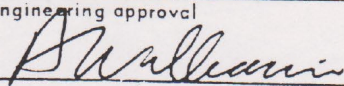
 SERVICE BULLETIN <small>SS-MAR0234</small>	model number 250	bulletin number M-250-3
	for serial numbers ABOVE 6549	
	subject POWER AMPLIFIER MODIFICATION PROCEDURE	
engineering approval 		date 8-16-76

This modification procedure is applicable only for units bearing serial numbers above 6549.

Should you receive a Model 250 Amplifier for repair in which the failure of the unit is directly attributable to the failure of one or more output, driver or pre-driver devices, proceed as follows:

A. Determine the application of the unit.

Verify, by contacting the customer, if the unit is operated in the home or if it is in commercial use e.g., recording studio, discotheque, theater, etc.

B. Units in commercial use.

Do not proceed with this modification. Send the unit to the nearest Marantz Branch Service Center listed below.

CALIFORNIA:
 California Service Center
 20525 Nordhoff Street
 Chatsworth, California 91311

ILLINOIS:
 Superscope Chicago, Inc.
 1300 Norwood Avenue
 Itasca, Illinois 60143

NEW YORK METROPOLITAN AREA:
 Superscope New York, Inc.
 56-08 37th Avenue
 Woodside, New York 11377

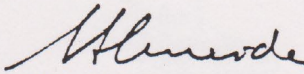
WASHINGTON:
 Superscope Northwest, Inc.
 12842 N.E. 15th Place
 Bellevue, Washington 98005

MINNEAPOLIS:
 Minneapolis Service Center
 12004 12th Avenue South
 Burnsville, Minnesota 55337

NEW ENGLAND:
 Superscope New England, Inc.
 14 Cummings Park
 Woburn, Massachusetts 01801

MICHIGAN:
 Superscope Detroit, Inc.
 591 Executive Drive
 Troy, Michigan 48084

C. Proceed with this modification only on those units NOT in commercial use.


 Albert Almeida, Manager
 Technical Services

SCOPE OF MODIFICATION

This modification provides for increased amplifier reliability by the replacement of existing pre-driver, driver and output devices with improved versions and by the addition of flyback diodes to both channels of the amplifier.

IMPORTANT

BOTH amplifier channels must be modified in accordance with this modification procedure although only one channel may be defective.

A. PARTS REQUIRED

The following parts are required in the performance of this modification and should be ordered directly from the Marantz Parts Department.

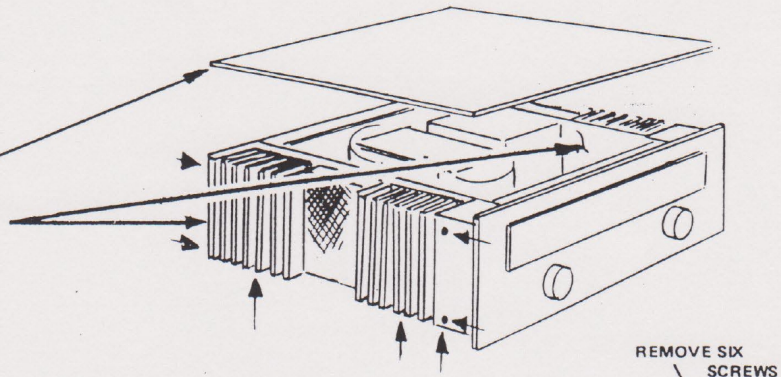
THE SUBSTITUTION OF ANY PARTS OTHER THAN THOSE LISTED BELOW IS NOT AUTHORIZED.

ITEM	PART NO.	QTY.	DESCRIPTION	REF. DESIG.
1	461-2010-000	4	Output Transistor, PNP, SJ6267 or S42573	Q802, Q804
2	462-2021-000	4	Output Transistor, NPN, SJ6266 or S42572	Q803, Q805
3	461-2011-000	2	Driver Transistor, PNP, SJ6270 or S42575	Q511
4	462-2022-000	2	Driver Transistor, NPN, SJ6269 or S42574	Q510
5	462-2016-000	2	Pre-Driver Transistor, NPN, 2N3440	Q508
6	461-2003-000	2	Pre-Driver Transistor, PNP, 2N5415	Q507
7	460-2000-000	4	Diode, 1N4003	CR505, 506 (Additions)

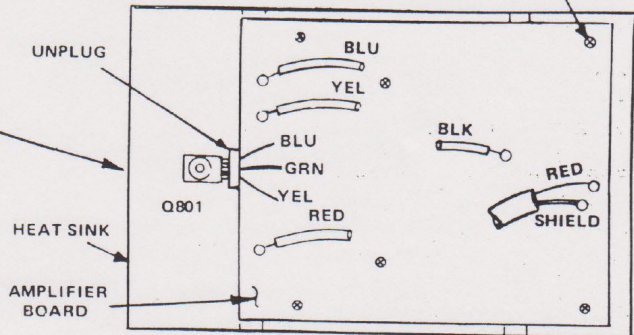
NOTE: The thermal compound used in this modification is available by ordering part number 637-1002-000.

