

# McIntosh

## MA 6100

PREAMP AMPLIFIER



## SERVICE INFORMATION

STARTING WITH SERIAL NO. AE7150

McINTOSH LABORATORY INC. 2 CHAMBERS STREET BINGHAMTON, NEW YORK

**PERFORMANCE GUARANTEE**

Performance Limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that the MA 6100 you buy must be capable of performance at or exceeding these limits or you get your money back. McIntosh is the only manufacturer that makes this guarantee.

**PERFORMANCE**

McIntosh audio power ratings are in accordance with the Federal Trade Commission Regulation of November 4, 1974 concerning power output claims for amplifiers used in home entertainment products.

**POWER OUTPUT**

70 watts minimum sine wave continuous average power output, per channel, both channels operating into 8 ohms load impedance, which is:

23.7 volts RMS across 8 ohms

40 watts minimum sine wave continuous average power output, per channel, both channels operating into 16 ohms load impedance, which is:

25.3 volts RMS across 16 ohms

60 watts minimum sine wave continuous average power output, per channel, both channels operating into 4 ohms load impedance, which is:

15.49 volts RMS across 4 ohms

**OUTPUT LOAD IMPEDANCE**

4 ohms, 8 ohms or 16 ohms

**RATED POWER BAND**

20 Hz to 20,000 Hz

**TOTAL HARMONIC DISTORTION**

0.2% maximum harmonic distortion at any power level from 250 milliwatts to rated power per channel from 20 Hz to 20,000 Hz, both channels operating

**INTERMODULATION DISTORTION**

0.2% if instantaneous peak power output is twice rated continuous average power or less per channel with both channels operating for any combination of frequencies 20 Hz to 20,000 Hz

**FREQUENCY RESPONSE**

20 Hz to 20,000 Hz +0 -0.5 dB at rated power

**NOISE AND HUM**

Power amplifier: 95 dB below rated output  
Aux, Tape, Tuner: 90 dB below rated output  
Phono Input, Tape Hd.: 76 dB below 10 mV input

**RATINGS****OUTPUT VOLTAGE**

At TAPE output: Aux, Tape, Tuner: 300 mV with input

Phono: 300 mV with rated input: 1.2 volts with 1.0 mV input at 1000 Hz

Tape Hd: 300 mV at 500 Hz with rated input

**DAMPING FACTOR**

50 at 8 ohms output

100 at 16 ohms output

**INPUT SENSITIVITY AND IMPEDANCE**

Power Amplifier: 3 volts, 100,000 ohms

Phono 1 and Phono 2: 2.5 mV at 1000 Hz, 47,000 ohms

Tape Head: 3 mV, 47,000 ohms

Tape, Aux, and Tuner: 300 mV, 250,000 ohms

**BASS CONTROLS**

+16 dB to -16 dB at 20 Hz

**TREBLE CONTROLS**

+16 dB to -16 dB at 20,000 Hz

**LF FILTER**

Active filter, 12 dB per octave rolloff below 50 Hz; 20 dB down at 20 Hz

**HF FILTER**

Active filter, 12 dB per octave rolloff above 7000 Hz; 20 dB down at 20,000 Hz

**GENERAL INFORMATION****SEMICONDUCTOR COMPLEMENT**

36 Silicon Transistors, 22 Silicon Rectifiers and Diodes, 2 Silicon Bilateral Switches, 2 Triac

**POWER REQUIREMENTS**

120 Volts, 50/60 Hz, 70 watts at zero signal output, 400 watts at rated output

**MECHANICAL INFORMATION****SIZE**

Front panel measures 16 inches wide (40.64 cm) by 5 7/16 inches high (13.81 cm). Chassis measures 15 inches wide (38.1 cm) by 13 inches deep (33.02 cm), including Panloc shelf and back panel connectors. Knob clearance required is 1 1/2 (3.81 cm) in front of mounting panel.

