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Technical Document Distribution

Brand:	Acoustic		
Model	470		
Product:	Lead / Bass Guitar Amplifier		
Description:	Service Manual	Dated:	1973

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TechTips: 1

Pages: 21

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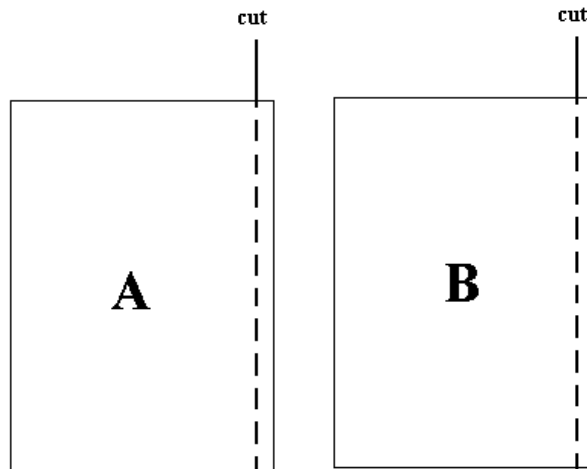
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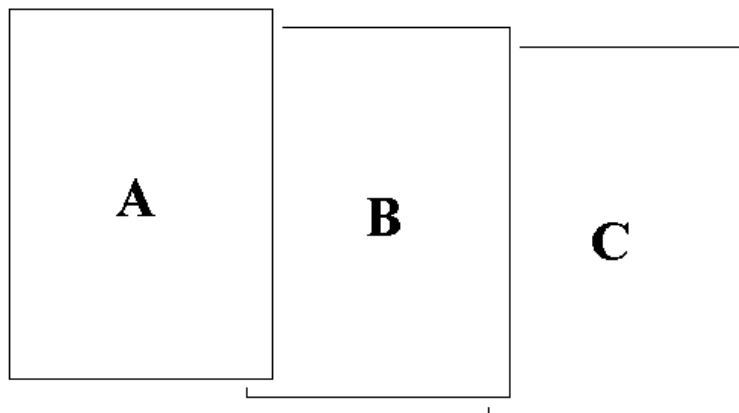
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service manual

470

AMPLIFIER

MusicParts.com

acoustic control corporation

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MODEL 470 ELECTRICAL SPECIFICATIONS

1. OUTPUT

Power output (continuous) across 4 ohm load	
@ less than 5% distortion	170 Watts RMS
Peak power output (instantaneous) across	
4 ohm load @ 5% distortion	450 Watts
Power output (continuous) across 2 ohm load	
@ 5% distortion	170 Watts RMS
Peak power output (instantaneous)	
across 2 ohm load @ 5% distortion	400 Watts

2. GAIN (all controls flat volume maximum)

Preamp gain (from input to line output)	38 dB or 80X
Total gain	63.5 dB or 1500X
Power amplifier gain from ext. inputs speaker output	55 dB or 500X

3. SENSITIVITY

Input voltage for maximum output	Input 1: 15 mv RMS
	Input 2: 45 mv RMS
Input voltage capability (maximum)	Input 1: 510 mv RMS
	Input 2: 1.6V RMS
Nominal Input impedance	Input 1: 470K OHMS
	Input 2: 69K OHMS

4. NOISE (all controls flat, inputs shorted)

Noise-to-full-output ratio – volume minimum	-78 dB below full output
– volume maximum	-70 dB below full output

5. FREQUENCY RESPONSE

At 10 Watt level	-3dB, 27 Hz to 21K Hz
Power bandwidth 1/2 power point	30 Hz to 18K Hz

MODEL 470 ELECTRICAL SPECIFICATIONS, continued

6. AUXILIARY OUTPUTS

Output Voltage	250 mv RMS
Impedance	5000 ohms
Booster Output	275 mv RMS
Impedance	1K ohms

7. DISTORTION CIRCUIT (all controls flat, distortion control and volume control max.)

Minimum Input Required to Clip Power Amp	425 Microvolts
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8. RANGE OF TONE CONTROLS

Bass	+15 dB Boost, -15 dB cut @ 50 Hz
Treble	+15 dB Boost, -25 dB cut @ 10KHz
Mid-Range	+7 dB Boost, -30 dB cut @ 400 Hz
Bright Switch Boost	6 dB per octave from 200 Hz to 5 KHz

9. RANGE OF GRAPHIC EQUALIZER

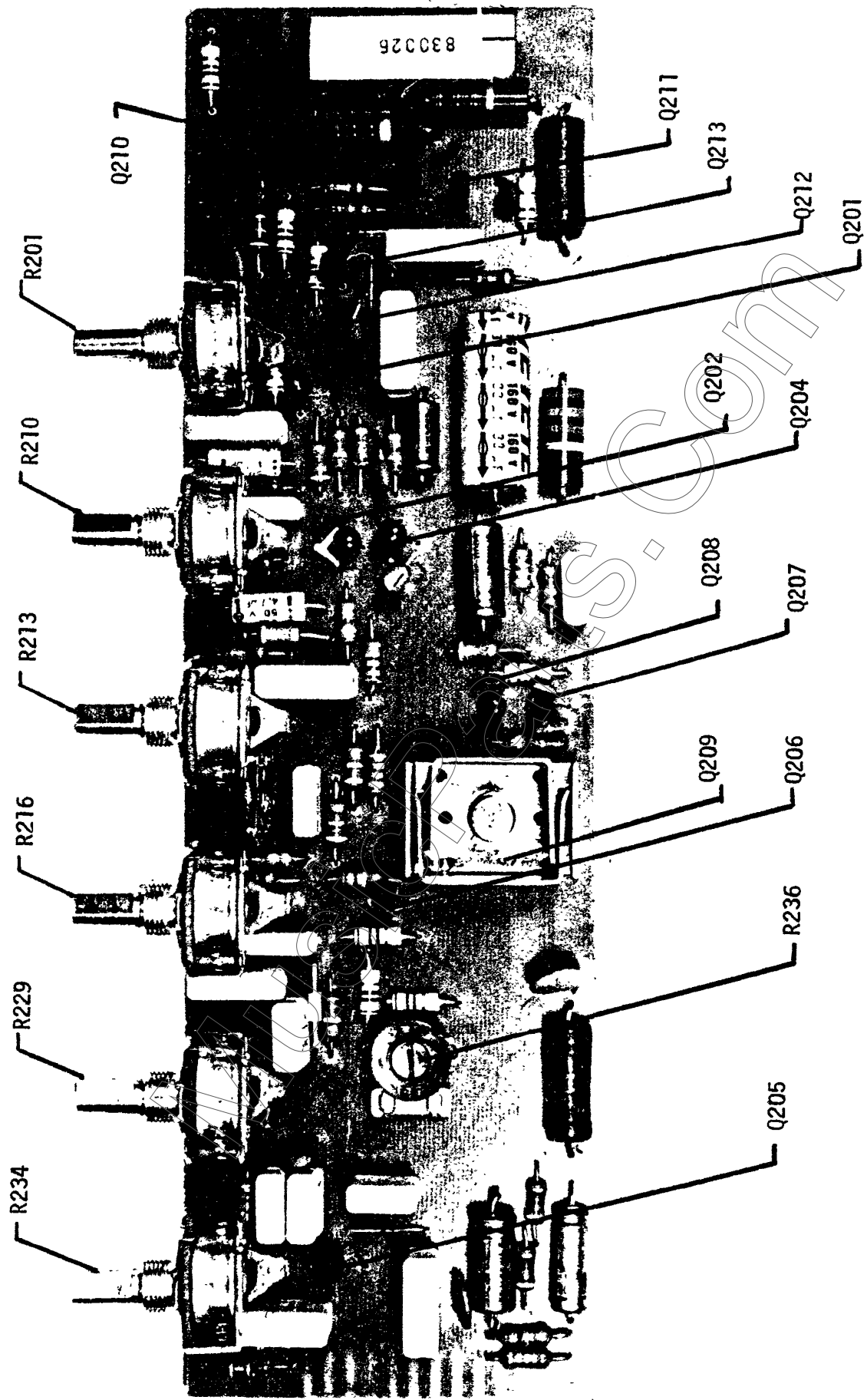
Section 1	±16 dB @ 70 Hz
Section 2	±16 dB @ 140 Hz
Section 3	±16 dB @ 280 Hz
Section 4	±16 dB @ 1100 Hz
Section 5	±16 dB @ 2200 Hz

10. TREMOLO

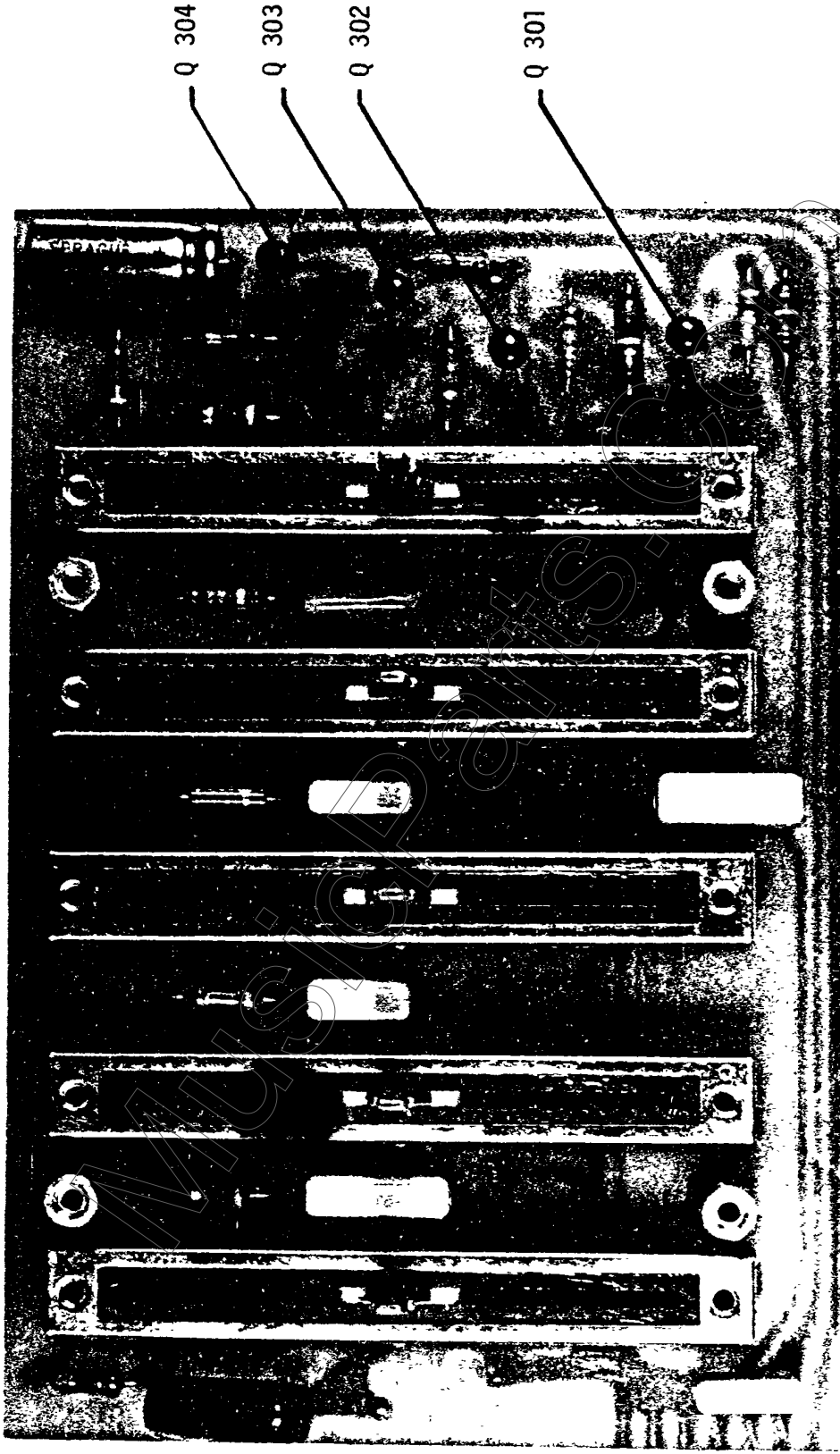
Speed Continuously Variable	2 to 8 Hz
Intensity Continuously Variable	0 to 100%

