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Technical Document Distribution

Brand:	Acoustic		
Model	220		
Product:	Guitar Amplifier		
Description:	Service Manual	Dated:	1977

Musicparts Document Number: 40137

TechTips: 1

Pages: 16

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service manual

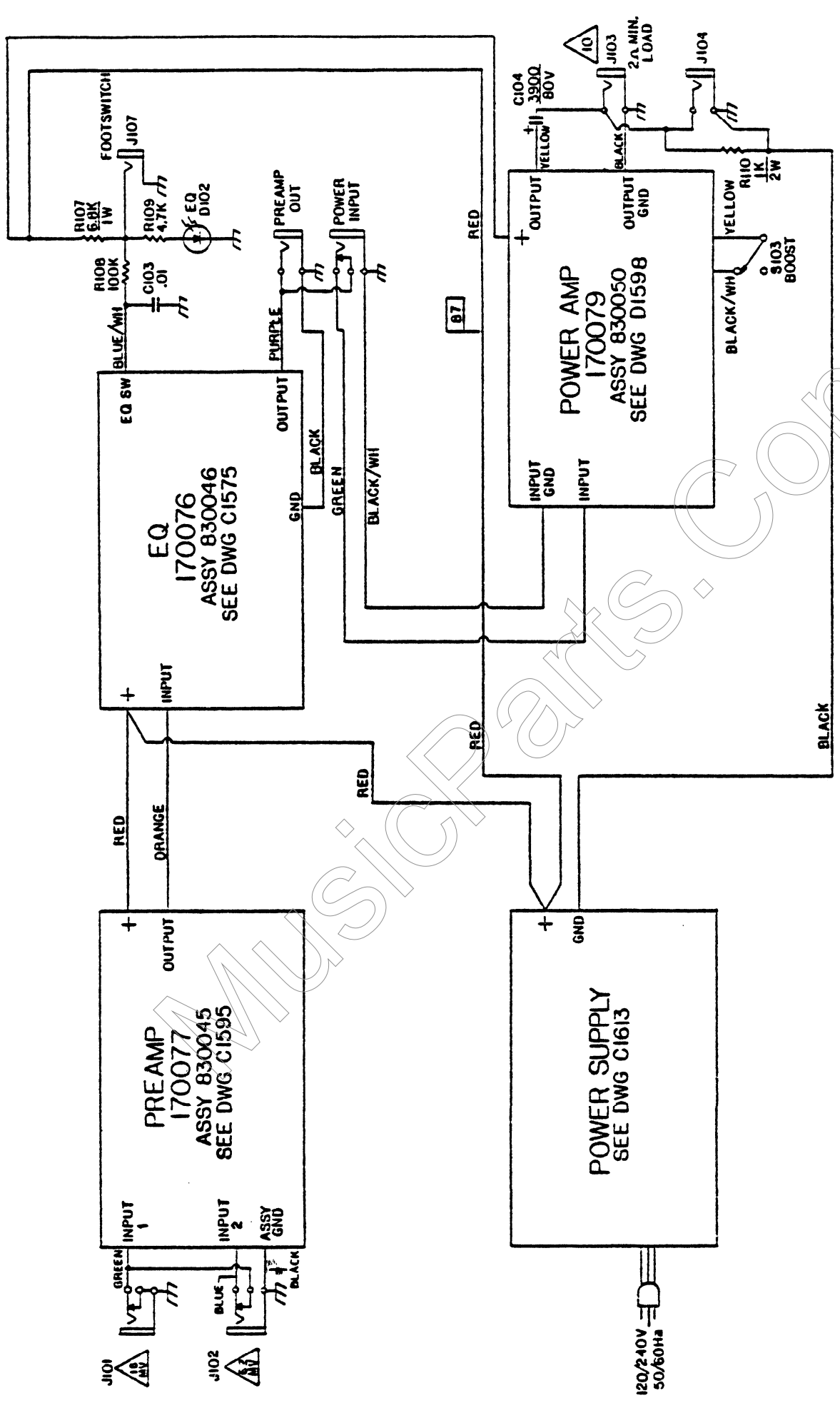
220

GUITAR AMPLIFIER

MusicParts.com

acoustic control corporation

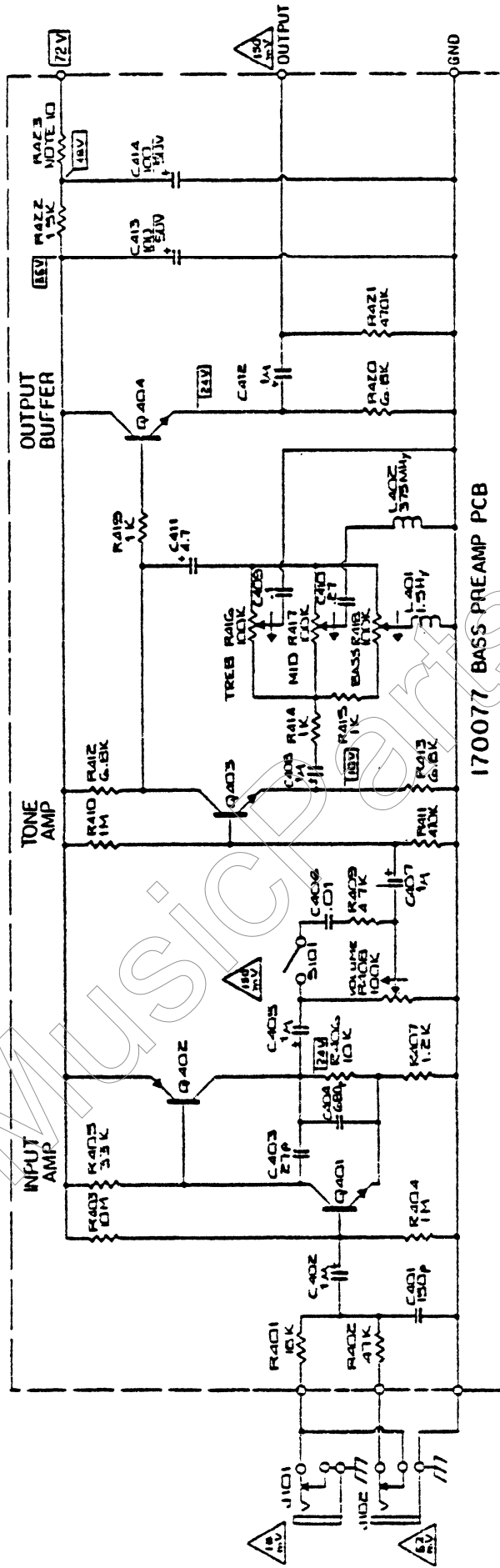
7949 WOODLEY AVENUE
VAN NUYS, CA 91406
(213) 997-6631



BY	DATE
DRAWN R. ALKALINO	ES-17-17
CHECKED	
APPROVED	3/13/77

ACOUSTIC control corp van nuys, california 91408	
TITLE BLOCK SCHEMATIC MODEL 220	
SIZE C	DRAWING NO. 1615
CODE 3	PART NO. REV
SCALE DO NOT SCALE THIS PRINT	

