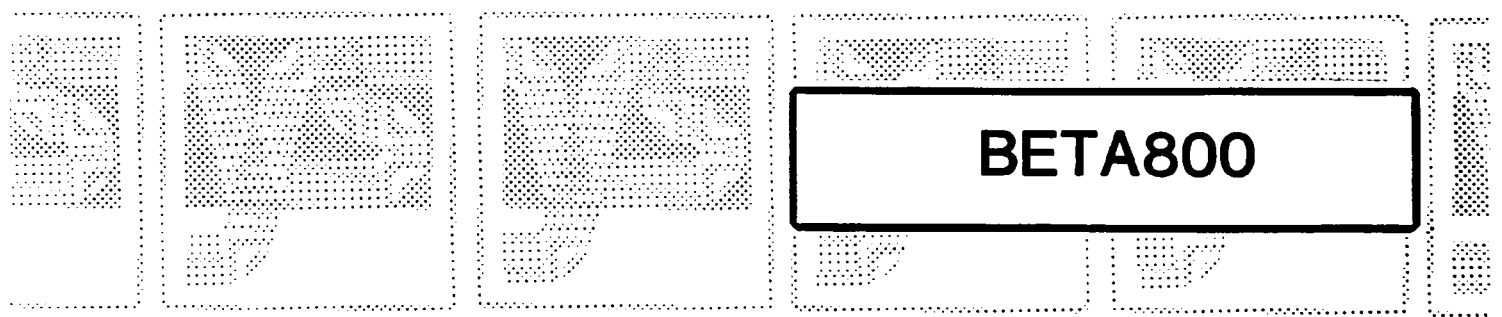
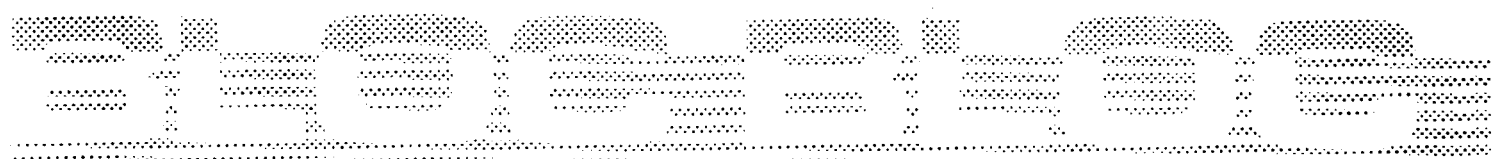


A BETA BETA **BETA**

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**BETA800**

AUDI

**SERVICE MANUAL**

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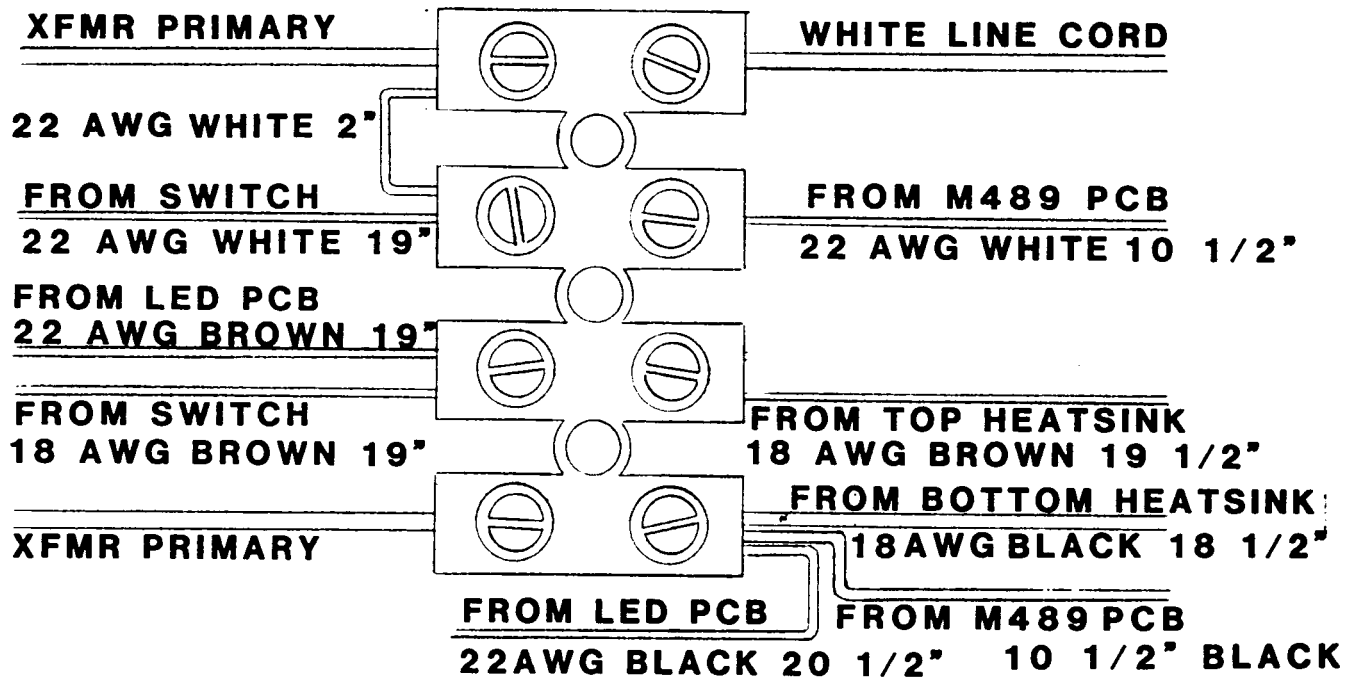
# SPECIFICATIONS

**BETA800**

POWER PER CHANNEL-----250 WATTS @ 8 OHMS  
-----400 WATTS @ 4 OHMS  
T.H.D.-----LESS THAN 0.05%  
DYNAMIC HEADROOM-----3 dB AT 4 OHMS  
FREQUENCY RESPONSE-----7Hz TO 30KHz +/-1dB  
SLEW RATE-----40V/U SEC  
DAMPING-----GREATER THAN 250  
HUM AND NOISE----- -100dB UNWEIGHTED

BETA800 TERMINAL BLOCK HOOKUP

BOTTOM OF CHASSIS



TOP OF CHASSIS

NOTE: WHEN MORE THAN ONE WIRE ARE TO BE INSERTED, THE ENDS SHOULD BE TWISTED TOGETHER BEFORE BEING INSERTED. CUT END LEAVING ONLY ABOUT 5/16"

(6)-TP3 should be within 250 mV of ground. If it is not, there is some kind of offset problem, even if the amp appears to work.

(7)-Check that there is no voltage across the 100R 1W resistors on M475. If there is, check the parts in that circuit.

