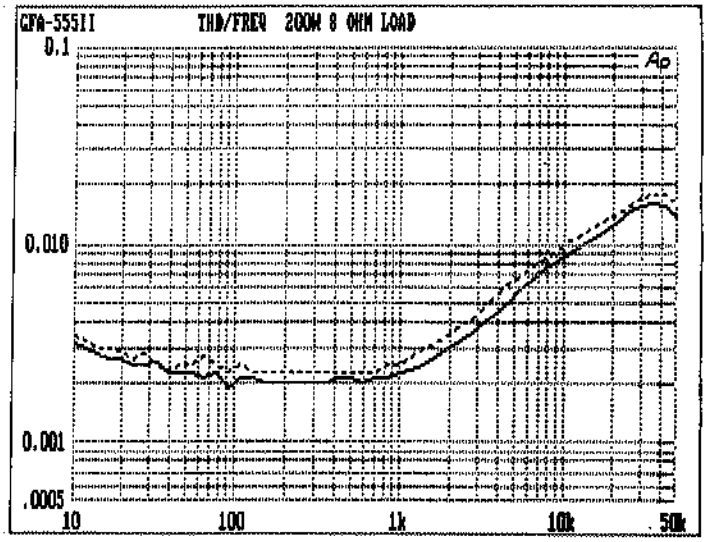
## GFA-555II RIGHT CHANNEL NPN OUTPUT PCB