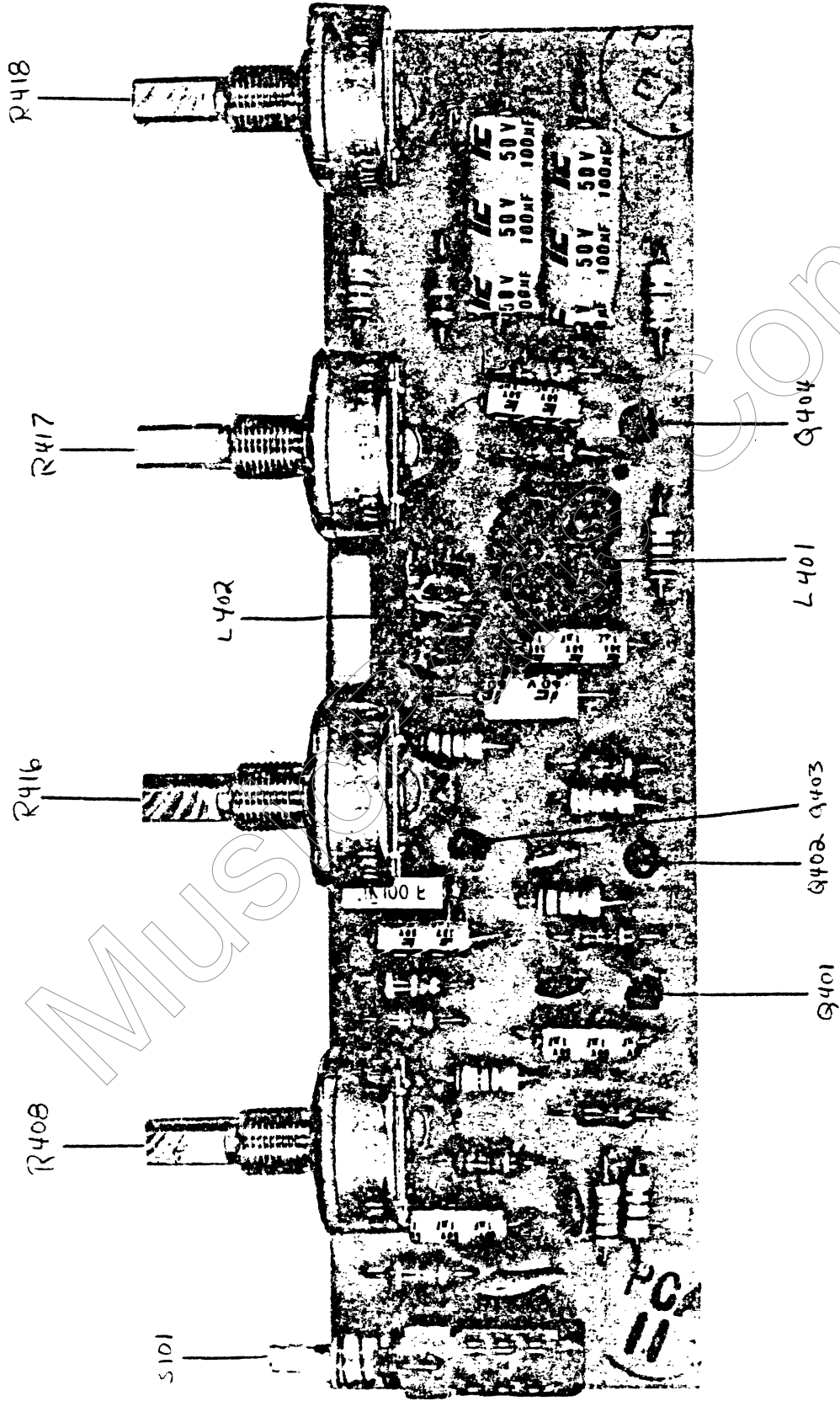
REFERENCE DRAWINGS
C1595 -- PRE-AMP
C1575 -- EQUALIZER
D1598 -- POWER AMP
C1613 -- POWER SUPPLY
E1600 -- MASTER SCHEMATIC



170077 BASS PREAMP PCB

- NOTES: UNLESS NOTED OTHERWISE
1. ALL RESISTORS ARE IN OHMS UNLESS NOTED OTHERWISE
 2. ALL CAPACITORS ARE IN MFD UNLESS NOTED OTHERWISE
 3. ALL DIODES ARE 4000S UNLESS NOTED OTHERWISE
 4. ALL JFET TRANSISTORS ARE 2N2844 UNLESS NOTED OTHERWISE
 5. ALL JFET TRANSISTORS ARE 2N4248 UNLESS NOTED OTHERWISE
 6. ALL DC VOLTS FROM GROUND UNLESS NOTED OTHERWISE
 7. ALL AC VOLTS FROM GROUND UNLESS NOTED OTHERWISE
 8. SUBSSEMBLY PIN B300045
 9. LAST CHARACTER DESIGNATIONS R423 - C414 - Q404 - L402
 10. R423 3.9K FOR 72V PS R423 5.1K FOR 67V PS

A. CIRC. R423, ADDED NOTE 10 AND CIRC. C414, INSTEAD OF C413	
BY	DATE
DRAWN: E. A. LINDO	2-25-71
CHECKED	
APPROVED: [Signature]	5-15-71
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Acoustic control corp van Nuys, California 91406	
TITLE BASS PREAMP • 170077	
SIZE	DRAWING NO.
C	3
PART NO.	REV
1595	A
SCALE (N.H.): DO NOT SCALE THIS PRINT	