(8)-It is very important that the output devices are properly tightened down. (8 inch/pounds)

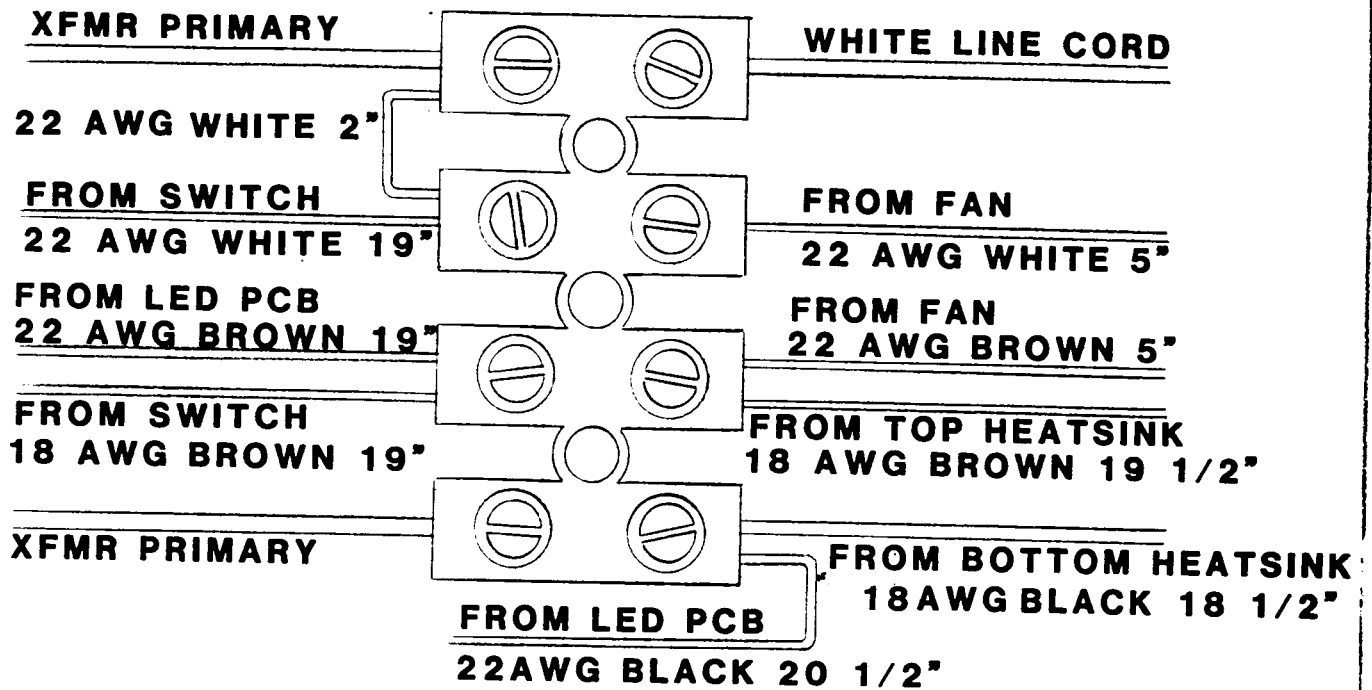
(9)-OK, apply a signal and see what happens as you would with any amp.

#### QUICK CHECKS:

- Clipping should be symmetrical.
- 2 volts peak should just clip the amp. (1.4 volts RMS)
- Flat from 10Hz to 30 KHz.
- 400 watts or better into 4 ohms, both sides driven.
- Way over 200 watts per side into 8 ohms.
- Check clip LEDs
- Check bias voltage when amp is hot. Should be around 10 millivolts.
- Check MONO operation with signal into "A" input only.
- Check for turn on and turn off noise. Should be best yet.
- Check for 0.5 millivolts AC RMS noise on output with no input.