B DISASSEMBLY

1. Remove the Model 250 Top Cover.
2. Remove the seven screws securing each Heatsink Assembly to the chassis.

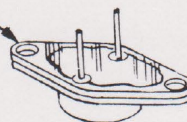
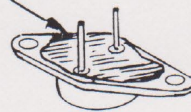
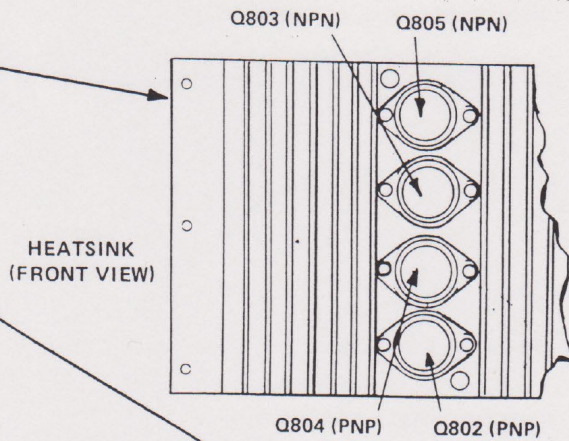


3. Separate the Amplifier Board from each heatsink.



C OUTPUT TRANSISTOR REPLACEMENT

1. Position each heatsink as shown.
2. Remove the screws holding the top transistor on each heatsink.
3. Remove the old transistor and retain the mica insulator and hardware.
4. Select the correct replacement output transistor (NPN or PNP) and apply a thin layer of thermal compound to the transistor surface.
5. Add the mica insulator and apply thermal compound as necessary to the insulator.
6. Mount the transistor with mica insulator onto the heatsink using the hardware previously removed in step C-3.
7. Repeat steps C-2 through C-6 for each output transistor on both heatsinks.



CAUTION

Be absolutely sure that the NPN and PNP transistors are mounted in the correct locations.

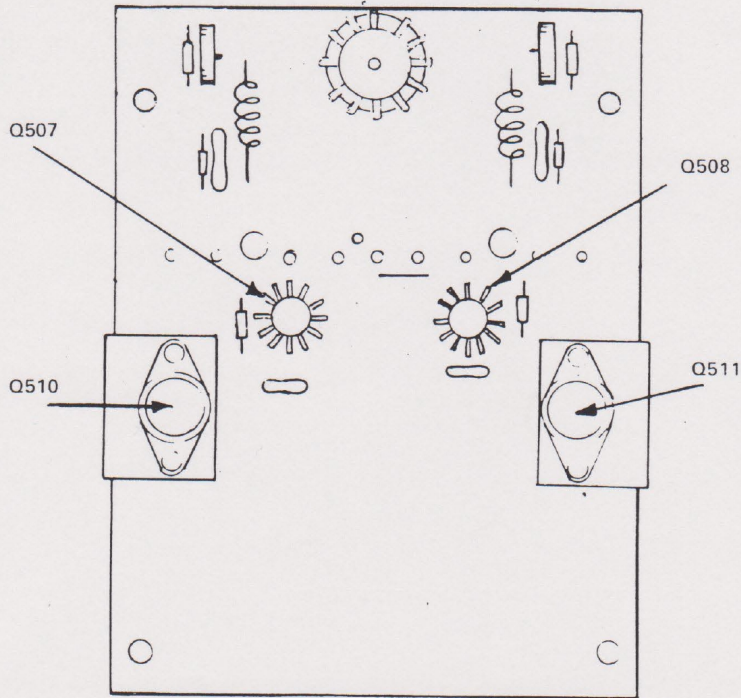
250

D POWER AMPLIFIER BOARD MODIFICATION

Using the Amplifier Board (component side) illustration for reference, remove each component listed in "REMOVE" columns one at a time, and replace with new components listed in the corresponding "Replace With" columns.

- NOTE:
1. Apply thermal compound to the surface of the driver transistors and mica insulators.
 2. Remove the heatsink from the old pre-driver transistor, apply thermal compound to the TO-5 case of the replacement pre-driver transistor and attach heatsink.