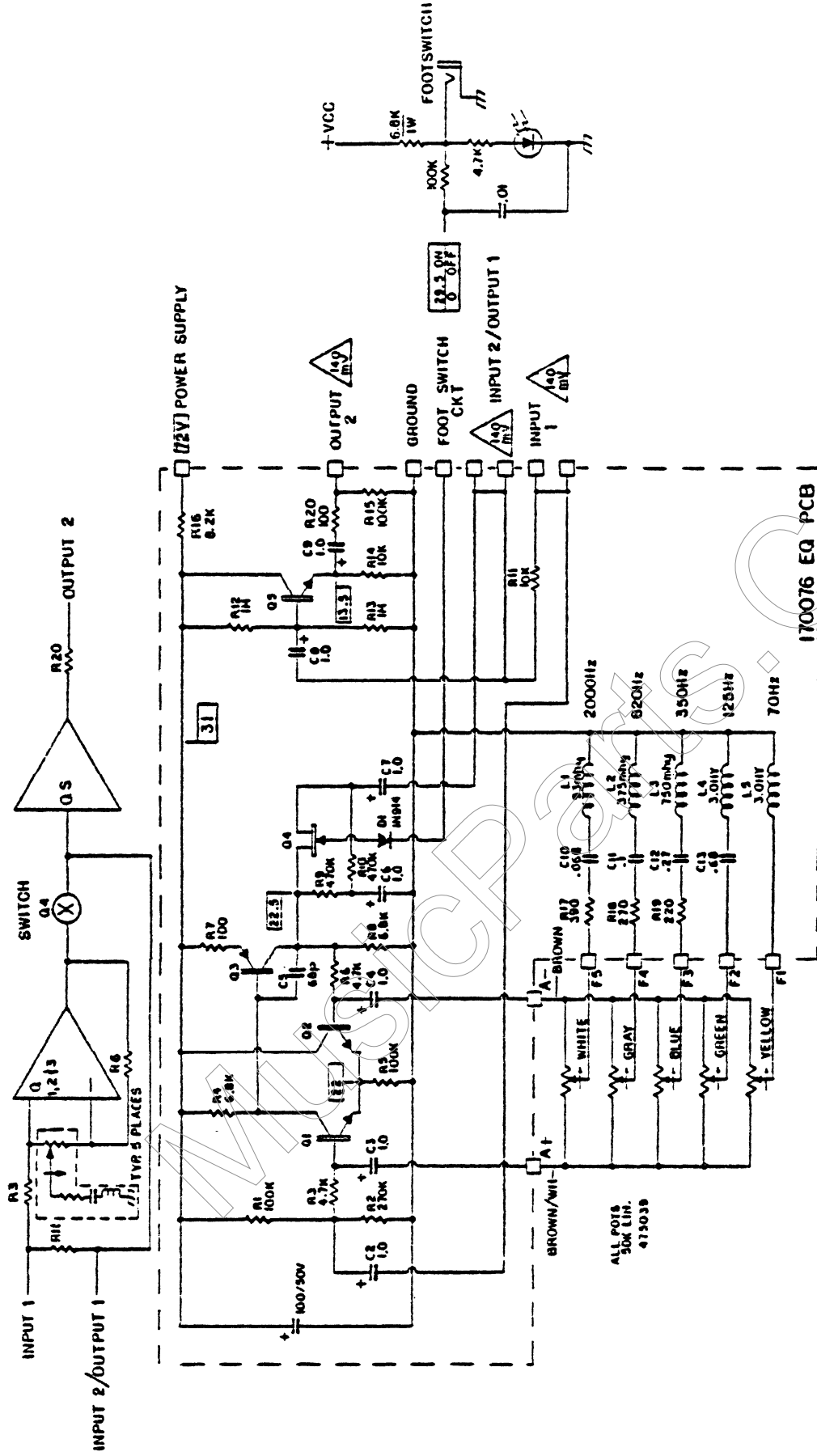


PICTORIAL
PRE-AMP ASSEMBLY 830045
SCHEMATIC C1595

Parts List
Pre-Amp Assembly 830045
Schematic C1595

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB	Printed Circuit Board	170077
C 401	Capacitor, Disc, 150pf	157007
C 402	Capacitor, Electrolytic, 1uf, 50V	159001
C 403	Capacitor, Disc, 27pf	157003
C 404	Capacitor, Disc, 680pf	157010
C 405	Capacitor, Electrolytic, 1uf, 50V	159001
C 406	Capacitor, Disc, .01uf	157016
C 407	Capacitor, Electrolytic, 1uf, 50V	159001
C 408	Capacitor, Electrolytic, 1uf, 50V	159001
C 409	Capacitor, MM, .1uf	156005
C 410	Capacitor, MM, .27uf	158007
C 411	Capacitor, Electrolytic, 4.7uf, 50V	159003
C 412	Capacitor, Electrolytic, 1uf, 50V	159001
C 413	Capacitor, Electrolytic, 100uf, 50V	159007
C 414	Capacitor, Electrolytic, 100uf, 50V	159007
L 401	Inductor, 1.5Hy	180002
L 402	Inductor, 375MHY	180004
R 401	Resistor, 18K ohm, 5%, 1/2watt	476318
R 402	Resistor, 47K ohm, 5%, 1/2watt	476347
R 403	Resistor, 10M ohm, 5%, 1/2watt	476610
R 404	Resistor, 1M ohm, 5%, 1/2watt	476510
R 405	Resistor, 33K ohm, 5%, 1/2watt	476333
R 406	Resistor, 10K ohm, 5%, 1/2watt	476310
R 407	Resistor, 1.2K ohm, 5%, 1/2watt	476212
R 408	Resistor, Rotary Pot 100K ohm	475056
R 409	Resistor, 4.7K ohm, 5%, 1/2watt	476247
R 410	Resistor, 1M ohm, 5%, 1/2watt	476510
R 411	Resistor, 470K ohm, 5%, 1/2watt	476447
R 412	Resistor, 6.8K ohm, 5%, 1/2watt	476268
R 413	Resistor, 6.8K ohm, 5%, 1/2watt	476268
R 414	Resistor, 1K ohm, 5%, 1/2watt	476210
R 415	Resistor, 1K ohm, 5%, 1/2watt	476210
R 416	Resistor, Rotary Pot 100K ohm	475056
R 417	Resistor, Rotary Pot 100K ohm	475056
R 418	Resistor, Rotary Pot 100K ohm	475056
R 419	Resistor, 1K ohm, 5%, 1/2watt	476210
R 420	Resistor, 6.8K ohm, 5%, 1/2watt	476268
R 421	Resistor, 470K ohm, 5%, 1/2watt	476447
R 422	Resistor, 1.5K ohm, 5%, 1/2watt	476215
R 423	Resistor, 3.9K ohm, 5%, 1/2watt	476239
Q 401	Transistor, NPN, 2N2484	480023
Q 402	Transistor, PNP, 2N4248	480023
Q 403	Transistor, NPN, 2N2484	480023
Q 404	Transistor, NPN, 2N2484	480023
S 101	Switch Push DPDT	510045

EQUALIZER AMP



NOTES UNLESS OTHERWISE SPECIFIED

- 1 ALL RESISTORS ARE IN OHMS 1/2W 5%
- 2 ALL CAPACITORS ARE IN MFD
- 3 Q1, 2, 4, 5 - 480023 - 2N2484
- Q3 - 480038 - 2N4249
- Q4 - 480024 - 2N3457
- 4 LAST C, D, E - C13, Q3, R20
- 5 DC VOLTS FROM GROUND USING VTVM
NO SIGNAL APPLIED
- Δ - AC VOLTS FROM GROUND USING ACVTVM
100V SIGNAL - POTS MID POS.

170076 EQ PCB

BY	DATE	10-3-77
DRAWN	10-3-77	10-3-77
CHECKED	10-3-77	10-3-77
APPROVED	10-3-77	10-3-77
D ADDED WIRE COLORS TO EQ POTS		
C ADDED BLOCK DIAGRAM AND REMOVED NOTE 6		
B ADDED R2 AND CHGD NOTE 4		
A ADDED NOTE 5, CHG VALUE HIC FOR DIFFERENT PS W/AC		
TITLE		
SCHEMATIC - GRAPHIC EQUALIZER		
van nuy, california 91406		
SIZE	DRAWING NO.	REV
C	3	D
PART NO. C1575		
DO NOT SCALE THIS PRINT		

acoustic control corp

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SCHEMATIC - GRAPHIC EQUALIZER