11. REVERB

Isolation	25 dB
Decay Time	1.7 Seconds



PICTORIAL
MODEL 470 - PREAMP ASSEMBLY 830026



Q 304

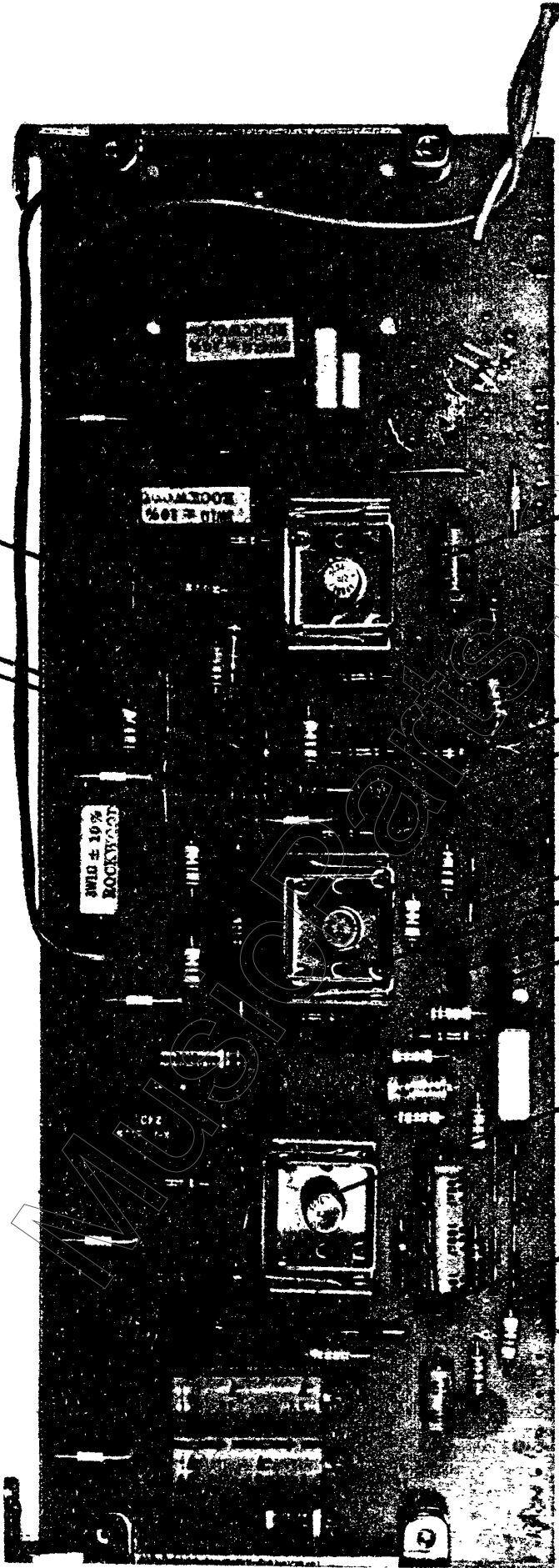
Q 303

Q 302

Q 301

PICTORIAL
MODEL 470 - GRAPHIC EQUIPMENT ASSEMBLY 830025

CR 410 Q 415 Q 403



Q 404

Q 412

Q 413

CR 411

Q 405

Q 401

Q 414

CR 412

PICTORIAL
MODEL 470 - POWER AMP CIRCUIT BOARD ASSEMBLY 830029

PARTS LIST
 MODEL 470 PREAMP A ASSEMBLY 830024
 SCHEMATIC E1440-A

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB 1	Printed Circuit Board	170043
Q 101	Transistor, NPN, 2N2484	480023
Q 102	Transistor, PNP, 2N4248	480032
Q 103	Transistor, NPN, 2N2484	480023
Q 104	Field Effect Transistor, N-Channel, 2N5457	480024
Q 105	Field Effect Transistor, P-Channel, 2N4360	480033
Q 106	Transistor, NPN, 2N2484	480023
Q 107	Transistor, PNP, 2N4248	480032
Q 108	Transistor, NPN, 2N2484	480023
Q 109	Transistor, PNP, 2N4248	480032
Q 110	Transistor, NPN, 2N2484	480023
Q 111	Transistor, PNP, 2N4248	480032
Q 112	Field Effect Transistor, N-Channel, 2N5457	480024
Q 113	Transistor, NPN, 2N2484	480023
Q 114	Transistor, NPN, 2N2484	480023
CR101	Field Effect Transistor, P-Channel, 2N4360	480033
CR102	Diode, 1N914	480005
CR103	Diode, 1N914	480005
L 101	Inductor 6HY	180007
C 101	Capacitor, .47mf, Mylar, 250V	152029
C 102	Capacitor, 68pf, Disc, 1KV	151002
C 103	Capacitor, .001mf, Disc, 500V	151008
C 104	Capacitor, .47mf, Mylar, 250V	152029
C 105	Capacitor, 10mf, Electrolytic, 50V	153002
C 106	Capacitor, 10mf, Electrolytic, 50V	153002
C 107	Capacitor, .47mf, Mylar, 250V	152029
C 108	Capacitor, .1mf, Mylar, 250V	152026
C 109	Capacitor, 22pf, Disc, 1KV	151001
C 110	Capacitor, .47mf, Mylar, 250V	152029
C 111	Capacitor, .047mf, Mylar, 250V	152024
C 112	Capacitor, .47mf, Mylar, 250V	152029
C 113	Capacitor, 1mf, Electrolytic, 50V	153000;
C 114	Capacitor, .47mf, Mylar, 250V	152029
C 115	Capacitor, .005mf, Disc, 500V	151012
C 116	Capacitor, .1mf, Mylar, 250V	152026
C 117	Capacitor, 100pf, Disc, 1KV	151003
C 118	Capacitor, 4.7mf, Electrolytic, 50V	153015
C 119	Capacitor, .022mf, Mylar, 250V	152023
C 120	Capacitor, .012mf, Mylar, 250V	152032
C 121	Capacitor, .01mf, Mylar, 100V	152006
C 122	Capacitor, .47mf, Mylar, 250V	152029
C 123	Capacitor, 4.7mf, Electrolytic, 50V	153015
C 124	Capacitor, 1mf, Electrolytic, 50V	153001
C 125	Capacitor, .022mf, Mylar, 250V	152023
C 126	Capacitor, 4.7mf, Electrolytic, 50V	153015
C 127	Capacitor, .002mf, Disc, 500V	151010
C 128	Capacitor, .22 Disc, 100V	152027
C 129	Capacitor, .22mf, Mylar, 100V	152027
C 130	Capacitor, .22mf, Mylar, 100V	152027
C 131	Capacitor, .1mf, Mylar, 250V	152026
C 132	Capacitor, .22mf, Electrolytic, 50V	153001
C 133	Capacitor, .22mf, Mylar, 100V	152027
C 134	Capacitor, 10mf, Electrolytic, 50V	153002
C 135	Capacitor, .1mf, Tantalum, 35V	154004
R 101	Resistor, 22K ohm, 1/2 watt	476322
R 102	Resistor, 47K ohm, 1/2 watt	476347
R 103	Resistor, 9.1K ohm, 1/2 watt	476591
R 104	Resistor, 6.8K ohm, 1/2 watt	476268
R 105	Resistor, 470K ohm, 1/2 watt	476447
R 106	Resistor, 10K ohm, 1/2 watt	476310
R 107	Resistor, 560 ohm, 1/2 watt	476156
R 108	Resistor, 10K ohm, 1/2 watt	476310
R 109	Resistor, 330 ohm, 1/2 watt	476133
R 110	Resistor, 15K ohm, 1/2 watt	476315
R 111	Resistor, 15K ohm, 1/2 watt	476315
R 112	Potentiometer, 100K ohm, Dual	475044
R 113	Resistor, 2.2K ohm, 1/2 watt	476222
R 114	Resistor, 10K ohm, 1/2 watt	476310
R 115	Resistor, 560K ohm, 1/2 watt	476456
R 116	Resistor, 82K ohm, 1/2 watt	476382
R 117	Resistor, 47 ohm, 1/2 watt	476047
R 118	Resistor, 100K ohm, 1/2 watt	476410
R 119	Resistor, 22K ohm, 1/2 watt	476322
R 120	Resistor, 33K ohm, 1/2 watt	476333
R 121	Resistor, 4.7K ohm, 1/2 watt	476247
R 122	Resistor, 47K ohm, 1/2 watt	476347
R 123	Resistor, 2.2K ohm, 1/2 watt	476222
R 124	Resistor, 1M ohm, 1/2 watt	476510
R 125	Resistor, 1M ohm, 1/2 watt	476510
R 126	Potentiometer, 100K ohm, Log	475040
R 127	Resistor, 1M ohm, 1/2 watt	476510
R 128	Resistor, 10K ohm, 1/2 watt	476310
R 129	Resistor, 1.5K ohm, 1/2 watt	476515
R 130	Resistor, 220K ohm, 1/2 watt	476422
R 131	Resistor, 6.8K ohm, 1/2 watt	476268
R 132	Resistor, 4.7K ohm, 1/2 watt	476247
R 133	Resistor, 1.2K ohm, 1/2 watt	476212
R 134	Resistor, 3.3K ohm, 1/2 watt	476233
R 135	Potentiometer, 50K ohm, W/Step	475043
R 136	Resistor, 3.3K ohm, 1/2 watt	476233
R 137	Resistor, 5.6K ohm, 1/2 watt	476256
R 138	Potentiometer, 50K ohm, W/Step	475043
R 139	Resistor, 5.6K ohm, 1/2 watt	476256
R 140	Resistor, 3.3K ohm, 1/2 watt	476233
R 141	Potentiometer, 50K ohm, W/Step	475043

