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 (±1mV) 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 (±1mV).

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/47uF	PANASONIC ECEA2AGE470
CAPACITORS, FILM:		
C301	50V/0.1uF	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/0.1uF	UMS
C805	100V/1uF	PANASONIC ECQE1105KF

5. AC INPUT/BIAS TIME-DELAY

RELAY:		
RY501	⚠ 81-629-0	125V/30A/24VDC
TRANSISTORS:		
Q501	2SA1015	
Q502	2SC1815	
DIODES:		
D501, D502	⚠ IN4004	
D503	ISS178	

DIODES, ZENER:

D504	ADCOM J2	

PHOTO COUPLER:

PC501	⚠ PS2505-1	

CAPACITORS, ELECTROLYTIC:

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

CAPACITORS, SPARK-KILLER:

C503	⚠ 400V/0.01uF	PANASONIC ECKDNS103ZV

RESISTORS, CEMENTED WIRE-WOUND:

R506	⚠ 20W/4.7ohms	CR20P
R502	⚠ 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	⚠ 12005C	BLACK,CARLING RGSCC-711-R-B-B-O
	⚠ 12005CW	WHITE,CARLING RGSCC-711-R-W-W-O

POWER TRANSFORMER:

T801	⚠ ADCOM 23-2043-0-0	

CAPACITORS, ELECTROLYTIC:

C801, C802	⚠ ADCOM 100V/35,000uF	

SILICON RECTIFIER:

D801	⚠ 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*	⚠ ABC-12/250V	BUSSMAN
	3AG314012/250V	LITTELFUSE
	CES6-12A/125V	SOC
FU801*	⚠ 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	2SB548

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:

