Marantz 2385/2500 Capacitor Replacement PCB V1

For Screw-In Capacitors

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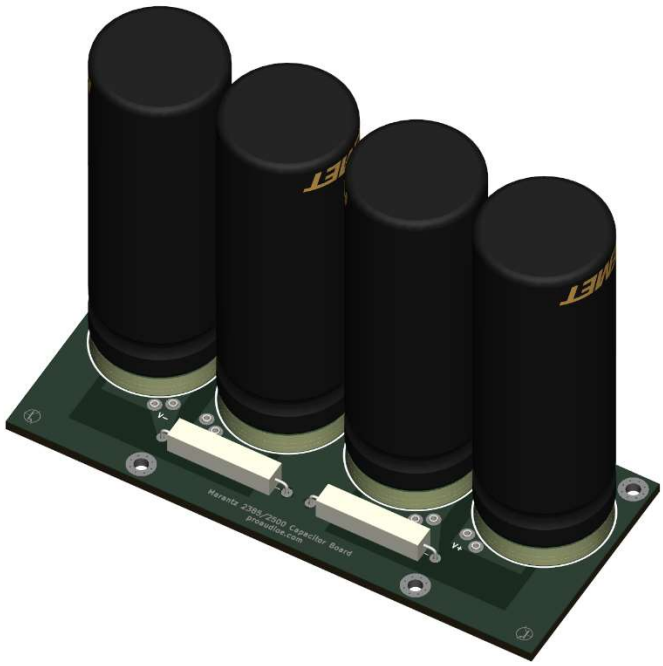


Thank you for your order! This kit is designed to aid replacement of the power amplifier supply capacitors in the Marantz 2385 and 2500. A custom mounting board designed specifically for the Kemet ALS80-A-DF family of screw-in capacitors is included. Kemet part number ALS80A822DF100 (8200 uF/100V) is a good fit and offers a bit more filtration than the original parts, but other screw-in capacitors can be used so long as the dimensions are a good match.

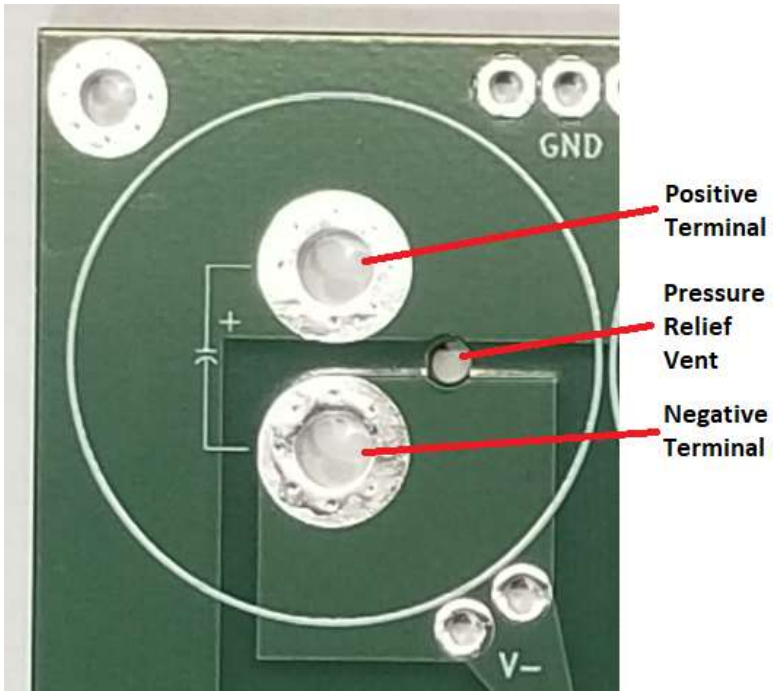
The board is made with a 3 mm thick FR-4 laminate to reduce flex, and the combination of double-sided 2-ounce copper and large pours ensures very low impedance connections to the wiring turrets, which are accessed through the bottom of the unit. Mounting is facilitated by re-using four of the original capacitor's mounting bracket holes.

To assemble this kit, you will need four screw-in electrolytic capacitors of suitable dimensions and eight capacitor mounting screws (ideally with internal tooth lock washers). More information about capacitor selection is given on the next page.