PARTS LIST (CON'T)
 MODEL 470 PREAMP A ASSEMBLY 630024
 SCHEMATIC E1440-A

Schematic Reference	DESCRIPTION	Acoustic Part No.
R 142	Resistor, 3.3K ohm, 1/2 watt	476233
R 143	Resistor, 22K ohm, 1/2 watt	476322
R 144	Resistor, 100K ohm, 1/2 watt	476410
R 145	Resistor, 2.2K ohm, 1/2 watt	476222
R 146	Resistor, 470K ohm, 1/2 watt	476447
R 147	Resistor, 47K ohm, 1/2 watt	476347
R 148	Resistor, 4.7K ohm, 1/2 watt	476247
R 149	Resistor, 6.8K ohm, 1/2 watt	476268
R 150	Resistor, 180 ohm, 1/2 watt	476418
R 151	Resistor, 2.2K ohm, 1/2 watt	476222
R 152	Resistor, 100K ohm, 1/2 watt	476410
R 153	Resistor, 100K ohm, 1/2 watt	476410
R 154	Resistor, 10K ohm, 1/2 watt	476310
R 155	Resistor, 6.8 ohm, 1/2 watt	476268
R 156	Resistor, 820 ohm, 1/2 watt	476182
R 157	Resistor, 10K ohm, 1/2 watt	476310
R 158	Resistor, 47K ohm, 1/2 watt	476347
R 159	Resistor, 1K ohm, 1/2 watt	476510
R 160	Resistor, 1K ohm, 1/2 watt	476210
R 161	Resistor, 220K ohm, 1/2 watt	476422
R 162	Resistor, 47K ohm, 1/2 watt	476347
R 163	Potentiometer, 50K ohm, Linear	475048
R 164	Resistor, 220K ohm, 1/2 watt	476422
R 165	Resistor, 470K ohm, 1/2 watt	476447
R 166	Resistor, 470 ohm, 1/2 watt	476147
R 167	Resistor, 10K ohm, 1/2 watt	476310
R 168	Resistor, 15K ohm, 1/2 watt	476315
R 169	Resistor, 15K ohm, 1/2 watt	476315
R 170	Resistor, 220K ohm, 1/2 watt	476422
R 171	Resistor, 470K ohm, 1/2 watt	476447
R 172	Resistor, 470 ohm, 1/2 watt	476147
R 173	Resistor, 10K ohm, 1/2 watt	476310
R 174	Resistor, 47K ohm, 1/2 watt	476347
R 175	Resistor, 47K ohm, 1/2 watt	476347

PARTS LIST
MODEL 470 - PREAMP ASSEMBLY 830026
SCHEMATIC E1440A

Schematic Reference	DESCRIPTION	Acoustic Part No.	Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB 2	Printed Circuit Board	170046	R 201	Potentiometer, 100K ohm, Log	475040
Q 201	Transistor, NPN, 2N2484	480023	R 202	Resistor, 1M ohm, 1/2 watt	476510
Q 202	Transistor, PNP, 2N4248	480032	R 203	Resistor, 10K ohm, 1/2 watt	476310
Q 203	Transistor, NPN, 2N2484	480023	R 204	Resistor, 1.5M ohm, 1/2 watt	476515
Q 204	Transistor, PNP, 2N4248	480032	R 205	Resistor, 220K ohm, 1/2 watt	476422
Q 205	Transistor, NPN, 2N2484	480023	R 206	Resistor, 6.8K ohm, 1/2 watt	476268
Q 206	Field Effect Transistor, 2N4360, P-Channel	480033	R 207	Resistor, 4.7K ohm, 1/2 watt	476247
Q 207	Transistor, NPN, MPS A06	480038	R 208	Resistor, 1.2K ohm, 1/2 watt	476212
Q 208	Transistor, PNP, 2N4248	480032	R 209	Resistor, 3.3K ohm, 1/2 watt	476233
Q 209	Transistor, NPN, 40409	480032	R 210	Potentiometer, 50K ohm, w/step	475043
Q 210	Transistor, NPN, MPS A06	480038	R 211	Resistor, 3.3K ohm, 1/2 watt	476233
Q 211	Transistor, NPN, MPS A06	480038	R 212	Resistor, 5.6K ohm, 1/2 watt	476256
Q 212	Field Effect Transistor, 2N5457, N-Channel	480024	R 213	Potentiometer, 50K ohm, w/step	475043
Q 213	Field Effect Transistor, 2N5457, P-Channel	480033	R 214	Resistor, 5.6K ohm, 1/2 watt	476256
CR201	Diode, 1N914	480005	R 215	Resistor, 3.3K ohm, 1/2 watt	476233
CR202	Diode, 1N914	480005	R 216	Potentiometer, 50K ohm, w/step	475043
CR203	Diode, 1N914	480005	R 217	Resistor, 3.3K ohm, 1/2 watt	476233
L 201	Inductor, 6HY	180007	R 218	Resistor, 22K ohm, 1/2 watt	476322
C 201	Capacitor, .005mf, Disc, 500V	151012	R 219	Resistor, 100K ohm, 1/2 watt	476410
C 202	Capacitor, .1mf, Mylar, 250V	152026	R 220	Resistor, 2.2K ohm, 1/2 watt	476222
C 203	Capacitor, 100pf, Disc, 1KV	151003	R 221	Resistor, 2.2K ohm, 1/2 watt	476347
C 204	Capacitor, 4.7mf, Electrolytic, 50V	153015	R 222	Resistor, 47K ohm, 1/2 watt	476447
C 205	Capacitor, .01mf, Mylar, 100V	152006	R 223	Resistor, 180 ohm, 1/2 watt	476222
C 206	Capacitor, .012mf, Mylar, 250V	152032	R 224	Resistor, 2.2K ohm, 1/2 watt	476268
C 207	Capacitor, .02, Mylar, 250V	152023	R 225	Resistor, 6.8K ohm, 1/2 watt	476118
C 208	Capacitor, .47mf, Mylar, 250V	152029	R 226	Resistor, 4.7K ohm, 1/2 watt	476247
C 209	Capacitor, 4.7mf, Electrolytic, 50V	153015	R 227	Resistor, 470K ohm, 1/2 watt	476447
C 210	Capacitor, 1mf, Electrolytic, 50V	152028	R 228	Resistor, 470K ohm, 1/2 watt	476447
C 211	Capacitor, .39mf, Mylar, 250V	152027	R 229	Potentiometer, 100K ohm	475042
C 212	Capacitor, .22mf, Mylar, 100V	152027	R 230	Resistor, 2.2K ohm, 1/2 watt	476222
C 213	Capacitor, .22mf, Mylar, 100V	152027	R 231	Resistor, 100 ohm, 1/2 watt	476110
C 214	Capacitor, 470pf, Disc, 500V	151006	R 232	Resistor, 33K ohm, 1/2 watt	476333
C 215	Capacitor, .001mf, Disc, 500V	151008	R 233	Potentiometer, 500K ohm	475041
C 216	Capacitor, .47mf, Mylar, 250V	152029	R 234	Resistor, 330K ohm, 1/2 watt	476433
C 217	Capacitor, .047mf, Mylar, 250V	152024	R 235	Resistor, 330K ohm, 1/2 watt	476433
C 218	Capacitor, .047mf, Mylar, 250V	152024	R 236	Trimpot, 100K ohm, 1/2 watt	475047
C 219	Capacitor, 10mf, Electrolytic, 50V	153002	R 237	Resistor, 1M ohm, 1/2 watt	476510
C 220	Capacitor, .01mf, Mylar, 250V	152031	R 238	Resistor, 1M ohm, 1/2 watt	476510
C 221	Capacitor, 100mf, Electrolytic, 6.3V	153017	R 239	Resistor, 1M ohm, 1/2 watt	476510
C 222	Capacitor, .005mf, Disc, 500V	151012	R 240	Resistor, 4.7K ohm, 1/2 watt	476247
C 223	Capacitor, 68pf, Disc, 1KV	151002	R 241	Resistor, 33K ohm, 1/2 watt	476333
C 224	Capacitor, 10mf, Electrolytic, 50V	153002	R 242	Resistor, 220K ohm, 1/2 watt	476422
C 225	Capacitor, 33mf, Electrolytic, 100V	153016	R 243	Resistor, 6.8K ohm, 1/2 watt	476268
C 226	Capacitor, 100pf, Disc, 1KV	151003	R 244	Resistor, 47 ohm, 1/2 watt	476047
C 227	Capacitor, .47mf, Mylar, 250V	152029	R 245	Resistor, 47 ohm, 1/2 watt	476047
C 228	Capacitor, .47mf, Mylar, 250V	152029	R 246	Resistor, 3.3K ohm, 1/2 watt	476233
C 229	Capacitor, .47mf, Mylar, 250V	152029	R 247	Resistor, 6.8K ohm, 1/2 watt	476268
			R 248	Resistor, 10K ohm, 1/2 watt	476310
			R 249	Resistor, 330 ohm, 5 watt	463133
			R 250	Resistor, 220K ohm, 1/2 watt	476422
			R 251	Resistor, 220K ohm, 1/2 watt	476422

PARTS LIST

Schematic Reference	DESCRIPTION	Acoustic Part No.
R 252	Resistor, 1.8K ohm, 2 watt	472210
R 253	Resistor, 680 ohm, 2 watt	472168
R 254	Resistor, 680 ohm, 2 watt	472168
R 255	Resistor, 22K ohm, 1/2 watt	476322
R 256	Resistor, 10K ohm, 1/2 watt	476310
R 257	Resistor, 47K ohm, 1/2 watt	476347
R 258	Resistor, 1M ohm, 1/2 watt	476510
R 259	Resistor, 1M ohm, 1/2 watt	476510

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PARTS LIST

MODEL 470 GRAPHIC EQ ASSEMBLY 830025

Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB 3	Printed Circuit Board	170044
Q 301	Transistor, NPN, 2N2484	480023
Q 302	Transistor, NPN, 2N2484	480023
Q 303	Transistor, NPN, 2N2484	480023
Q 304	Transistor, PNP, 2N4248	480032
L 301	Inductor, 1.5HY	180002
L 302	Inductor, 1.5HY	180002
L 303	Inductor, 750mHY	180005
L 304	Inductor, 375mHY	180004
L 305	Inductor, 375mHY	180004
C 301	Capacitor, .1mf, Mylar, 250V	152015
C 302	Capacitor, 100pf, Disc, 1KV	151003
C 303	Capacitor, 3.3mf, Tantalum	154007
C 304	Capacitor, .62mf, Mylar, 250V	152030
C 305	Capacitor, .39mf, Mylar, 250V	152028
C 306	Capacitor, .10mf, Mylar, 250V	152026
C 307	Capacitor, .01mf, Mylar, 250V	152031
C 308	Capacitor, 100pf, Disc, 1KV	151003
C 309	Capacitor, 68pf, Disc, 1KV	151002
C 310	Capacitor, 470pf, Disc, 500V	151006
C 311	Capacitor, 50mf, Electrolytic, 50V	153005
C 312	Capacitor, .01mf, Mylar, 100V	152031
R 301	Resistor, 220K ohm, 1/2 watt	476447
R 302	Resistor, 470K ohm, 1/2 watt	476447
R 303	Resistor, 10K ohm, 1/2 watt	476310
R 304	Resistor, 5.6K ohm, 1/2 watt	476256
R 305	Slide Potentiometer, 50K ohm	475039
R 306	Slide Potentiometer, 50K ohm	475039
R 307	Slide Potentiometer, 50K ohm	475039
R 308	Slide Potentiometer, 50K ohm	475039
R 309	Slide Potentiometer, 50K ohm	475039
R 310	Resistor, 470 ohm, 1/2 watt	476147
R 311	Resistor, 330 ohm, 1/2 watt	476147
R 312	Resistor, 470 ohm, 1/2 watt	476147
R 313	Resistor, 470 ohm, 1/2 watt	476127
R 314	Resistor, 270 ohm, 1/2 watt	476127
R 315	Resistor, 6.8K ohm, 1/2 watt	476268
R 316	Resistor, 18K ohm, 1/2 watt	476318
R 317	Resistor, 5.6K ohm, 1/2 watt	476256
R 318	Resistor, 4.7K ohm, 1/2 watt	476247
R 319	Resistor, 46K ohm, 1/2 watt	476347

