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Technical Document Distribution

Brand:	Acoustic
Model	400
Product:	Stereo Power Amplifier
Description:	Service Manual

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service manual

4000

STEREO AMPLIFIER

MusicParts.com

acoustic control corporation

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GENERAL DESCRIPTION

The Acoustic Model 400 is designed as a fully portable power amplifier that is rack mountable. It is supplied with its own textured finish, protective enclosure to guard it from traveling abuse. The carrying handles are mounted on the faceplate to facilitate handling during set-up or take-down.

The inputs will accept line level sources with both standard ¼" phone jacks and RCA pin jacks provided. The inputs are mounted on both the front and rear panels to accommodate any set-up required.

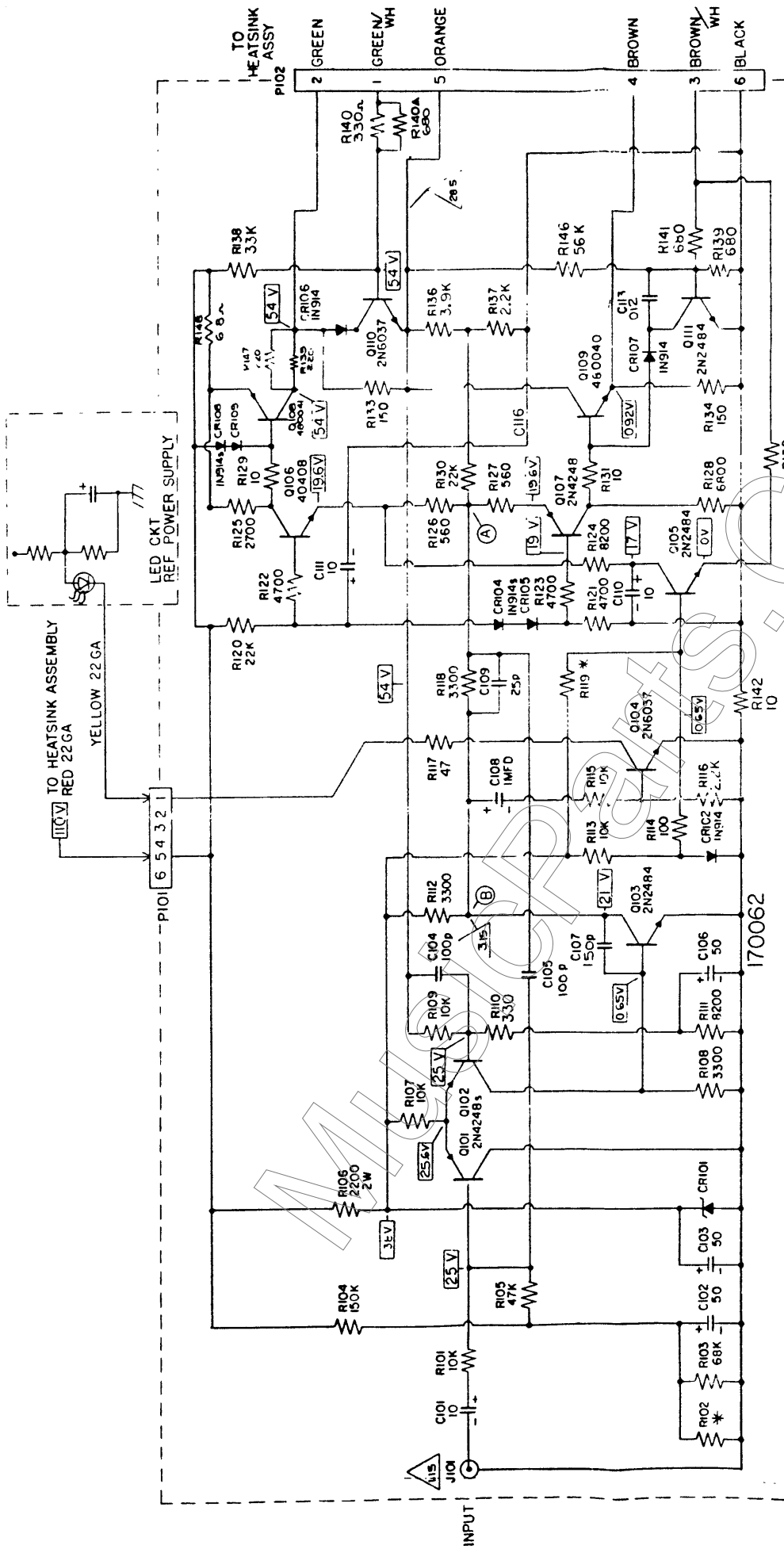
Output power is 375 watts RMS per channel across a 2 ohm speaker load with both standard ¼" phone jacks and G.R. banana connectors provided for hookup ease.

