

Addendum for Model 250

This manual is applicable to units bearing serial numbers above 3500 and is the same as the manual for units below that serial number except for the following:

Throughout the original manual, replace "A", "B", "Channel A" and "Channel B" with "L", "R", "L Channel" and "R Channel", respectively.

Pages 2 and 3 — Replace Figure 1. (Amplifier Simplified Schematic) with Figure 1. contained herein.

Page 4 — Replace Figure 2. (Rectifier/Relay Board Simplified Schematic) with Figure 2, contained herein.

Page 4 — Replace Figure 3. (250 Metering Circuit Simplified Diagram) with Figure 3. contained herein.

Page 5 — Replace 100, 220-VOLT AC CONVERSION with:

220-VOLT AC CONVERSION

To convert the Model 250 to 220-volt operation, perform the following steps:

1. Remove the top cover.
2. Orient the Model 250 so that the rear panel is facing toward the viewer.
3. Locate TB1, the strip located on the power transformer half shell facing the rear panel, which terminates the power transformer primary wires.
4. Unsolder all jumpers from TB1.
5. Solder a jumper (18 AWG) to TB1 connecting the grey and violet transformer wires.
6. Re-attach the top cover.
7. Replace the 6-amp, 250V fuse in the unit with the 4-amp, 250V fuse, Part #451-1003, supplied with the 220-volt conversion kit, Part #105-1007-1.
8. Affix labels, supplied in conversion kit, in the appropriate locations on the unit cover, and adjacent to the line cord, fuse holder and accessory outlets.

The Model 250 is now ready for 220-volt operation.

100-VOLT AC CONVERSION

To convert the Model 250 to 100-volt operation, follow the procedure outlined for 220-volt conversion except for items 4, 5, 7 and 8. Item 7 is eliminated. These items will read:

4. Unsolder the black and white power lead-in wires and all jumpers from TB1.
5. Solder two jumpers (18 AWG) to TB1, one connecting the orange and violet transformer wires, and one connecting the grey and white transformer wires. Solder the black and white power lead-in wires to the white and orange transformer wires, respectively, at TB1.
8. Affix labels, supplied in the 100-volt conversion kit, Part #105-1008-1, in the appropriate locations on the unit cover, and adjacent to the line cord and accessory outlets.

The Model 250 is now ready for 100-volt operation.

Page 7 — In Table I, for "AC Power Control Box," replace "Fabricate in accordance with Figure 3." with "Fabricate in accordance with Figure 4.;" for "Amplifier Output Load Box," replace "Fabricate in accordance with Figure 4." with "Fabricate in accordance with Figure 5."

In "PERFORMANCE VERIFICATION TEST PROCEDURE," replace as indicated:

Page 8 — In paragraph C. (DC Balance Test), sub-paragraph 3 — Replace "R504" with "R502."

Page 8 — In paragraph D. (Total Hum and Noise Test), sub-paragraph 2 — Replace "0.25 mv" with "0.2 mv."

Page 8 — In paragraph E. (Bias Adjustment Test), sub-paragraph 6 — Replace "10 watts" with "7 watts."

Page 8 — In paragraph E. (Bias Adjustment Test), sub-paragraph 7 — Replace "R536" with "R526" and replace "10 watts" with "7 watts."

Page 9 — In paragraph F. (Maximum Power Output), sub-paragraph 7 — Replace "analyzer" with "oscillator."

Page 9 — In paragraph G. (Relay Operation), sub-paragraph 1 — Replace “2 minutes” with “30 seconds.”

Page 9 — In paragraph G. (Relay Operation), sub-paragraph 3 — Add “Drive both channels.”

Page 10 — Replace Figure 4. (AC Power Control Box Simplified Schematic) with Figure 4. contained herein.

In “TROUBLE ANALYSIS,” replace as indicated:

Page 11 — In SYMPTOM 1. — Replace “(100 watts or more)” with “(80 watts or more).”

Page 11 — In SYMPTOM 1. PROCEDURE b. — Replace “Check for open control R224, 215-1005-1 bias assembly” with “Check for open 215-1006-1 bias assembly.”

Page 11 — In SYMPTOM 5.- Add PROCEDURE c. — “Check C502 for leakage.”

Page 11 — In SYMPTOM 7. — Replace PROCEDURE a. with “Check for defective C505, C506, C508, C509, C510, C516, C519 and C520.”

Page 12 — In SYMPTOM 9. — Replace PROCEDURE b. with “Check output for proper clipping into 4 ohm load with 25.5 volts AC output (positive and negative levels must not vary more than 1 volt at 2 KHz).”

Page 12 — Add SYMPTOM 11. — “No Output” and add PROCEDURE a. “Check R529, Q510, Q511, Q802, Q803, Q804 and Q805.

Pages 13 — PARTS LIST — The Parts List and 14 — contained herein identifies all parts which differ from those used in units prior to serial number 3501.

Page 15 — Replace Figure 7. (Power Amplifier Board Component Assembly Diagram) with Figure 7. contained herein.

Page 17 — Replace Figure 9. (Meter Board Component Assembly Diagram) with Figure 9. contained herein.

Pages 18 — Replace Figure 10. (Model 250 Schematic) and 19 — with Figure 10. contained herein.