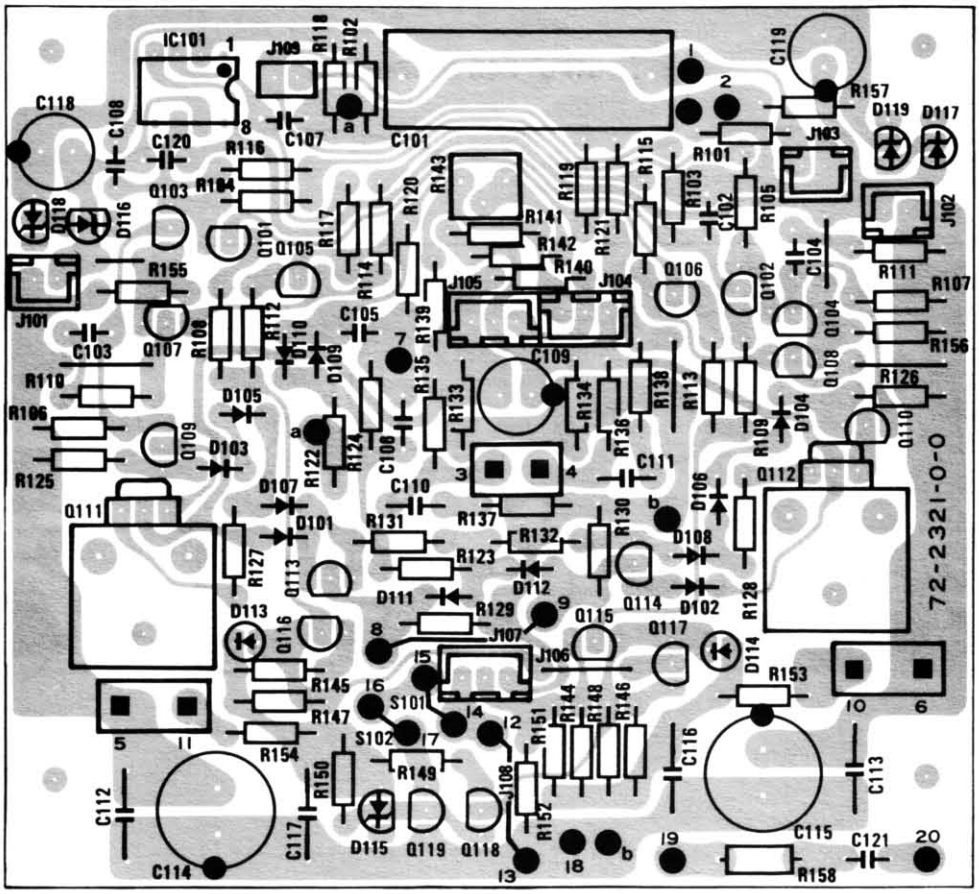
R701	20kohms x 8	BECKMAN 698-3-R20K

RESISTORS, VARIABLE:		
R703	100ohms	41-7123
SWITCHES:		
S701	SRBM 14	81-197

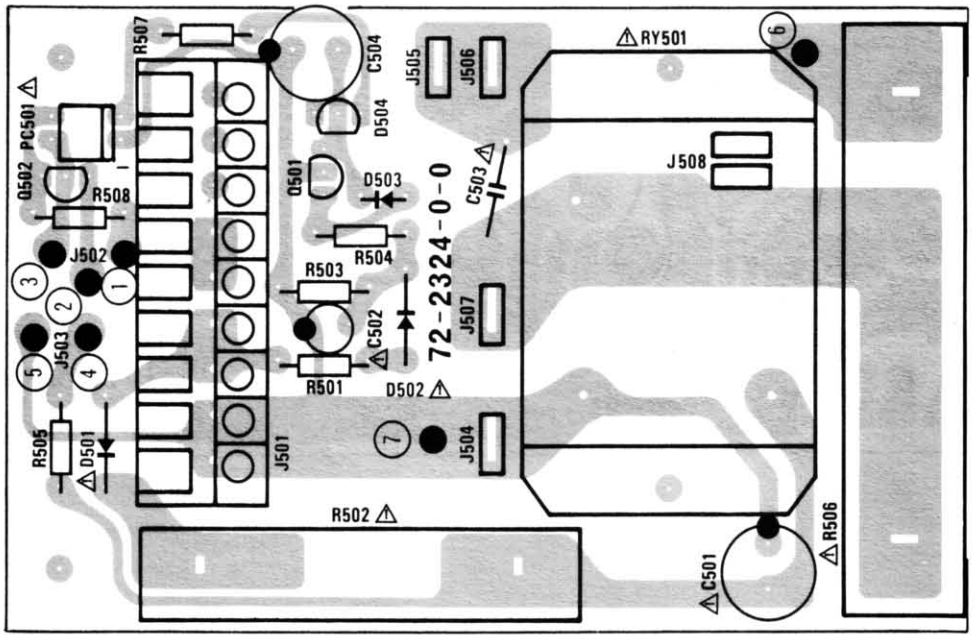
* The fuses listed, and their time-current blowing points, have been carefully selected and thoroughly tested to deliver optimal performance while still accomplishing their protective functions. Replace these fuses, individually, only with the specific types listed. **DO NOT USE ANY SUBSTITUTE FUSES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