Designed specifically for sound reinforcement applications where high power levels are needed at usable impedances, the Model 400 is tailored to the working musician and existing speaker cabinets.

The Model 400 reflects Acoustic's high standards of reliability, flexibility and unexcelled value in an amplifier intended to provide the finest professional amplification for today's musical artist.

SPECIFICATIONS:

POWER OUTPUT:	375 Watts RMS/CH at 2 OHMS 200 Watts RMS/CH at 4 OHMS
DISTORTION:	Less than .25% I.M. or T.H.D. at 375 Watts. (Typically .1%)
HUM AND NOISE:	95 dB below full output
DAMPING FACTOR:	100 or better at 2 OHMS
LOAD IMPEDANCE:	2 OHMS or higher
INPUT SENSITIVITY:	1 Volt RMS
INPUT IMPEDANCE:	Nominally 22,000 OHMS
LOAD PROTECTION:	VI Limited
OVERLOAD INDICATOR:	Pulsed LED's that indicate true clipping and short circuit conditions
CIRCUIT PROTECTION:	2 Fuses/Channel
COOLING:	Forced Air Cooling with 60 CFM Whisper Fan
CONTROLS:	Input Level and on/off switch for each channel
INPUT CONNECTORS:	Standard ¼" Phone Jack and RCA Pin Jack on both front and Rear Panel
OUTPUT CONNECTORS:	2 Standard ¼" Phone Jacks and 1 GR-Type Double Banana Connector on Rear Panel
DIMENSIONS:	19"L x 19"W x 7¼"H (Chassis) 19"L x 19"W x 8¾" H (Case)
WEIGHT:	67 Pounds



NOTES: (UNLESS OTHERWISE SPECIFIED).
 1 CIRCUIT IS IDENTICAL FOR BOTH CHANNELS.
 2 ALL RESISTORS ARE IN OHMS 1/2W 5% UNLESS NOTED OTHERWISE
 3 ALL CAPACITORS ARE IN MFD.
 4 LAST R, C, CR & Q DESIGNATIONS - R149, C117 CR109 & Q111.
 5 \square - DC VOLTS FROM GND USING VTVM
 6 \triangle - AC VOLTS FROM GND USING ACVTVM
 7 \oplus - TEST POINTS
 8 * - FACTORY SELECTED COMPONENTS
 9 REF SUB ASSY. P/N 830004
 10 FIELD MODIFICATION 330A MAY BE 2EA 680A

FACTORY
 SELECTED
 COMPONENTS
 MIN. TYP. MAX.
 VALUE VALUE VALUE

REF#	MIN. VALUE	TYP. VALUE	MAX. VALUE
R102	47K	120K	680K
R119	56K	52K	NONE

E	CHG R119 - WAS 250 OHMS	10-13-76
D	CHG C105 25P TO C105 100P	8-3-76
C	ADDED CR108, R118 AND NOTE 10. REMOVED C117	8-3-76
B	REMOVED R113, C116, VALUES OF R119	5-3-76
A	CHG VALUES C107, C109, R131, R135 R136, DEL C12, C14, R145, R144, C15, C16 ADD C117 - R147 - R146	4-27-76
	CHG NOTE 4 & 2	