**WEIGHT**

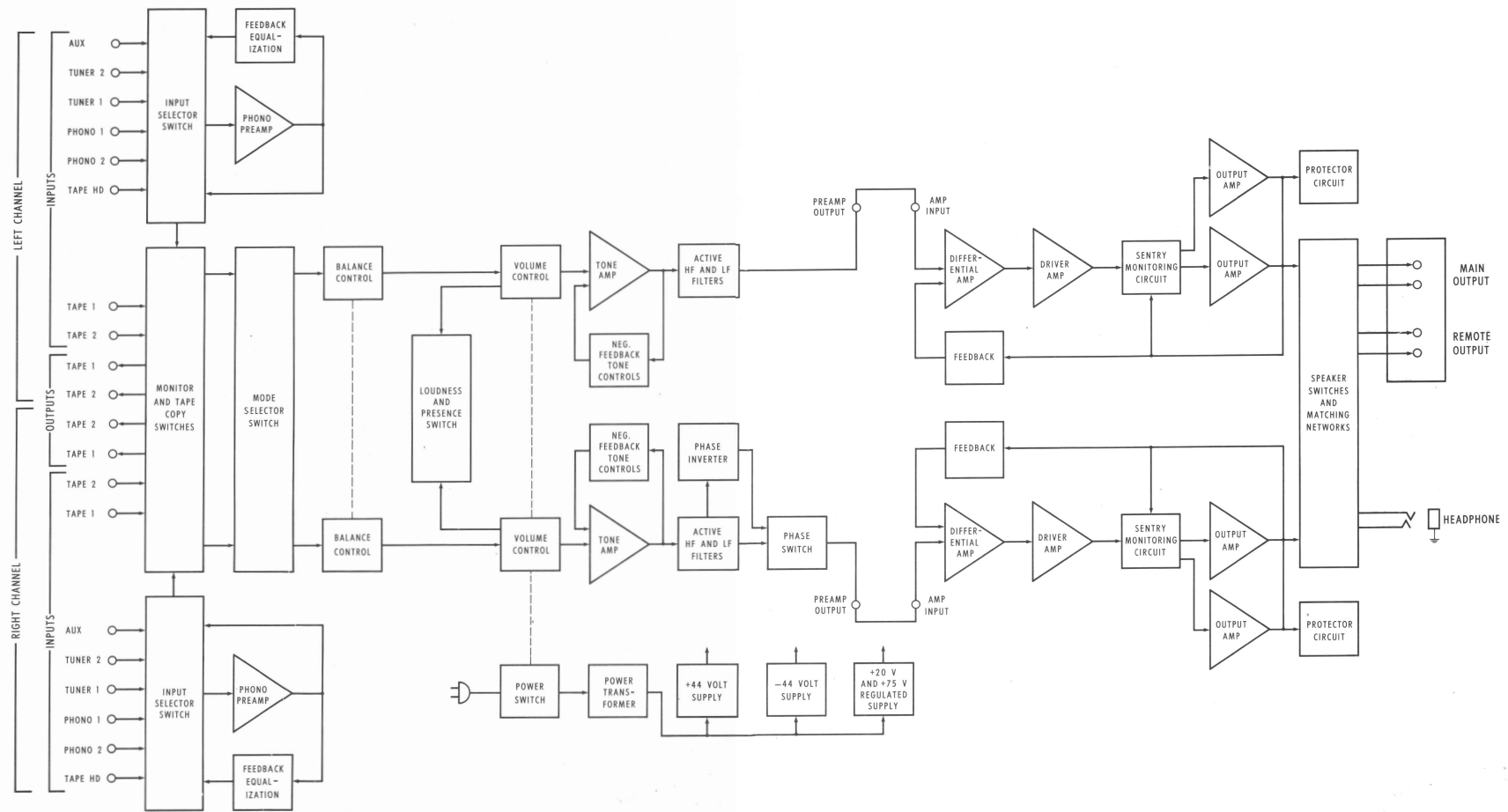
34 pounds (15.42 kg) net, 46 pounds (20.87 kg) in shipping carton