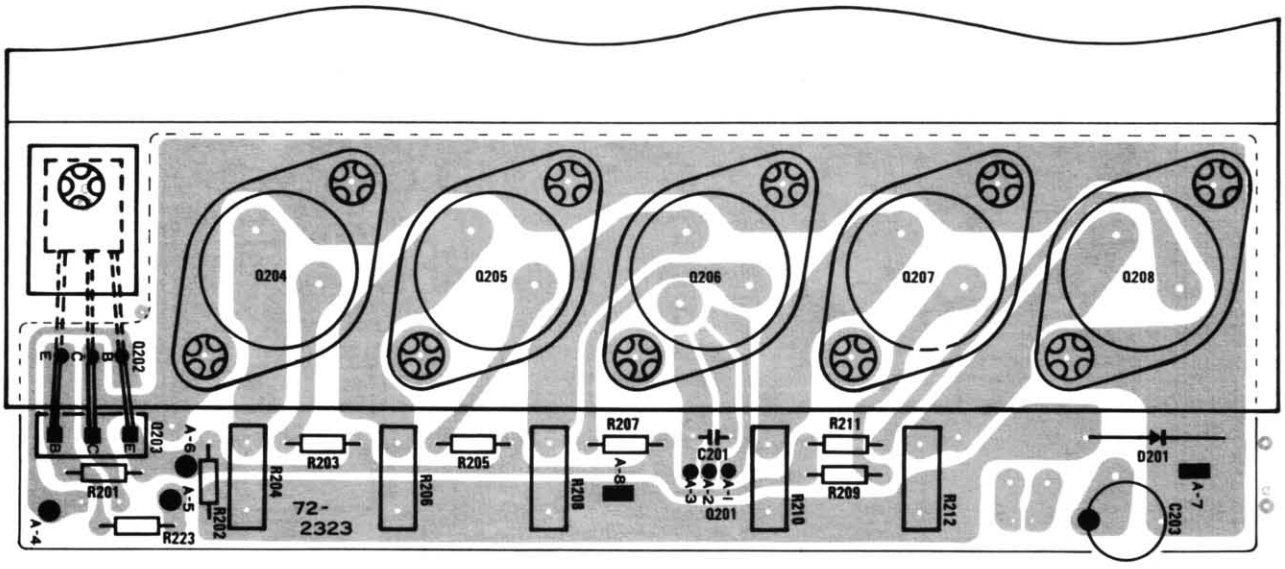
AUDIO INPUT/DRIVER PCB ASSEMBLY

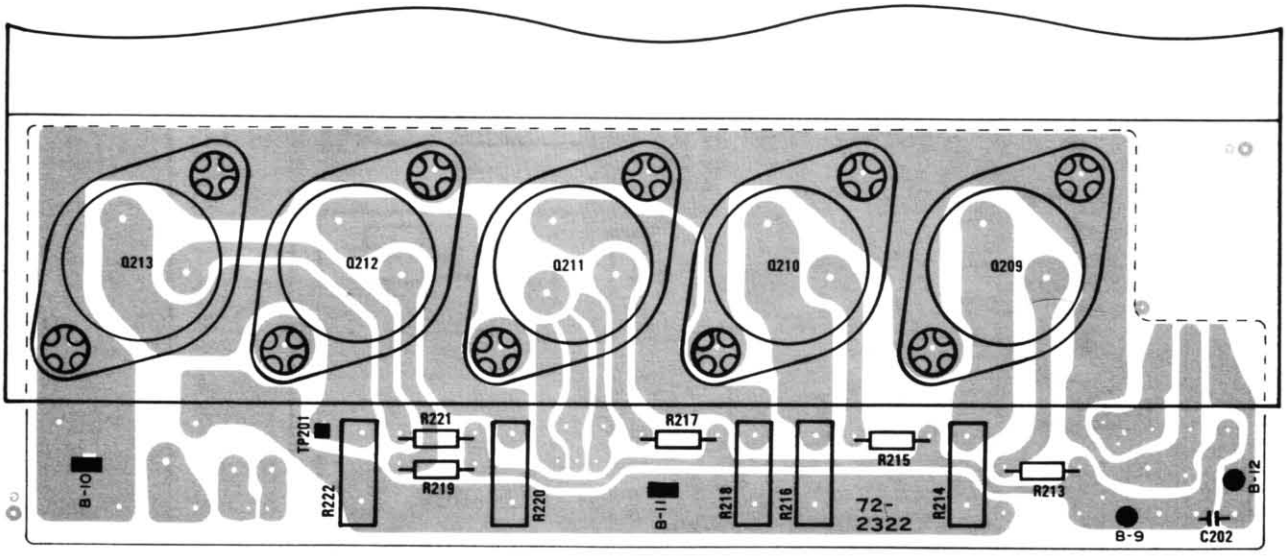


AC INPUT/BIAS TIME DELAY PCB

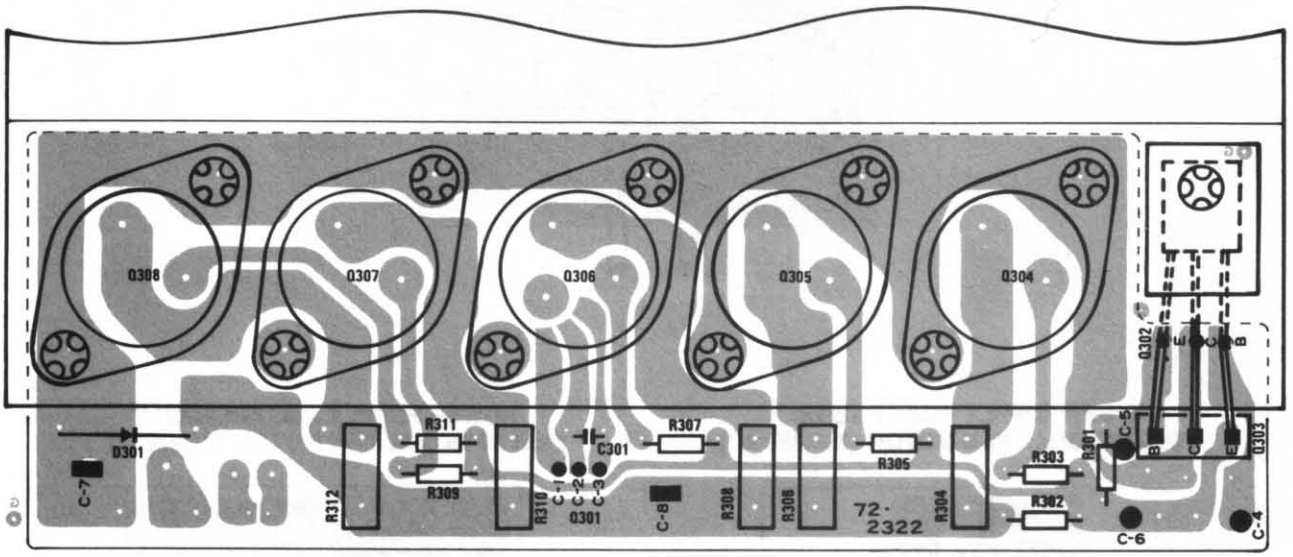


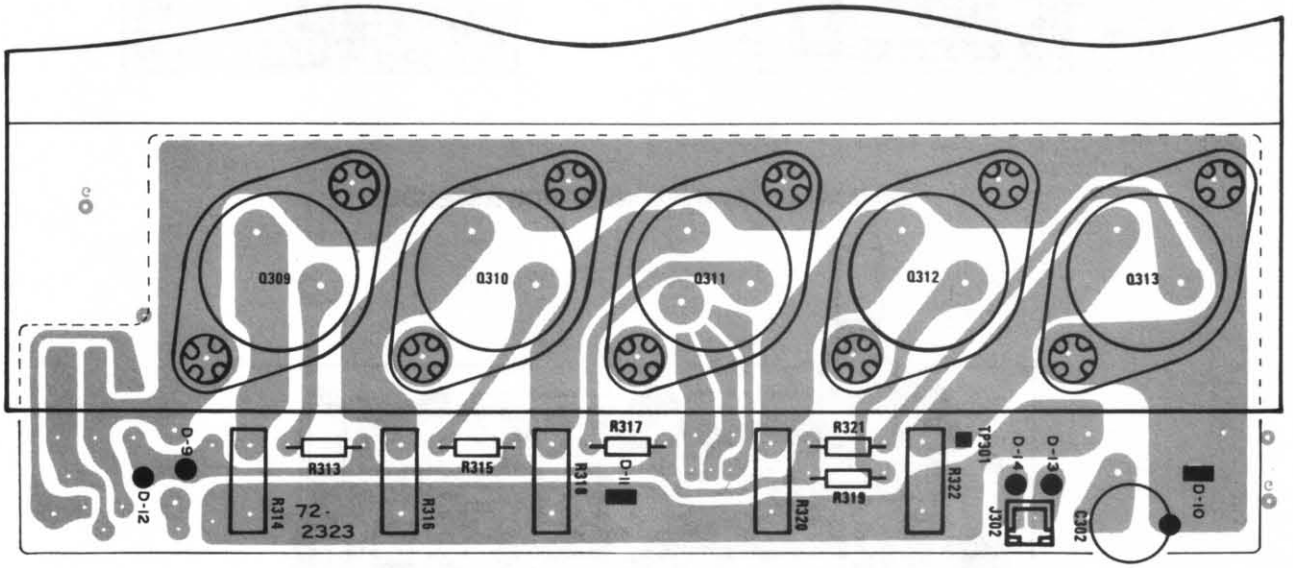
LEFT OUTPUT PCB ASSEMBLIES