PARTS LIST

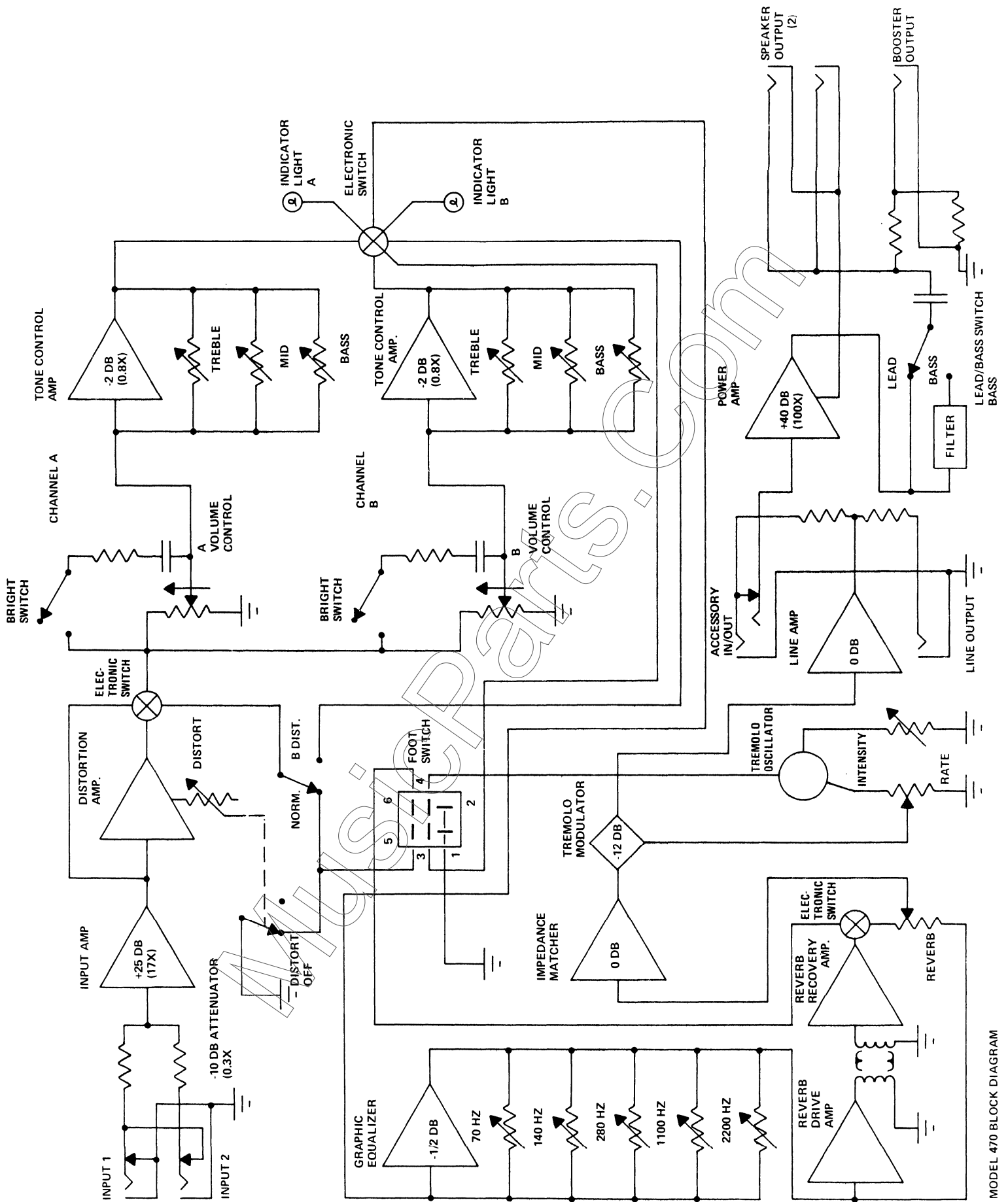
MODEL 470 POWER AMPLIFIER CIRCUIT BOARD ASSEMBLY 830029

SCHEMATIC E71005

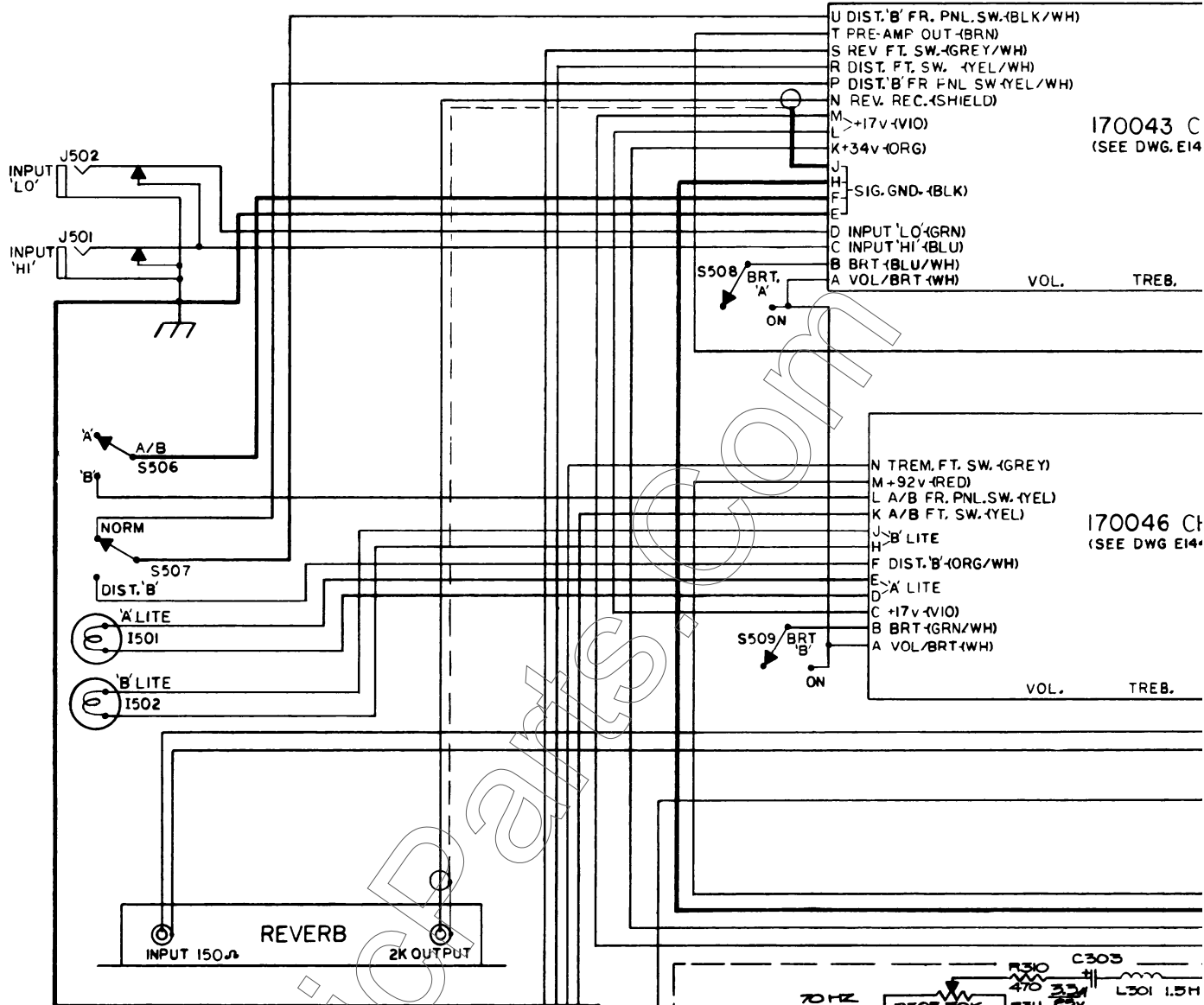
Schematic Reference	DESCRIPTION	Acoustic Part No.
PCB 4	Printed Circuit Board	170051
Q 401	Transistor, PNP, 2N4248	480032
Q 402	Transistor, PNP, 2N4248	480032
Q 403	Transistor, NPN, MJE 341	480039
Q 404	Transistor, PNP, W/Heatsink	480041
Q 405	Transistor, NPN, W/Heatsink	480040
Q 406	Transistor, NPN, Driver, Negative	480037
Q 407	Transistor, NPN, Driver, Positive	480037
A 408	Transistor, NPN	480037
Q 409	Transistor, NPN	480037
Q 410	Transistor, NPN	480037
Q 411	Transistor, NPN	480037
Q 412	Transistor, PNP, 2N4248	480032
Q 413	Transistor, NPN, MPS A06	480038
Q 414	Transistor, NPN, Regulator, 40409	480006
Q 415	Transistor, NPN, Bias, MPS A06	480038
CR401	Diode, 1N914	480005
CR402	Diode, 1N914	480005
CR403	Diode, 1N914	480005
CR404	Diode, 1N914	480005
CR405	Diode, 1N914	480005
CR406	Diode, 1N914	480005
CR407	Diode, 1N914	480005
CR408	Diode, 1N4003, (170045 bd only)	480028
CR409	Diode, 1N4003, (170045 be only)	480028
CR410	Diode, 1N4003	480028
CR411	Diode, 1N4003	480028
CR412	Mode, Zener, 1H4754, HW 39 B	480022
C 401	Capacitor, .47mf, Mylar, 100V	152029
C 402	Capacitor, .47mf, Mylar, 100V	152029
C 403	Capacitor, 100mf, Electrolytic, 50V	153006
C 404	Capacitor, 10mf, Electrolytic, 50V	153002
C 405	Capacitor, 22mf, Electrolytic, 50V	153004
C 406	Capacitor, 470pf, Disc, 500V	151006
C 407	Capacitor, .1mf, Mylar, 250V	152026
C 408	Capacitor, 2000mf, Electrolytic, 80V	153023
C 410	Capacitor, 330pf, Disc, 500V	151005
C 411	Capacitor, .01mf, Mylar, 250V	151005
D 412	Capacitor, 4.7mf, Electrolytic, 50V	152031
C 413	Capacitor, 220mf, Electrolytic, 50V	153015
C 414	Capacitor, 220mf, Electrolytic, 50V	153008
C 415	Capacitor, 220mf, Electrolytic, 50V	153008
C 416	Capacitor, 470pf, Disc, 500V	151006
C 417	Capacitor, 330pf, Disc, 500V	151005
R 401	Resistor, 4.7K ohm, 1/2 watt	476247
R 402	Resistor, 100K ohm, 1/2 watt	476410
R 403	Resistor, 100K ohm, 1/2 watt	476410
R 404	Resistor, 2.2K ohm, 1/2 watt	476222
R 405	Resistor, 47K ohm, 1/2 watt	476347
R 406	Trimpot, 10K ohm, (170045 be only)	475047
Schematic Reference	DESCRIPTION	Acoustic Part No.
R 407	Resistor, 47K ohm, 1/2 watt	476347
R 408	Resistor, 18K ohm, 1/2 watt	476318
R 409	Resistor, 10K ohm, 1/2 watt	476310
R 410	Resistor, 2.2K ohm, 1/2 watt	476222
R 411	Resistor, 1K ohm, 1/2 watt	476210
R 412	Resistor, 100K ohm, 1/2 watt	476410
R 413	Resistor, 150 ohm, 1/2 watt	476115
R 414	Resistor, 100K ohm, 1/2 watt	476333
R 415	Trimpot, 100 ohm, (170045 bd only)	475049
R 416	Resistor, 1.5K ohm, 1/2 watt	476215
R 417	Resistor, 3.3K ohm, 1/2 watt	476233
R 418	Resistor, 100 ohm, 1/2 watt	476110
R 419	Resistor, 100 ohm, 1/2 watt	476110
R 420	Resistor, 100 ohm, 1/2 watt	476110
R 421	Resistor, 100 ohm, 1/2 watt	476110
R 422	Resistor, 100 ohm, 1/2 watt	476110
R 423	Resistor, 1 ohm, 1/2 watt	478001
R 424	Resistor, 1 ohm, 3 watt	464910
R 425	Resistor, 1 ohm, 3 watt	464910
R 426	Resistor, .24 ohm, 7 watt	461005
R 427	Resistor, .24 ohm, 7 watt	461005
R 428	Resistor, .24 ohm, 7 watt	461005
R 429	Resistor, .24 ohm, 7 watt	461005
R 430	Resistor, .1 ohm, 7 watt	461004
R 431	Resistor, .1 ohm, 7 watt	461004
R 432	Resistor, .47 ohm, 5 watt	463047
R 433	Resistor, .03 ohm, 5 watt	463730
R 434	Resistor, 1K ohm, 1/2 watt	476210
R 435	Resistor, 1K ohm, 1/2 watt	476210
R 436	Resistor, 2.2K ohm, 1/2 watt typ	476222
R 437	Resistor, 2.2K ohm, 1/2 watt typ	476222
R 438	Resistor, 560 ohm, 5 watt	463156
R 439	Resistor, 4.7K ohm, 2 watt	472247
R 440	Resistor, 150 ohm, 1/2 watt	476115
R 441	Resistor, 47K ohm, 1/2 watt	476347
R 442	Resistor, 47K ohm, 1/2 watt	476347
R 443	Resistor, 3.9K ohm, 1/2 watt	476239
R 444	Resistor, 3.9K ohm, 1/2 watt	476239
R 445	Resistor, 680 ohm, 1/2 watt	476168