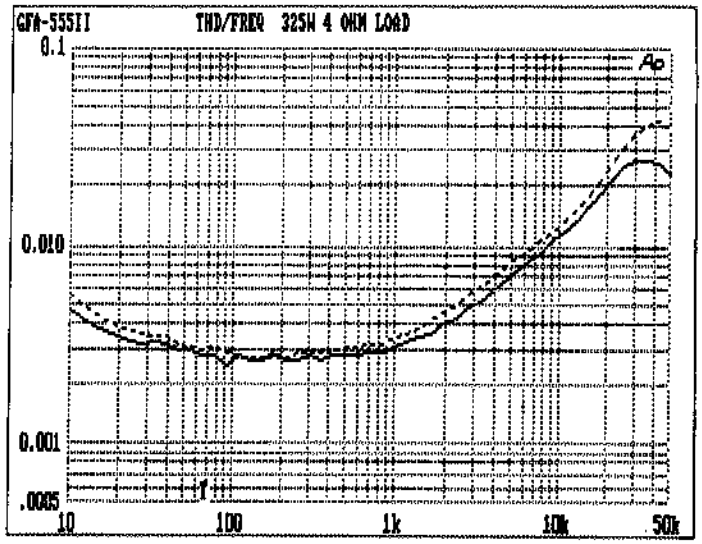


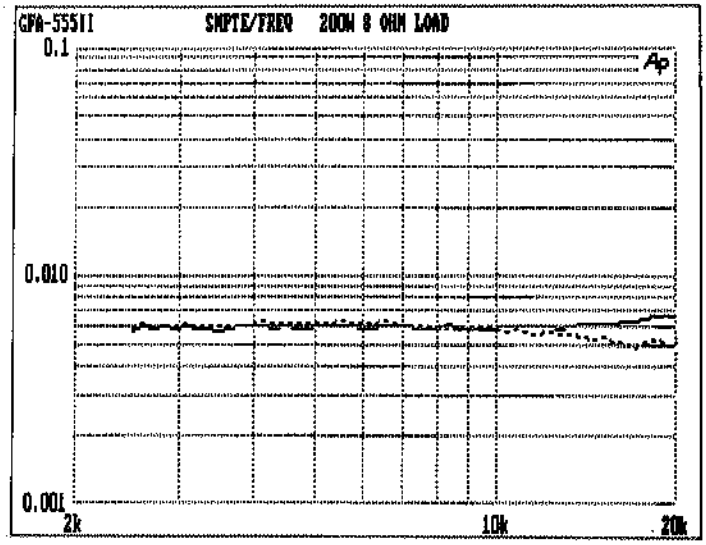

## GFA-555II RIGHT CHANNEL PNP OUTPUT PCB

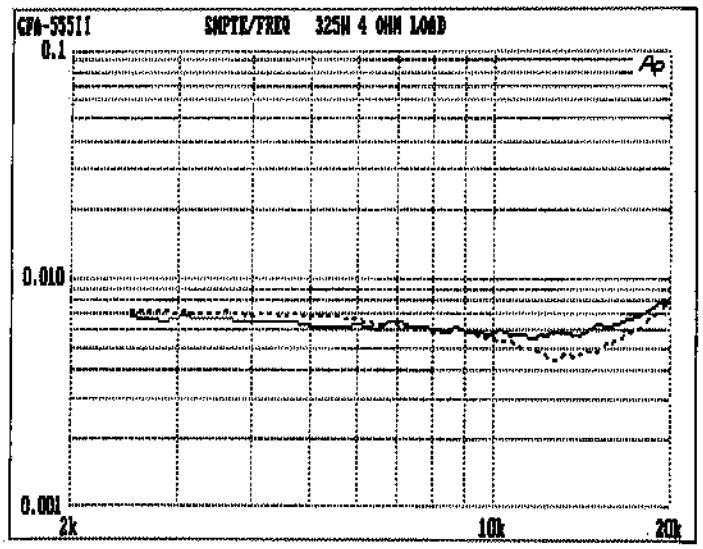


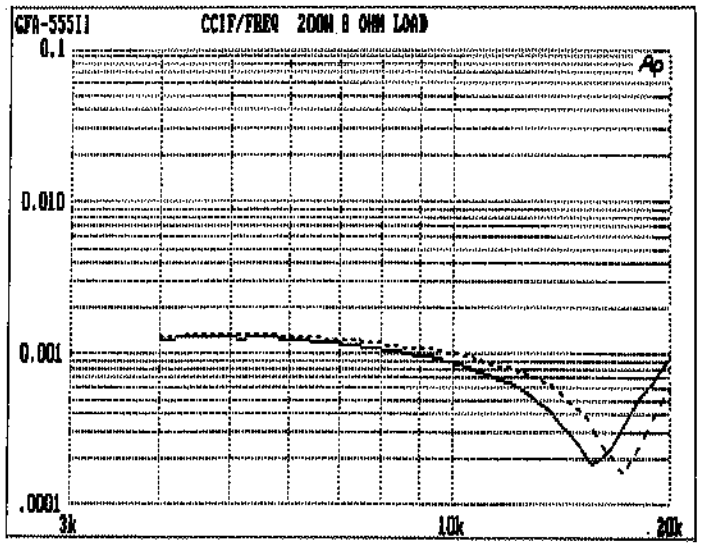
# GFA-555II
## TYPICAL PERFORMANCE DATA

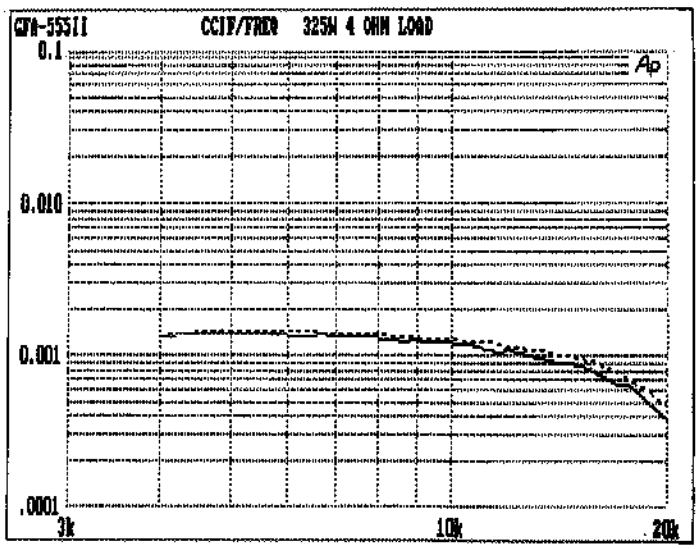


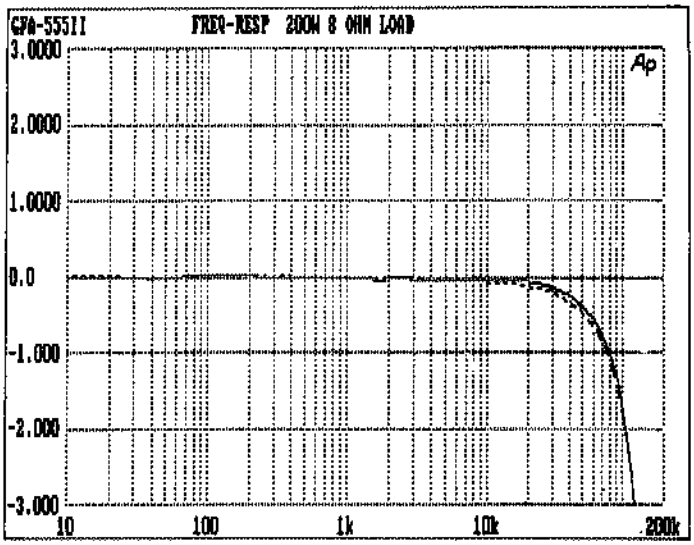



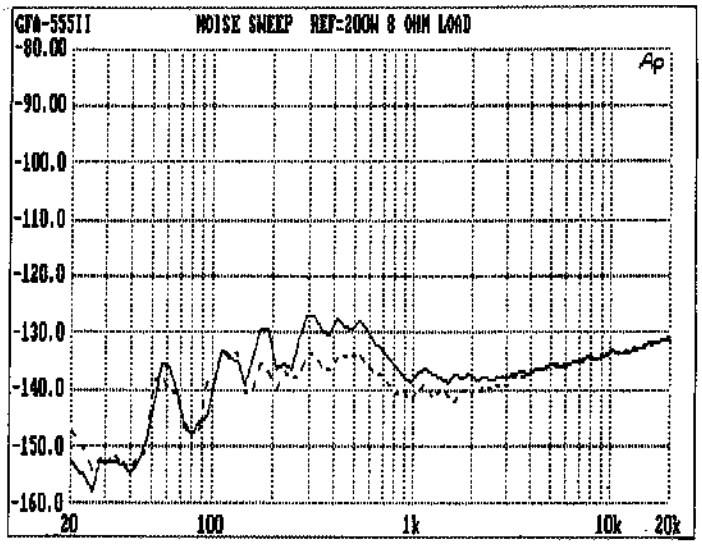



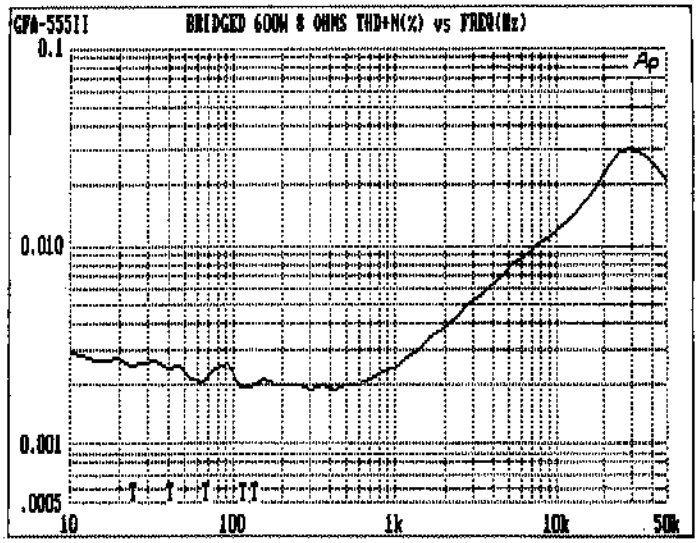



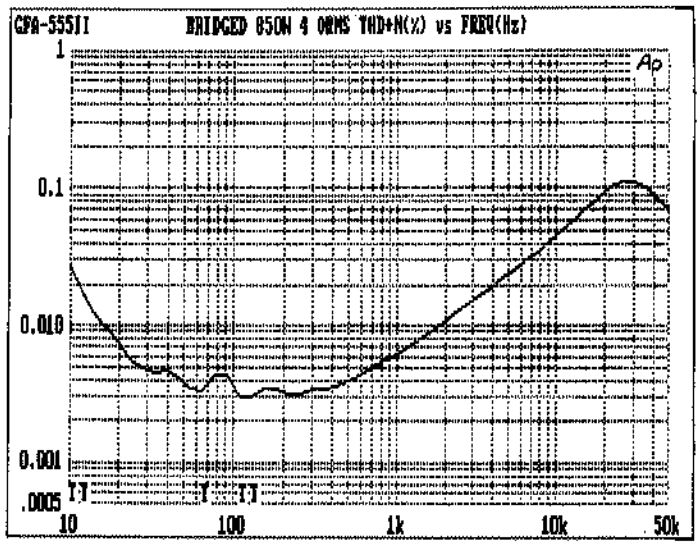



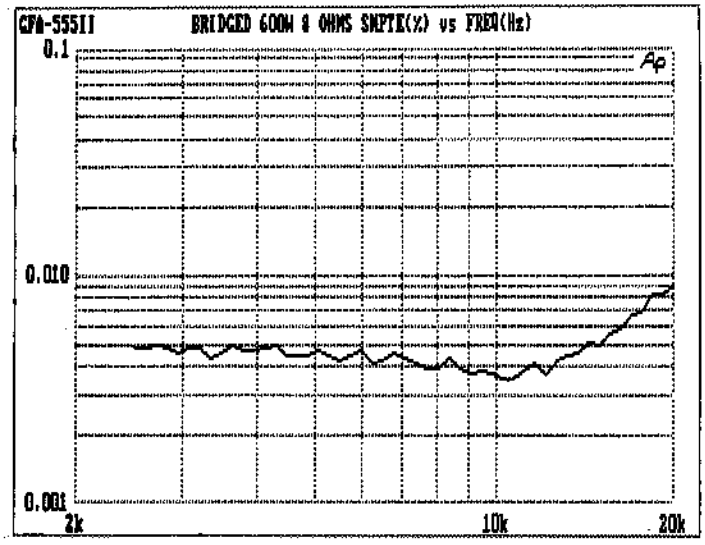
# GFA-555II
# TYPICAL PERFORMANCE DATA

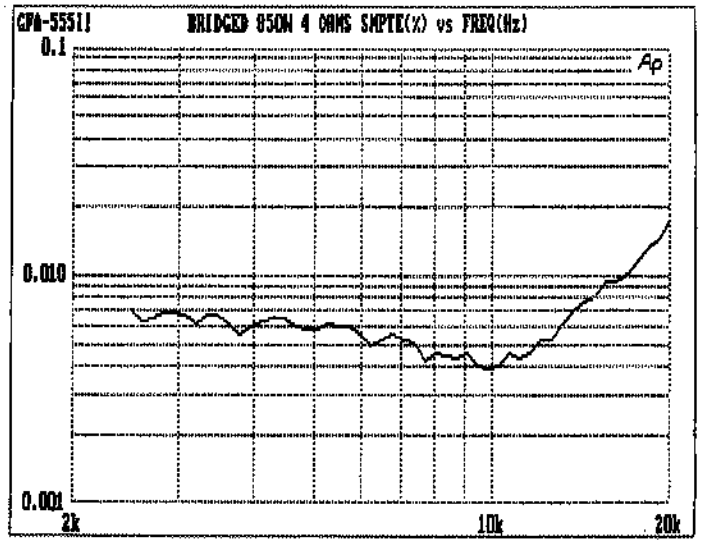


# GFA-555II SPECIFICATIONS

Power Rating (To FTC Requirements)

200 watts continuous average power into 8 ohms at any frequency between 20Hz and 20kHz with both channels driven at less than 0.04% THD.