van nuy, california 91406

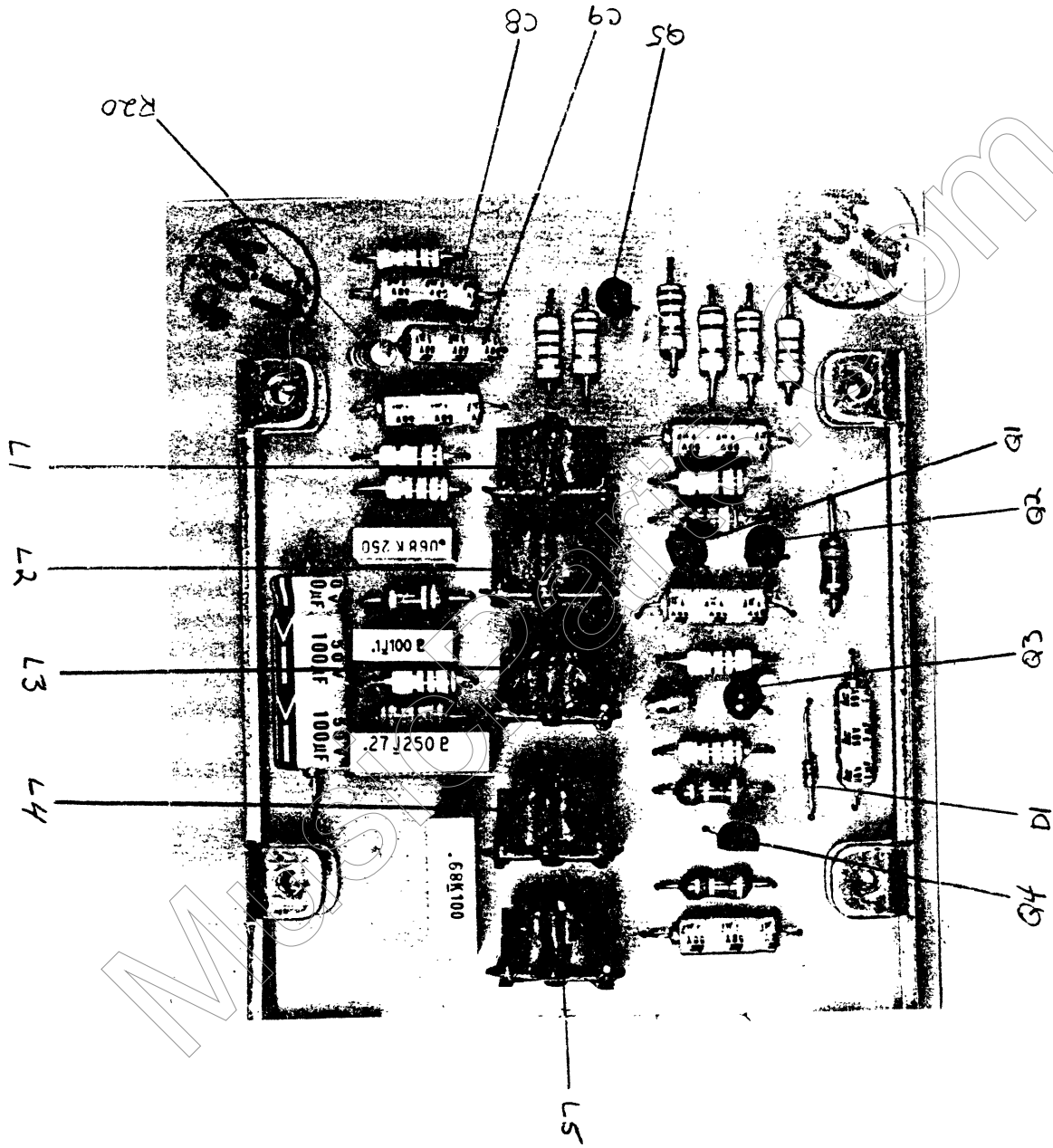
SCHEMATIC - GRAPHIC EQUALIZER

van nuy, california 91406

SCHEMATIC - GRAPHIC EQUALIZER

van nuy, california 91406

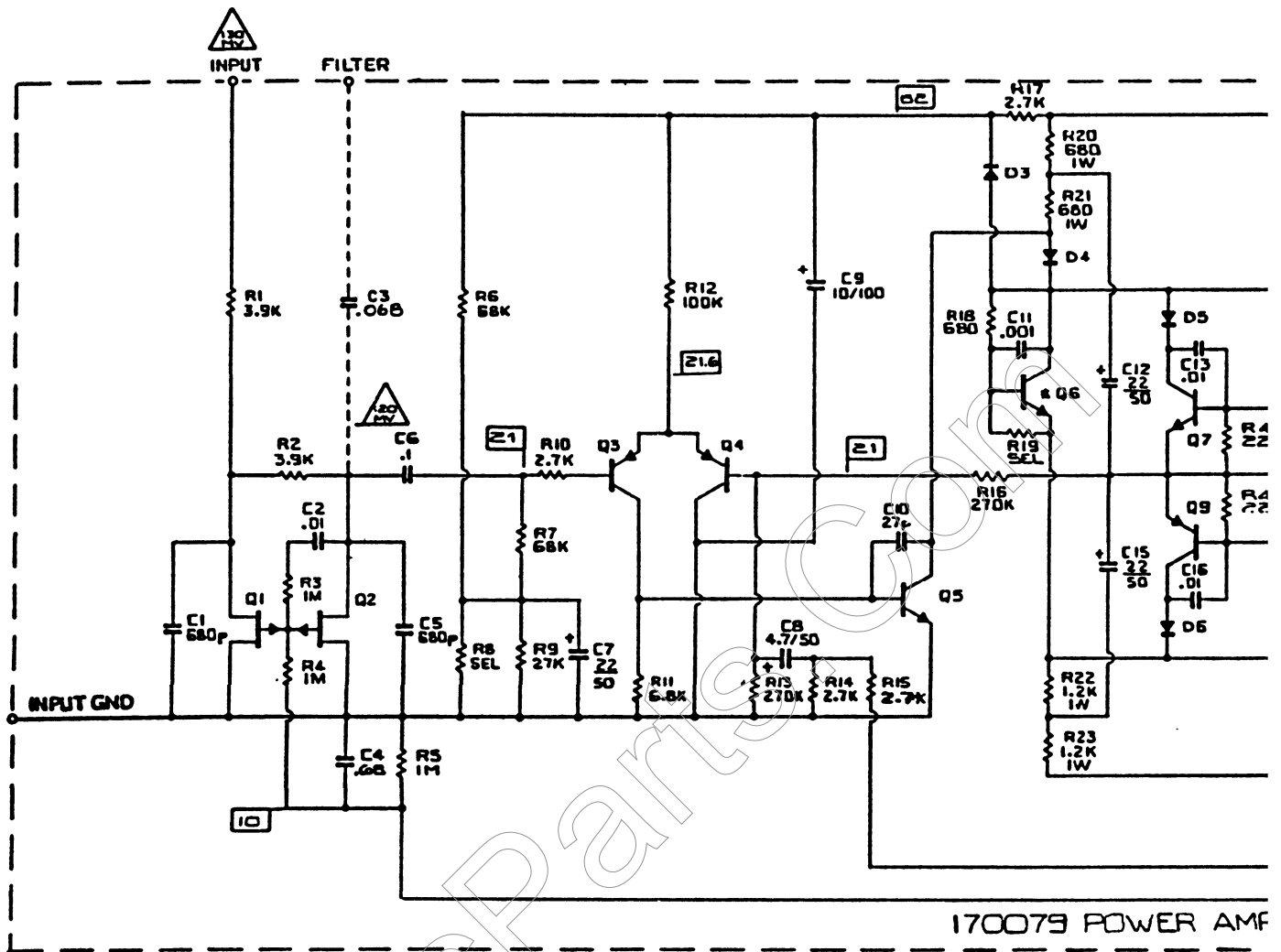
SCHEMATIC - GRAPHIC EQUALIZER



PICTORIAL
 E.Q. ASSEMBLY 830046
 SCHEMATIC C1575

Parts List
 E.Q. Assembly 830046
 Schematic C1575

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB	Printed Circuit Board	170076
C 1	Capacitor, Electrolytic, 100uf, 50V	159007
C 2	Capacitor, Electrolytic, 1uf, 50V	159001
C 3	Capacitor, Electrolytic, 1uf, 50V	159001
C 4	Capacitor, Electrolytic, 1uf, 50V	159001
C 5	Capacitor, Disc, 68pf	157004
C 6	Capacitor, 1uf, 35V	154004
C 7	Capacitor, 1uf, 35V	154004
C 8	Capacitor, Electrolytic, 1uf, 50V	159001
C 9	Capacitor, Electrolytic, 1uf, 50V	159001
C 10	Capacitor, MM, .068uf	158004
C 11	Capacitor, MM, .1uf	158005
C 12	Capacitor, MM, .27uf	158007
C 13	Capacitor, MM, .68uf	158009
L 1	Inductor, 93MHY	180012
L 2	Inductor, 375MHY	180004
L 3	Inductor, 750MHY	180005
L 4	Inductor, 3HY	180006
L 5	Inductor, .3HY	180006
R 1	Resistor, 100K ohm, 5%, 1/2watt	476410
R 2	Resistor, 270K ohm, 5%, 1/2watt	476427
R 3	Resistor, 4.7K ohm, 5%, 1/2watt	476247
R 4	Resistor, 6.8K ohm, 5%, 1/2watt	476268
R 5	Resistor, 100K ohm, 5%, 1/2watt	476410
R 6	Resistor, 4.7K ohm, 5%, 1/2watt	476247
R 7	Resistor, 100 ohm, 5%, 1/2watt	476110
R 8	Resistor, 6.8K ohm, 5%, 1/2watt	476268
R 9	Resistor, 470K ohm, 5%, 1/2watt	476447
R 10	Resistor, 470K ohm, 5%, 1/2watt	476310