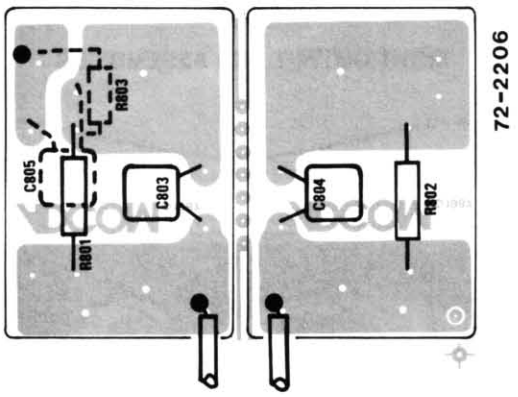


RIGHT OUTPUT PCB ASSEMBLIES

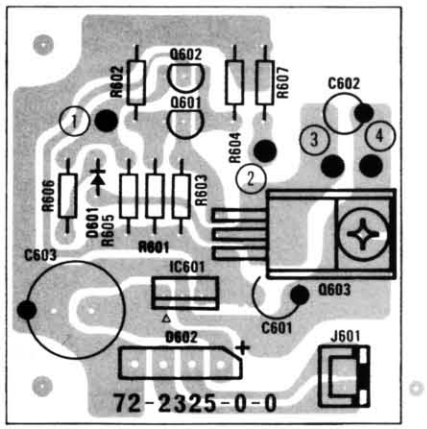




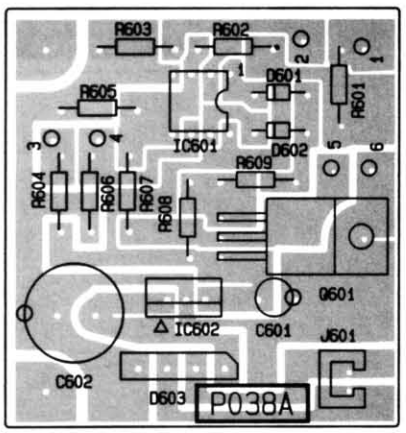
FILTER CAPACITOR PCB ASSEMBLIES



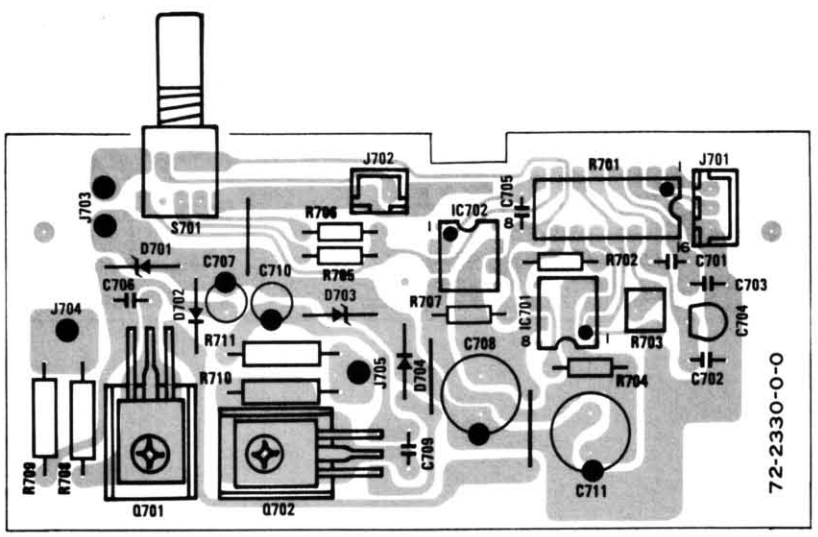
POWER SUPPLY PCB ASSEMBLY FOR OPTIONAL FAN MOTOR (ISSUE "A")