PARTS LIST
MODEL 470 CHASSIS WIRING

Schematic Reference	DESCRIPTION	Acoustic Part No.
T 501	Transformer, Supply	560015
BR501	Bridge Rectifier 10A	480019
C 503	Capacitor, 7800mf, Electrolytic, 100V	153013
L 501	Choke, 3.0MHY	180010
P 501	A/C Line Cord.	600054
UL501	Reverb Tank	315039
S 502	Switch, Power On/Off, W/Light	510016
S 503	Switch, Gnd/Rev	510017
S 506	Switch, A/B	510017
S 507	Switch, Dist. B	510017
S 508	Switch, Brt. A	510017
S 509	Switch, Brt. B	510017
J 501	Jack, Input Hi N/Closed	210003
J 502	Jack, Input Lo N/Closed	210003
J 504	Jack, Line Out	210002
J 505	Jack, Access In/Out	210039
J 506	A/C Outlet.	210052
J 507	Jack, Speaker Out	210002
J 508	Jack, Speaker Out	210002
J 509	Jack, Booster Out	210002
I 501	Pilot Lamp "A"	390007
I 502	Pilot Lamp "B"	390007
F 501	Fuse, 7A Pigtail	510031
F 502	Fuse, 5A SB	510005



MODEL 470 BLOCK DIAGRAM

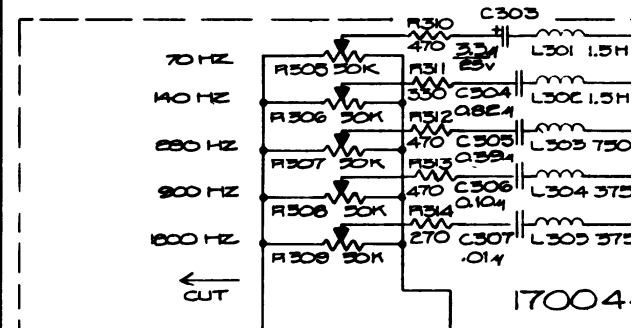
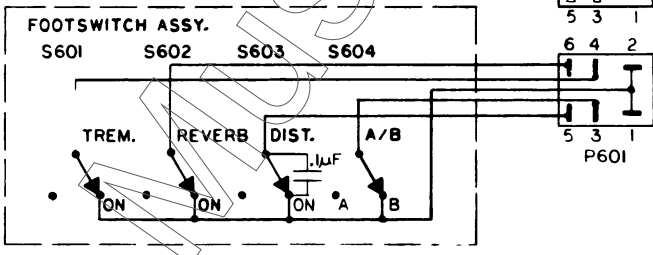


U DIST. 'B' FR. PNL. SW. (BLK/WH)
 T PRE-AMP OUT (BRN)
 S REV. FT. SW. (GREY/WH)
 R DIST. FT. SW. (YEL/WH)
 P DIST. 'B' FR. PNL SW. (YEL/WH)
 N REV. REC. (SHIELD)
 M +17v (V10)
 L +34v (ORG)
 J SIG. GND. (BLK)
 H
 F INPUT 'LO' (GRN)
 C INPUT 'HI' (BLU)
 B BRT (BLU/WH)
 A VOL/BRT (WH) VOL. TREB.

170043 C
 (SEE DWG. E14)

N TREM. FT. SW. (GREY)
 M +92v (RED)
 L A/B FR. PNL. SW. (YEL)
 K A/B FT. SW. (YEL)
 J 'B' LITE
 H
 F DIST. 'B' (ORG/WH)
 E 'A' LITE
 D +17v (V10)
 C BRT (GRN/WH)
 A VOL/BRT (WH) VOL. TREB.

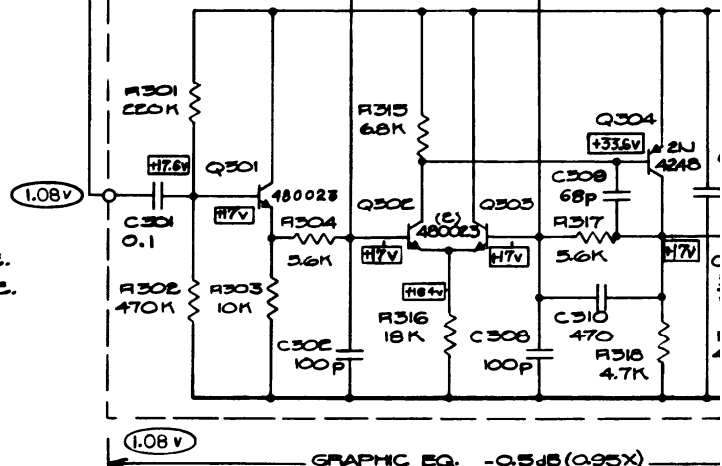
170046 C†
 (SEE DWG. E14)



17004

7. SEE VIEWS 'A' & 'B' TABULATION WHEN P.C BOARD 170045 IS USED.
6. AC VOLTAGES AT 1KHZ FROM GND.
5. DC VOLTAGES TAKEN FROM CHASSIS GND, NO SIGNAL APPLIED AND 120V, 60HZ LINE
4. ALL CAPACITORS IN μFD UNLESS NOTED OTHERWISE.
3. ALL RESISTORS: 1/2W, ±5% UNLESS NOTED OTHERWISE.
2. R436, R437 FACTORY SELECTED, NOT ALL UNITS.
1. LAST REFERENCE DESIGNATIONS:
 R319, R445, R504. L305, L501. P601
 C319, C416 C503. S509, S604. F502
 Q304, Q415. CR412. BR501. T501. J509

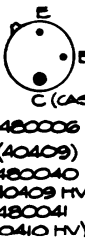
NOTES:



1.08V GRAPHIC EQ. -0.5dB (0.95X)

MusicParts TechTips

Output transistors are 2N3773
Do not mix manufactures



170043 CH.'A'
(SEE DWG. E1440)

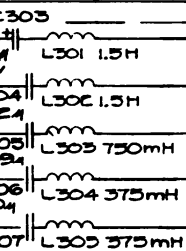
(BLU)'A' OUT J
(YEL) TREM. FEEDBACK H
(BRN) TREM. FET MOD. F
(BLK) SIG. GND. E
(ORG) +34V C
(GRN/WH) IN FROM EQ B
A

TREB. MID BASS DIST REVERB

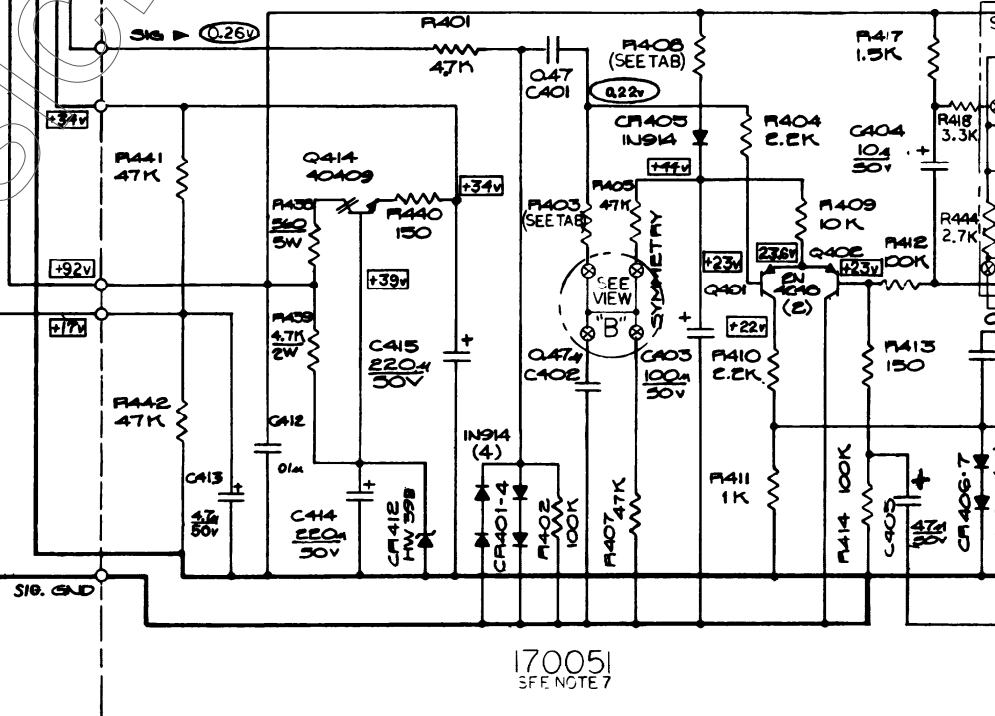
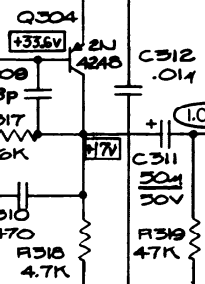
170046 CH.'B'
(SEE DWG E1440)

(GRN/WH) REV. IN N
(BLK/WH) REV. - M
(GREY) REV. + L
N/C K
(BLK) PWR. GND. J
(GRN)'A' OR 'B' OUT H
(BLU)'X' IN F
(YEL) TREM. FEEDBACK E
(BRN) TREM. FET MOD. D
(BLK) SIG. GND. C
(ORG) +34V A

TREB. MID. BASS SPEED INTENS.