Capacitor Selection

This kit was designed to fit four Kemet ALS80A822DF100 (8200 uF/100V) screw-in capacitors. These capacitors are 36 mm in diameter, 107 mm in height, have 12.80 mm center-to-center mounting stud spacing, and use M5-0.8 threads. If you are using these parts, 12 mm long M5-0.8 machine screws would be ideal (e.g. Prime-Line 9131367). We recommend using M5 internal tooth lock washers under each screw to ensure solid electrical connections. **If you are using a different capacitor, there are several important notes to take into consideration**:

- The new capacitors should not exceed 36 mm in diameter or 107 mm in height, otherwise they may not fit on the board or inside the Marantz.
- The center-to-center spacing of the threaded mounting studs should be 12.80 mm, and the threads should be no larger than M5, otherwise the screws may not fit through the mounting holes on the board.
- The rubber plug in the capacitor's pressure relief vent should align with the non-plated hole on the mounting board so that there is room for the plug to move in the event that the capacitors start to fail and build up internal pressure. You may need to drill an additional hole in the mounting board to accommodate this. Ensure that the diameter of the hole is slightly larger than the diameter of the rubber plug.
- This kit includes a set of spacer boards designed for the Kemet ALS80-A-DF family in order to reduce mechanical stress on the board due to the length of the threaded mounting studs. These spacers may not fit other types of capacitors.



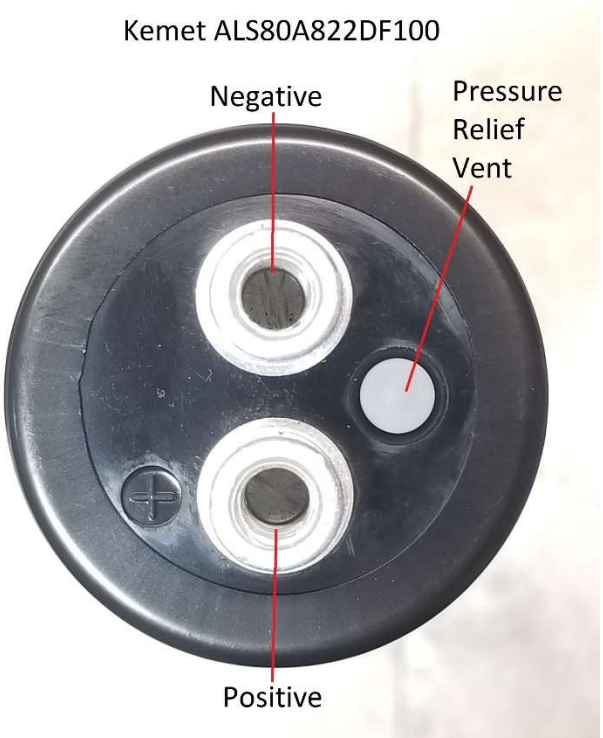
Increase in Capacitance

The Marantz 2385 uses a set of two dual 6800 uF/85 V capacitors, while the 2500 uses a set of two dual 7200 uF/100 V capacitors. Due to the slight increase in capacitance when using the specified Kemet parts, you may wish to replace both original bridge rectifiers with parts capable of handling higher continuous and peak surge currents. For reference, the 2385 schematic indicates that it uses two S5VB20 bridge rectifiers, which are rated for 6 A continuous current (when bolted to a heatsink, i.e. the chassis), 200 A peak surge forward current, and 200 V peak reverse voltage. The Marantz 2500 schematic calls for two S5VB40 bridge rectifiers, which have the same current ratings but are rated for 600 V peak reverse voltage. A bridge rectifier similar to Vishay GBPC2508-E4/51 (25 A continuous current, 300 A max surge current, 800 V peak reverse voltage) would be a good choice. Be sure to apply a bit of thermal compound to the bottom of each bridge before bolting it to the chassis.