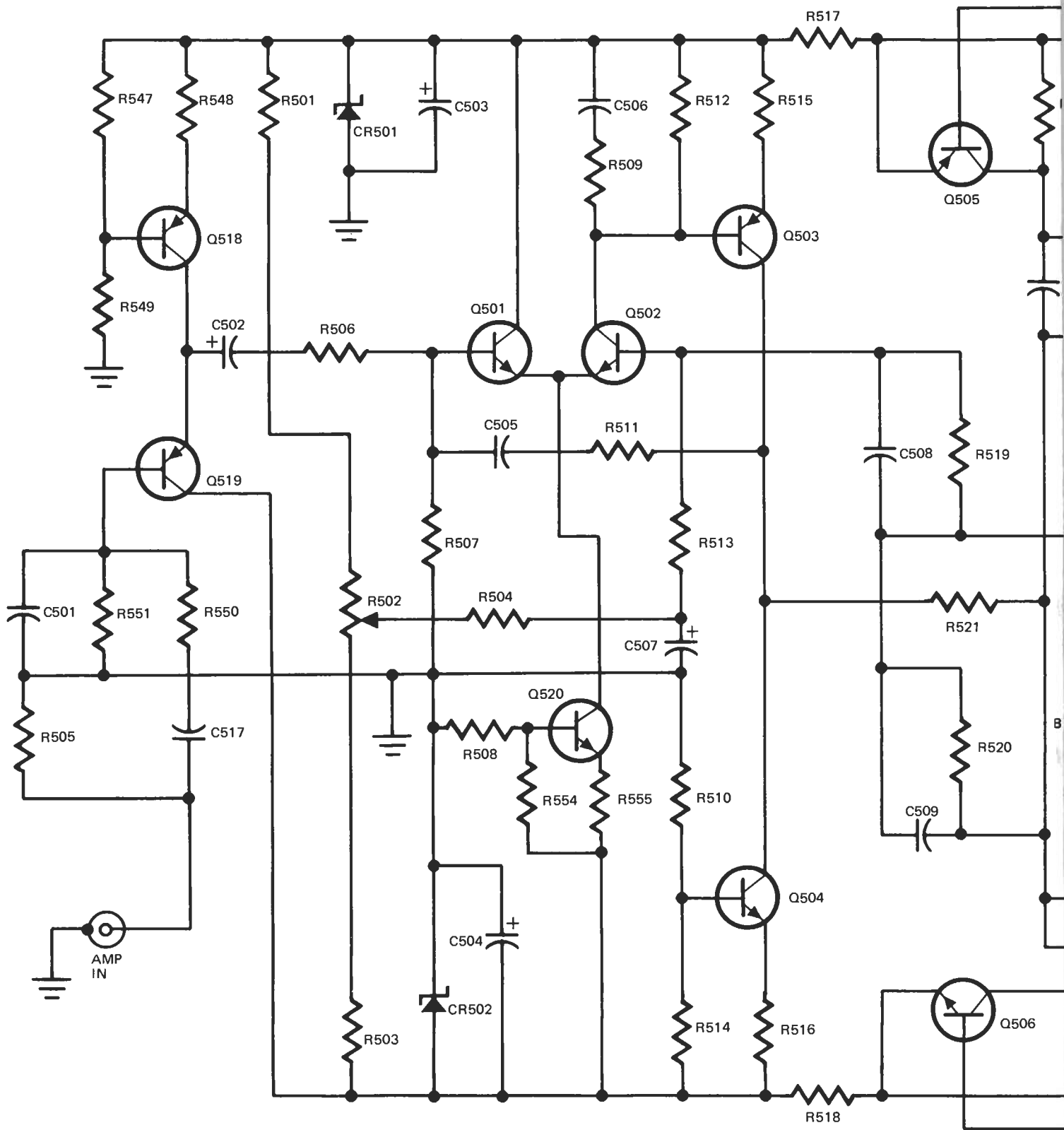
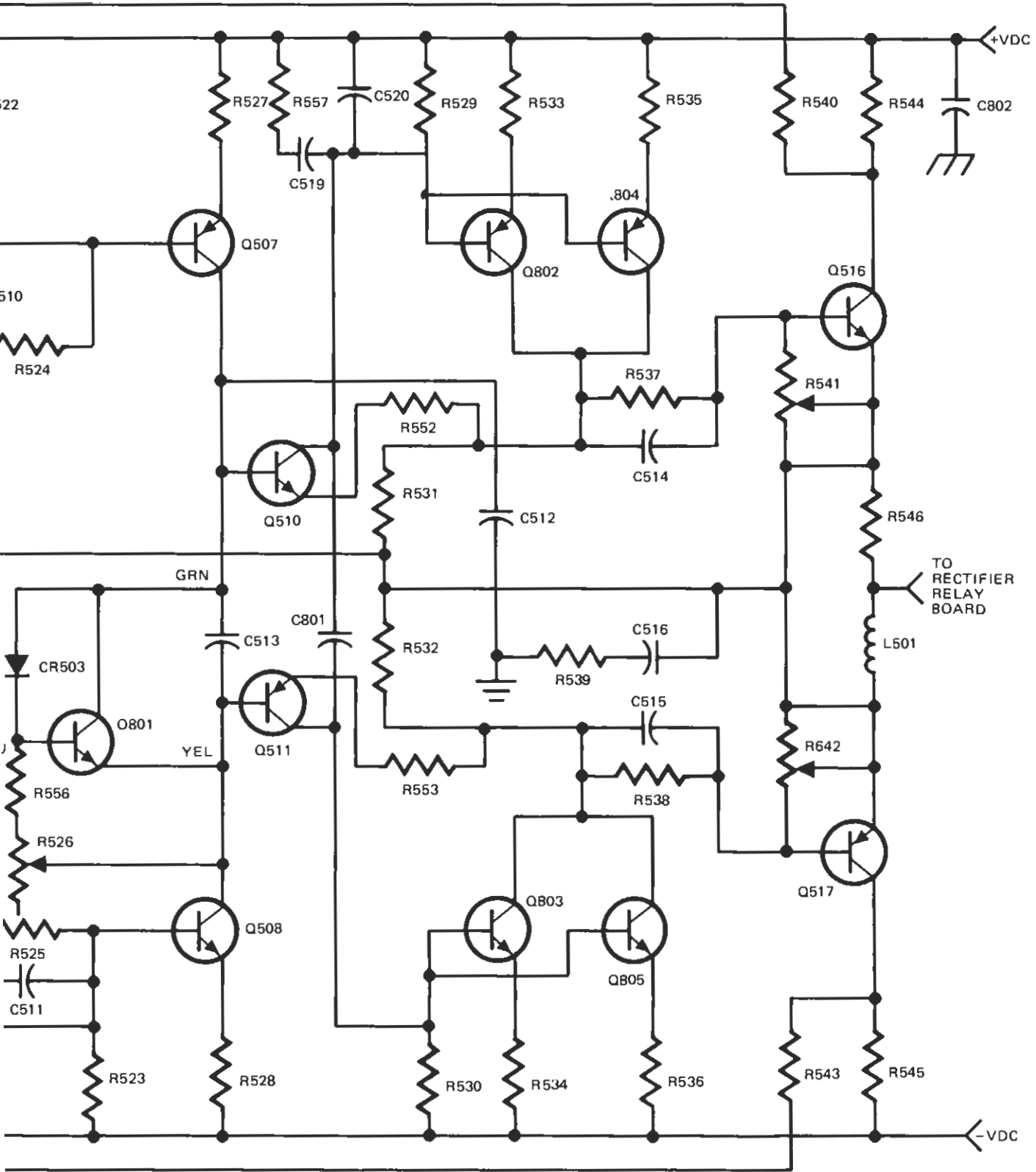