325 watts continuous average power into 4 ohms at any frequency between 20Hz and 20kHz with both channels driven at less than 0.04% THD.*

600 watts continuous average power into 8 ohms at any frequency between 20Hz and 20kHz at less than 0.09% THD, bridged.*

* With fan option installed.

IM Distortion (SMPTE)

| | |
|---|---|
| 1 watt to 200 watts into 8 Ohms | ≤ 0.009% |
| 1 watt to 325 watts into 4 Ohms | ≤ 0.009% |

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

| | |
|---|---|
| 200 watts into 8 Ohms | ≤ 0.002% |
| 325 watts into 4 ohms | ≤ 0.003% |

THD + Noise at 200 Watts into 8 Ohms

| | |
|---|---|
| 20Hz | 0.004% |
| 1kHz | 0.003% |
| 10kHz | 0.006% |
| 20kHz | 0.010% |

THD + Noise at 325 Watts into 4 Ohms

| | |
|---|---|
| 20Hz | 0.005% |
| 1kHz | 0.004% |
| 10kHz | 0.015% |
| 20kHz | 0.025% |

IM Distortion, Bridged (SMPTE)

| | |
|---|---|
| 1 watt to 600 watts into 8 Ohms | ≤ 0.05% |
| 1 watt to 850 watts into 4 Ohms | ≤ 0.05% |

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

| | |
|---|---|
| 600 watts into 8 Ohms | ≤ 0.005% |
| 850 watts into 4 Ohms | ≤ 0.005% |

THD + Noise at 600 Watts into 8 Ohms, Bridged

| | |
|---|---|
| 20Hz | 0.004% |
| 1kHz | 0.004% |
| 10kHz | 0.02% |
| 20kHz | 0.04% |

THD + Noise at 850 Watts into 4 Ohms, Bridged

| | |
|---|---|
| 20Hz | 0.01% |
| 1kHz | 0.007% |
| 10kHz | 0.05% |
| 20kHz | 0.09% |

Frequency Response @ 1 Watt into 8 Ohms

| | |
|---|---|
| 10Hz to 20kHz | +0, −0.25dB |

| | |
|---|---|
| Power Bandwidth (−3dB) | 1.7Hz to 100kHz |
| Dynamic Headroom into 4 Ohms | 2.5dB |