Acoustic control corp
 van nuys, california 91406

TITLE
 SCHEMATIC - MOD 400 PWR AMP PCB

DATE
 1/10/75

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PROPRIETARY INFORMATION

SIZE
 C

DRAWING NO.
 3

PART NO.
 1484

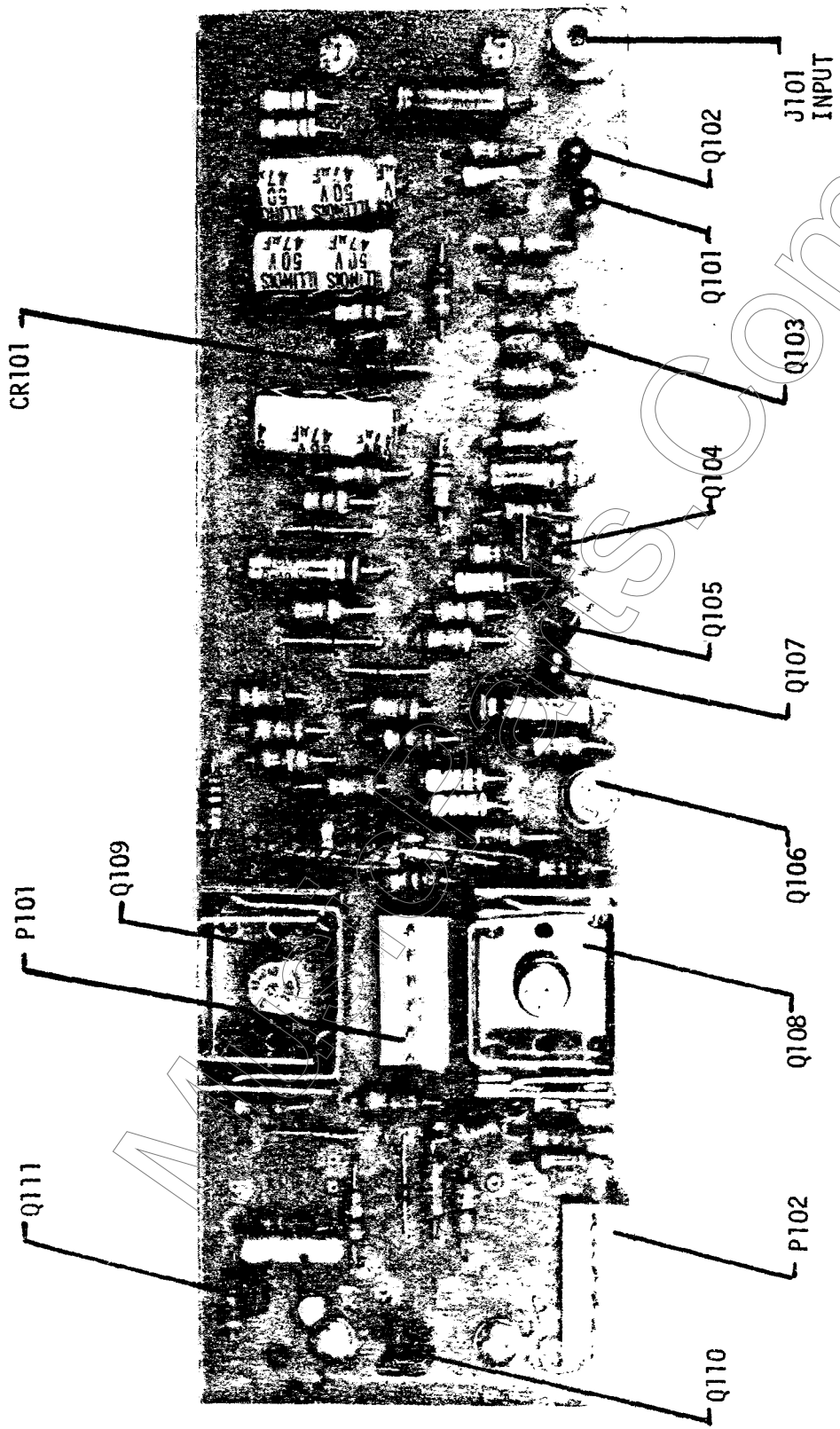
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RELATED DOCUMENTS