**FINISH**

Front Panel: Anodized gold and black with special gold/teal panel nomenclature illumination. Chassis: Chrome and black

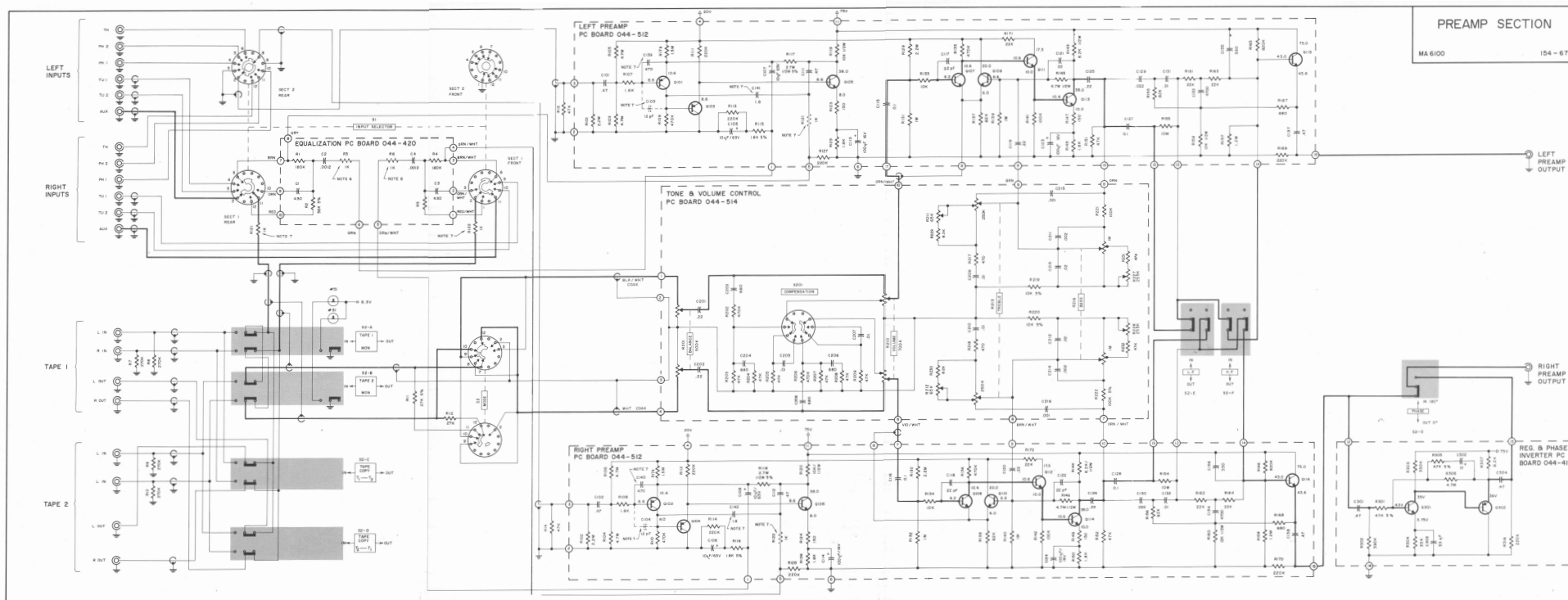
**MOUNTING**

McIntosh developed professional PANLOC



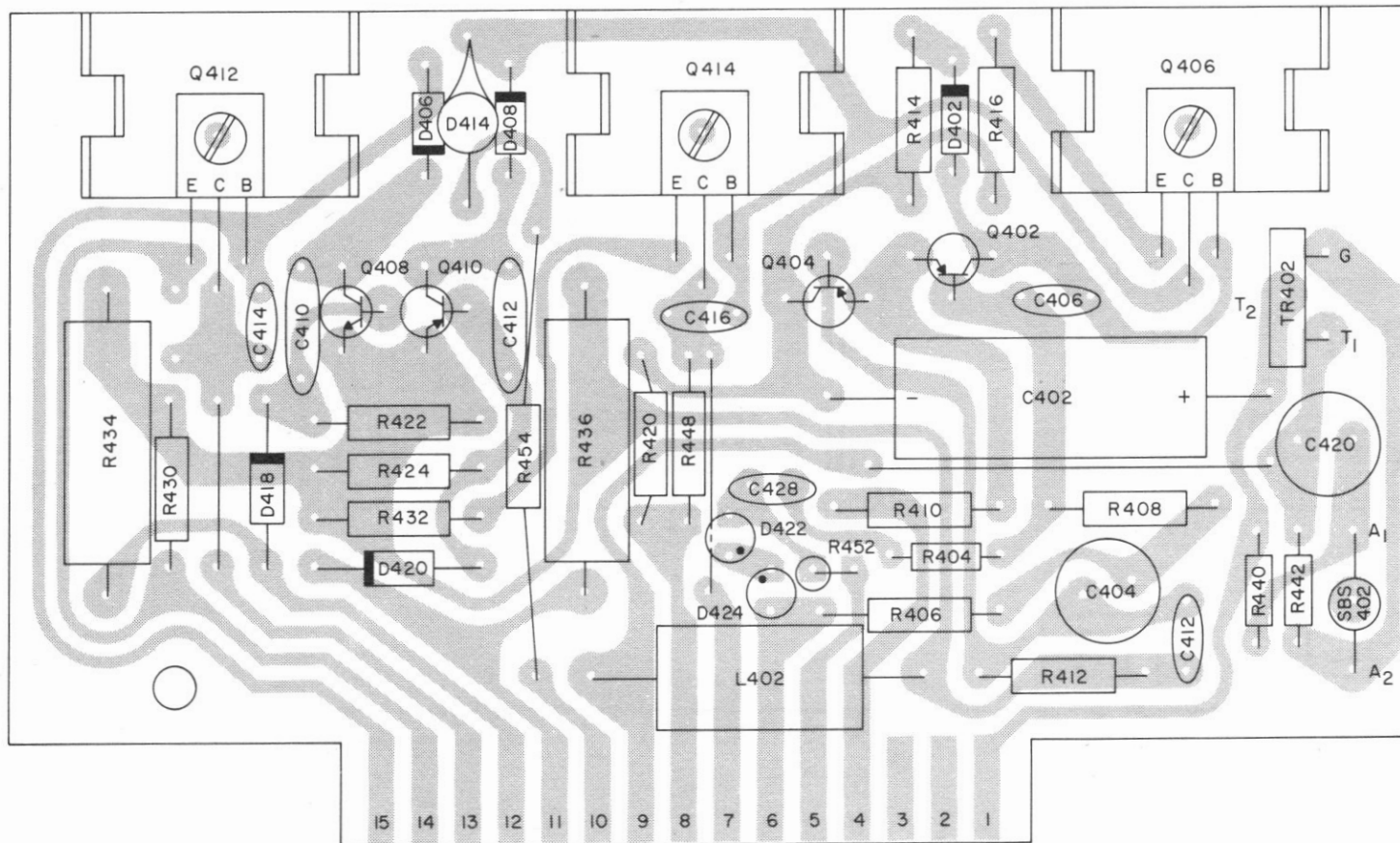