FIGURE 1. Amplifier Simplified Schematic



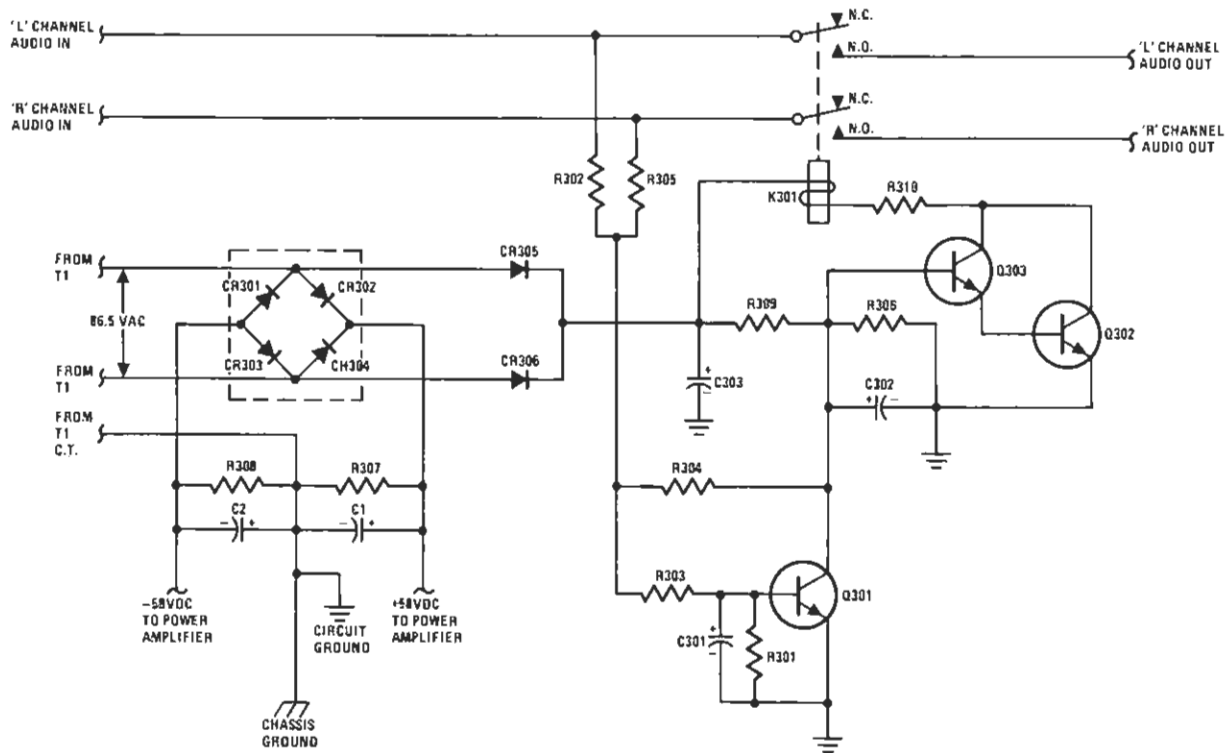


FIGURE 2. RECTIFIER/RELAY BOARD SIMPLIFIED SCHEMATIC