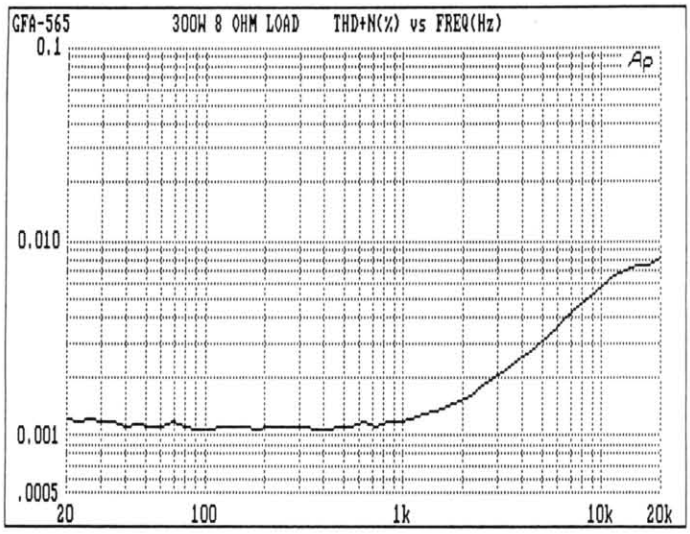
POWER SUPPLY PCB ASSEMBLY FOR OPTIONAL FAN MOTOR (ISSUE "B")