R 11	Resistor, 10K ohm, 5%, 1/2watt	476510
R 12	Resistor, 1M ohm, 5%, 1/2watt	476510
R 13	Resistor, 10K ohm, 5%, 1/2watt	476310
R 14	Resistor, 100K ohm, 5%, 1/2watt	476410
R 15	Resistor, 100K ohm, 5%, 1/2watt	476410
R 16	Resistor, 8.2K ohm, 5%, 1/2watt	476282
R 17	Resistor, 390 ohm, 5%, 1/2watt	476139
R 18	Resistor, 270 ohm, 5%, 1/2watt	476122
R 19	Resistor, 200 ohm, 5%, 1/2watt	476110
R 20	Resistor, 100 ohm, 5%, 1/2watt	476110
F 1	Slide Pot, 50K Lin	475039
F 2	Slide Pot, 50K Lin	475039
F 3	Slide Pot, 50K Lin	475039
F 4	Slide Pot, 50K Lin	475039
F 5	Slide Pot, 50K Lin	475039
D 1	Diode, 1N914	480005
Q 1	Transistor, NPN, 2N2484	480023
Q 2	Transistor, NPN, 2N2484	480023
Q 3	Transistor, PNP, 2N4248	480032
Q 4	Transistor, N FET, 2N5457	480024
Q 5	Transistor, NPN, 2N2484	480023

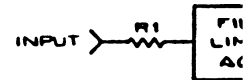


170079 POWER AMP

NOTES UNLESS NOTED OTHERWISE

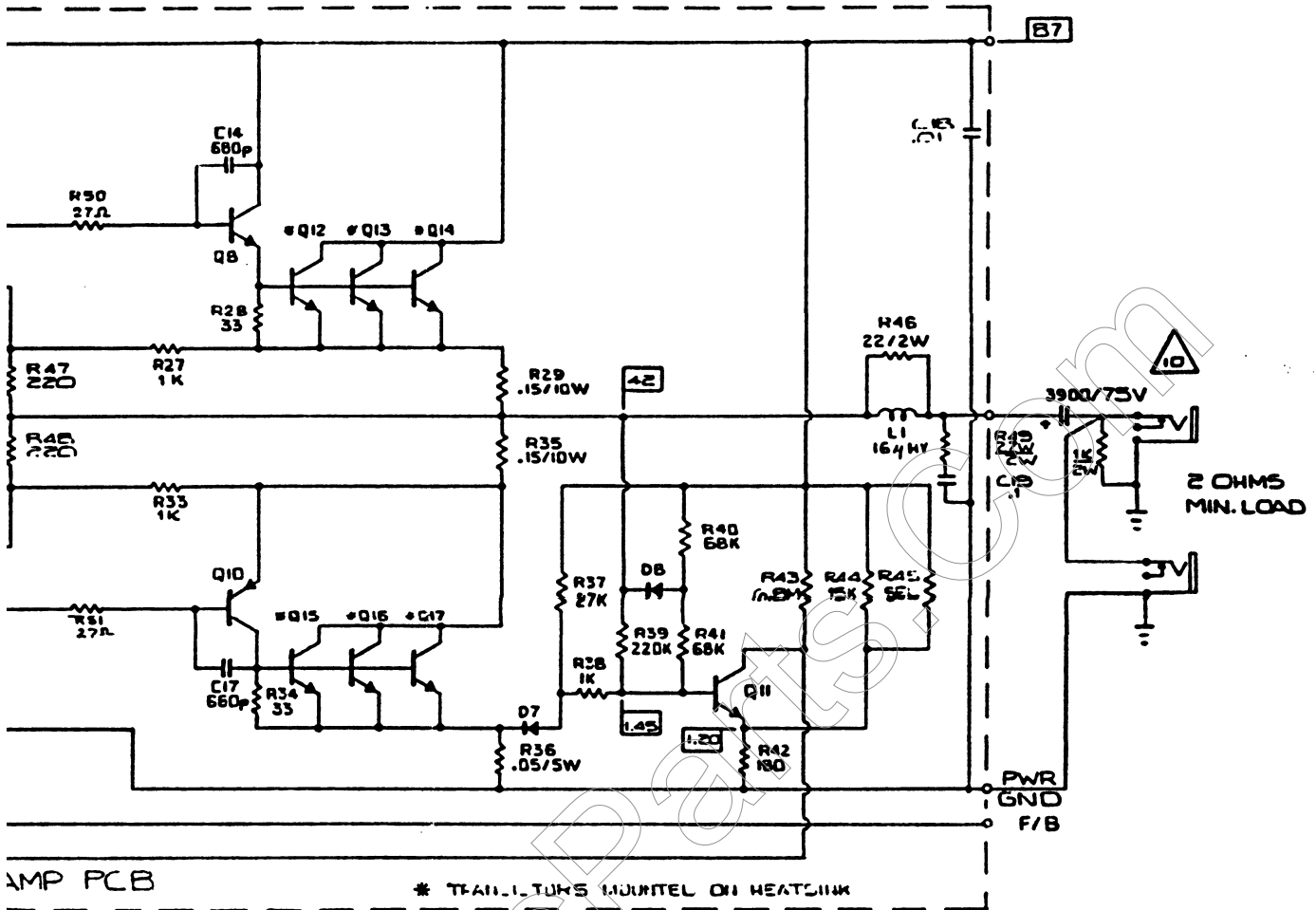
- 1 RESISTORS ARE IN OHMS 1/2W 5%
- 2 CAPACITORS ARE IN MFD
- 3 DIODES ARE IN% 480005
- 4 □ = DC VOLTS FROM GROUND USING VTVM
NO SIGNAL APPLIED
- 5 Δ = AC VOLTS FROM GROUND USING
ACVTVM 1K HZ SIGNAL
- 6 LAST COMPONENT DESIGNATIONS
R4 - C19 - Q17 - D6 - L1
7. REF ASSY PN B30050
PCB ONLY B30051
- 8 BIAS ADJUSTMENT - R19 SELECTED FOR APPROX.
25-30 WATTS AS POWER AT 120 VOLTS LINE
- 9 SYMMETRICAL CLIPPING - R8 SELECTED FOR SYMMETRICAL
CLIPPING 20.5 DB 2 OHM LOAD 1KHZ
@ 120 VOLTS LINE
- 10 AGC - R45 SELECTED FOR NO AGC ACTION BELOW
18V @ 2 OHMS LOAD, AGC ACTION BY 19VOLTS
- 11 NONE
12. COMPONENT NOT USED C 3 R24,25,26,30,31,32