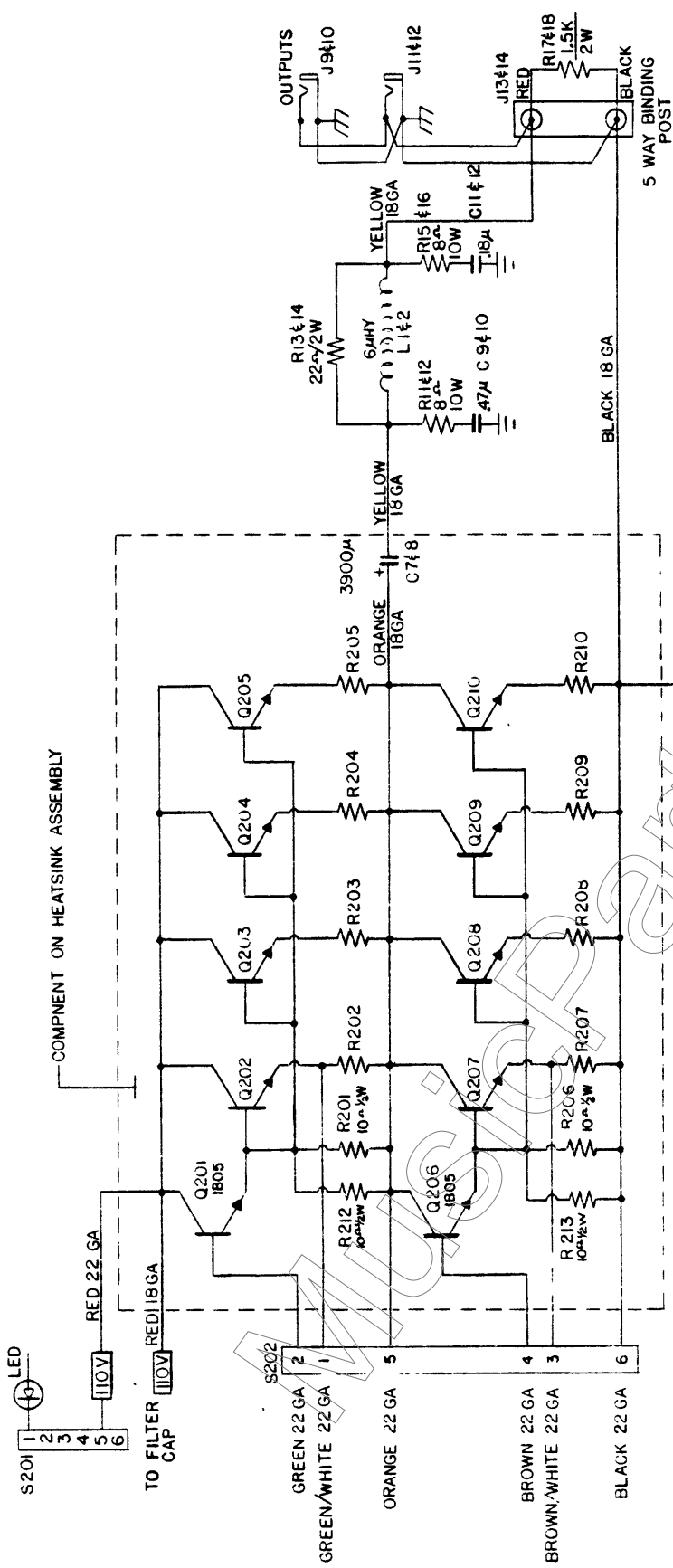
C 1485 SCH-HEAT SINK ASSY
 C 1486 SCH-PWR SUP ASSY.