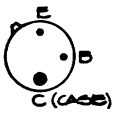


170044



170051
SEE NOTE 7

0.95X) LINE OUTPUT ISOLATION -9.5dB(0.3X) 0.22V POWER 0



480006
(40409)
480040
(40409 HV)
480041
(40410 HV)



480025



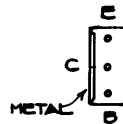
480024
(2N5457)
(MPF102)



480032
(2N4248)

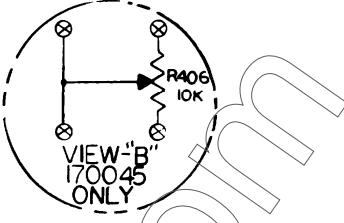
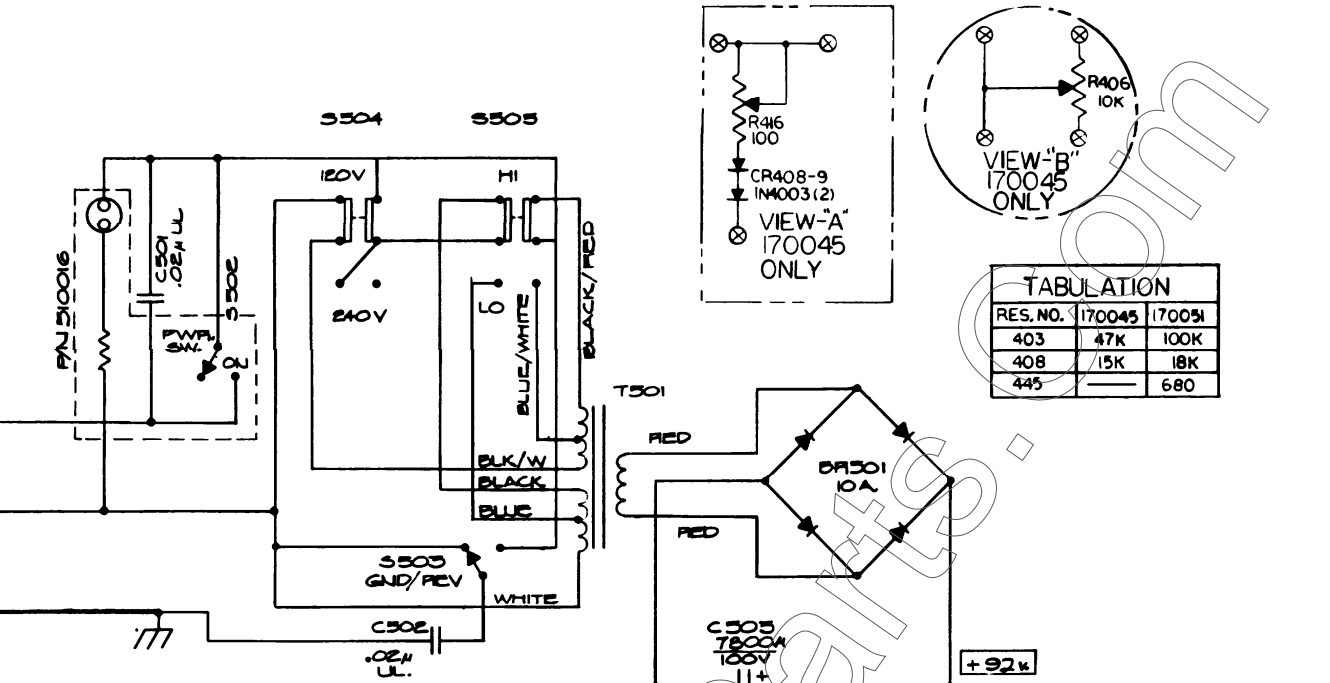


480033
(2N4360)

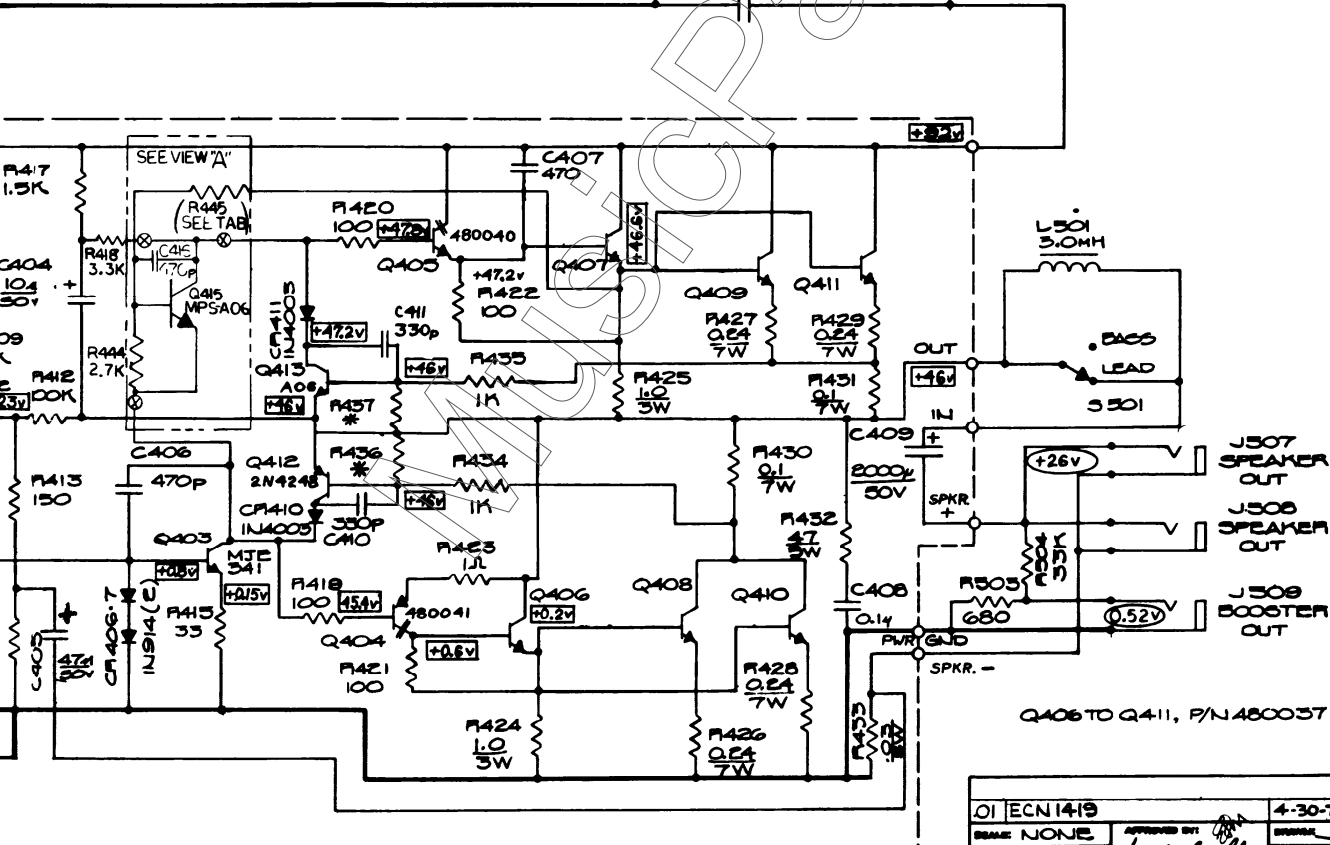


480039
(MJE341)

TRANSISTOR BOTTOM VIEWS



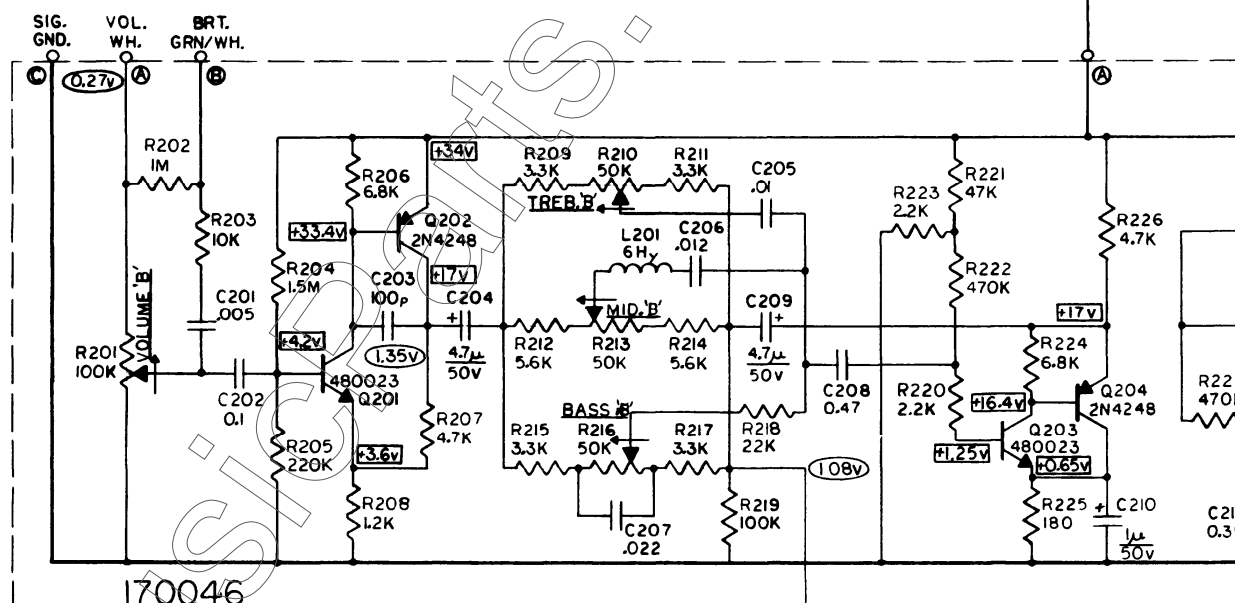
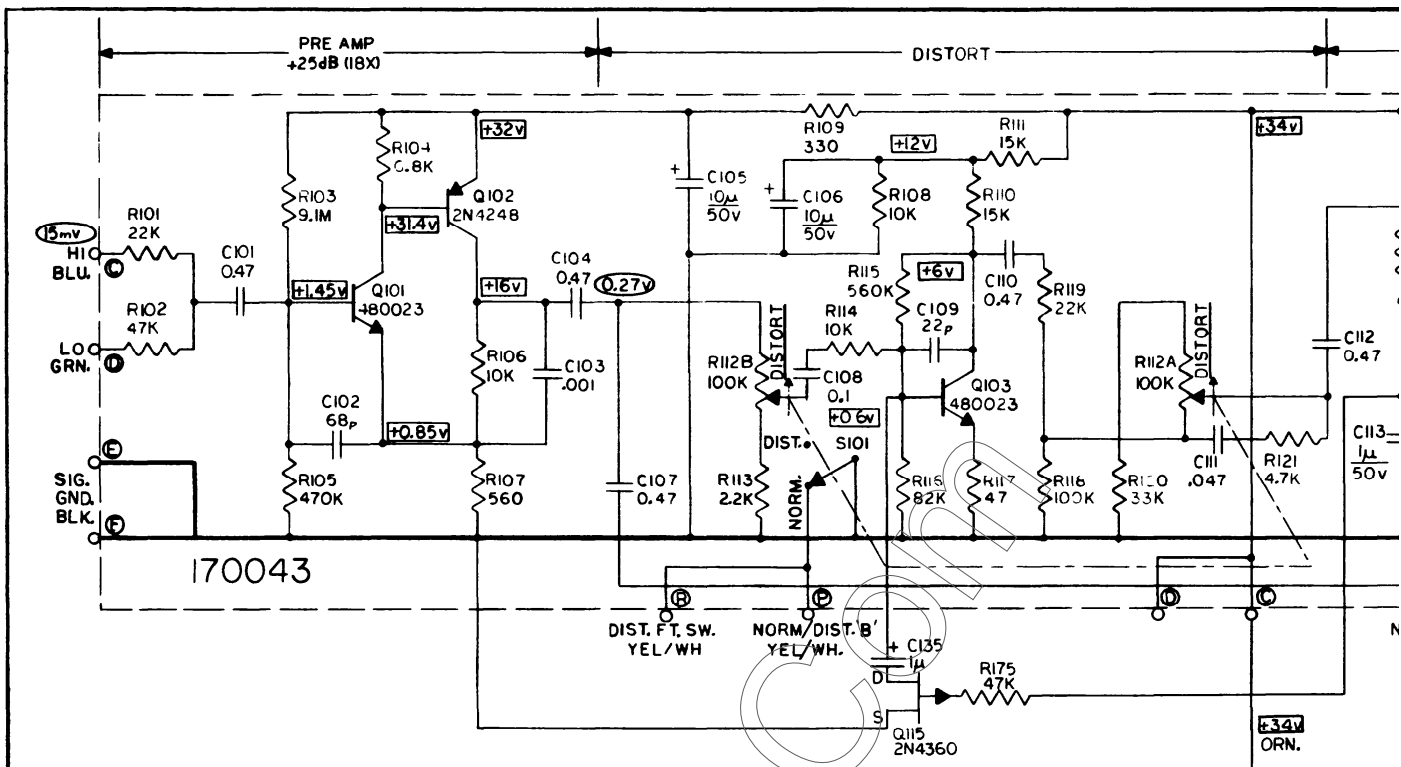
TABULATION		
RES. NO.	170045	170051
403	47K	100K
408	15K	18K
445		680