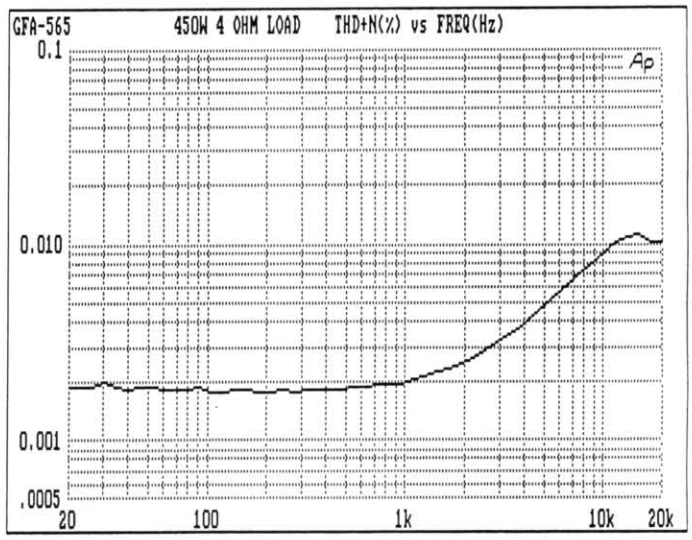


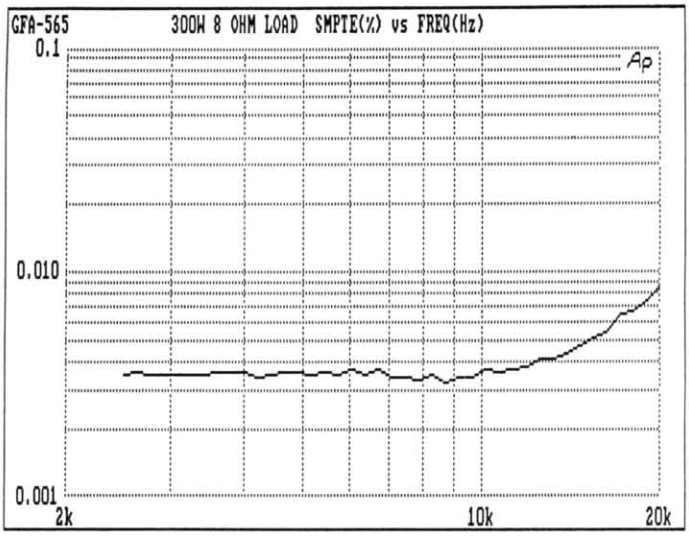
OPTIONAL BALANCED INPUT PCB ASSEMBLY

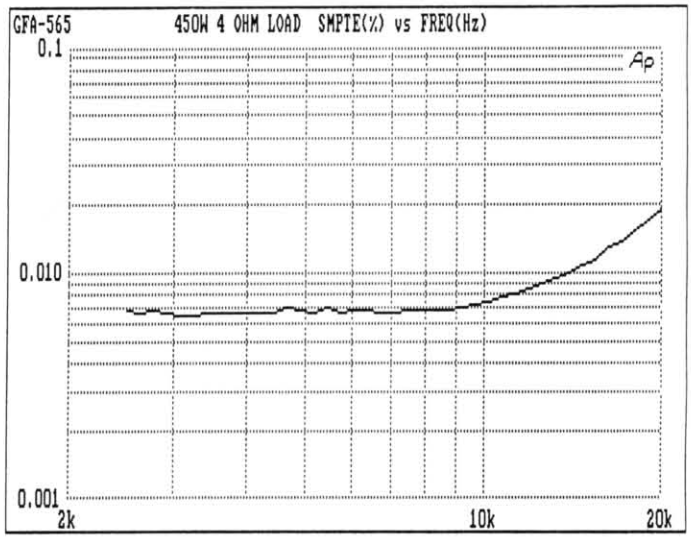


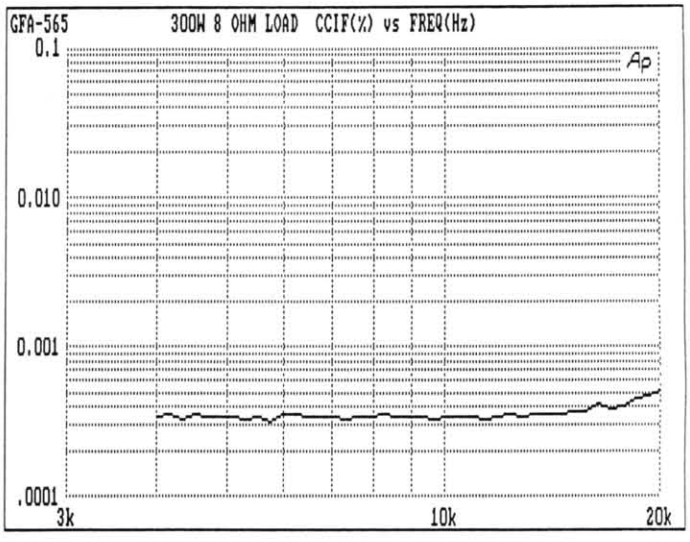
GFA-565
TYPICAL PERFORMANCE DATA

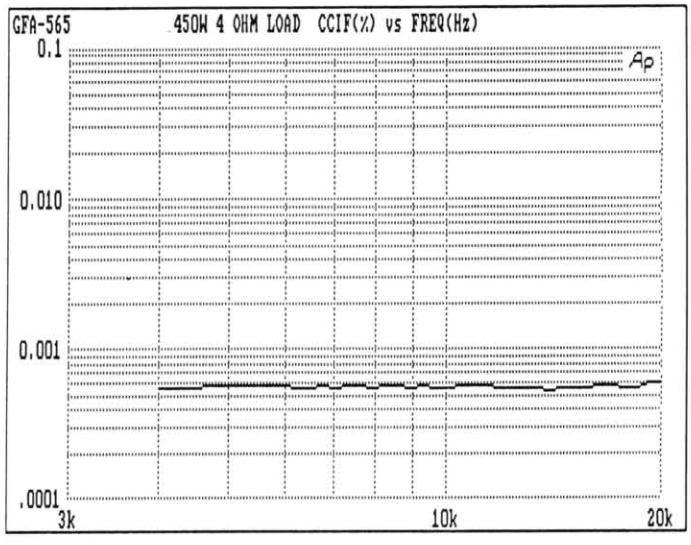




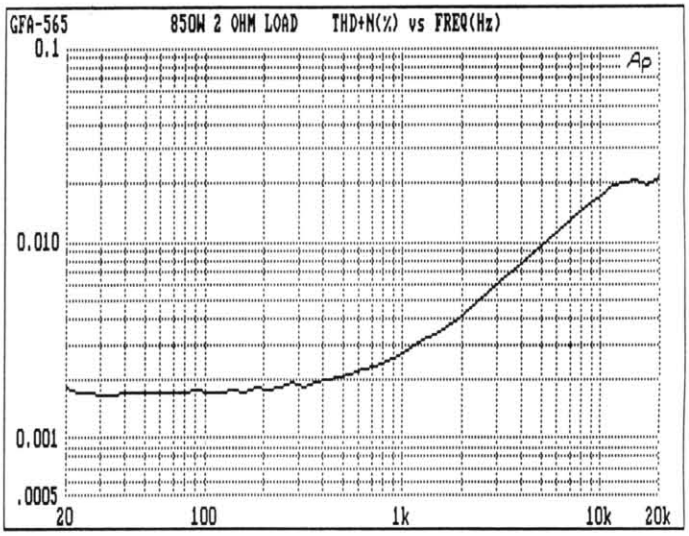