# BETA800 TERMINAL BLOCK HOOKUP

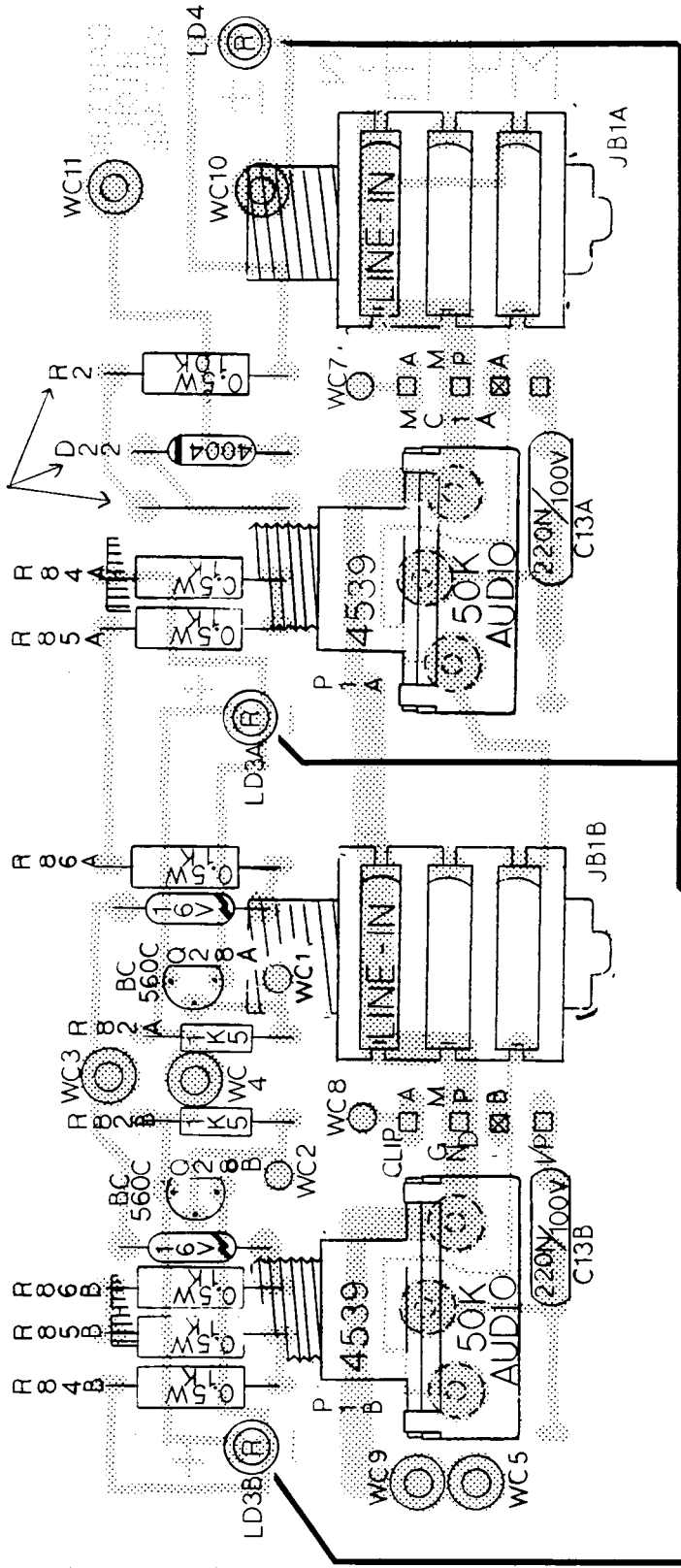
## BOTTOM OF CHASSIS



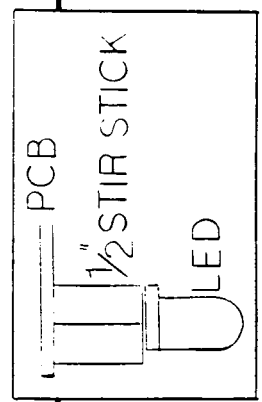
## TOP OF CHASSIS

**NOTE: WHEN MORE THAN ONE WIRE ARE TO BE INSERTED, THE ENDS SHOULD BE TWISTED TOGETHER BEFORE BEING INSERTED. CUT END LEAVING ONLY ABOUT 5/16"**

R2 IS 22K 1/2W  
 JUMPER REPLACED BY 4004 DIODE  
 IN EUROPEAN VERSION



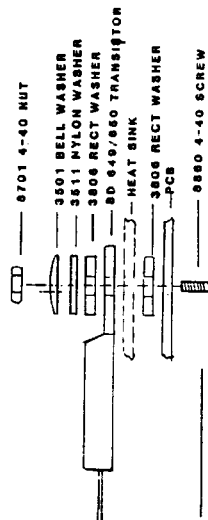
WIRE JUMPERS  
 6" 22GA. WHITE WC1 to WC8  
 6" 22GA. RED WC2 to WC7



M473	
COMPONENT LAYOUT	
BETA-800	
DATE: OCT/86	CHK'D
DESIGN: P. IERYMENKO	DRN: S. COX

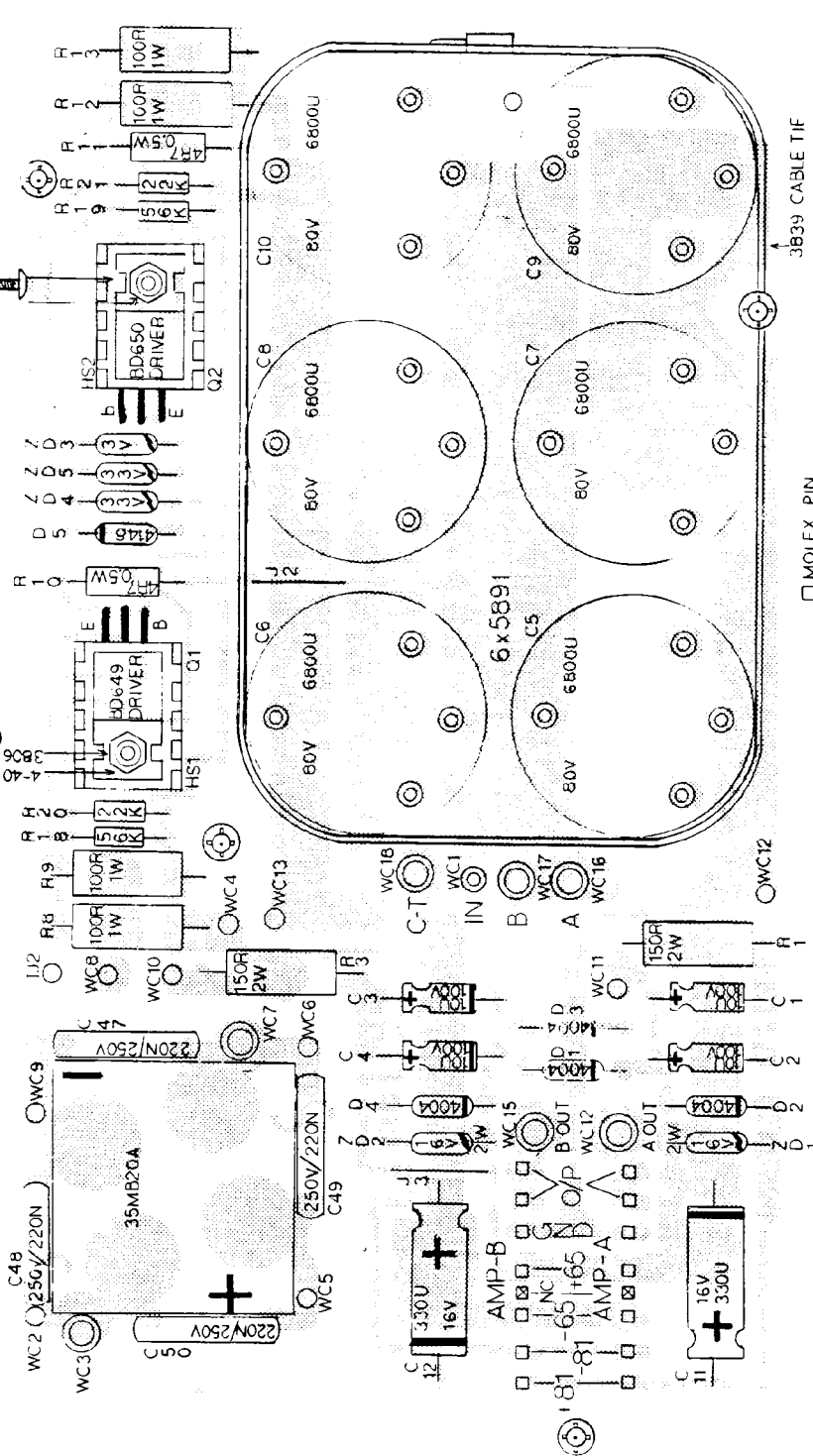


**MOUNTING DETAIL**



(UNDER HEATSINK)  
4-40 X 1/2" SCREW + NUT  
3806 WASHERS

AWG	COLOR	FROM	TO
18	RED	WC12	WC5
18	BLUE	WC13	WC9
22	WHITE	WC11	WC2
22	WHITE	WC10	WC6
22	RED	WC4	WC6
22	BLACK	WC8	WC6



3639 CABLE TIE

- MOLEX PIN
- SMALL EYELET
- ⊙ LARGE EYELET

M4/5
<b>COMPONENT LAYOUT</b>
BETA-800
DATE: OCT/86
DESIGN: IERYMENKO
DRN: S. COX

CHK'D



## BETA 800 BENCH TEST PROCEDURE

### SETTING BIAS CURRENT ON THE BETA 800:

- the bias current should be set when the amp is cold, (that is, before a load has been driven; heatsink cold to the touch).
- leave the amp on for about 2-3 minutes before proceeding.
- the test point pins (TP1 and TP2) at the far right of the M474 PCB are used to monitor the bias current. Connect a DVM to these pins and adjust the bias to 4 millivolts DC.