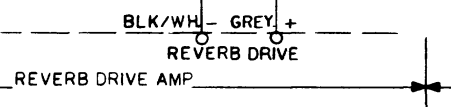
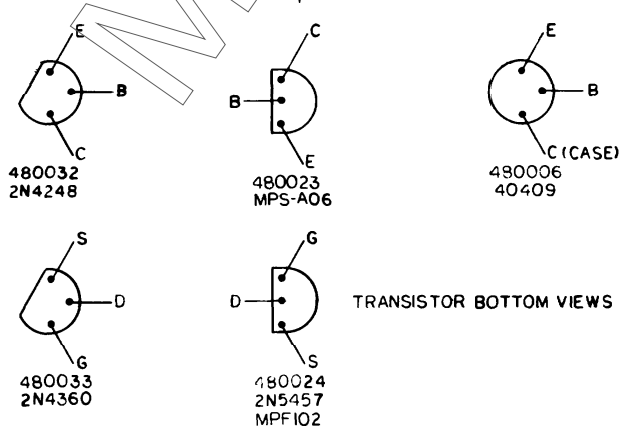
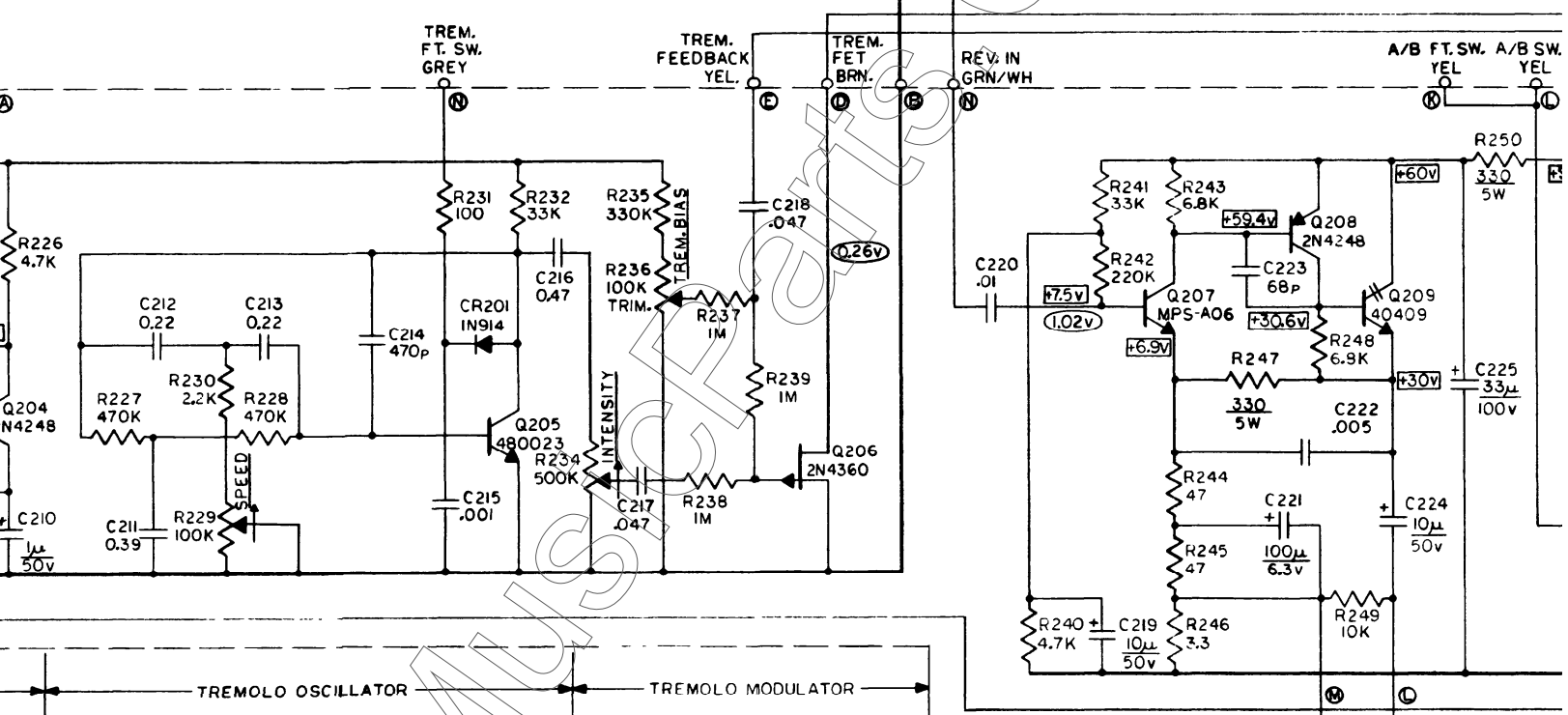
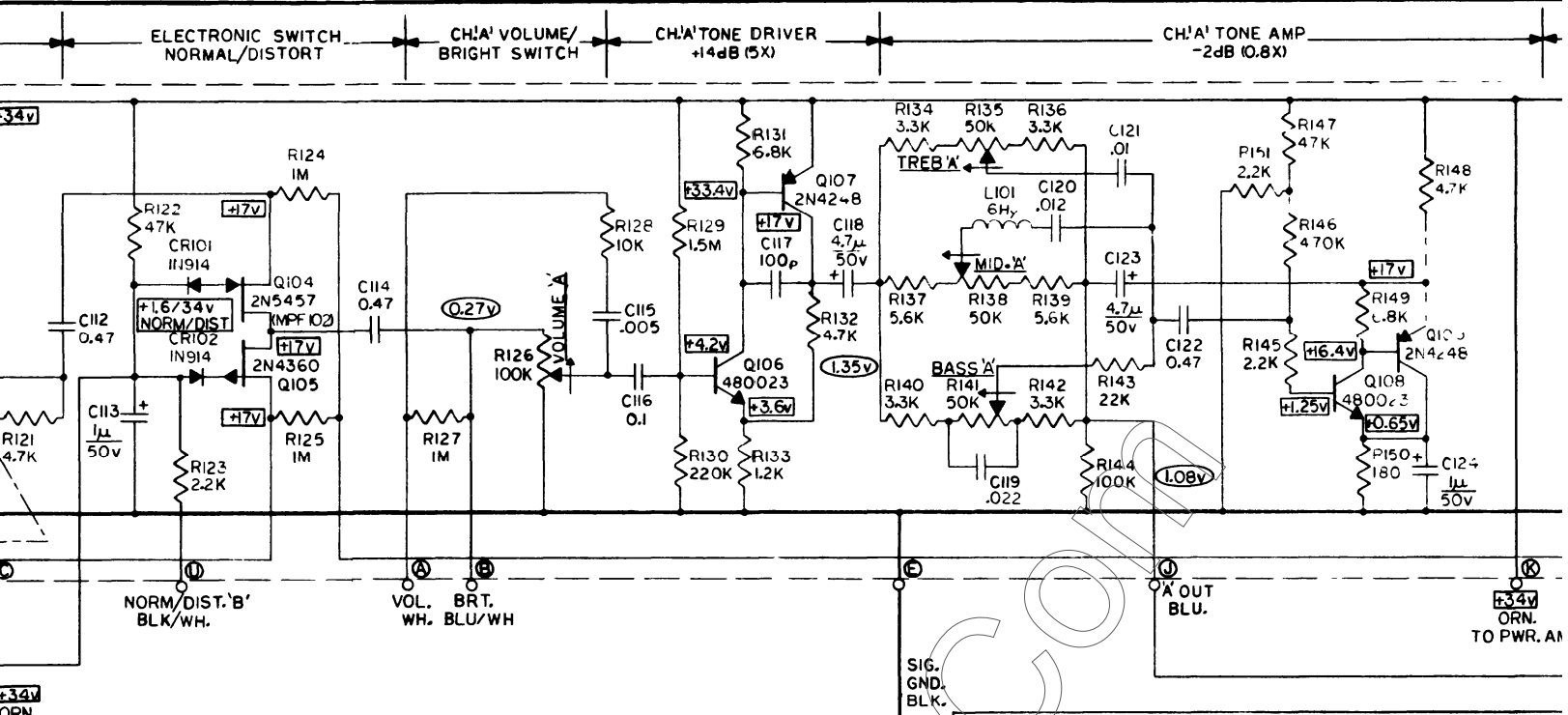
RATED 26V @ 4.4