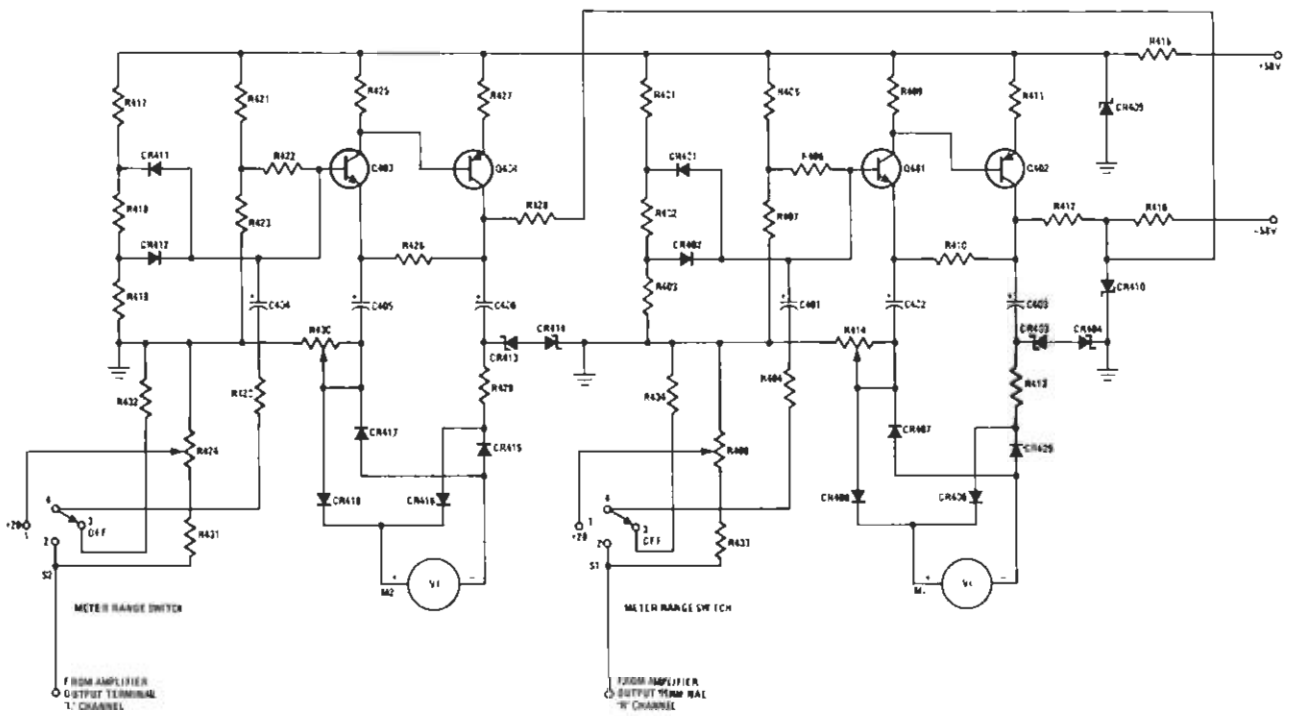


FIGURE 3 – 250 METERING CIRCUIT SIMPLIFIED DIAGRAM

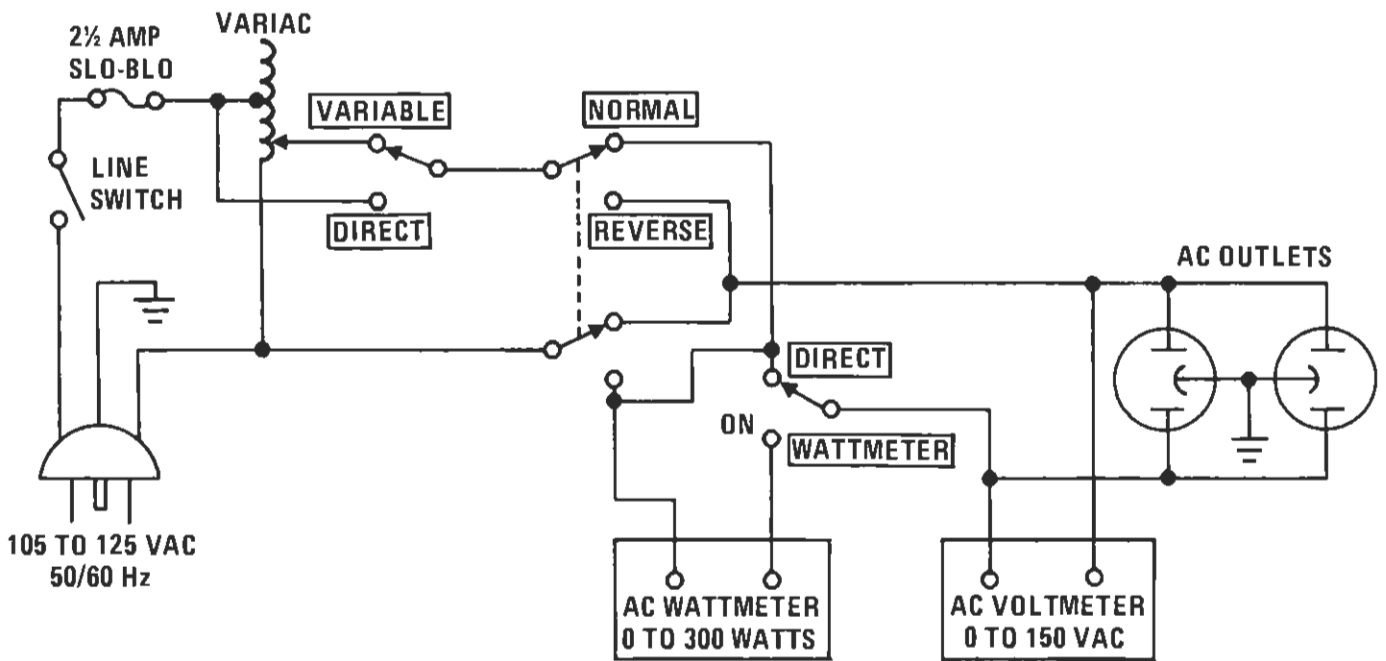
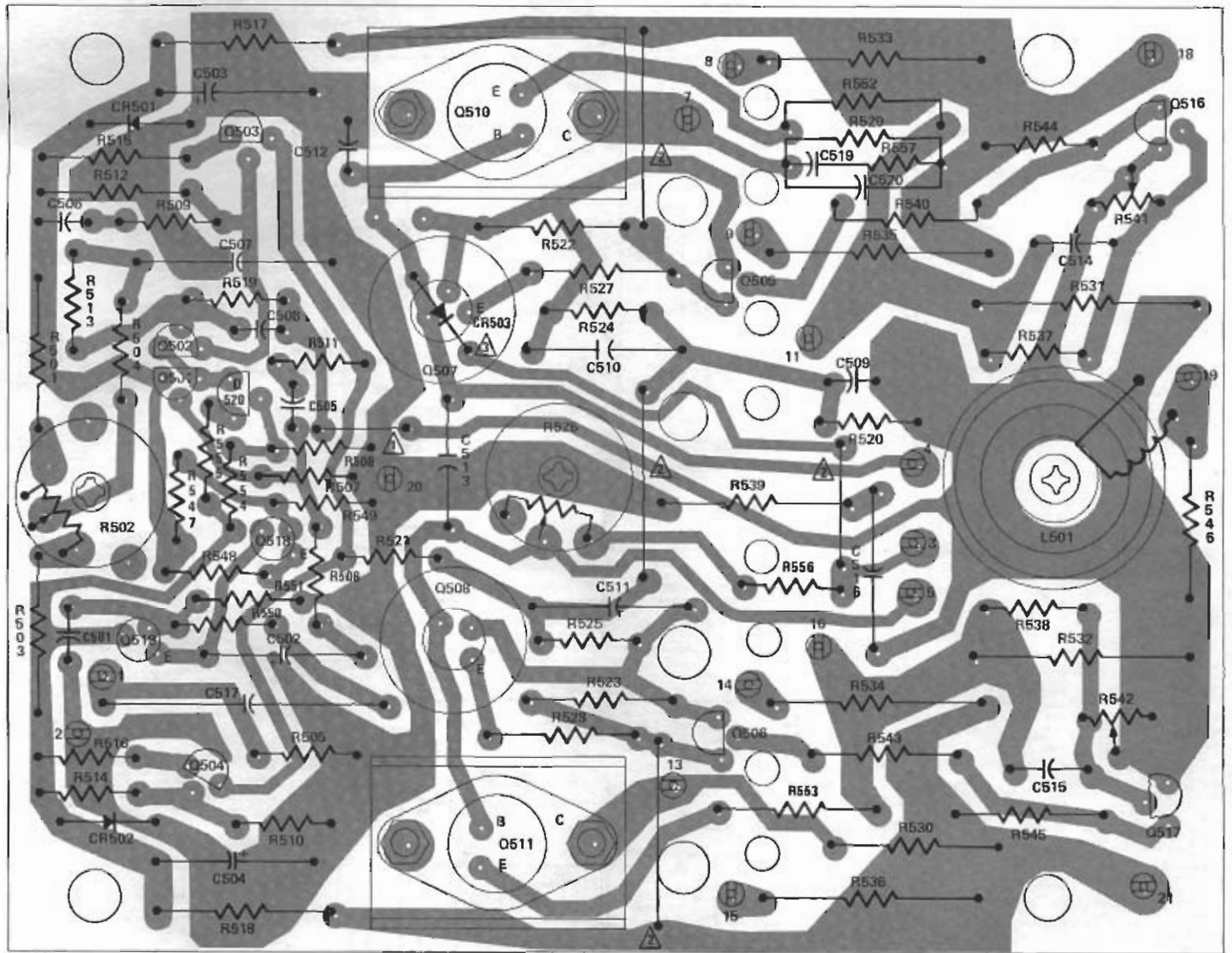