PICTORIAL
 MODEL 400 - POWER AMP - CIRCUIT BOARD ASSEMBLY 830004
 SCHEMATIC C1484

PARTS LIST
 MODEL 400 - POWER AMP CIRCUIT BOARD ASSEMBLY 830004
 SCHEMATIC C1484

Schematic Reference	DESCRIPTION	Acoustic Part No.	Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB 1	Printed Circuit Board, 400 Power Amplifier		R 131	Resistor, 10 ohm, 1/2 watt, 5%	476010
Q 101	Transistor, PNP, 2N4248	170062	R 132	Resistor, 150 ohm, 1/2 watt, 5%	476115
Q 102	Transistor, PNP, 2N4248	480032	R 133	Resistor, 150 ohm, 1/2 watt, 5%	476115
Q 103	Transistor, NPN, 2N2484	480032	R 134	Resistor, 150 ohm, 1/2 watt, 5%	476115
Q 104	Transistor, NPN, 2N6037	480023	R 135	Resistor, 220 ohm, 1/2 watt, 5%	476122
Q 105	Transistor, NPN, 2N2484	4800	R 136	Resistor, 3.9K ohm, 1/2 watt, 5%	476239
Q 106	Transistor, NPN, 40408	4800	R 137	Resistor, 2.2K ohm, 1/2 watt, 5%	476222
Q 107	Transistor, PNP, 2N4248	480032	R 138	Resistor, 33K ohm, 1/2 watt, 5%	476333
Q 108	Transistor, PNP, 40410 (Selected)	480041	R 139	Resistor, 680 ohm, 1/2 watt, 5%	476168
Q 109	Transistor, NPN, 40409 (Selected)	480040	R 140	Resistor, 330 ohm, 1/2 watt, 5%	476133
Q 110	Transistor, NPN, 2N6037	480040	R 141	Resistor, 680 ohm, 1/2 watt, 5%	476168
Q 111	Transistor, NPN, 2N2484	480	R 142	Resistor, 680 ohm, 1/2 watt, 5%	476010
CR101	Diode, Zener	480023	R 146	Resistor, 56K ohm, 1/2 watt, 5%	476356
CR102	Diode, 1N914	480022	R 147	Resistor, 220 ohm, 1/2 watt, 5%	476122
CR104	Diode, 1N914	480005	R 148	Resistor, 6.8K ohm, 1/2 watt, 5%	476268
CR105	Diode, 1N914	480005	C 101	Capacitor, Electrolytic, 10mf, 50V	153002
CR106	Diode, 1N914	480005	C 102	Capacitor, Electrolytic, 50mf, 50V	153005
CR107	Diode, 1N914	480005	C 103	Capacitor, Electrolytic, 50mf, 50V	153005
CR108	Diode, 1N914	480005	C 104	Capacitor, Disc, 100pf, 1KV	151003
CR109	Diode, 1N914	480005	C 105	Capacitor, Disc, 100pf	151003
R 101	Resistor, 10K ohm, 1/2 watt, 5%	476310	C 106	Capacitor, Electrolytic, 50mf	153005
R 102	Resistor, Factory Selected	476368	C 107	Capacitor, Disc, 150pf	151004
R 103	Resistor, 68K ohm, 1/2 watt, 5%	476415	C 108	Capacitor, Electrolytic, 1mf	153001
R 104	Resistor, 150K ohm, 1/2 watt, 5%	476310	C 109	Capacitor, Disc, 25pf	151001
R 105	Resistor, 47K ohm, 1/2 watt, 5%	476347	C 110	Capacitor, Electrolytic, 10mf	153002
R 106	Resistor, 2.2K ohm, 2 watt	472222	C 111	Capacitor, Electrolytic, 10mf	153002
R 107	Resistor, 10K ohm, 1/2 watt, 5%	476310	C 113	Capacitor, Disc, 470pf	151006
R 108	Resistor, 3.3K ohm, 1/2 watt, 5%	476233	J 101	Connector, Jack, Phono	
R 109	Resistor, 10K ohm, 1/2 watt, 5%	476310	P 101	Connector, Chassis PC, 6P.N, Male	
R 110	Resistor, 330 ohm, 1/2 watt, 5%	476133	P 102	Connector, Chassis PC, 6P.N, Male	
R 111	Resistor, 8.2K ohm, 1/2 watt, 5%	476282			
R 112	Resistor, 3.3K ohm, 1/2 watt, 5%	476233			
R 113	Resistor, 10K ohm, 1/2 watt, 5%	476310			
R 114	Resistor, 100 ohm, 1/2 watt, 5%	476110			
R 115	Resistor, 10K ohm, 1/2 watt, 5%	476310			
R 116	Resistor, 2.2K ohm, 1/2 watt, 5%	476222			
R 117	Resistor, 47 ohm, 1/2 watt, 5%	476047			
R 118	Resistor, 3.3K ohm, 1/2 watt, 5%	476233			
R 119	Resistor, Factory Selected				
R 120	Resistor, 22K ohm, 1/2 watt, 5%	476322			
R 121	Resistor, 4.7K ohm, 1/2 watt, 5%	476247			
R 122	Resistor, 4.7K ohm, 1/2 watt, 5%	476247			
R 123	Resistor, 4.7K ohm, 1/2 watt, 5%	476247			
R 124	Resistor, 8.2K ohm, 1/2 watt, 5%	476282			
R 125	Resistor, 2.7K ohm, 1/2 watt, 5%	476227			
R 126	Resistor, 560 ohm, 1/2 watt, 5%	476156			
R 127	Resistor, 560 ohm, 1/2 watt, 5%	476156			
R 128	Resistor, 6.8K ohm, 1/2 watt, 5%	476268			
R 129	Resistor, 10 ohm, 1/2 watt, 5%	476010			
R 130	Resistor, 22K ohm, 1/2 watt, 5%	476322			