REMOVE			REPLACE WITH		
REF. DESIG.	PART NUMBER	DESCRIPTION	NEW REF. DESIG.	NEW PART NUMBER	DESCRIPTION
Q507	461-1056-000	Pre-Driver Transistor, PNP	same	461-2003-000	Pre-Driver Transistor, PNP, 2N5415
Q508	462-1068-000	Pre-Driver Transistor, NPN	same	462-2016-000	Pre-Driver Transistor, NPN, 2N3440
Q510	462-1054-000	Driver Transistor, NPN	same	462-2022-000	Driver Transistor, NPN, SJ6269 OR S42574
Q511	461-1046-000	Driver Transistor, PNP	same	461-2011-000	Driver Transistor, PNP, SJ6270 OR S42575



AMPLIFIER BOARD (COMPONENT SIDE)

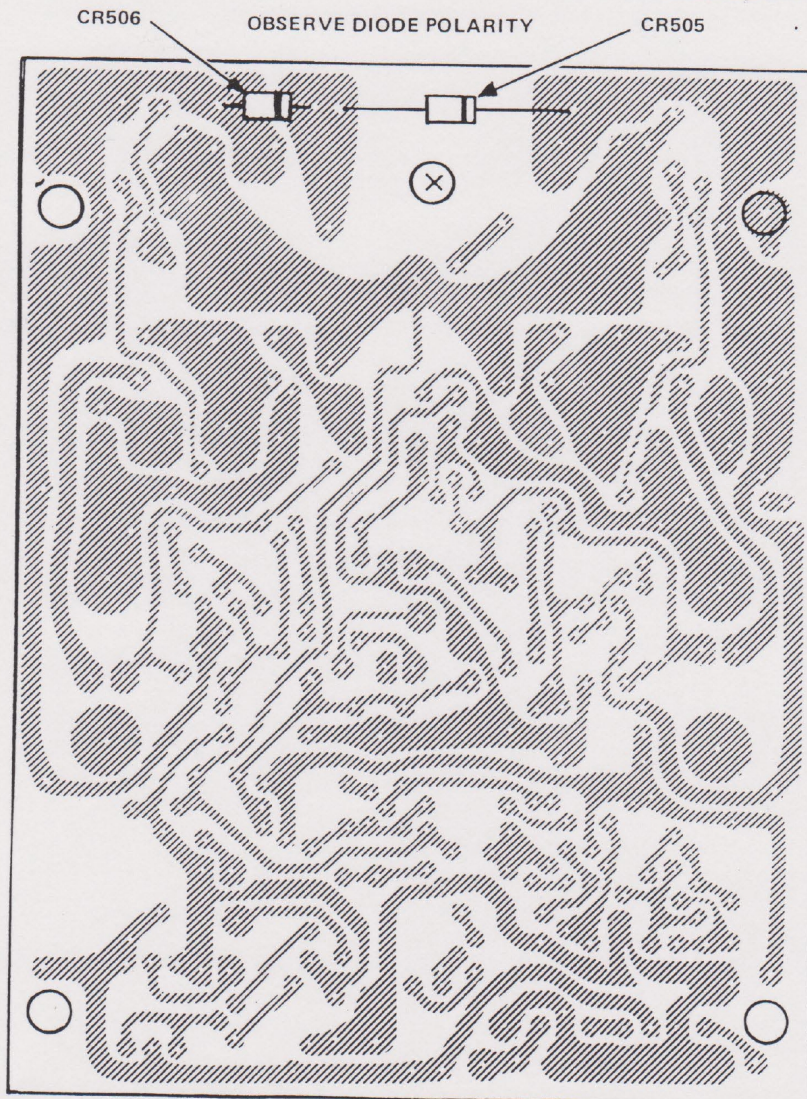
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- E Using the Amplifier Board (foil side) illustration for reference, add the following new components to the foil side of each Amplifier Board.

REF. DESIG.	PART NUMBER	DESCRIPTION
CR505	460-2000-000	Diode, 1N4003
CR506	460-2000-000	Diode, 1N4003



AMPLIFIER BOARD (FOIL SIDE)

750

F. RE-ASSEMBLY

1. Re-assemble both Amplifier Boards to the heatsinks.
2. Re-connect all previously removed wires to the Heatsink Assembly.
3. Re-mount the Heatsink Assemblies onto the chassis.
4. Check all wiring and connections.
5. Connect the output terminals of the Model 250 to an 8-ohm load, and connect the AC line cord to a variac and wattmeter. Slowly increase the AC input voltage while monitoring the wattmeter. Wattmeter indication should not exceed; 45-50 WATTS at 120 VAC with both amplifiers operational.
6. If Wattmeter indication exceeds specifications, immediately remove all power to the amplifier and re-check each step of the modification procedure until the trouble is located.

G. PERFORMANCE VERIFICATION

Perform the Performance Verification procedure listed in the Model 250 Service Manual on pages 8 through 10.