MA6100 BLOCK DIAGRAM





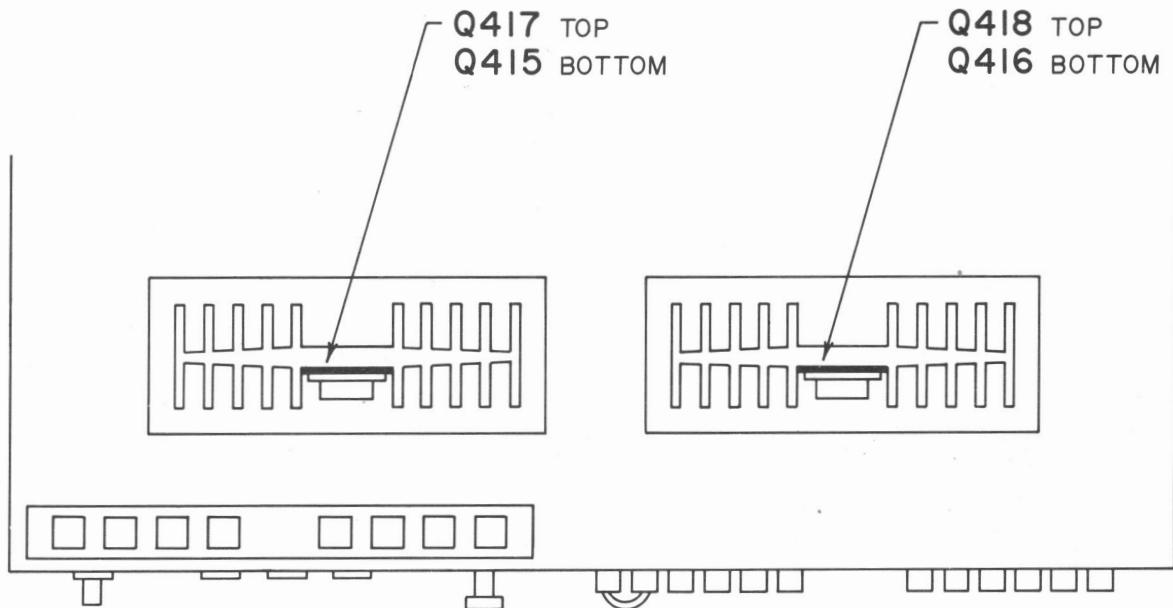
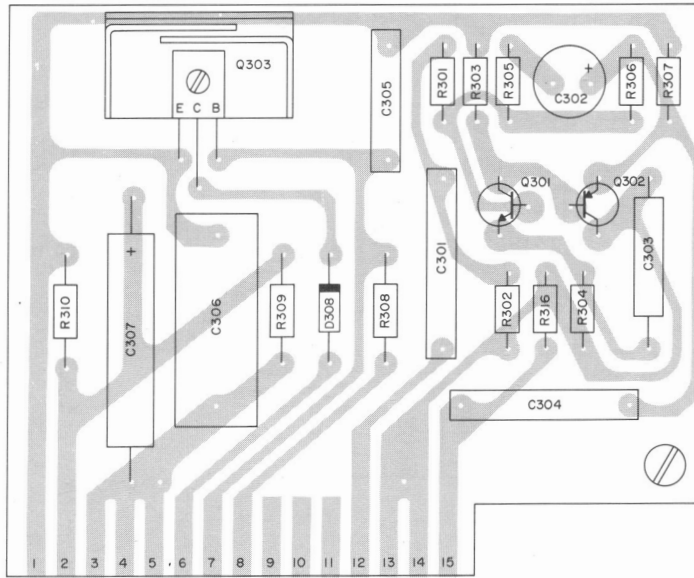
PREAMP SECTION  
 MA 6100 154-670