### TESTS REQUIRED:

(1)-Before turning on the unit, make sure that the bias current trimmer is fully counter-clockwise.

(2)-Power up the unit through a VARIAC. (Monitor the voltage between TP1 and TP2, the bias voltage, with a DVM. STOP if this voltage exceeds 10 millivolts). Now, raise the variac voltage slowly until the LEDs light up. (about 50 VAC) IF THE LEDS ARE NOT LIT BY 85 VAC, DON'T INCREASE THE VOLTAGE ANY FURTHER. Instead find and fix the reason why there is no current through the VBe multiplier.

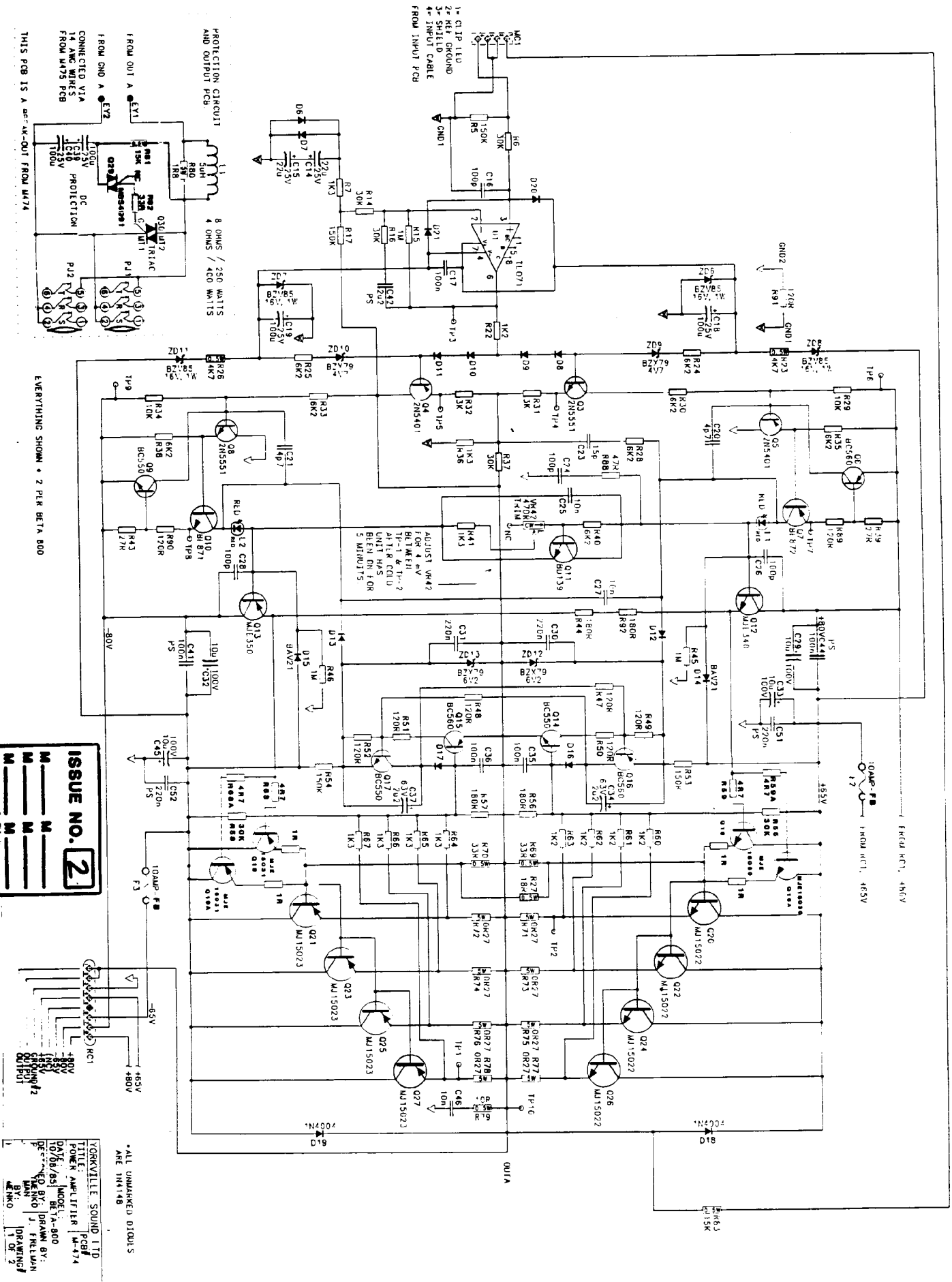
**IMPORTANT:** Do not spend more than 2 minutes with the variac below 85 VAC. Below this voltage the "Power Down" circuit is conducting, (Q1 and Q2 on M475) and will overheat if left too long. All tests should be done with the variac set above 85 VAC.

(3)-Once the LEDs are on, continue up to 120VAC with the variac. Check the DC supplies, the voltage between TP4 and TP5 (1.3 to 1.5 Volts) and the voltage between TP6 and TP7 (0.9 to 1.1 Volts). This last one should be the same as the voltage between TP8 and TP9.

(4)-The next thing to do is adjust the bias current. (see top of page) If the bias current will not adjust, find and fix the problem. NOTE: The bias voltage is adjusted to 4 millivolts when the amp is cold. This may rise as high as 10 millivolts when the amp is fully warmed up. Remember to always make bias adjustments with no signal and no load connected.

(5)- Check the outputs for offset voltage. Should be less than 25 mV.