Signal-to-Noise Ratio, "A" Weighted

| | |
|---|---|
| 200 watts into 8 Ohms | ≥110dB |

| | |
|---|---|
| Gain | 27dB |
| Input Impedance | 100,000 ohms |

Input Sensitivity
- 200 watts into 8 Ohms ..... 1.75V rms
- 1 watt into 8 Ohms ..... 130mV rms

Damping Factor
- 20Hz to 20kHz ..... ≥ 800

Rise Time
- 5kHz,120V peak-to-peak square wave, 20% to 80% ..... 2.3us

Semiconductor Complement ..... 42 transistors, 2 zener diodes, 13 diodes, 2 ICs, 2 diode bridges

Power Consumption (Continuous, Both Channels Driven)
- Quiescent ..... 72VA
- Maximum ..... 1500VA
- 200 watts into 8 Ohms ..... 675VA
- 325 watts into 4 Ohms ..... 1180VA
- 600 watts into 8 Ohms, bridged ..... 1320VA

## GENERAL

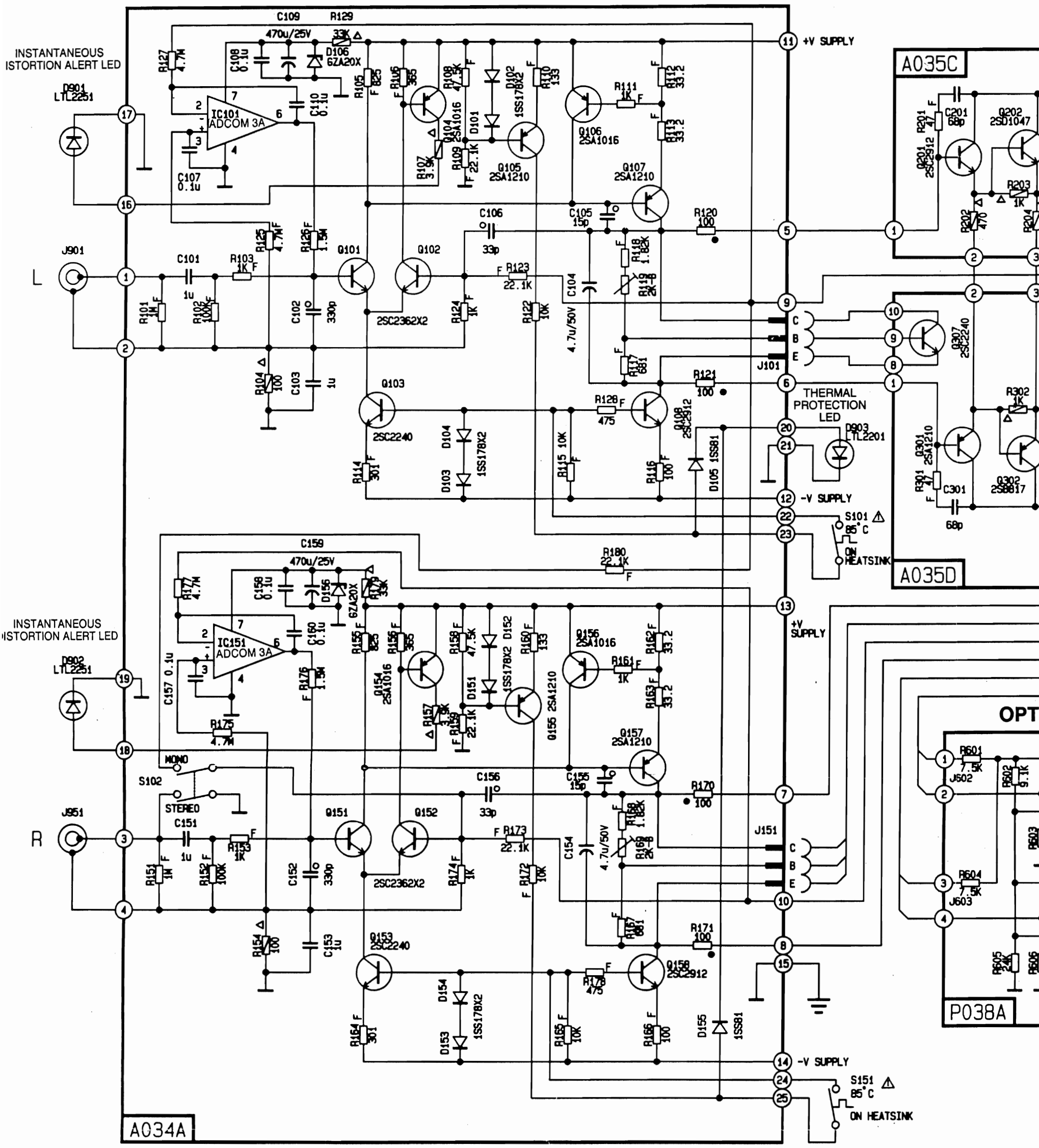
Power (available in 220V or 240V on special order) ..... 120VAC/50-60Hz
Chassis Dimensions ..... 6¾"(172mm) x 17"(432mm) x 12 3/16"(310mm)
Maximum Dimensions ..... 7¼"(185mm) x 17"(432mm) x 12 3/16"(310mm)
Weight ..... 35 lbs. (16kg)
Weight, Packed ..... 39 lbs. (18kg)