EXCEPTION:

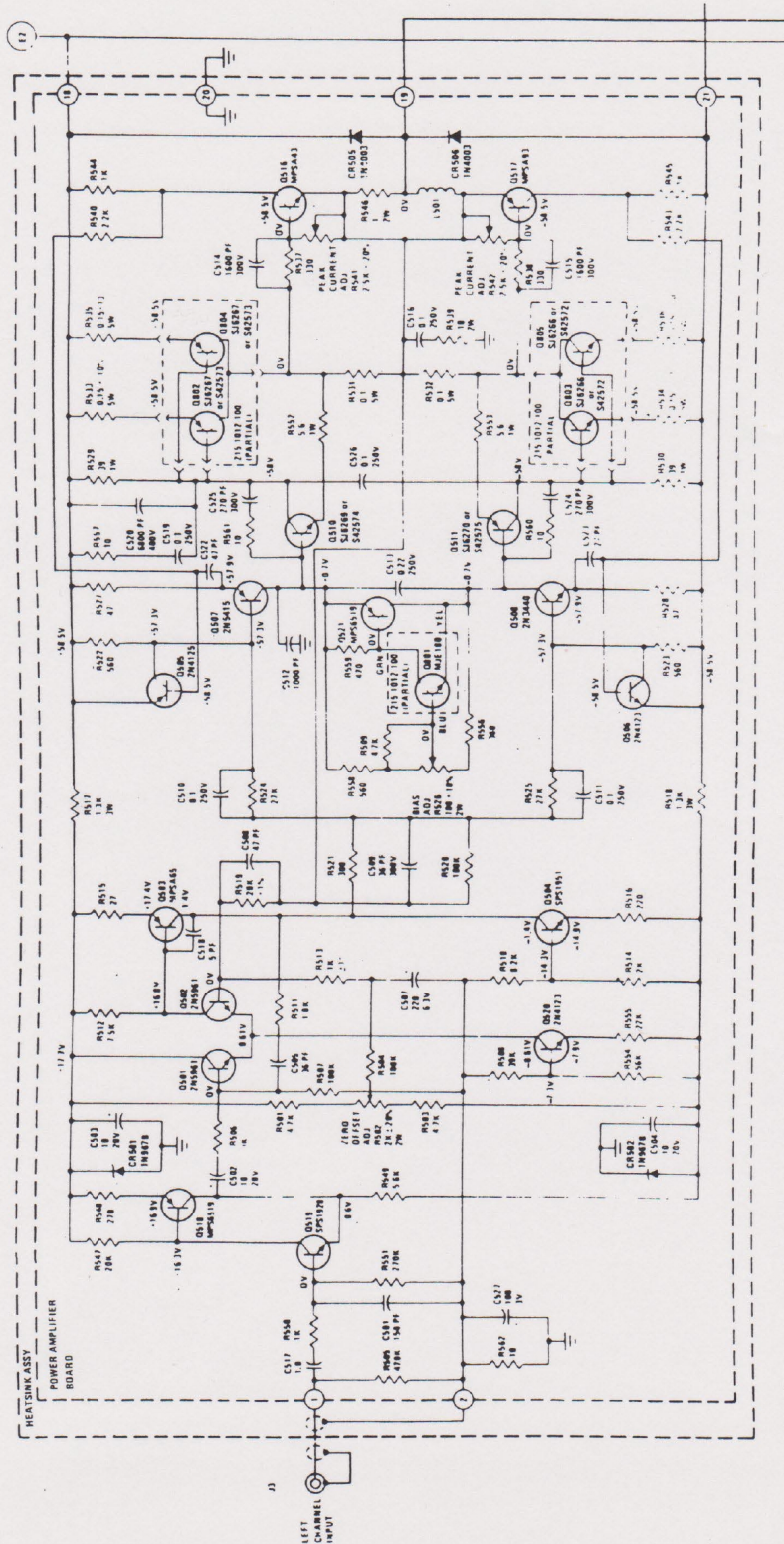
Substitute the following Bias Adjustment procedure for the Bias Adjustment Test shown in the service manual.

BIAS ADJUSTMENT

Bias adjustment must be made when the unit is cold and then retouched if necessary after a minimum ½ hour warm up period.

- a. Preset the bias adjustment potentiometer R526 on each amplifier board fully CCW.
- b. Connect a voltmeter across the series combination of R531 and R532 of the Left Channel, (voltmeter set to 0-100 mV range).
- c. Adjust the Left Channel bias adjustment potentiometer R526 for a voltmeter reading of between 24 and 30 mV.
- d. Repeat above procedure for Right Channel.

H SCHEMATIC DIAGRAM (PARTIAL)



- Notes:
1. This schematic shows left channel only.
 2. Right channel (not shown) is identical to left channel.
- Unless otherwise specified:
3. Capacitors in mfd, 100V.
 4. Resistors in ohms, 1/4 W, ±5%.

MODEL 250 SCHEMATIC DIAGRAM (PARTIAL)
 (Modified per Marantz Service bulletin M-250-3)