NOTES (UNLESS OTHERWISE SPECIFIED)

- 1 RESISTORS ARE .24 OHMS ± 10%, 7WATTS
- 2 TRANSISTORS: Q201 & Q206 P/N 480051
- 3 Q202-Q205 & Q207-Q210 P/N 480037
Q202-MIN VALUE TO 3.3K MAX NORMAL VALUE 1.5K
2W CARBON COMP. NOTE: ONLY USE TO REMOVE DC OFF OUTPUT JACKS
WHEN A LOAD IS USED THAT HAS NO DC PATH
- 4 REF HEATSINK SUB ASSY P/N 820003
- 5 LAST COMPONENTS R213, C200, L1, J14, S202, Q210
- 6 NOTE: DO NOT CHANGE WIRE LENGTHS, SIZES OR ROUTING

03 REMOVE C201 AND R211	9-16-76	DA
02 ADD R212, R213, NOTES 4, 5, 6	4-28-76	TK
01 CHG'D NOTES 3, 1	4-1-76	DA
01 CHG VALUE OF R17, 18, ADD NOTE 3		

acoustic control corp van nuys, california 91408	
TITLE SCHEMATIC HEAT SINK ASSY MODEL 400	
SIZE C	DRAWING NO. 1485
CODE 3	PART NO. 1485
SCALE NONE	REV 03

BY DATE 9/9/75	CHECKED 12-14-75	APPROVED 9/8/75
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C 1486	SCH - PWR SUP ASSY	TITLE RELATED DOCUMENTS
C 1484	SCH - PWR AMP PCB	