FIGURE 4 – AC POWER CONTROL BOX SIMPLIFIED SCHEMATIC

PARTS LIST

Reference Designation	Description and/or Remarks	Marantz Part Number	Reference Designation	Description and/or Remarks	Marantz Part Number
	HEATSINK ASSEMBLY				
C505	Cap., 36 pf, $\pm 5\%$, 100V	385-1064	Q511	Transistor, PNP	461-1046-*
C508	Cap., 47 pf, $\pm 10\%$, 100V	385-1040	Q516	Transistor, NPN	462-1035-*
C512	Cap., 1000 pf, $\pm 10\%$, 100V	385-1068	Q517	Transistor, PNP	461-1030-*
C518	(Not Used)		Q520	Transistor, NPN	462-1009
C519	Cap., 0.1 μ f, $\pm 10\%$, 250V	386-1000	C802	Cap., 0.1 μ f, $\pm 10\%$, 250V	386-1000
C520	Cap., 6800 pf, $\pm 10\%$, 400V	386-1026			
CR503	Diode	460-1011	CR801	(Not Used)	
R501	Res., C/F, 4.7K, $\pm 5\%$, 1/2W	433-4472	Q801	Transistor, NPN (contained in 215-1006-1 Heat Sensor Assy)	462-1043
R508	Res., C/F, 91K, $\pm 5\%$, 1/4W	434-5912	Q802	Transistor, PNP	461-1031-*
R526	Res., Variable, 250 ohms, 2W	420-1025	Q803	Transistor, NPN	462-1036-*
R529	Res., C/C, 39 ohms, $\pm 10\%$, 1W	423-2393	Q804	Transistor, PNP	461-1031-*
R530	Res., C/C, 39 ohms, $\pm 10\%$, 1W	423-2393	Q805	Transistor, NPN	462-1036-*
R552	Res., C/C, 5.6 ohms, $\pm 5\%$, 1W	423-1562		METER BOARD COMPONENT ASSEMBLY	
R553	Res., C/C, 5.6 ohms, $\pm 5\%$, 1W	423-1562	R431	Res., C/F, 22K, $\pm 5\%$, 1/4W	434-5222
R554	Res., C/F, 10K, $\pm 5\%$, 1/4W	434-5102	R432	Res., C/F, 2.4K, $\pm 5\%$, 1/4W	434-4242
R555	Res., C/F, 470 ohms, 5%, 1/4W	434-3472	R433	Res., C/F, 22K, $\pm 5\%$, 1/4W	434-5222
R556	Res., C/F, 75 ohms, $\pm 5\%$, 1/4W	434-2752	R434	Res., C/F, 2.4K, $\pm 5\%$, 1/4W	434-4242
R557	Res., C/F, 10 ohms, $\pm 5\%$, 1/2W	433-2102		MISCELLANEOUS PARTS	
Q501	Transistor, NPN	462-1038-2	T1	Transformer, Power	440-1010-1
Q502	Transistor, NPN	462-1038-2	R1	(Not Used)	
Q507	Transistor, PNP	461-1047-*	R2	(Not Used)	
Q508	Transistor, NPN	462-1053-*		Front Panel	134-1031-1
Q510	Transistor, NPN	462-1054-*	M1,M2	Meter	865-1002

