

## CONSTRUCTION HINTS FOR THE MOTOROLA AN779L DRIVER

These instructions are only meant as guidelines in constructing the AN779L amplifier. They are meant to be used with the Motorola Application Note 779.

Install R1 and R4 (10 ohms, ¼ watt brown-black-black)

Install R2 and R3 (30 ohms, ¼ watt, orange-black-black)

Install R5 (240 ohms, 3-watt nominal) and R6 (100 ohms, 3-watt nominal). Mount the resistors approximately 3/16" above the PC board, as these resistors will run hot. These values may have to be adjusted to allow for the differences in the voltage drops in D1 and D2.

**NOTE:** The recommended values of 82 ohms for R5 and R6 in the application note tend to increase the bias voltage for the RF transistors. This causes the RF transistors to run hot at idle. If they get too hot, they may enter thermal runaway and destroy the transistors. Values of 240 ohms for R5 and 100 ohms for R6 appear to eliminate this problem. The supply voltage should also be reduced to 12.5 volts. No noticeable change in the amplifier's performance was noted except for the reduced power output caused by reducing the DC power supply from 13.6 to 12.5 volts.

Install R8 and R11 (6.8 ohms, ¼ watt, blue-gray-gold)

Install R9 and R10 (15 ohms, ¼ watt, brown-green-black)

Install RFC1, RFC2, RFC3, and RFC4 (10uH)

Install D1 and D2 (1N4001). Mount the diodes 1/16" above the PC board.

Install the two sets of double beads, which mount in the DC power lines. The application note says to mount the beads under the transformers T1 and T2. However, there is not adequate space under the transformers unless one files one side of the beads flat. An alternate method is to mount the beads on the bottom of the board. The PC board is then mounted on spacers high enough to clear the beads.

Install T1 by soldering the ends of the transformer to the PC board in four places. Use just enough solder to ensure that the transformer is mounted solidly to the PC board. Then install the transformer windings leads in their proper holes and solder. HINT – mount the transformer T1 centered on the PC board foil pads.

Install T2 by soldering the ends of the transformer to the PC board in four places. Use just enough solder to ensure that the transformer is mounted solidly to the PC board. When positioning the transformer for soldering, insert the center tap lead into its proper hole but do not solder until after the transformer has been soldered into place. Install the remaining transformer winding leads into their proper holes and solder all leads including the center tap. HINT – mount the transformer T2 offset on the edge of the PC board foil pads toward the RF Output side of the board. This will facilitate the mounting of R7 and the output transistor heatsinks later.

Install transformer T3 by soldering the transformer in four places to the PC board. Use just enough solder to ensure that the transformer is mounted solidly to the PC board. Then install the remaining transformer windings leads in their proper holes and solder. HINT – mount the transformer T3 offset on the edge of the PC board foil pads toward the RF Input side of the board. This will facilitate the mounting of R12 and the output transistor heatsinks later.

**Install R7 (47 ohms, ¼ watt, yellow-violet-black). Place an approximate ¾" length of insulating tubing over each end of the resistor before inserting through T2. After inserting the resistor leads through T2, place the beads over the leads and insert the leads into their proper holes on the PC board and solder.**

**Install R12 (130 ohms, ¼ watt, brown-orange-brown). Place an approximate ¾" length of insulating tubing over each end of the resistor before inserting through T3. After inserting the resistor leads through T3, place the beads over the leads and insert the leads into their proper holes on the PC board and solder.**

**Install RFC5 (VK200 19/4B)**

**Install C1 (39pf silver mica)**

**Install C2 and C3 (680pf ceramic disc)**

**Install C4 and C10 (220uf, 4 volt, tantalum teardrop) The black bar is the positive lead.**

**Install C5, C7, C11 and C13 (0.1uf ceramic disc)**

**Install C6 (56pf silver mica)**

**Install C8 and C9 (1200pf ceramic disc)**

**Install C12 and C14 (10uf, 25 volt tantalum teardrop) The black bar is the positive lead.**

**Install Q1 and Q2 (MRF476). Q1 and Q2 should be matched to prevent unbalance and overheating. Prepare the MRF476's for mounting by trimming off the center (collector) lead close to the body of the transistor. The mounting tab will provide the electrical connection for the collector. Mount the transistors using the small heatsinks and 3/8" 4-40 screws and nuts. Before tightening the mounting screws, ensure the heatsinks are pressed against the diode D1 to provide thermal contact. Better thermal contact can be achieved by using thermal compound or silicon grease at these junctions.**

**Install Q3 and Q4 (MRF475). Q3 and Q4 should be matched to prevent unbalance and overheating. Prepare the MRF475's for mounting by trimming off the center (collector) lead close to the body of the transistor. The mounting tab will provide the electrical connection for the collector. Mount the transistors using the small heatsinks and 3/8" 4-40 screws and nuts. Before tightening the mounting screws, ensure the heatsinks are pressed against the diode D2 to provide thermal contact. Better thermal contact can be achieved by using thermal compound or silicon grease at these junctions.**

**The AN779L amplifier should be powered by a regulated 12.5-volt power supply for best bias stability.**

**The amplifier will run hot when running CW or heavy SSB. The maximum output in the CW mode should be limited to 8 to 9 watts. A small 12-volt fan mounted at the end of the amplifier so that the air is blown across the heatsinks will help cool the amplifier and increase the life of the transistors.**