POWER OUTPUT  
PC BOARD 044-585

REG 8 PHASE INVERTER PC BOARD 044-419

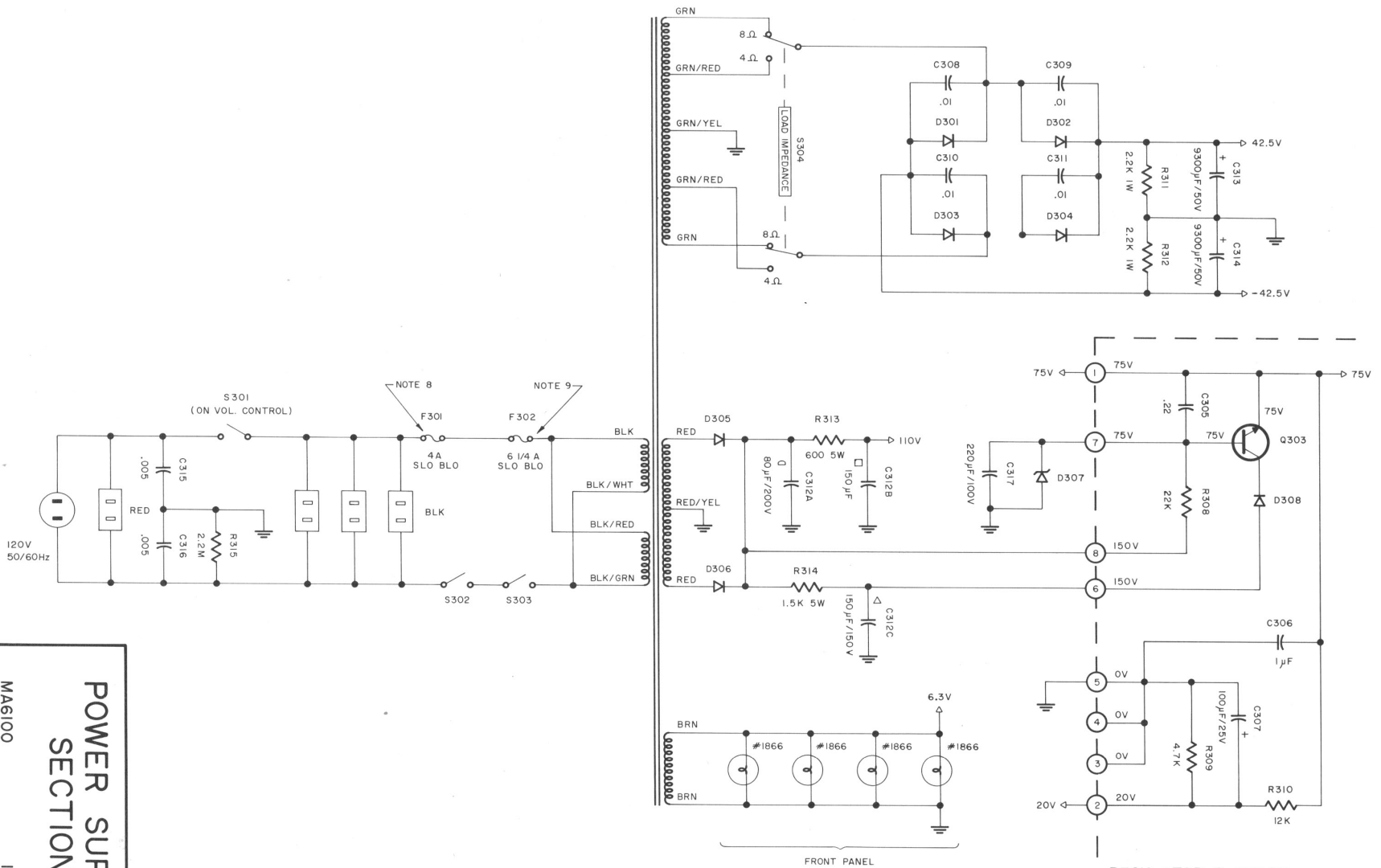


LOCATION OF TRANSISTORS NOT ON PC BOARD

# POWER SUPPLY SECTION

MA6100

154-685



REGULATOR & PHASE INVERTER PC BOARD 044-419

## SCHEMATIC NOTES

1. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 10% tolerance; Capacitance values smaller than 1 are in microfarads ( $\mu\text{F}$ ); capacitance values greater than 1 are in picofarads (pF); inductors are in microhenries ( $\mu\text{H}$ ).
2. Printed circuit board components are outlined on the schematics by dotted lines. The circled numbers around the dotted lines correspond to the numbers on the PC Board layouts.
3. The heavy lines on the schematics denote the primary signal path.
4. The terminal numbering of rotary switches is for reference only.
5. All voltages indicated on the schematics are measured under the following conditions:
  - a. Use of an 11 megohm input impedance VTVM.
  - b. All voltages  $\pm 10\%$  with respect to chassis ground.
  - c. No signal at input terminals.
  - d. AC input at 120 volts, 50/60 Hz.
  - e. Front panel controls at:

Volume	Fully CW	Tape mon.	out
Input selector	Aux	Tape copy	out
Mode selector	Stereo	Filters	out
Balance control	Zero	Phase	out
Comp	Flat	Speakers	out
Tone controls	Flat		
6. In units with Serial No's below AE9480 R3 and R4 are used.
7. In units with Serial No's below AE8645 C103 and C104 are used; C139, C140, C141 and C142 are not used and R121 and R122 are on the left and right channel preamp PC boards as shown in phantom.