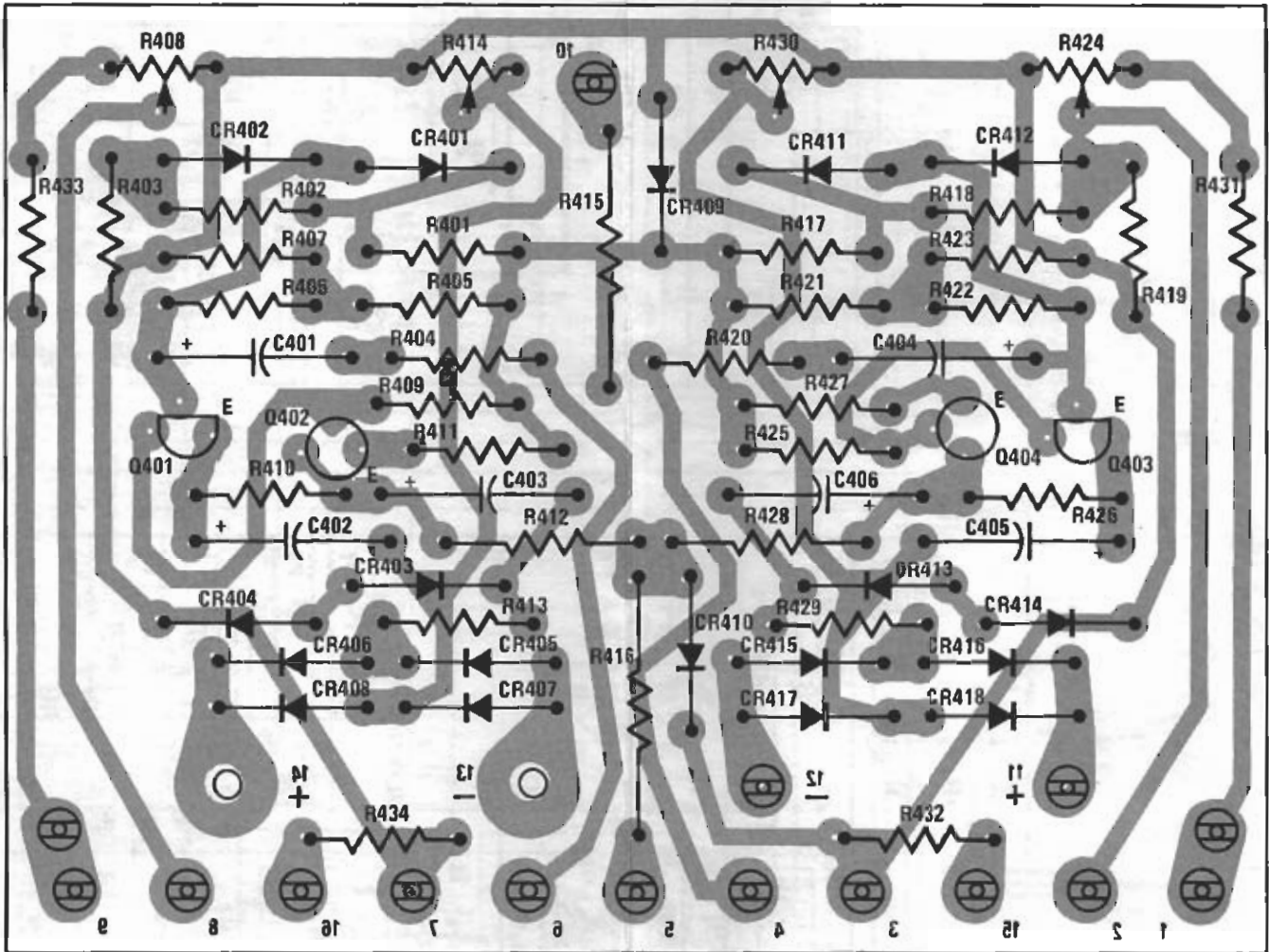
*For applicable dash number, see transistor specification chart on unit schematic (Figure 10).



- NOTES:
- △ 20 AWG BARE BUS WIRE JUMPER
 - △ 20 AWG INSULATED WIRE JUMPER
 - △ CR503 IS INSTALLED UNDER Q507, IN INTIMATE CONTACT WITH Q507 CASE

COMPONENT SIDE SHOWN
CONDUCTOR SIDE OPPOSITE

FIGURE 7 – POWER AMPLIFIER BOARD COMPONENT ASSEMBLY DIAGRAM



COMPONENT SIDE SHOWN
CONDUCTOR SIDE OPPOSITE

WHEN VIEWING BLACK DOT ON C401 AND C404 WITH LEADS DOWN, POSITIVE LEAD IS ON RIGHT.
(APPLICABLE ONLY TO APPROVED ALTERNATE PART)