PROTECTION CIRCUIT AND OUTPUT PCB

8 OHMS / 250 WATTS  
4 OHMS / 400 WATTS

CONNECTED VIA 14 AWG WIRES FROM MAINS PCB

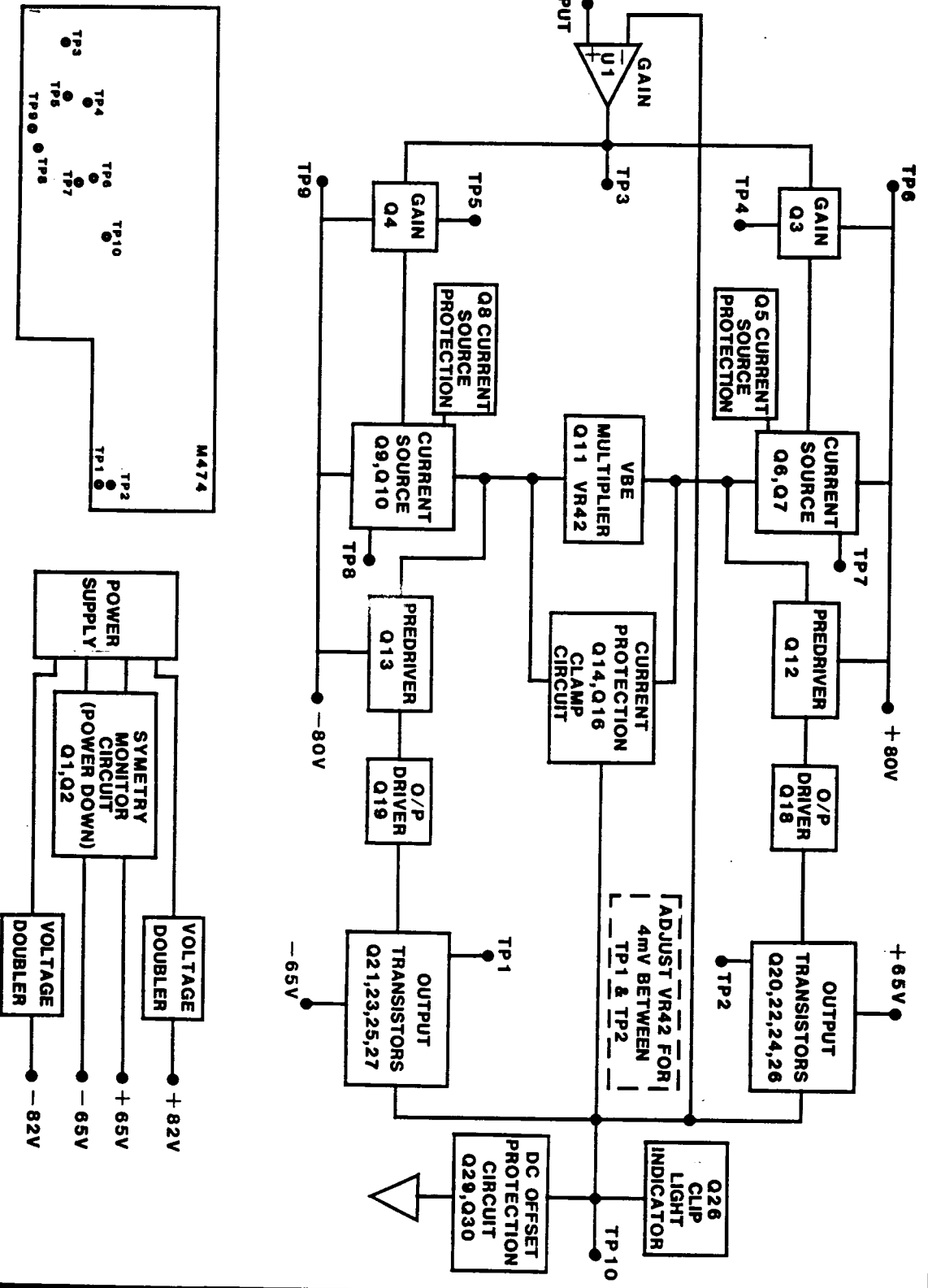
THIS PCB IS A DETACH-OUT FROM M74

EVERYTHING SHOWN \* 2 PER BETA 800

ISSUE NO. 2

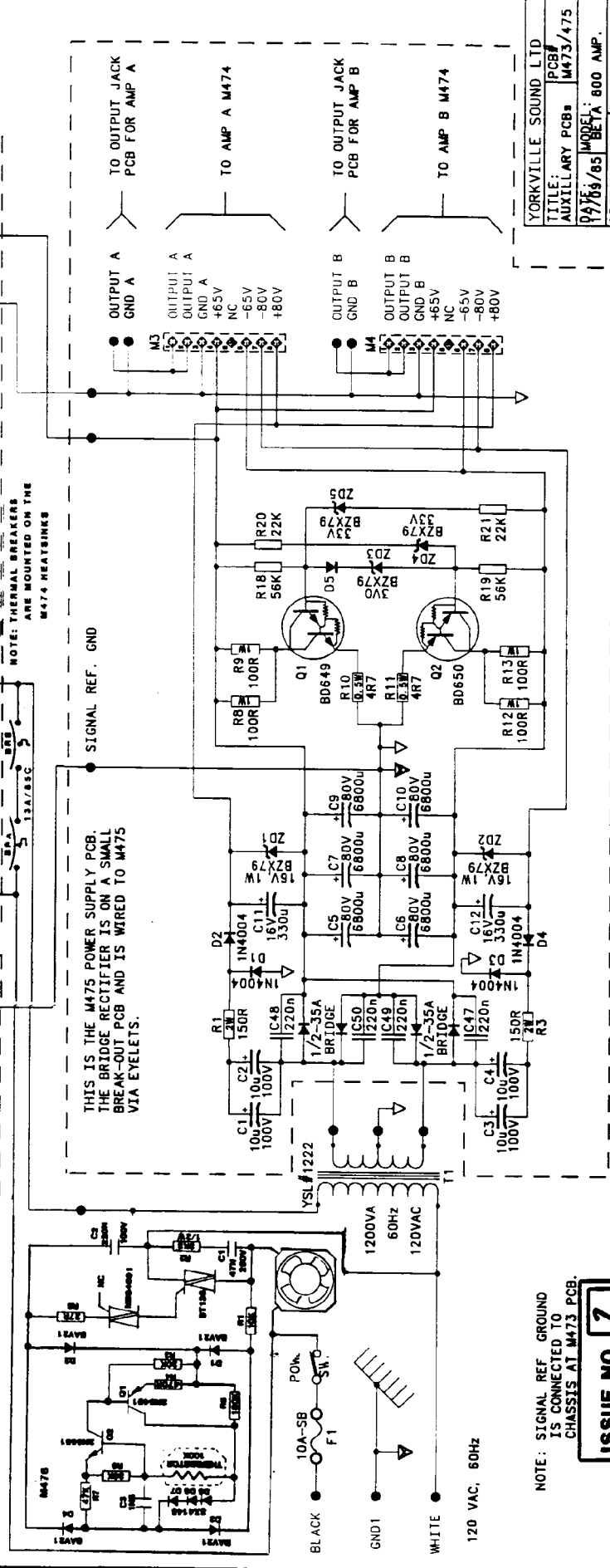
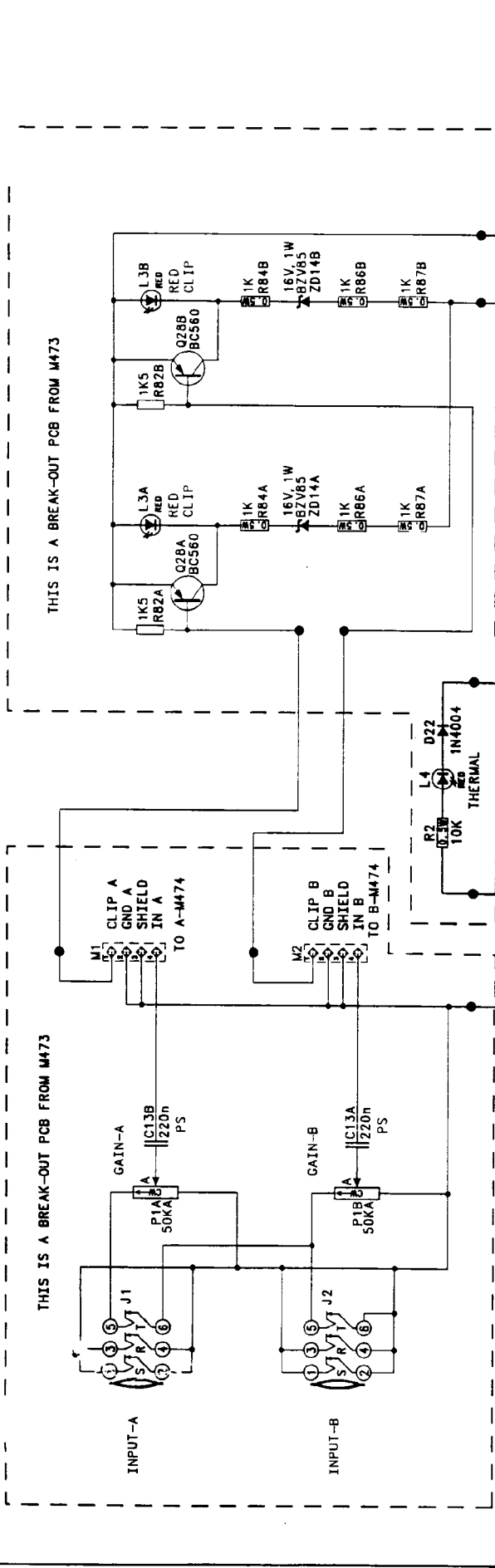
YORKVILLE SOUND LTD  
TITLE: POWER AMPLIFIER PCB#74  
DATE: 10/08/85 MODEL: BETA-800  
DESIGNED BY: J. FELDMAN  
DRAWN BY: J. FELDMAN  
CHECKED BY: J. FELDMAN  
DATE: 10/08/85  
BY: MENKO