PARTS LIST
 MODEL 400 - HEAT SINK ASSEMBLY
 SCHEMATIC C1485

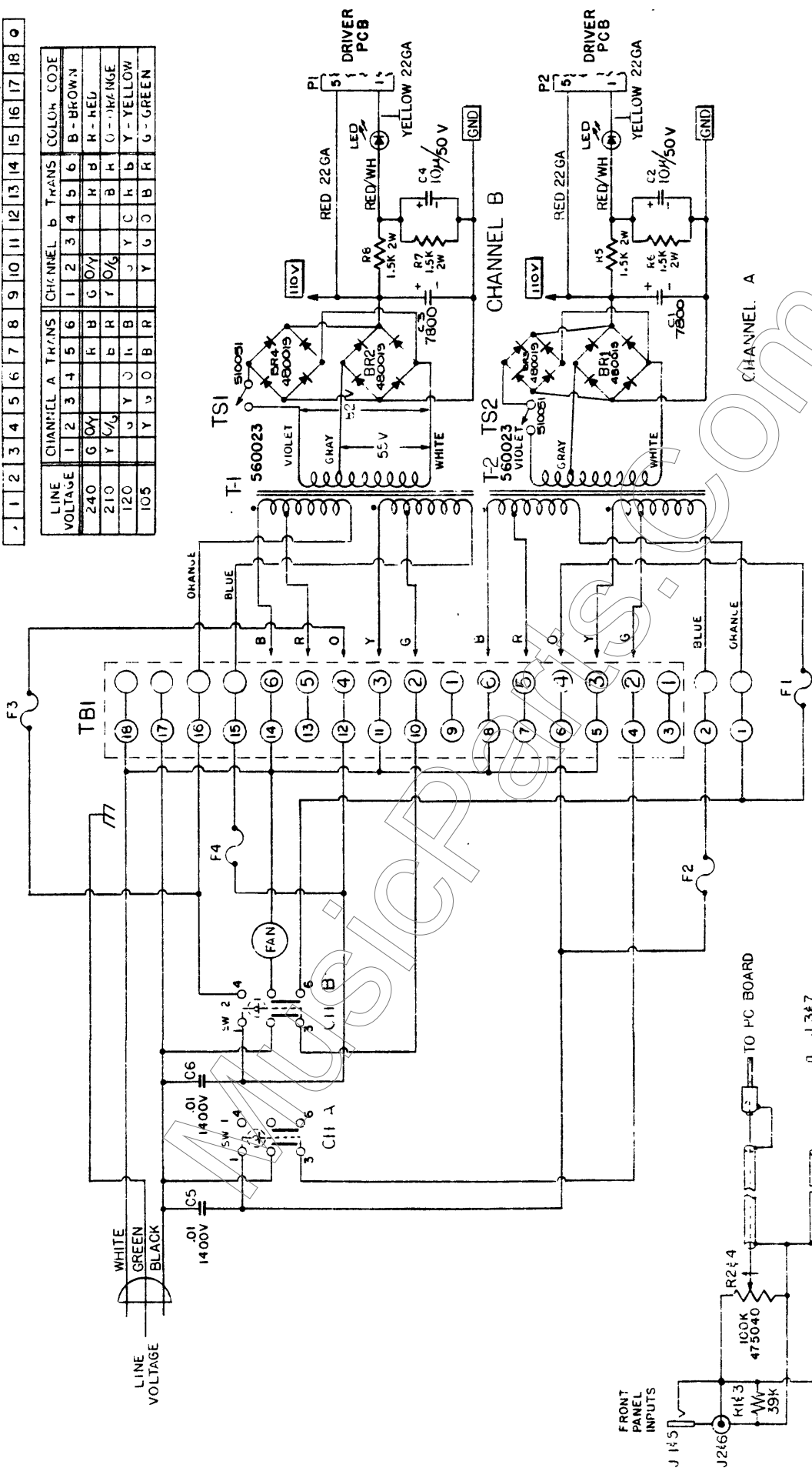
Schematic Reference	DESCRIPTION	Acoustic Part No.
Q 201	Transistor, NPN, 1B05	480051
Q 202	Transistor, NPN,	480037
Q 203	Transistor, NPN,	480037
Q 204	Transistor, NPN,	480037
Q 205	Transistor, NPN,	480037
Q 206	Transistor, NPN, 1B05	480051
Q 207	Transistor, NPN,	480037
Q 208	Transistor, NPN,	480037
Q 209	Transistor, NPN,	480037
Q 210	Transistor, NPN,	480037
Q 211	Capacitor, .002mf, Disc, 500V	480037
Q 212	Capacitor, 3900mf, Electrolytic, 80V	151011
Q 213	Resistor, 10 ohm, 1/2 watt	153012
R 201	Resistor, .24 ohm, 7 watt	476010
R 202	Resistor, .24 ohm, 7 watt	461005
R 203	Resistor, .24 ohm, 7 watt	461005
R 204	Resistor, .24 ohm, 7 watt	461005
R 205	Resistor, .24 ohm, 7 watt	461005
R 206	Resistor, 10 ohm, 1/2 watt	461005
R 207	Resistor, .24 ohm, 7 watt	476010
R 208	Resistor, .24 ohm, 7 watt	461005
R 209	Resistor, .24 ohm, 7 watt	461005
R 210	Resistor, .24 ohm, 7 watt	461005
R 211	Resistor, 100 ohm, 1/2 watt	461005
R 212	Resistor, 10 ohm, 1/2 watt	476110
R 213	Resistor, 10 ohm, 1/2 watt	476010

18 PT BARRIER STRIP VS LINE VOLTAGE DECAL ON FRONT PANEL

AC BLACK
AC WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	9
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	---