FIGURE 9 – METER BOARD COMPONENT ASSEMBLY DIAGRAM

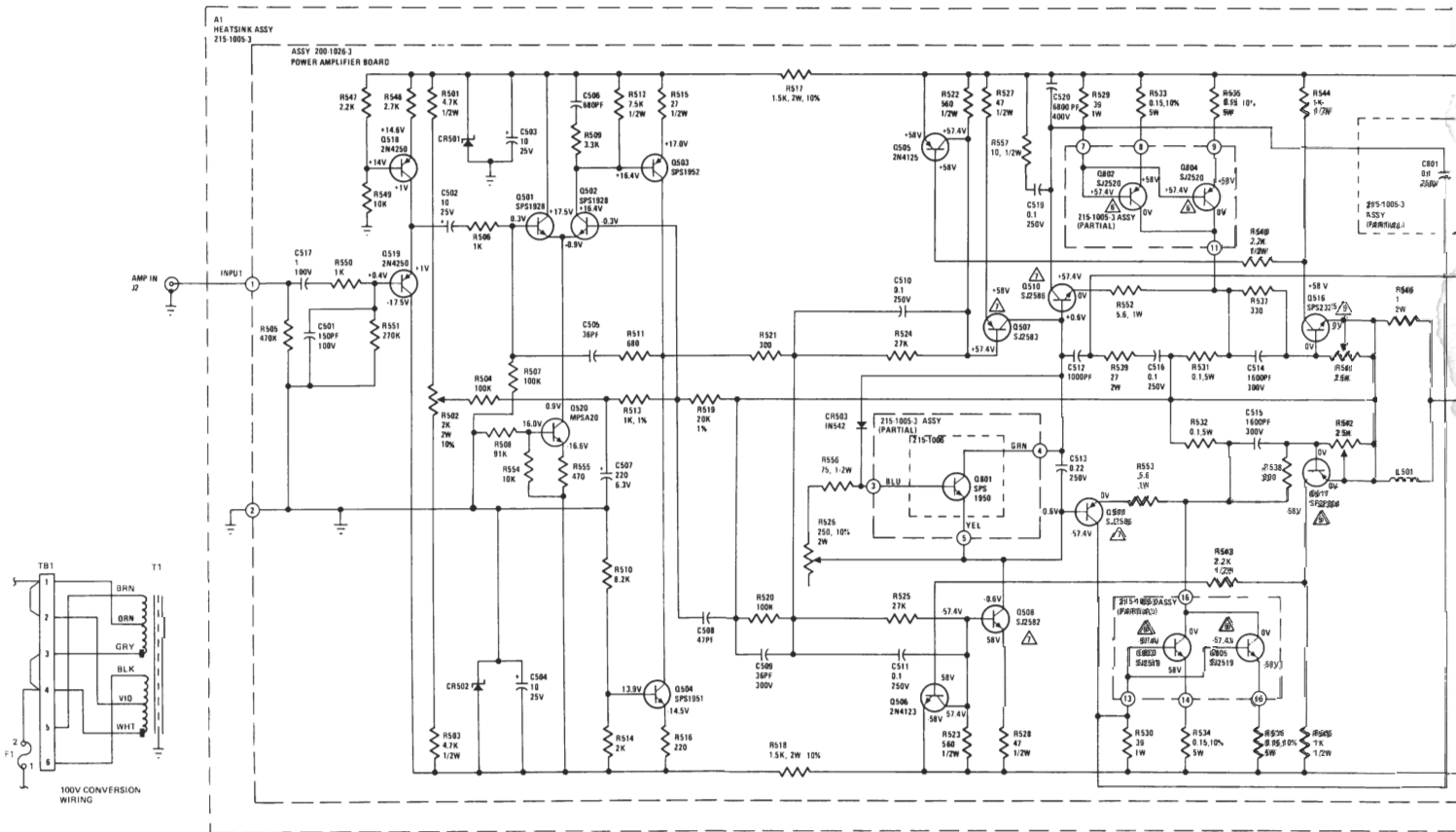
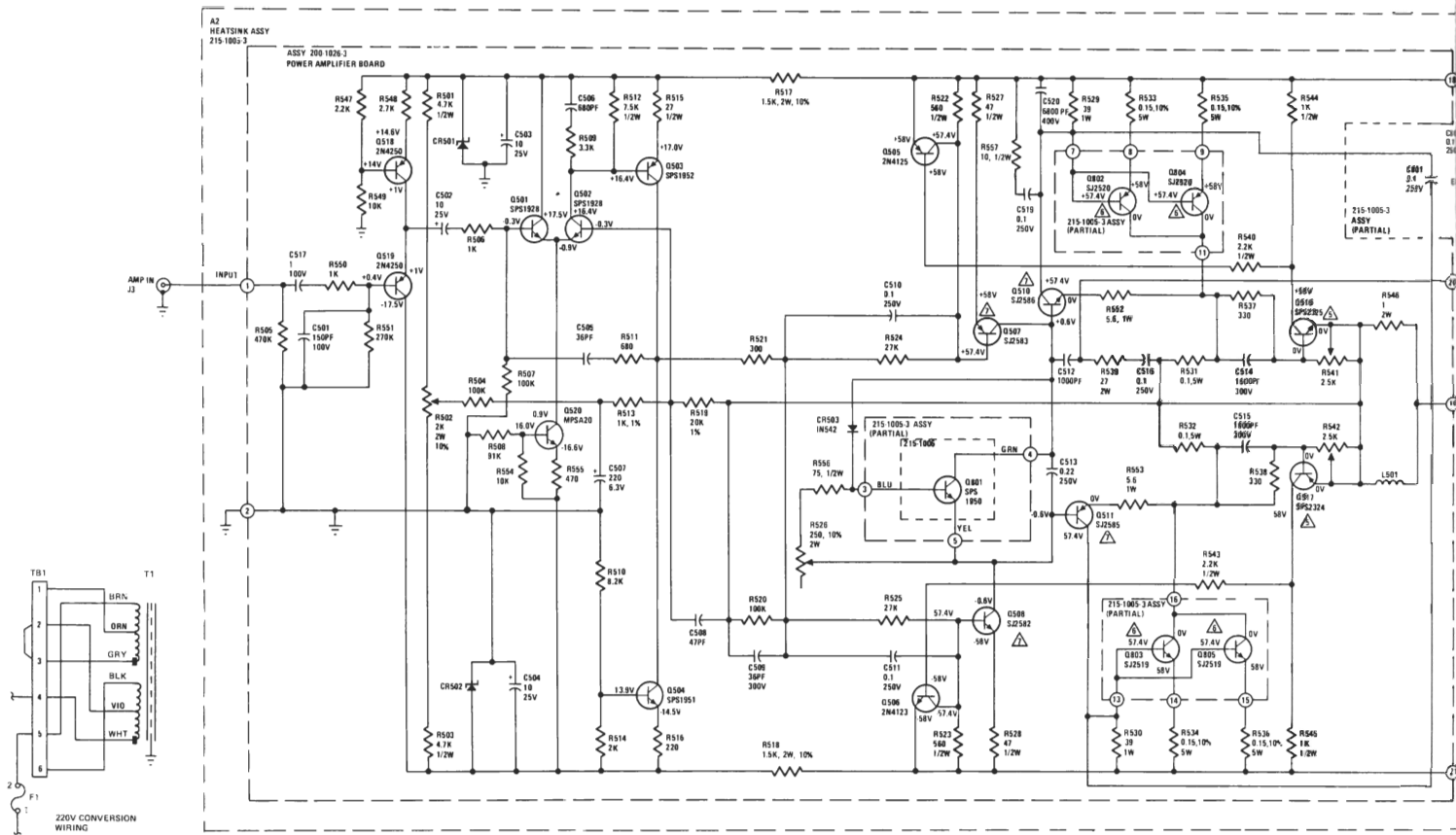
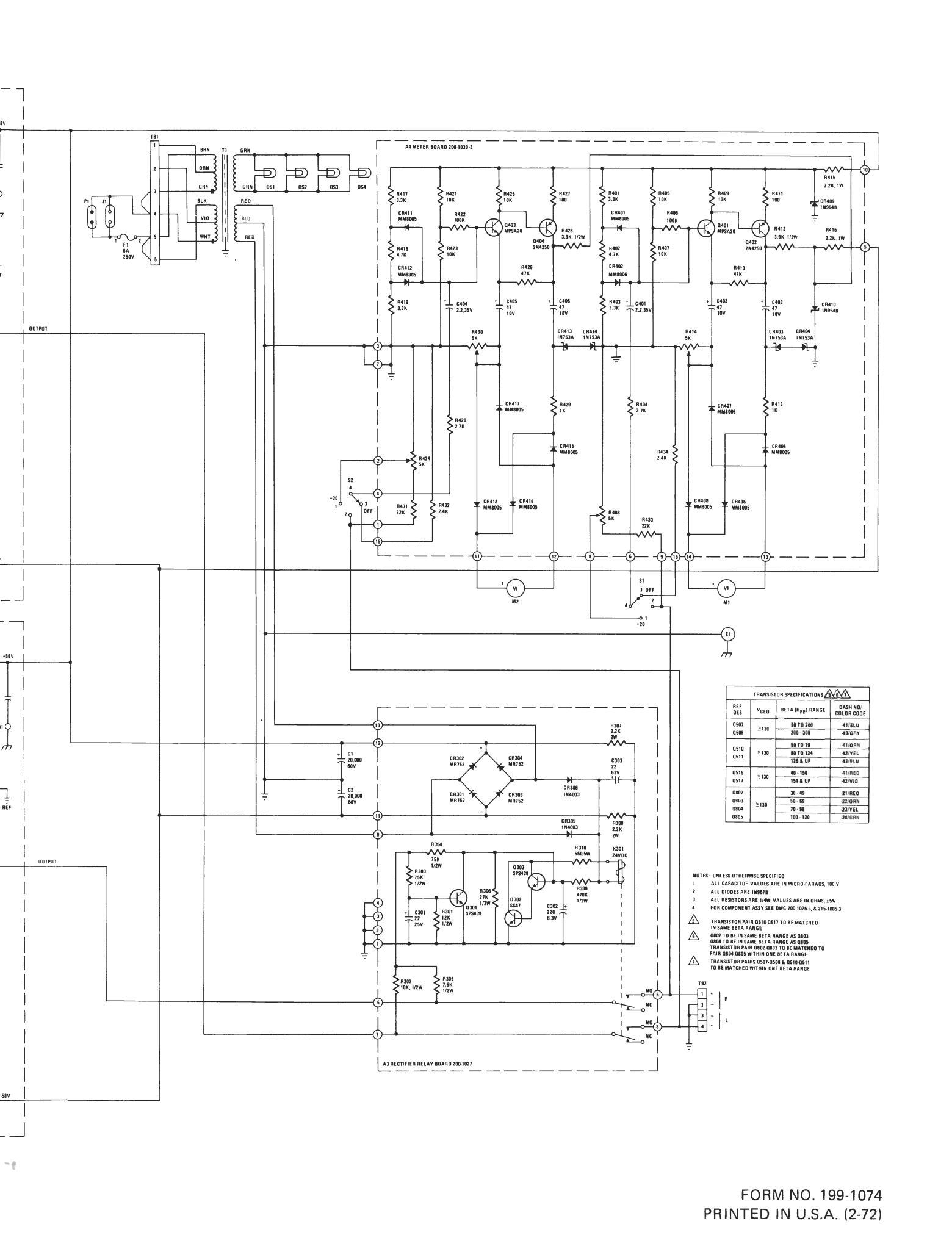