\* ALL UNMARKED DIMENSIONS ARE IN INCHES



BETA 800 BLOCK DIAGRAM

10/85ap

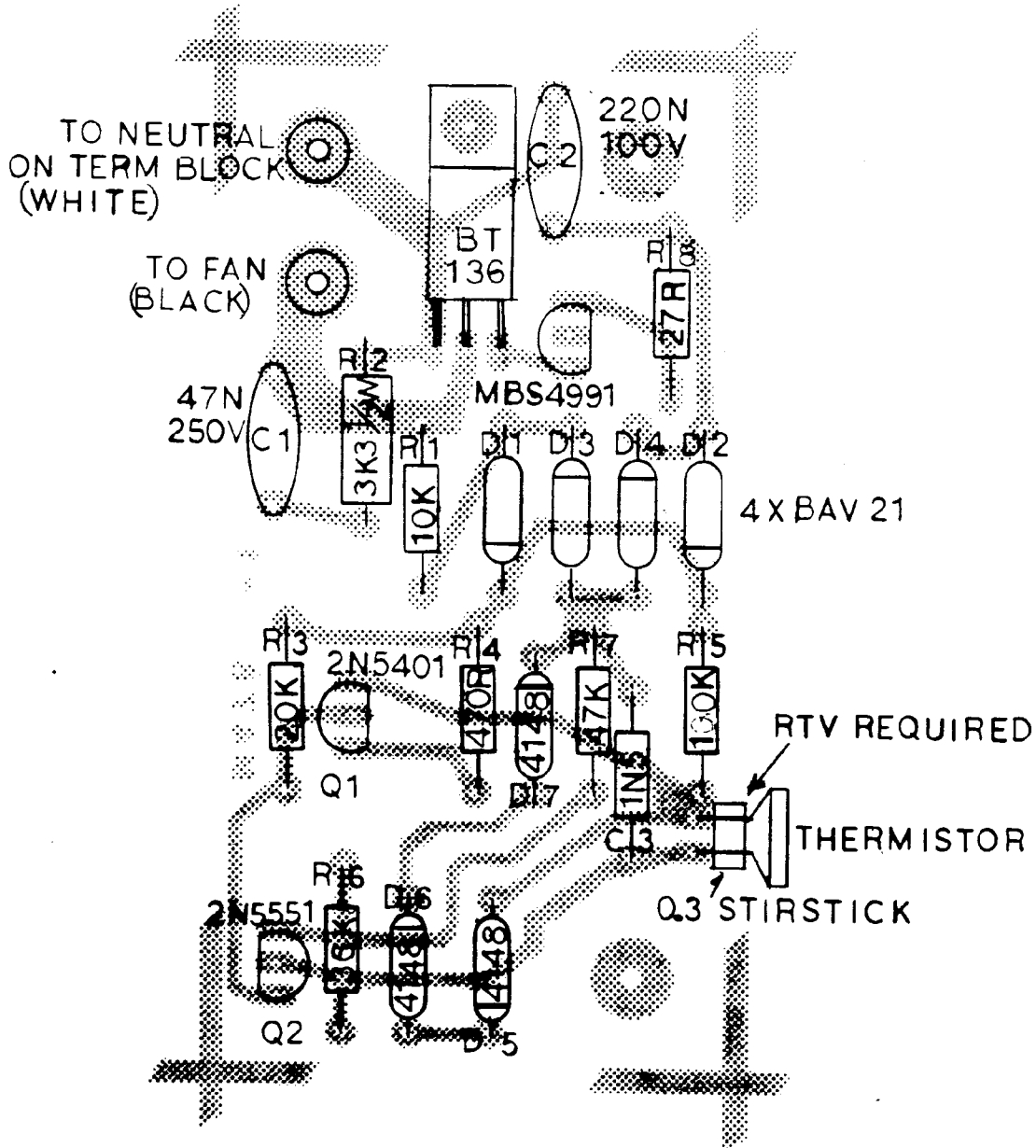


YORKVILLE SOUND LTD  
 TITLE: PCB# M473/475  
 AUXILIARY PCB# M473/475  
 07/69/85 MODEL: BETA 800 AMP.  
 DESIGNED BY: J. FREEMAN  
 DRAWN BY: J. FREEMAN  
 CHECKED BY: J. FREEMAN  
 DATE: 07/69

NOTE: SIGNAL REF GROUND IS CONNECTED TO CHASSIS AT M473 PCB.