ADCOM®

ADCOM Service Corp.
10 Timber Lane
Marlboro, NJ
07746

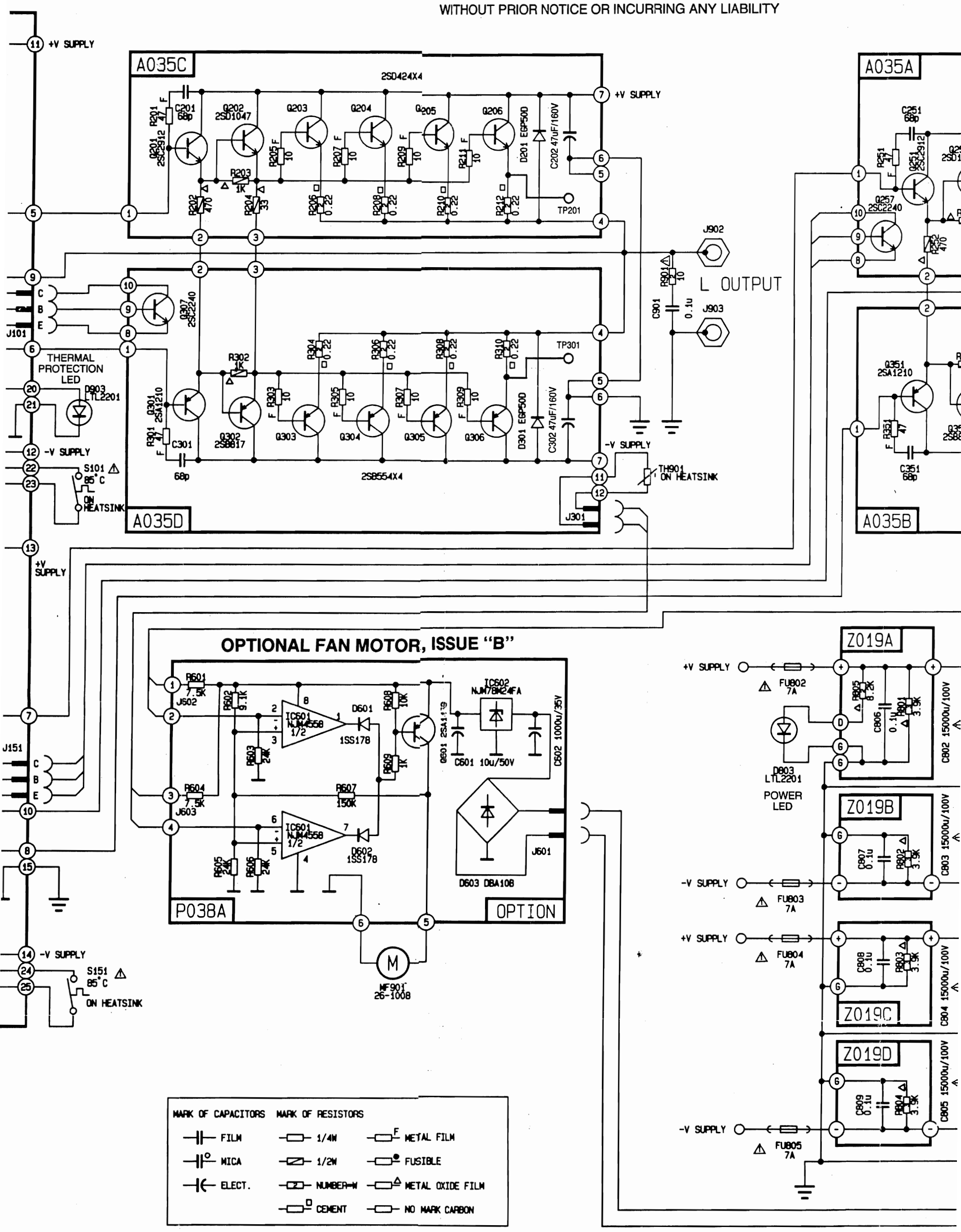
(732) 683-2356
Mon. Thru Fri.
9 AM to 4 PM
Eastern Time