FIGURE 10 – MODEL 250 SCHEMATIC



TRANSISTOR SPECIFICATIONS			
REF DES	V _{CE0}	BETA (h _{FE}) RANGE	DASH NO / COLOR CODE
Q507	≥130	80 TO 200	41/BLU
Q508	≥130	200 - 300	43/GRY
Q510	≥130	50 TO 70	41/ORN
Q511	≥130	80 TO 124	42/YEL
		125 & UP	43/BLU
Q516	≥130	40 - 150	41/RED
Q517	≥130	151 & UP	42/VID
Q802	≥130	30 - 40	21/RED
Q803	≥130	50 - 60	22/ORN
Q804	≥130	70 - 80	23/YEL
Q805	≥130	100 - 120	24/GRN

- NOTES: UNLESS OTHERWISE SPECIFIED
- ALL CAPACITOR VALUES ARE IN MICRO FARADS, 100 V
 - ALL DIODES ARE 1N9018
 - ALL RESISTORS ARE 1/4W; VALUES ARE IN OHMS, ±5%
 - FOR COMPONENT ASSY SEE DWG 200-1026-3, & 215-1005-3
- ⚠️ TRANSISTOR PAIR Q516-Q517 TO BE MATCHED IN SAME BETA RANGE
 ⚠️ Q802 TO BE IN SAME BETA RANGE AS Q803
 ⚠️ Q804 TO BE IN SAME BETA RANGE AS Q805
 ⚠️ TRANSISTOR PAIR Q802-Q803 TO BE MATCHED TO PAIR Q804-Q805 WITHIN ONE BETA RANGE
 ⚠️ TRANSISTOR PAIRS Q507-Q508 & Q510-Q511 TO BE MATCHED WITHIN ONE BETA RANGE