Q#	ACOUSTIC PIN	MFG PIN
1+2	480033 P FET	2N4360
3+4	480032 PNP	2N4248
5	480003 NPN	KCA40408
6,7+11	480023 NPN	PN2084
8	480056 NPN	RCA2N647A
10	480057 PNP	RCAJN647E
12+17	480058 NPN	SPECIAL

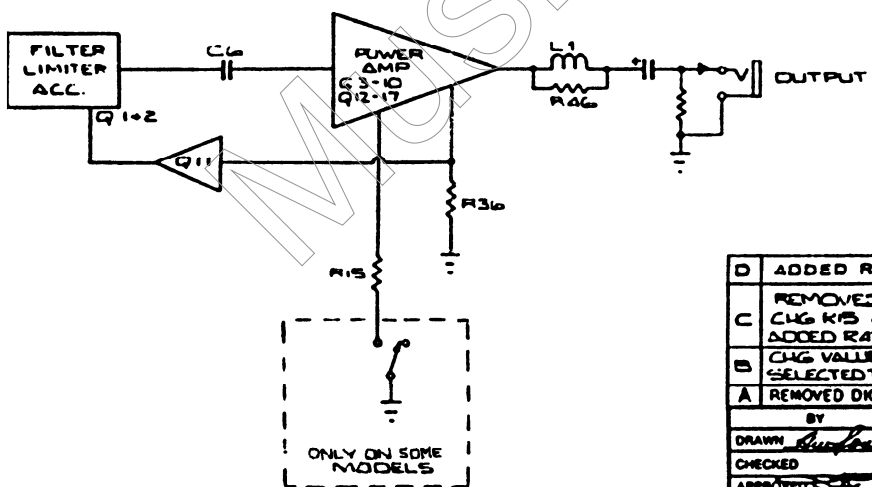


SELECTED PARTS

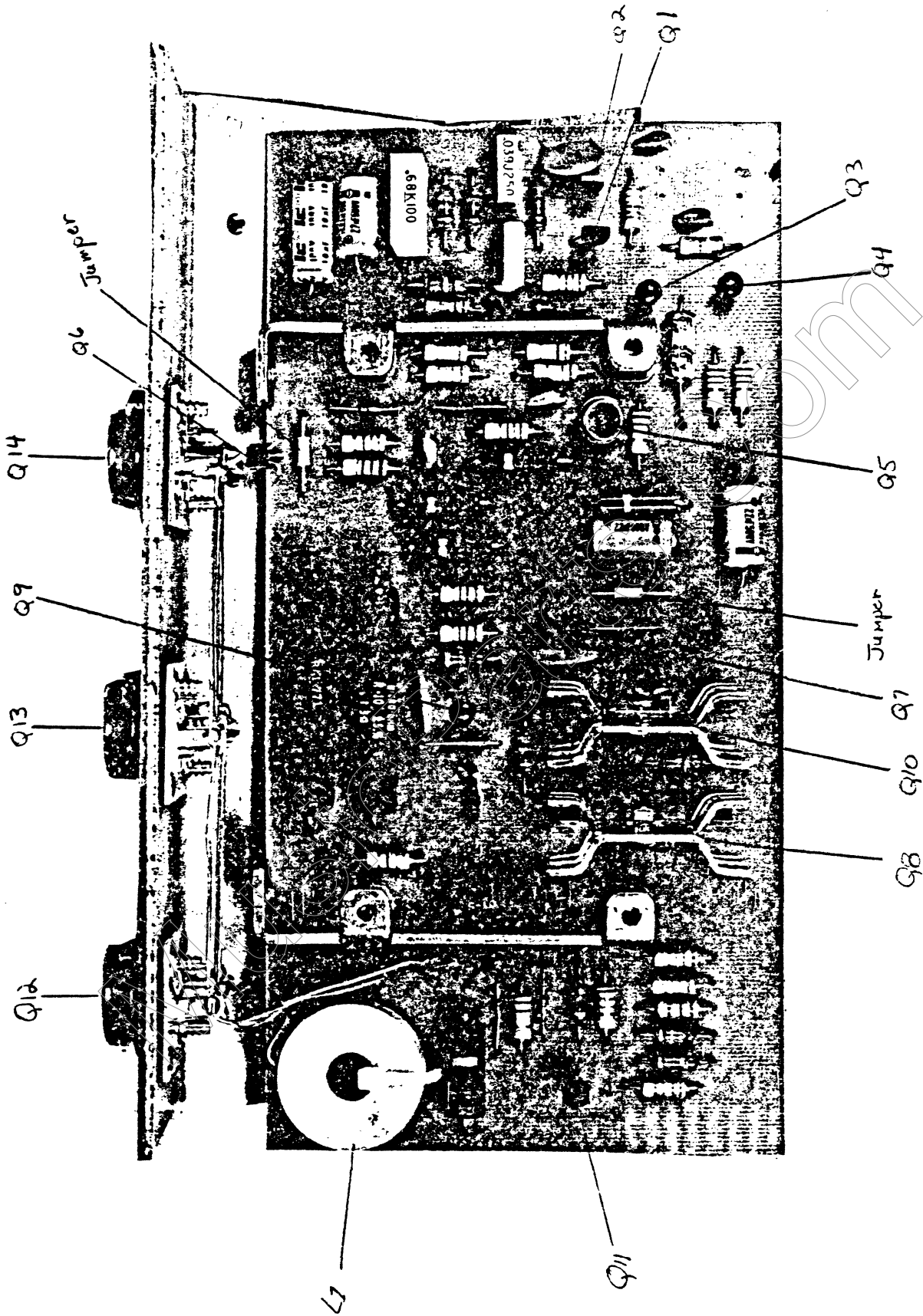
COMP #	MIN VALUE	MAX VALUE	TYP VALUE
R8	68K	220K	150K
R19	56C	82C	680
R45	68K	NONE	100K