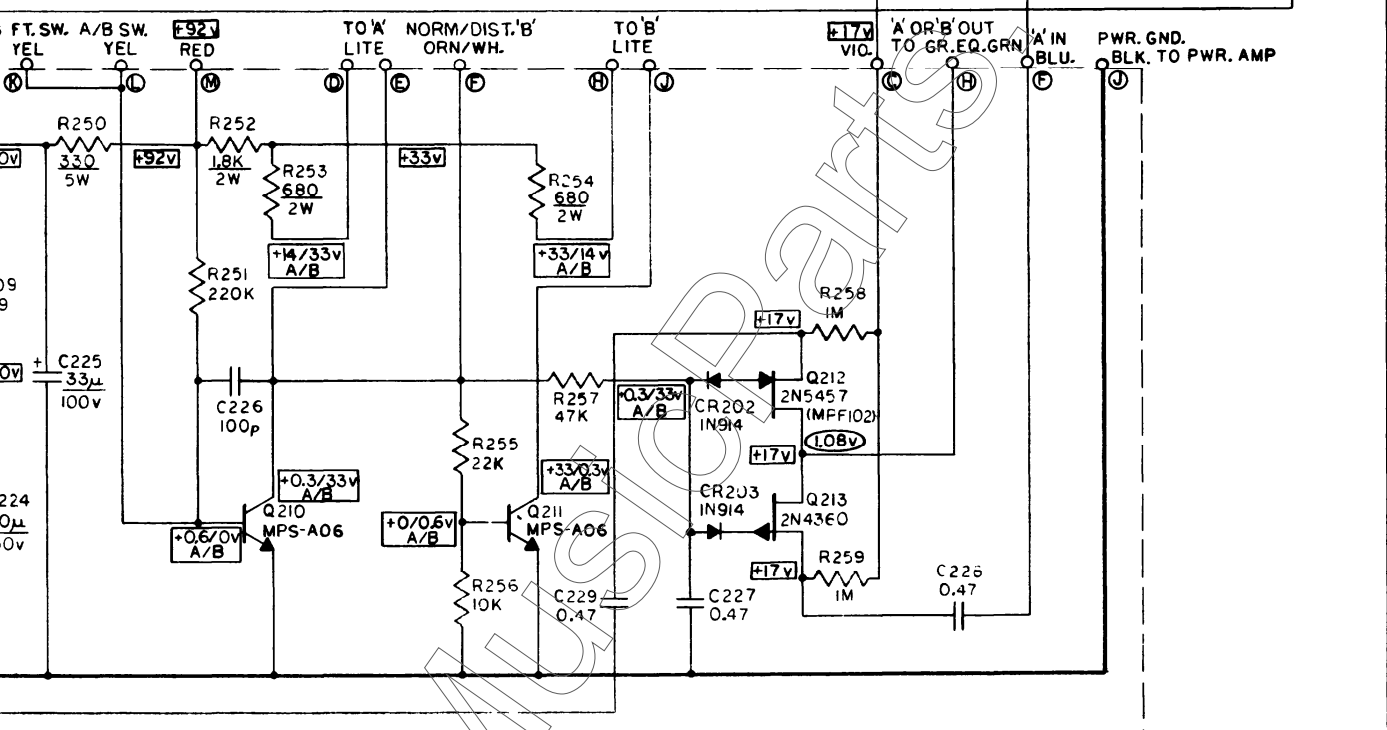
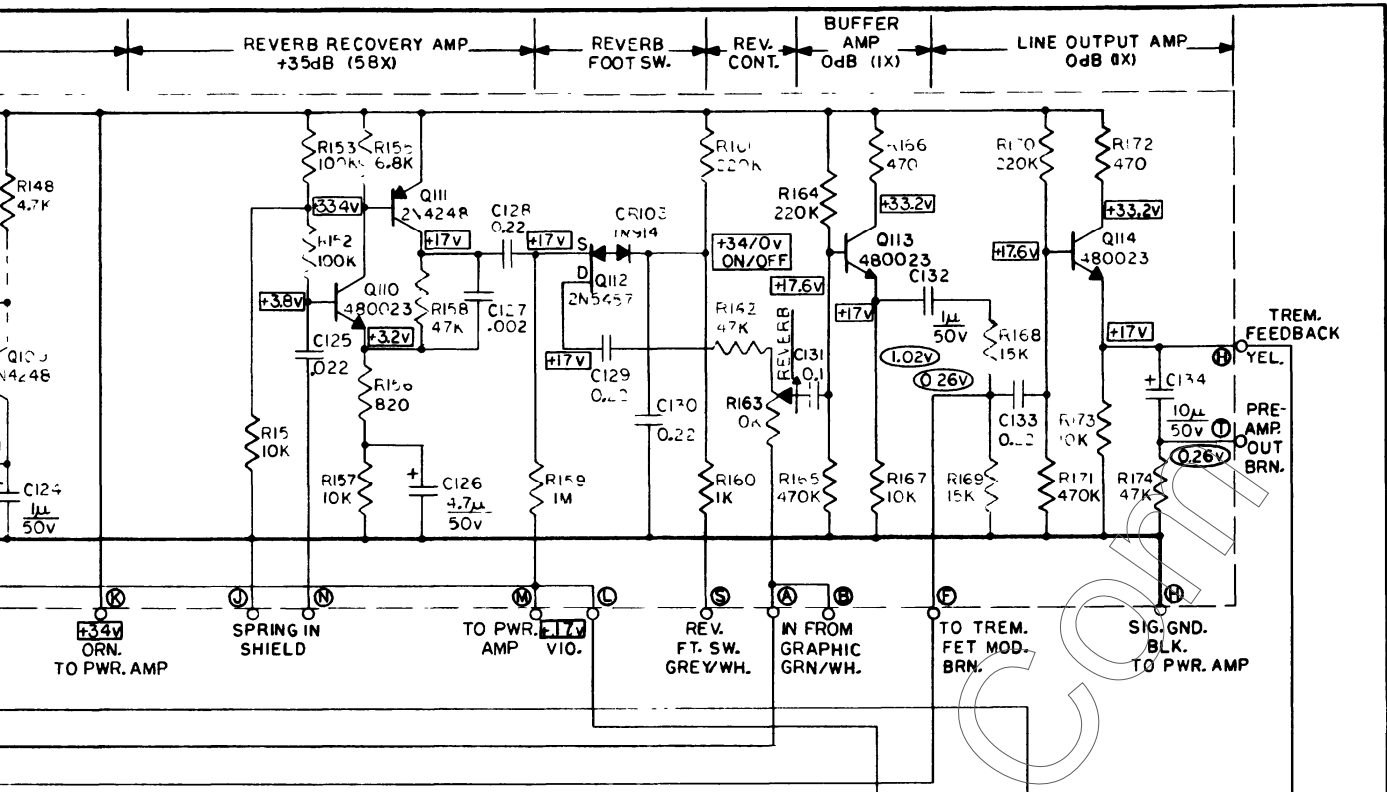
POWER OUTPUT AMPLIFIER +42dB (120X)

01 ECN1419	APPROVED BY: <i>[Signature]</i>	4-30-74 W.S.
GRADE: NONE	DESIGNED BY: <i>[Signature]</i>	REVISION: <i>[Signature]</i>
DATE: 9-18-73	SCHEMATIC 470	
ACOUSTIC CONTROL		E710054.01



5. A.C. VOLTAGES TAKEN AT 1KHz FROM GND. ○
4. D.C. VOLTAGES TAKEN FROM CHASSIS GND. □
NO SIGNAL APPLIED; 120v, 60Hz LINE
- 3 ALL CAPACITORS IN μFD UNLESS OTHERWISE NOTED.
- 2 ALL RESISTORS: 1/2W, ±5% UNLESS OTHERWISE NOTED.
- 1 R175, R253; C135, C229; CR103, CR203
Q115, Q213; L101, L201
- NOTES.



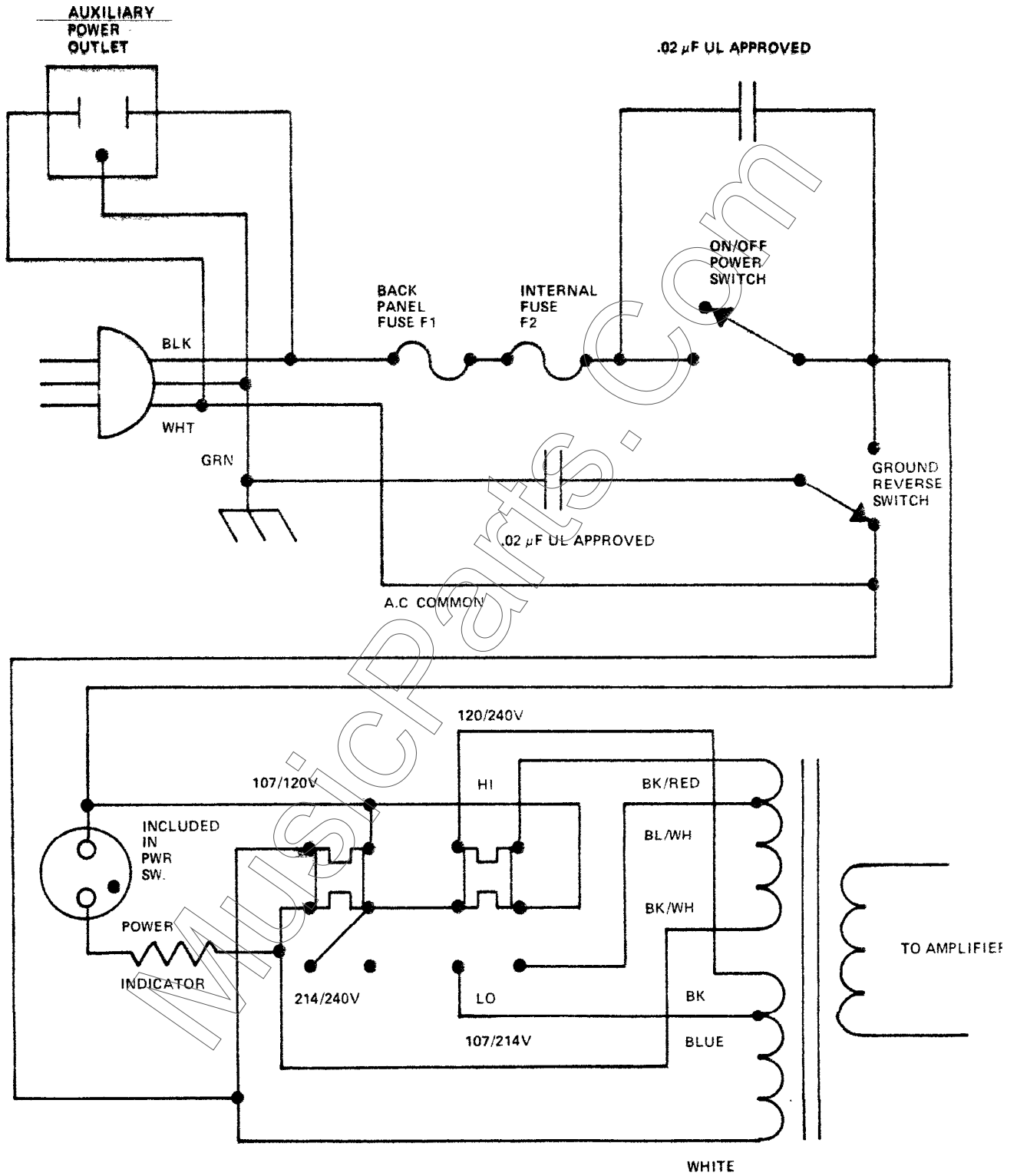


CH'A/CH'B' LAMP DRIVERS

CH'A/CH'B' ELECTRONIC SWITCH

A ECN1419		5-1-74 WS
SCALE: NONE	APPROVED BY: <i>Jack Swift</i>	DRAWN BY: <i>761</i>
DATE: 11-12-73		REVISED
PRE-AMP/TONE AMP CCTS. (SCHEMATIC) MODEL 470		
ACOUSTIC CONTROL CORP.	DRAWING NUMBER	E1440-A

A.C. WIRING DIAGRAM MODEL 470



F1: FOR 107-120V, USE 5A, 125V SLO BLO
 FOR 214-240V, USE 3A, 250V SLO BLO