ISSUE NO. 2

M M M M M M M M



M476 - 1

COMPONENT LAYOUT

BETA 800 FAN CONTROL

DATE: SEPT 86 | CHK'D

DESIGN: G. ATTWOOD | DRN: H. GLEN

**PARTS LIST****BETA800**

<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
6825	1N4148 75V 450MA DIODE	1.000 EA
6921	BD651 NPN DARL TRANS. T0220	1.000 EA
6922	BD652 PNP DARL TRANS T0220	1.000 EA
8667	SHOULDER WASHER 5/32 LENGTH .115 ID	2.000 EA
8792	4-40 X 1/2 PN PH MS ZN	2.000 EA
8793	4-40 HEX NUT ZINC	2.000 EA

**MECHANICAL PARTS**

3516	CONNECTOR COVER ZERRICK B36C	7.000 EA
3548	AMP SPEAKER CLIP 41772-0	7.000 EA
3549	MOLEX T-REEL 08500187/6838	14.000 EA
3558	MOLEX 4P-F 09503041/2139	4.000 EA
3930	22 AWG 3 CONDUCTOR STRANDED SHIELD	2.080 FT
3937	YELLOW 18 AWG STRANDED WIRE	1.550 FT
3938	BROWN 18 AWG STRANDED WIRE	4.750 FT
3939	BLUE 18 AWG STRANDED WIRE	.625 FT
3940	RED 18 AWG STRANDED WIRE	.670 FT
3941	BLACK 18 AWG STRANDED WIRE	8.100 FT
3947	RED 22 AWG STRANDED WIRE	.500 FT
3952	BLACK 22 AWG STRANDED WIRE	2.210 FT
3953	WHITE 22 AWG STRANDED WIRE	4.200 FT
3955	BROWN 22 AWG STRANDED WIRE	2.000 FT
1222	BETA800 POWER TRANSFORMER	1.000 EA
2405	10AMP S/B FUSE 1/4 X 1 1/4	1.000 EA
3405	SLT KNOB FUSEHOLDER 345602	1.000 EA
3407	THRMBREAK 36T21 USEUP 3410	2.000 EA
3472	POWER SWITCH MARQUART 1605-0120	1.000 EA
3482	3/16 AWG SJT LINE CORD 3 PRONG	1.000 EA
3501	B52200F006 COMP WASHER #4 LARGE	10.000 EA
3510	B52200F005 COMP WASHER #6 SMALL	32.000 EA
3511	#6 FLAT WASHER NYLON	6.000 EA
3513	3/16" HEATSHRINK FIT 221-3/16	.083 FT
3514	3/16 OD X .138 ID NYLON TUBING	.320 FT
3794	4-40 LUG #409 LOCKWASHER	2.000 EA
3806	B09002A001 RECT WASHER	4.000 EA
3807	T0220 SILPAD 400	8.000 EA
3808	B52200F004 #6 BELL WASHER	32.000 EA
3810	3" CABLE TIE T18R TYTON	11.000 EA
3812	WECO TERM BLOCK 34-822-008	1.000 EA
3815	T03 PREGREASED MICA WASHER	16.000 EA
3821	T0220 MICA WASHER	2.000 EA
3833	6 X 3/8 NY STANDOFF	5.000 EA
3834	STRAIN RELIEF SR-6L-1	1.000 EA
3847	BETA 800 FAN	1.000 EA
6774	BD139 NPN TRANS T0126	2.000 EA
6873	MJE340 NPN TRANS T0126	2.000 EA
6874	MJE350 PNP TRANS T0126	2.000 EA
6896	MJE 15030 NPN TRANS T0220	2.000 EA
6897	MJE15031 PNP TRANS T0220	2.000 EA
6900	MJ15022 NPN TRANSISTOR	8.000 EA
6927	MJ15023 PNP TRANSISTOR	8.000 EA
8448	SERIAL # 1.5X.5 PERMIX P5	1.000 SET
8485	#6 SPLIT WASHER ZINC	4.000 EA

**PARTS LIST****BETA800**

<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
8488	3/8" INT TOOTH LOCKWASHER ZINC	2.000 EA
8571	HANDLE BLACK 24714AL1032AA	2.000 EA
8594	3/8-32 JACK HEX NUT BRASS	2.000 EA
8624	10-32 X 1/2 HH SL MS B0	12.000 EA
8625	CONTROL KNOB BLACK	2.000 EA
8667	SHOULDER WASHER 5/32 LENGTH .115 10	4.000 EA
8683	1/4-20 NYLON INSERT NUT ZINC	4.000 EA
8701	4-40 KEPS NUT ZINC	1.000 EA
8764	8X1/2 PN PH WS TYPE A B0	2.000 EA
8793	4-40 HEX NUT ZINC	10.000 EA
8800	6-32 KEPS NUT ZINC	2.000 EA
8801	6-32X3/8 PH PH THDROLL B0	2.000 EA
8822	6-32 X 9/16 PAN HEAD PH MS CAD	32.000 EA
8827	6-32 X 2 PD MS B0	1.000 EA
8830	6-32 X 7/8 PAN HEAD PH MS B0	10.000 EA
8854	6-32 X 1/4 HEX NUT ZINC	36.000 EA
8860	4-40 X 3/8 PN PH MS NI	2.000 EA
8861	4-40 X 3/8 PN PH MS B0	1.000 EA
8869	4-40X5/8 PN PH MS ZINC	10.000 EA
8890	1/4-20 CAGE NUT	4.000 EA
8898	1/4-20 CAGE NUT	5.000 EA
8445	HANDLE BLK TOP ONLY P1055	2.000 EA
8473	#10 BLACK CUPWASHER\61	4.000 EA
8674	PLASTIC CORNERS BLACK	8.000 EA
8764	8X1/2 PN PH WS TYPE A B0	32.000 EA
8770	1/4 -20 X 1&5/16 FN PH MS B0	5.000 EA
8774	#8 X 1" OH PH CS TYPE A B0	12.000 EA
8789	6 X 1/4 PP TYPE ZN	12.000 EA
8799	6 X 1/4 PN PH TYPE B B.O.	11.000 EA
8843	10-32 X 1&1/4 FL PH MS B0	16.000 EA
8900	YORKVILLE SOUND WARRANTY CARD	1.000 EA
8952	BETA800 MANUAL	1.000 EA
8953	BETA800 SCHEMATIC	1.000 EA
9898	BLACK LEATHERETTE	5.440 SQFT



**PARTS LIST****BETA800**

<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
--------------	--------------------	-----------------

**M473 INPUT PCB**

3498	PC MOUNT JACK BLK PLASTIC	2.000 EA
3519	MOLEX PCB PIN 08-50-0415	6.000 EA
3539	SE34 EYELET UNPLATED RE AS M996P	12.000 EA
4539	50K AUDIO ROTARY POT	2.000 EA
4623	1K 5% 1/2 WATT RESISTOR T&R	6.000 EA
4629	10K 5% 1/2 WATT RESISTOR T&R	1.000 EA
4824	1K5 5% 1/4 WATT RESISTOR T&R	2.000 EA
5600	.22UF/100V CAP 36825224	2.000 EA
6420	BRIGHT RED LED SAR5731 1.7V 20MA	3.000 EA
6438	1N4004 400V 1AMP DIODE	1.000 EA
6771	BC560C PNP SS TRANS T092E	2.000 EA
6822	1N4745A 16V 1WATT 5% ZENER DIODE	2.000 EA