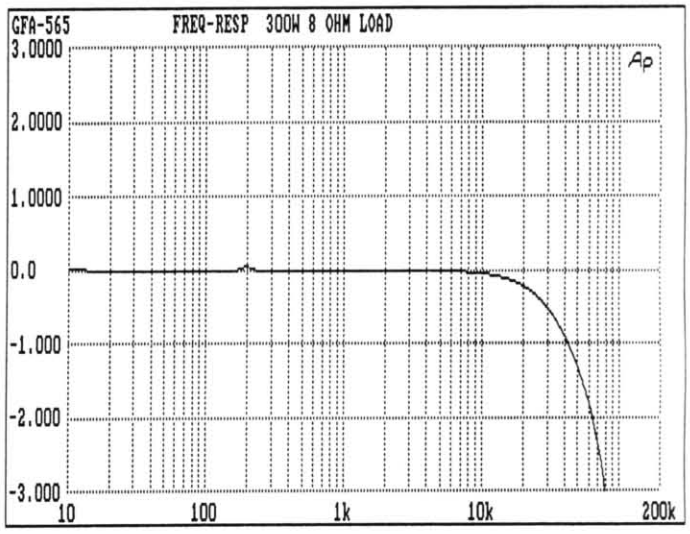


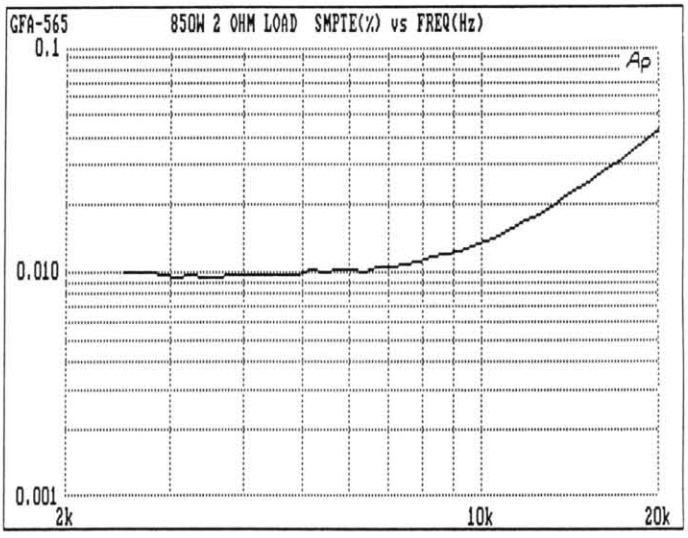


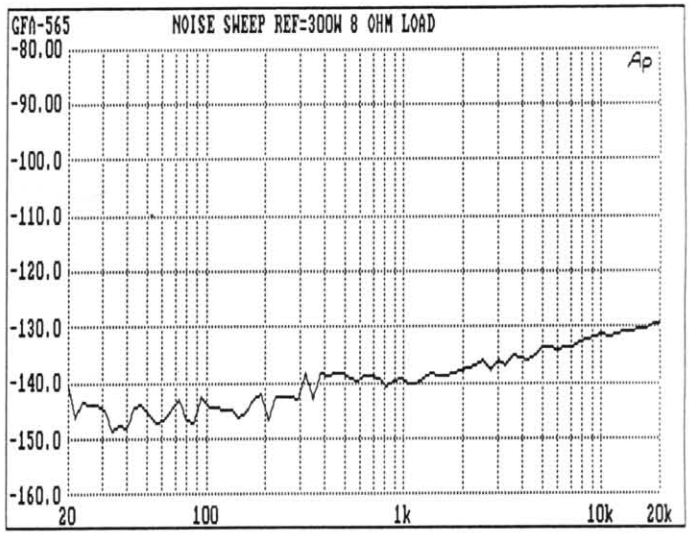


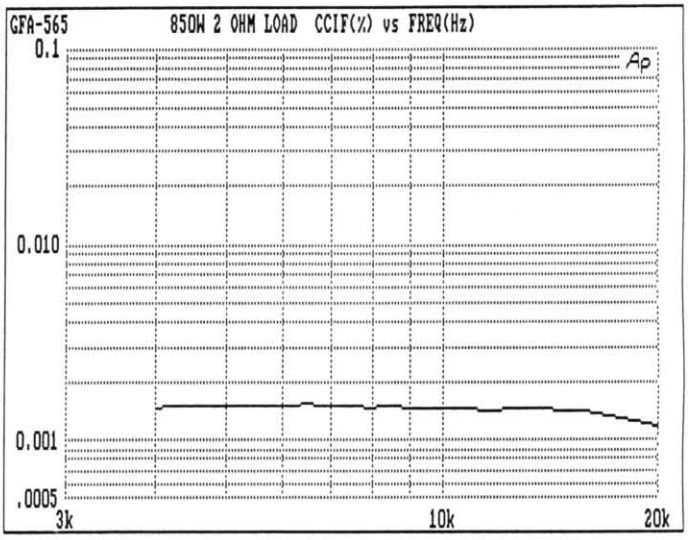
GFA-565
TYPICAL PERFORMANCE DATA

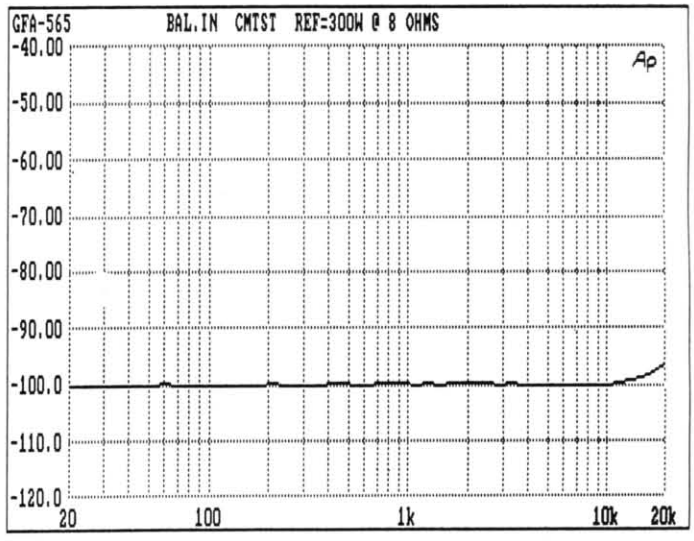












GFA-565 SPECIFICATIONS