LINE VOLTAGE	1	2	3	4	5	6	CHANNEL A TRANS	b TRANS	CHANNEL CODE		
240	G	O/Y	R	B	G	B	O/Y	H	B	B - BROWN	
210	Y	W	B	R	Y	O/Y	B	H	B	R - RED	
120	U	Y	U	B	Y	C	Y	C	B	U - YELLOW	
105	Y	U	O	B	R	Y	G	O	B	R	G - GREEN



BY		DATE	ADD BR-34, CHG TS 1 & 2.	5-19-76
DRAWN		8-27-75	EFF 5/N DA1300 & UP	
CHECKED		10/10/75		
APPROVED		9 8 75		
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TITLE SCHEMATIC -- MOD 400 POWER SUPPLY				
SIZE DRAWING NO. C PART NO. 1486 REV A				
NUMBER RELATED DOCUMENTS				

NOTES: (UNLESS OTHERWISE SPECIFIED).

- 1 ALL RESISTORS ARE IN OHM, 1/2W, 5%.
- 2 ALL CAPACITORS ARE IN MFD.
- 3 FUSES ARE 4 AMP SLO-6LO.
- 4 AC VOLTAGE TAPS LOCATED FOR 120V AC OPERATION

PARTS LIST
MODEL 400 - CHASSIS WIRING
SCHEMATIC C1485

Schematic Reference	DESCRIPTION	Acoustic Part No.
T 1	Transformer, Supply	560023
TS 1	Thermal Breaker	510051
TS 2	Thermal Breaker	510051
BR 1	Bridge Rectifier, 10A	480054
BR 2	Bridge Rectifier, 10A	480054
BR 3	Bridge Rectifier, 10A	480054
BR 4	Bridge Rectifier, 10A	480054
C 1	Capacitor, 7800mf, Electrolytic, 100V	153013
C 2	Capacitor, 10mf, Electrolytic, 50V	153002
C 3	Capacitor, 7800mf, Electrolytic, 100V	153013
C 4	Capacitor, 10mf, Electrolytic, 50V	153002
C 5	Capacitor, .01mf, 1400V, U.L.	151015
C 6	Capacitor, .01mf, 1400V, U.L.	151015
F 1	Fuse, 4 ASB	510049
R 1	Resistor, 39K ohm, 1/2 watt	476339
R 2	Potentiometer, 100K ohm, Rotary	475040
R 3	Resistor, 1.5K, 2 watt	472215
R 4	Resistor, 1.5K, 2 watt	472215
R 5	Resistor, 1.5K, 2 watt	472215
R 6	Resistor, 1.5K, 2 watt	472215
R 7	Resistor, 1.5K, 2 watt	472215
R 8	Resistor, 1.5K, 2 watt	472215
SW 1	Switch, DPDT, Lited	510046
SW 2	Switch, DPDT, Lited	510046
LED	Light Emitting Diode	480042

PARTS LIST
 MODEL 400 - CHASSIS WIRING
 SCHEMATIC C1485

Schematic Reference	DESCRIPTION	Acoustic Part No.
C 7 & 8	Capacitor, 3900mf, Electrolytic, 80V	153012
C 9&10	Capacitor, .47mf, Mylar, 100V	152029
C 11&12	Capacitor, .18mf, Mylar, 75V	152018
L 1 & 2	Choke, 6MHZ	820012
R 11&12	Resistor, 8 ohm, .10 watt	461001
R 13&14	Resistor, 22 ohm, 2 watt	472022
R 15&16	Resistor, 8 ohm, 10 watt	461001
R 17&18	Resistor, 1.kk ohm, 2 watt	472215
J 9&10	Jack, Open	210002
J 11&12	Jack, Open	210002
J 13&14	Banana Jack, Paired	210066

MusicParts.Com TechTip: Generic xref

Acoustic Part# 480037 xref to 2N3233, replace with 2N3773

MusicParts.Com TechTip: Setting bias

**R119 is custom selected to obtain correct bias:
0.1v @ 1KHz input signal, adjust for x-over just gone.**

**Double check voltage across R207 (bn/wt wire to ground), with
no signal and fully warmed up, should be typically 40mV.**

MusicParts.Com TechTip: open ground

**Check the phono jack on the PCB. If the shell has not been soldered to
the base ring (on component side) solder it. Otherwise ground contact
will be lost.**