**M474 AMPLIFIER PCB**

2437	10A F/B FUSE	2.000 EA
3418	PC MNT FUSE CLIP#3529	4.000 EA
3498	PC MOUNT JACK BLK PLASTIC	2.000 EA
3500	SHOULDER WASHER SWS605	2.000 EA
3501	B52200F006 COMP WASHER #4 LARGE	1.000 EA
3519	MOLEX PCB PIN 08-50-0415	14.000 EA
3521	RGT ANGLE MOLEX 2145-8A	1.000 EA
3542	SE44 EYELET TIN PLATED	2.000 EA
3619	MOLEX RIB CABLE 77006029	1.000 EA
3692	HEATSINK THERMALLOY 6079-PB	1.000 EA
3806	B09002A001 RECT WASHER	1.000 EA
3810	3" CABLE TIE T18R TYTON	1.000 EA
3824	5MH 13AMP CHOKE	1.000 EA
4529	470 OHM TRIMPOT	1.000 EA
4599	WIRE JUMPER T&R	11.000 EA
4612	18 OHM 1/2 WATT RESISTOR	1.000 EA
4616	33 OHM 1/2 WATT 5% RESISTOR T&R	2.000 EA
4627	4K7 5% 1/2 WATT RESISTOR T&R	2.000 EA
4629	10K 5% 1/2 WATT RESISTOR T&R	1.000 EA
4630	15K 5% 1/2 WATT RESISTOR T&R	1.000 EA
4675	10 OHM 1/2 WATT 5% RESISTOR T&R	1.000 EA
4694	1.8 OHM 5 WATT RESISTOR	1.000 EA
4729	.27 OHM 5 WATT RESISTOR	8.000 EA
4804	3K 5% 1/4 WATT RESISTOR T&R	2.000 EA
4817	47 OHM 1/4 WATT 5% RESISTOR T&R	1.000 EA
4819	180 OHM 5% 1/4 WATT RESISTOR T&R	4.000 EA
4829	10K 5% 1/4 WATT RESISTOR T&R	2.000 EA
4839	150K 5% 1/4 WATT RESISTOR T&R	4.000 EA
4844	1M 5% 1/4 WATT RESISTOR T&R	3.000 EA
4854	1K2 5% 1/4 WATT RESISTOR T&R	5.000 EA
4866	4.7 OHM 1/4 WATT 5% RESISTOR T&R	2.000 EA
4870	6K2 5% 1/4 WATT RESISTOR T&R	7.000 EA
4882	27 OHM 1/4 WATT 5% RESISTOR T&R	2.000 EA
4889	1K3 1/4 WATT 5% RESISTOR T&R	7.000 EA
4890	30K 5% 1/4 WATT RESISTOR T&R	6.000 EA
4897	120 OHM 1/4 WATT 5% RESISTOR T&R	9.000 EA
5314	100N 25V TUB CAP	3.000 EA
5402	15PF 56132159 TUB 50V 5870	1.000 EA

**PARTS LIST****BETA800**

<b>PART#</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
5410	100PF 56149101 TUB 50V 5822	4.000 EA
5436	10KPF TUB 50V 56154103 5831/5834	2.000 EA
5443	4.7PF 50V TUB CAP	2.000 EA
5600	.22UF/100V CAP 36825224	4.000 EA
5837	.1UF/250V CAP 34149104	3.000 EA
5846	22UF/25V AX CAP 0326229	2.000 EA
5874	100UF/25V RAD 03556101	4.000 EA
5885	10UF/100V 03039109	4.000 EA
5932	2.2UF/100V 36825225	1.000 EA
5948	2.2UF/63V AX 03027228	2.000 EA
6420	BRIGHT RED LED SAR5731 1.7V 20MA	2.000 EA
6425	BAV21 200V 250MA DIODE	2.000 EA
6436	1N753A/BZX79C6V2 6V2 500MW 5%	2.000 EA
6438	1N4004 400V 1AMP DIODE	2.000 EA
6440	1N750A 4V7 500MW 5% ZENER	2.000 EA
6448	BT139 TRIAC T0220	1.000
6456	BF872 PNP TRANS T0202	1.000 EA
6457	BF871 NPN TRANS T0202	1.000 EA
6458	2N5551 NPN SS TRANS T092	2.000 EA
6459	2N5401 PNP SS TRANS T092	2.000 EA
6771	BC560C PNP SS TRANS T092E	3.000 EA
6786	BC550C NPN SS TRANS T092E	3.000 EA
6822	1N4745A 16V 1WATT 5% ZENER DIODE	4.000 EA
6825	1N4148 75V 450MA DIODE	12.000 EA
6826	1N5758A DIAC T092	1.000 EA
6878	TL071CP FET OP AMP	1.000 EA
8767	1/8 X .155 STEEL RIVET U.S.M.	1.000 EA
8789	6 X 1/4 PP TYPE ZN	2.000 EA
8793	4-40 HEX NUT ZINC	1.000 EA
8861	4-40 X 3/8 PN PH MS BO	1.000 EA

**M475 POWER PCB**

3501	B52200F006 COMP WASHER #4 LARGE	2.000 EA
3519	MOLEX PCB PIN 08-50-0415	16.000 EA
3539	SE34 EYELET UNPLATED RE AS M996P	27.000 EA
3542	SE44 EYELET TIN PLATED	13.000 EA
3692	HEATSINK THERMALLOY 6079-PB	2.000 EA
3806	B09002A001 RECT WASHER	4.000 EA
3841	6'' CABLE TIE TYTON T181	3.000 EA
4599	WIRE JUMPER T&R	2.000 EA
4666	4.7 OHM 1/2 WATT 5% RESISTOR T&R	2.000 EA
4735	100 OHM 1 WATT 5% RESISTOR T&R	4.000 EA
4765	150OHM 2 WATT RESISTOR BULK	2.000 EA
4832	22K 5% 1/4 WATT RESISTOR T&R	2.000 EA
4835	56K 5% 1/4 WATT RESISTOR T&R	2.000 EA
5623	330UF/16V ELECTRO CAP AX	2.000 EA
5882	.22UF/250V 36845224	4.000 EA
5885	10UF/100V 03039109	4.000 EA
5891	6800UF/80V SUB FOR 5892	6.000 EA
6423	MDA3502 BRIDGE 35 AMP	1.000 EA
6433	1N5257A 33V 500MW ZENER	2.000 EA
6438	1N4004 400V 1AMP DIODE	4.000 EA
6439	1N5225B/BZX79C3V0 3V 1/2W 5%	1.000 EA
6806	2 WATT 16 VOLT ZENER	2.000 EA