8. In units with Serial No's below AP1001 F301 is a 4A circuit breaker (Part No. 088007); S304 is not used and the power transformer T301 (Part No. 044418) is connected as shown in the MA 6100 Service Information Manual for units from Serial No. AE1001 To AE7149.
9. In units with Serial No's below AP2162 F302 is not used.

## REPLACEMENT PARTS

All parts not listed are common items obtainable from radio parts jobbers.

Replacement parts may be obtained when ordered by PART NUMBER from:

McIntosh Laboratory, Inc.  
Customer Service Department  
2 Chambers Street  
Binghamton, New York 13903  
(telephone 607-723-3512)

## CAPACITORS

Symbol Number	Description		Part Number
C101,102	Mylar .47 $\mu$ F	250V	064-069
C105,106	Ta. Elect 10 $\mu$ F	63V	066-221
C107,108	Ta. Elect 10 $\mu$ F	63V	066-178
C111,112	Mylar .47 $\mu$ F	250V	064-069
C113,114	Ta. Elect 100 $\mu$ F	16V	066-226
C115,116	Mylar .1 $\mu$ F		064-067
C119,120	Mylar .22 $\mu$ F	250V	064-068
C123,124	Ta. Elect 100 $\mu$ F	16V	066-226
C125,126	Mylar .22 $\mu$ F	250V	064-068
C127,128	Mylar .1 $\mu$ F		064-067
C129,130	Mylar .022 $\mu$ F	250V	064-102
C131,132	Mylar .01 $\mu$ F	250V	064-040
C137,138	Mylar .47 $\mu$ F	250V	064-069
C201,202	Mylar .22 $\mu$ F	250V	064-068
C209,210	Mylar .01 $\mu$ F	250V	064-040
C212,213	Mylar .022 $\mu$ F	250V	064-102
C301	Mylar .47 $\mu$ F	250V	064-069
C302	Ta. Elect 10 $\mu$ F	63V	066-221
C303	Elect. 33 $\mu$ F	40V	066-204
C305	Mylar .22 $\mu$ F		064-096
C306	Mylar 1 $\mu$ F	250V	064-088
C307	Elect. 100 $\mu$ F	40V	066-206
C312	Elect. 80/80/150/200 $\mu$ F 200/200/150/150V		066-095
C313,314	Elect. 9300 $\mu$ F	50V	066-162
C317	Elect. 220 $\mu$ F	100V	066-245
C401,402	Elect. 150 $\mu$ F	63V	066-205
C403,404	Elect. 470 $\mu$ F	4V	066-136
C419,420	Elect. 10 $\mu$ F	35V	066-173
C427,428	Ta. Elect 2.2 $\mu$ F	50V	066-237