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)

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CVC 0980

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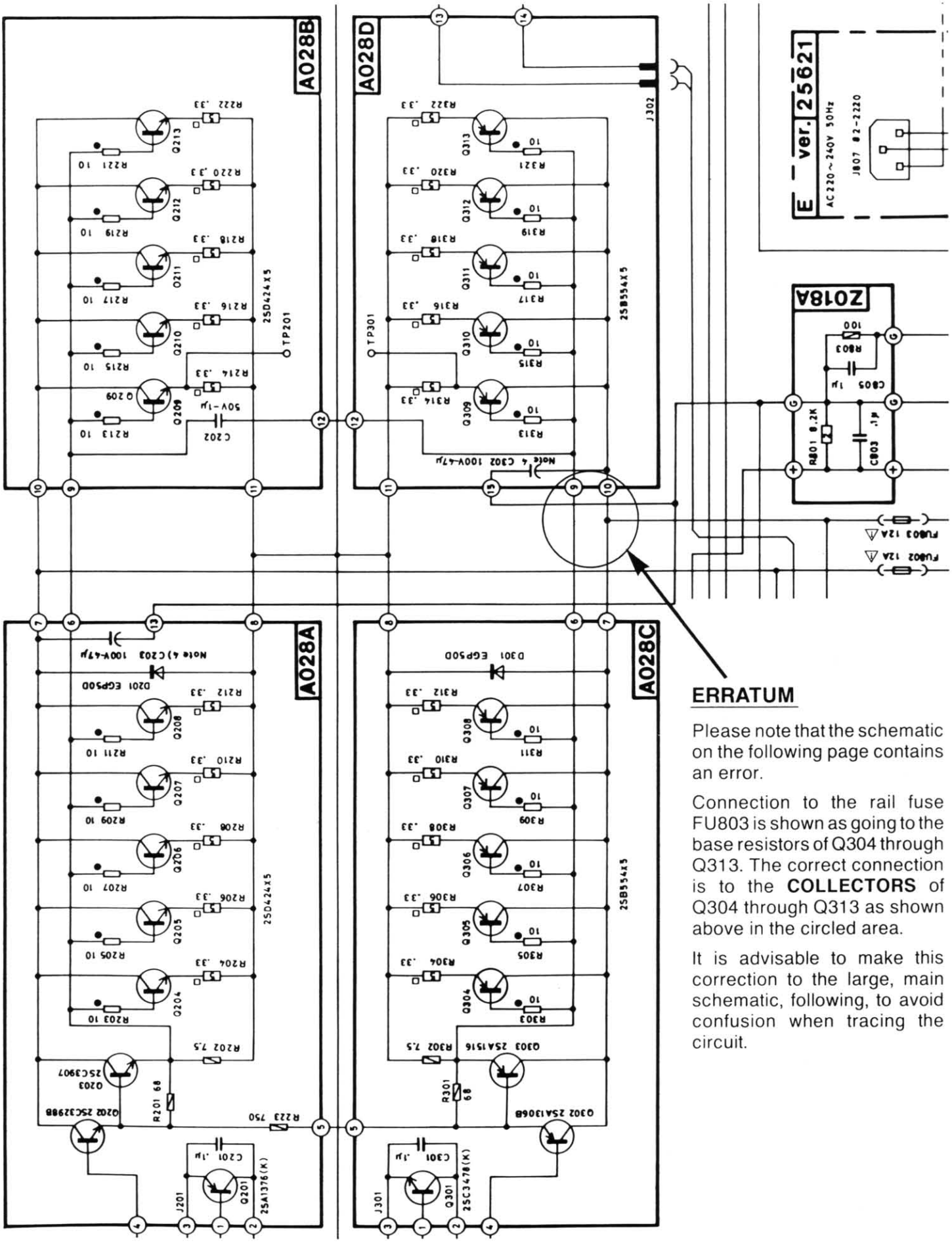

ERRATUM

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.

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