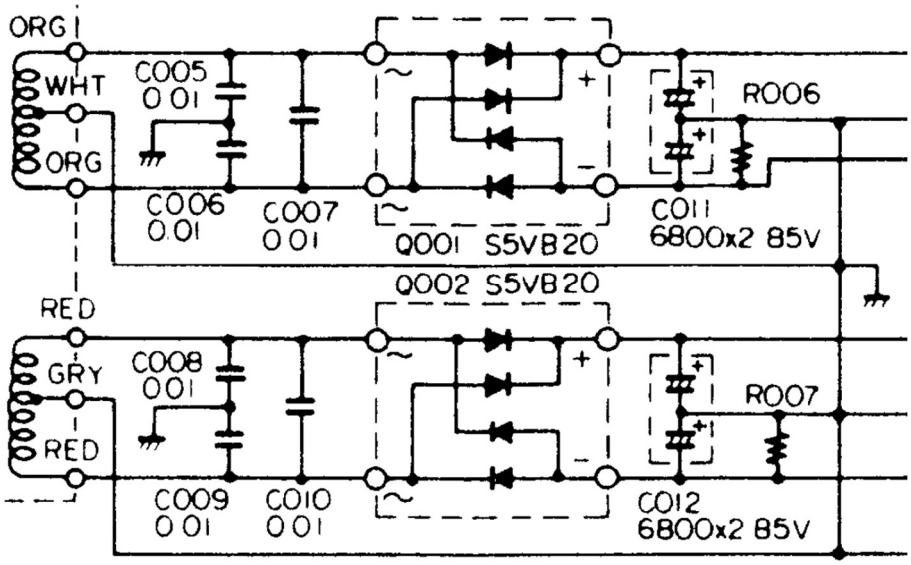
Installation

1. Take pictures or make a clear diagram of the original capacitor wiring scheme, including all color codes.
2. Desolder and remove the original capacitors. Try to save as much wire length as possible.
3. If you are using the specified Kemet parts, place 5 of the included spacers over the mounting studs of each capacitor. Make sure to align all of the vent holes with the rubber plug on the capacitor.
4. Mount all four capacitors onto the side of the board ***opposite*** the long end of the turrets. This side has a small manufacturing code printed on the bottom left.
5. Triple check that you have all your capacitors installed with the appropriate polarity! Silkscreen references indicating polarity are provided on the board.

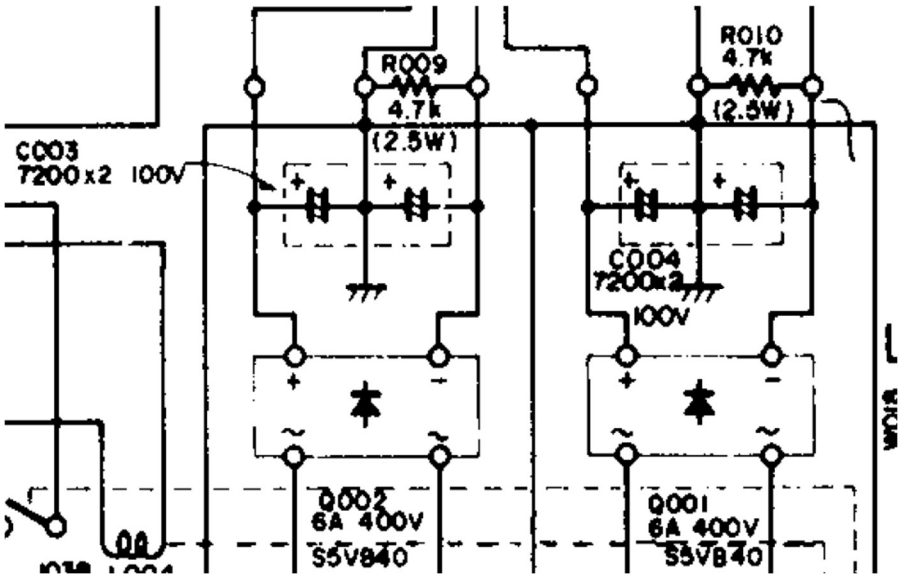
Capacitor side of the mounting board, opposite the long end of the turrets. Note the small manufacturing code in the bottom left



6. The capacitor board has footprints for mounting both wirewound bleeder resistors. You can either move these resistors from the bottom of the unit onto the board, or leave them in place and solder them to the “V-“ turrets at the end. If you intend to mount them on the board, do so now. Place them on the same side that your capacitors will sit on.
7. Mount the board in place using the four included nylon spacers, machine screws, and hex nuts. The board will mount in place of the original capacitors, re-using four of the original mounting holes. The fifth mounting hole on the board is not used in this application. In the Marantz 2500, it may be necessary to replace one of the plastic wire holders with a zip tie in order for the board to sit all the way down.
8. Flip the unit upside down and connect each wire to its designated wiring turret. The positive rail corresponds to the **V+** turrets, the negative rail corresponds to the **V-** turrets, and ground corresponds to the **GND** turrets. Not all ground turrets will be used.
9. Triple check your wiring against the pictures or diagram made at the beginning. If you are replacing the bridge rectifiers with parts capable of handling higher continuous and peak currents, do so now.
10. We recommend powering the unit up slowly with a dim bulb tester (i.e. a common incandescent lightbulb wired in series with the AC line input) and variac while monitoring the supply voltages to confirm that everything is working as expected.



Marantz 2385 Schematic



Marantz 2500 Schematic