## DIODES

D301,302	Si. Rectifier		070-041
D303,304	Si. Rectifier		070-041
D305,306	Si. Rectifier		070-031
D307	Zener	75V	070-025

,D417,418	Si. Rectifier		070-046
D419,420	Si. Rectifier		070-046
D308	Si. Rectifier		070-031
D309	Zener	20V	070-064
D401,402	Si. Rectifier		070-047
D403,404	Si. Rectifier		070-046
D405,406	Si. Rectifier		070-047
D407,408	Si. Rectifier		070-047
D409,410	Si. Rectifier		070-031
D411,412	Si. Rectifier		070-031
D413,414	Ge. PNP Transistor		132-098
D421,422	Zener Diode	6.2V	070-088
D423,424	Zener Diode	6.2V	070-088

## FUSES

F301	Fuse	4A Slo Blo	089-013
F302	Fuse	6-1/4A Slo Blo	089-032
F401,402	Fuse	5A	089-014
F403,404	Fuse	5A	089-014

## CHOKES

L401,402	Choke	4 $\mu$ H	122-105
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## TRANSISTORS

Q101,102	Si. PNP transistor		132-096
Q103,104	Si. PNP transistor		132-096
Q105,106	Si. NPN transistor		132-095
Q107,108	Si. NPN transistor		132-093
Q109,110	Si. NPN transistor		132-093
Q111,112	Si. NPN transistor		132-093
Q113,114	Si. NPN transistor		132-095
Q115,116	Si. NPN transistor		132-095
Q301	Si. NPN transistor		132-094
Q302	Si. PNP transistor		132-096
Q303	Si. NPN transistor		132-078
Q401,402	Si. PNP transistor		132-056
Q403,404	Si. PNP transistor		132-056
Q405,406	Si. NPN transistor		132-081
Q407,408	Si. NPN transistor		132-021
Q409,410	Si. PNP transistor		132-032
Q411,412	Si. NPN transistor		132-080
Q413,414	Si. PNP transistor		132-079
Q415,416	Si. NPN transistor		132-128
Q417,418	Si. NPN transistor		132-128

## POTENTIOMETERS

R201	Balance control		134-240
R210	Volume control		134-239
R211	Bass trim control		134-354
R212	Bass trim control		134-254

MA 6100

POTENTIOMETERS		
R215	Treble control	134-238
R216	Bass control	134-237
R227	Treble trim control	134-253
R228	Treble trim control	134-253
RESISTORS		
R313	Wirewound 600 $\Omega$	5W 139-043
R314	Wirewound 1.5K	5W 139-079
R401,402	Wirewound 3.6K	10W 139-047
R433,434	Wirewound .33 $\Omega$	5W 139-080
R435,436	Wirewound .33 $\Omega$	5W 139-080
SWITCHES		
S1	Input selector switch	146-153
S2	Pushbutton switch	150-011
S3	Mode selector switch	146-134
TRANSFORMERS		
T301	Power transformer	044-710
THYRISTORS & TRIGGERS		
SBS401,402	Bilateral switch	131-004
TR401,402	Triac	131-005
FRONT PANEL & TRIM		
	Front panel	044-423
	Front panel end caps	018-154
	Balance control knob	044-375
	Comp control knob	090-100
	Bass knob (front)	044-375
	Bass knob (rear)	090-100
	Treble knob (front)	044-375
	Treble knob (rear)	090-100
	Volume control knob	044-372
	Mode selector knob	044-372
	Input selector knob	044-372
LAMPS		
	Panel illumination #1866	058-014
	Switch indicator #51	058-021
MOUNTING SYSTEM		
	Shelf bracket (right)	043-592
	Shelf bracket (left)	043-593
	Mounting template #100	038-179
	Hardware package	043-608
MISCELLANEOUS ITEMS		
	Plastic feet	017-156
	Shipping carton	044-510
	Owners manual	038-982
	Line cord	170-021