# SCHEMATIC DIAGRAM GFA-555II



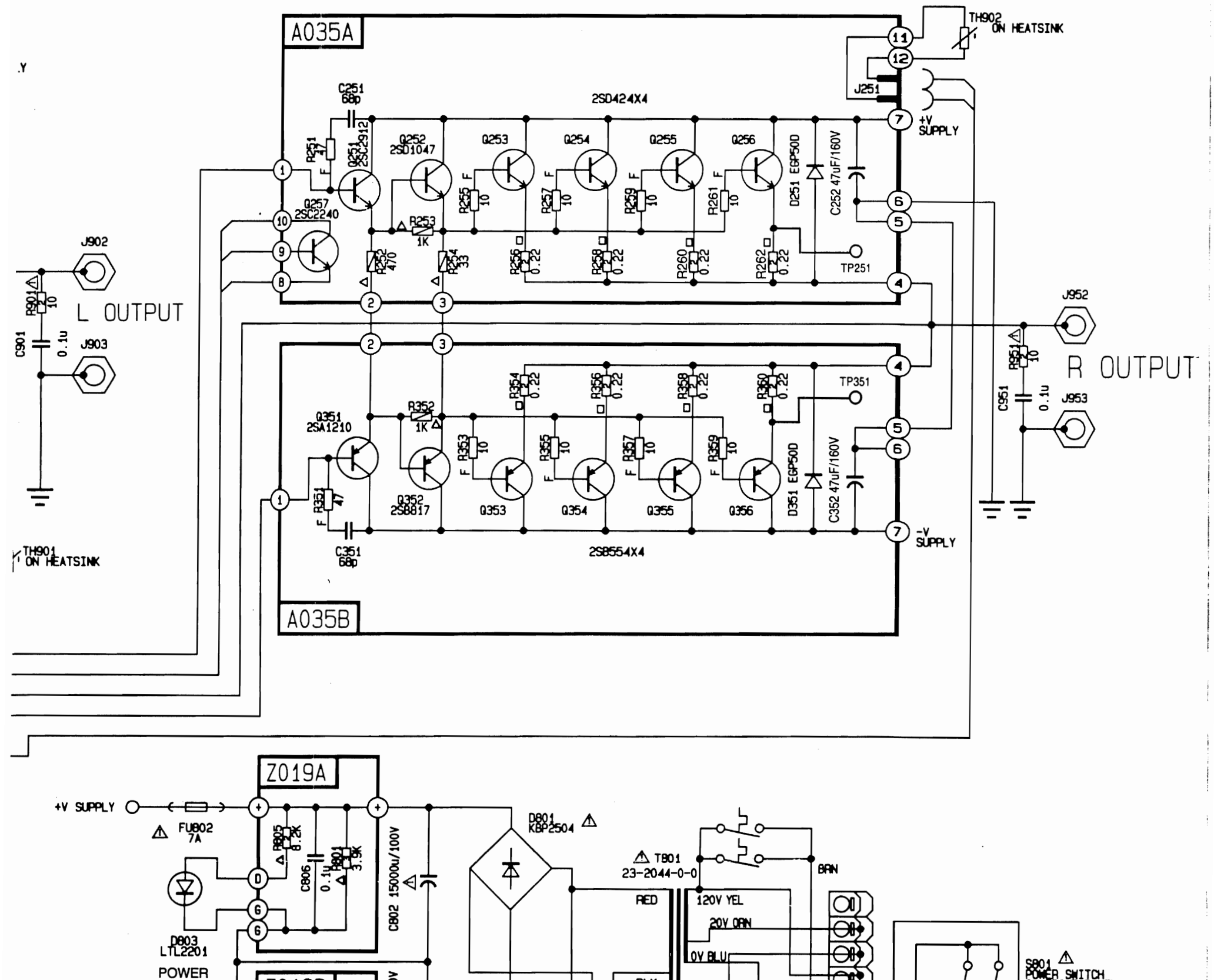

MARK OF CAPACITO
FILM
MICA
ELECT.