MusicParts.Com TechNote
Outputs are 2N6254



D	ADDED R50 & 31 CHANGE NOTE C	8-20-77
C	REMOVED R24, 25, 26, 30, 31 & 32 NOTE 11 CHG R15 27 & 33 & 3 NOTE C ADDED R47 451 45 (1B & 1B NOTE 12	5-15-77
B	CHG VALUES OF R15, R25 & R32 CHG BLOCK DIAGRAM SELECTED PARTS BLOCK REVISION ADDED NOTES B, 9, 10, 11	8-23-77
A	REMOVED DIODE D1 AND D2	7-18-77
BY _____ DATE 3-31-77		acoustic control corp van nuys, california 91406
DRAWN _____		
CHECKED _____		
APPROVED _____ 4/77		TITLE 170079 SCHEMATIC PWR AMP PCB
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SIZE D	DRAWING NO. 4	PART NO. 1598
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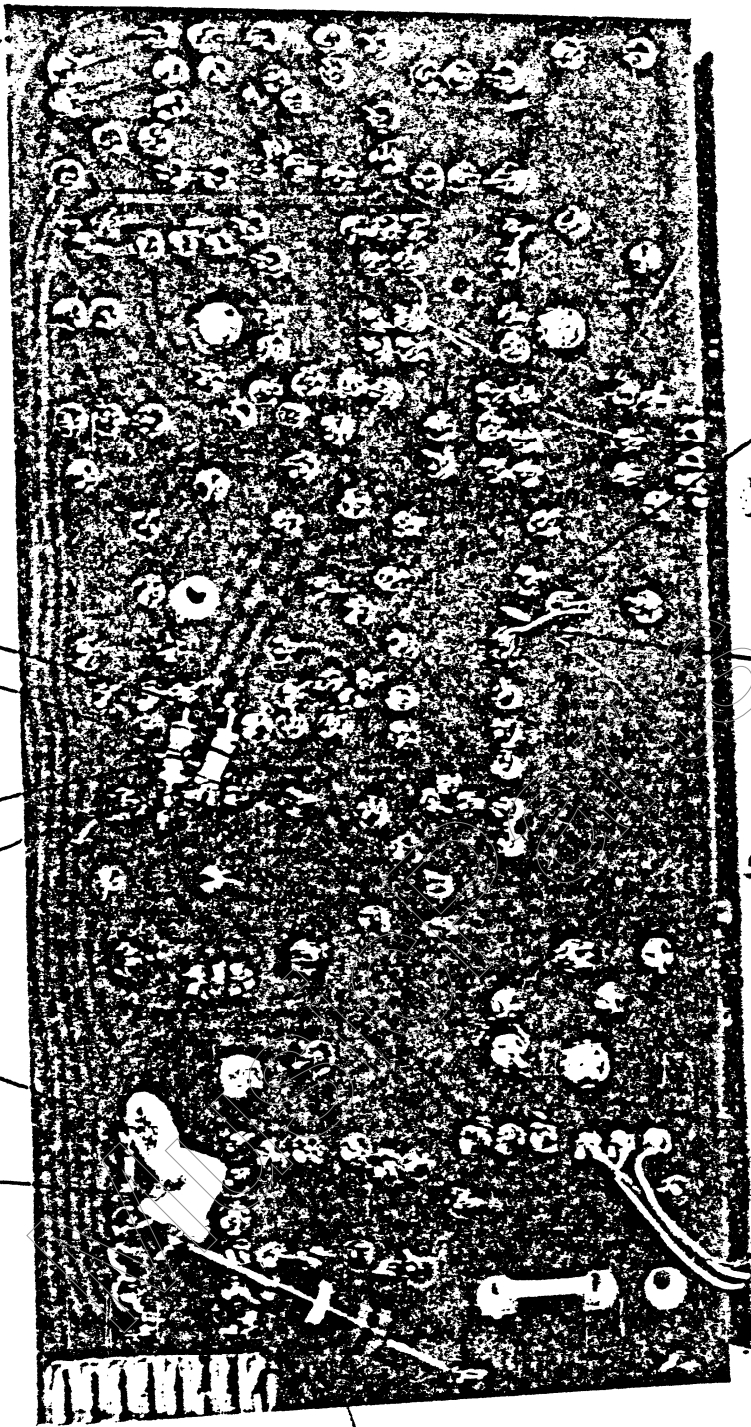


PICTORIAL
 POWER AMP ASSEMBLY 838050
 SCHEMATIC

PAD CUT MOD

R51 R50

C19 C18



R49



PAD CUT MOD

Q17

Jumper

Q16

Q15

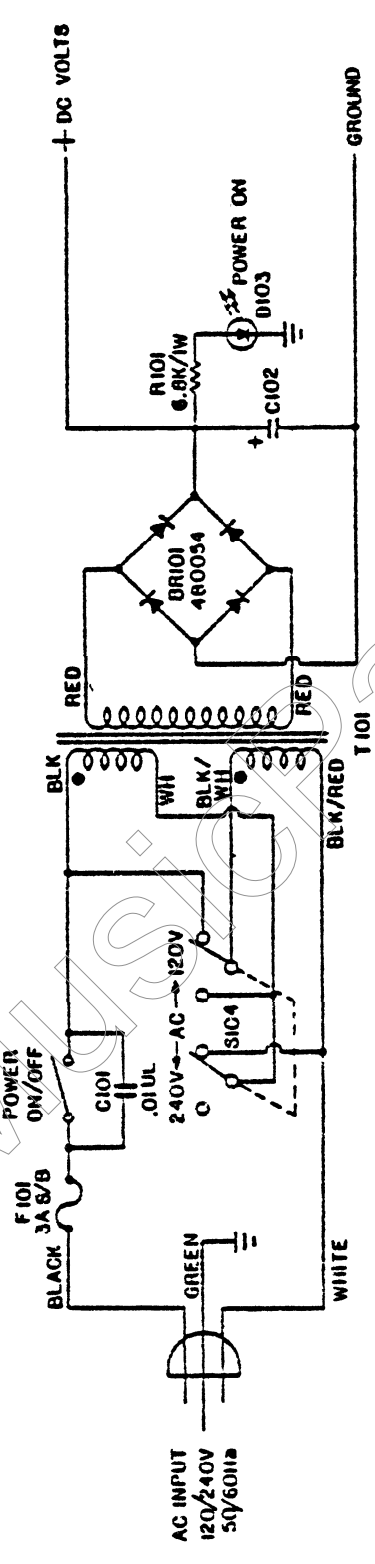
PICTORIAL

POWER AMP ASSEMBLY 830050

SCHEMATIC D1598

Parts List
Power Amp Assembly 830050
Schematic D1598

Schematic Reference	DESCRIPTION	Acoustic Part No.	Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB	Printed Circuit Board	170079	R 39	Resistor, 220K ohm, 5%, 1/2watt	476422
C 1	Capacitor, Disc, 680pf	157010	R 40	Resistor, 68K ohm, 5%, 1/2watt	476368
C 2	Capacitor, Disc, .01	157016	R 41	Resistor, 68K ohm, 5%, 1/2watt	476368
C 4	Capacitor, MM, .68uf	158009	R 42	Resistor, 180 ohm, 5%, 1/2watt	476118
C 5	Capacitor, Disc, 680pf	157010	R 43	Resistor, 6.8M ohm, 5%, 1/2watt	476568
C 6	Capacitor, MM, .1uf	158005	R 44	Resistor, 15K ohm, 5%, 1/2watt	476315
C 7	Capacitor, Electrolytic, 22uf, 50V	159005	R 45	Resistor, Select	472022
C 8	Capacitor, Electrolytic, 4.7uf, 50V	159003	R 46	Resistor, 220 ohm, 5%, 1/2watt	476122
C 9	Capacitor, Electrolytic, 10uf, 100V	159008	R 47	Resistor, 220 ohm, 5%, 1/2watt	476122
C 10	Capacitor, Disc, 27pf	157003	R 48	Resistor, 220 ohm, 5%, 1/2watt	472022
C 11	Capacitor, Disc, .001uf	157011	R 49	Resistor, 27 ohm, 5%, 1/2watt	476027
C 12	Capacitor, Electrolytic, 22uf, 50V	159005	R 50	Resistor, 27 ohm, 5%, 1/2watt	476027
C 13	Capacitor, Disc, .01uf	157010	R 51	Resistor, 27 ohm, 5%, 1/2watt	476027
C 14	Capacitor, Disc, 680pf	157016	L 1	Coil, 15 Micro HY	820038
C 15	Capacitor, Electrolytic, 22uf, 50V	159005	D 3	Diode IN914	480005
C 16	Capacitor, Disc, .01uf	157016	D 4	Diode IN914	480005
C 17	Capacitor, Disc, 680pf	157010	D 5	Diode IN914	480005
C 18	Capacitor, Disc, .01uf	157016	D 6	Diode IN914	480005
C 19	Capacitor, MM, .1uf	158005	D 7	Diode IN914	480005
R 1	Resistor, 3.9K ohm, 5%, 1/2watt	476239	D 8	Diode IN914	480005
R 2	Resistor, 3.9K ohm, 5%, 1/2watt	476239	Q 1	Transistor, 2N4360, P FET	480033
R 3	Resistor, 1M ohm, 5%, 1/2watt	476510	Q 2	Transistor, 2N4360, P FET	480033
R 4	Resistor, 1M ohm, 5%, 1/2watt	476510	Q 3	Transistor, RNP, 2N4248	480032
R 5	Resistor, 1M ohm, 5%, 1/2watt	476510	Q 4	Transistor, PNP, 2N4248	480032
R 6	Resistor, 68K ohm, 5%, 1/2watt	476368	Q 5	Transistor, NPN, RCA 40408	480003
R 7	Resistor, 68K ohm, 5%, 1/2watt	476368	Q 6	Transistor, NPN, PN2484	480023
R 8	Resistor, Select	476327	Q 7	Transistor, NPN, PN2484	480023
R 9	Resistor, 27K ohm, 5%, 1/2watt	476227	Q 8	Transistor, 2N6474	480056
R 10	Resistor, 2.7K ohm, 5%, 1/2watt	476227	Q 9	Transistor, PNP, 2N4248	480032
R 11	Resistor, 6.8K ohm, 5%, 1/2watt	476268	Q 10	Transistor, RCA, 2N6476	480057
R 12	Resistor, 100K ohm, 5%, 1/2watt	476410	Q 11	Transistor, NPN, PN2484	480023
R 13	Resistor, 270K ohm, 5%, 1/2watt	476427	Q 12	Power Transistor	480058
R 14	Resistor, 2.7K ohm, 5%, 1/2watt	476227	Q 13	Power Transistor	480058
R 15	Resistor, 1K ohm, 5%, 1/2watt	476210	Q 14	Power Transistor	480058
R 16	Resistor, 270K ohm, 5%, 1/2watt	476427	Q 15	Power Transistor	480058
R 17	Resistor, 2.7K ohm, 5%, 1/2watt	476227	Q 16	Power Transistor	480058
R 18	Resistor, 680 ohm, 5%, 1/2watt	476168	Q 17	Power Transistor	480058
R 19	Select Resistor	474168			
R 20	Resistor, 680 ohm, 10%, 1watt	474168			
R 21	Resistor, 680 ohm, 10%, 1watt	474168			
R 22	Resistor, 1.2K ohm, 10%, 1watt	474212			
R 23	Resistor, 1.2K ohm, 10%, 1watt	474212			
R 27	Resistor, 1K, 5%, 1/2watt	476210			
R 28	Resistor, 33 ohm, 5%, 1/2watt	478002			
R 29	Resistor, .15 ohm, 5%, 10 watt	468815			
R 33	Resistor, 1K ohm, 5%, 1/2watt	476210			
R 34	Resistor, 33 ohm, 5%, 1/2watt	478002			
R 35	Resistor, .15 ohm, 5%, 10watt	468815			
R 36	Resistor, .05 ohm, 5%, 5watt	467750			
R 37	Resistor, 27K ohm, 5%, 1/2watt	476327			
R 38	Resistor, 1K ohm, 5%, 1/2watt	476210			



MODELS	T101	C102	DC VOLTS	F101 @120V 125V FUSE	F101 @240V 250V FUSE
114/115/116	560013 OR 560026	$\frac{3900}{80}$	76	3ASB	1.5ASB
124/125/126	560013 OR 560026	$\frac{7800}{100}$	76	3ASB	1.5ASB
220/230	560014	$\frac{7800}{100}$	87	5ASB	2.5ASB
320/330	560027	$\frac{7800}{100}$	88	6.25ASB	3ASB

BY DRAWN TL AUGLING	DATE 7-23-11	Acoustic control corp van nuys, california 91466
CHECKED	APPROVED [Signature]	
TITLE AC POWER SUPPLY GUITAR AMPS		SIZE C
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SCALE 3		REV DO NOT SCALE THIS PRINT

Parts List
 Power Supply
 Schematic C1613

Schematic Reference	DESCRIPTION	Acoustic Part No.
F 101	Slow Blow Fuse	151015
C 101	Capacitor, .01uL AC Line	153013
C 102	Capacitor, 7800uf, 100Volts	474268
R 101	Resistor, 6.8K ohm, 1watt	510055
S 101	On/Off Power Switch	510032
S 104	AC 120-240 Voltage Switch	480054
BR 101	Bridge Rectifier	610012
D 103	LED Power Indicator	560026
T 101	Power Transformer	

acoustic

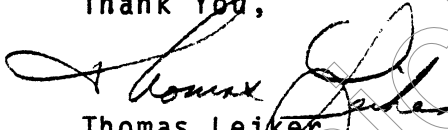
SERVICE BULLETIN

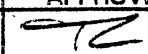
March 29, 1978

TO: ALL ACOUSTIC SERVICE CENTERS
FROM: SERVICE DEPT.
SUBJECT: MODELS 220 & 230 ADDED THERMO STABILITY

In order to increase the thermo stability and a even heat dissipation, the entire bottom of the Power Module Heatsink should be covered with thermo compound. This procedure should be implicated when having received a Model 220 or 230 Amplifier for repair where this coating has not already been done.

Thank You,


Thomas Leiker
Service Manager

UNITS AFFECTED BEFORE SERIAL #	MODELS AFFECTED	BULLETIN #	APPROVED	DATE
All units	220 & 230	1013		3-29-78