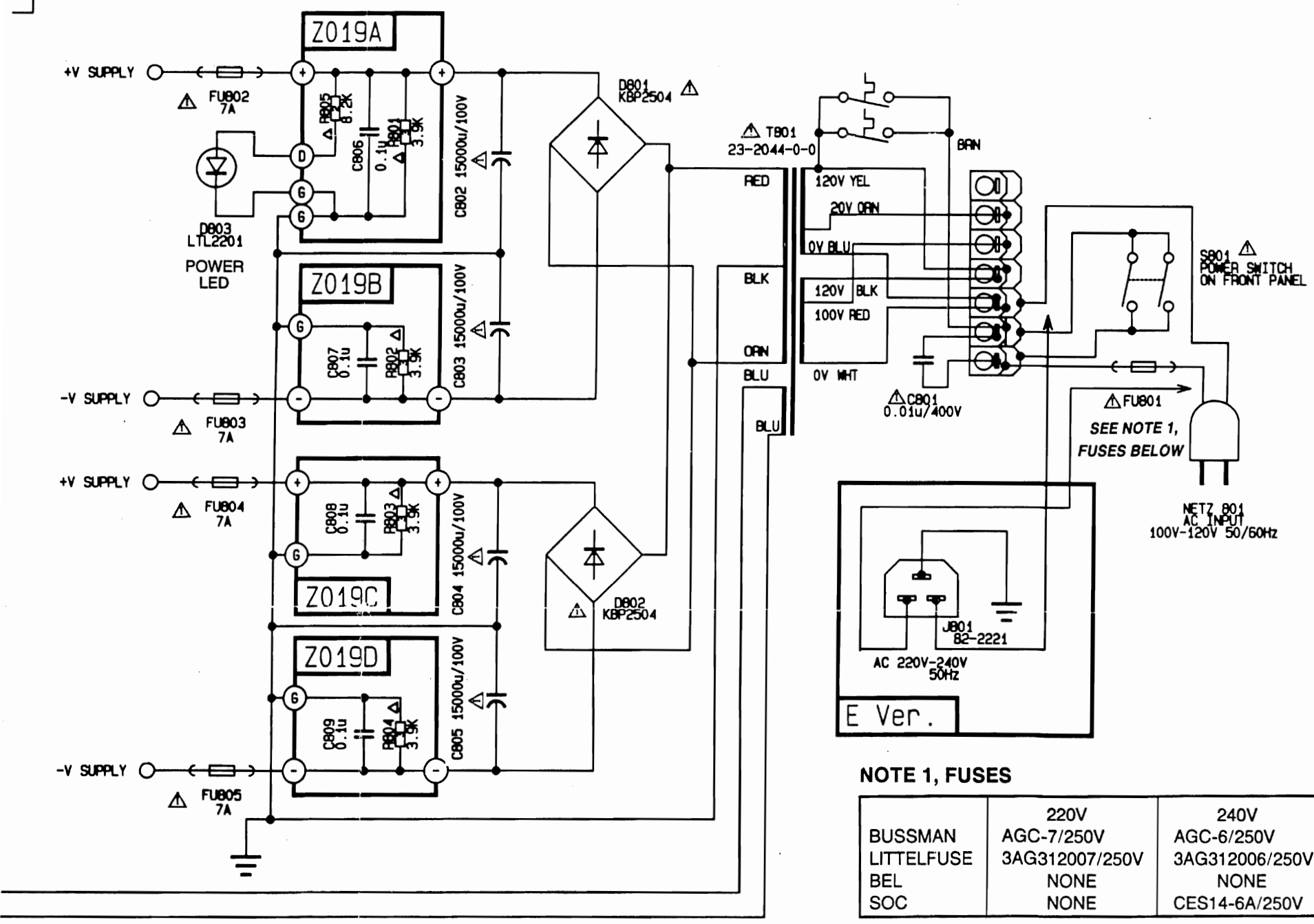
**NOTE:** ADCOM RESERVES THE RIGHT TO MODIFY CIRCUITRY AND/OR CHANGE COMPONENTS TO UPGRADE PRODUCT WITHOUT PRIOR NOTICE OR INCURRING ANY LIABILITY




| MARK OF CAPACITORS | MARK OF RESISTORS | |
|---|---|---|
| FILM | 1/4W | METAL FILM |
| MICA | 1/2W | FUSIBLE |
| ELECT. | NUMBER-W | METAL OXIDE FILM |
| | CEMENT | NO MARK CARBON |

MODIFY CIRCUITRY
O UPGRADE PRODUCT
RING ANY LIABILITY




**NOTE 1, FUSES**

| | 220V | 240V |
|---|---|---|
| BUSSMAN | AGC-7/250V | AGC-6/250V |
| LITTELFUSE | 3AG312007/250V | 3AG312006/250V |
| BEL | NONE | NONE |
| SOC | NONE | CES14-6A/250V |