

# Beefing Up the Uniden and the HTX-100

*Give these popular rigs more punch.*

by M. T. Stacey KC4HGH

The Uniden HR2510 and the HTX-100 have made a big splash in the amateur market. These \$250-300 mobile 10 meter rigs are great performers, and fit in many of today's smaller cars. With 25 watts fed to a properly tuned antenna, it's easy to work the world, thanks to Cycle 22.

Even with the great sunspot activity, however, there are lots of other folks running much more power, and it can sometimes be tough to compete with them. I felt I needed more "oomph" to my signal.

## Souping Up the Uniden

I didn't want to hook up an external amplifier, due to the severe lack of space in my sub-compact. So the rig went up on the bench for a tune-up. Although I modified the HR2510, this article also covers details on modifying the HTX-100.

I turned up the ALC, and reset the bias of the final and driver. Back to the mobile it went, with only *slightly* better results. Then I sat down with a couple of references, and decided to experiment on the RF output strip itself, since I've had good luck in this area with similar power modifications in some CB sets converted to 10 meters. Since Novices and Technicians are allowed 200 watts power out in the 10 meter voice band, it was worth a try.

In looking up the specs on the final transistor, an MRF477, you'll notice that it's rated at 40 watts PEP. If you crank the ALC all the way up and install a power mike on these rigs, you can overdrive them. Even with the stock mike, peaks can reach 55 watts. I set out to come up with a "beefier" setup for the RF output section of these radios.

## The Mod

Just replacing the MRF477 with an MRF497 solves the overdrive problem, but still gives you no more power than before, so extra drive is needed. Looking "earlier" in the RF strip, you'll find a 2SC2086. Replace it with an

ECG340, which provides more gain. Please note that the pinout of the ECG340 is exactly opposite of the 2SC2086!

Comparing the MRF497 to the MRF477, you will find that both have the same pinout, but the specs show the MRF497 to be a low-band FM transistor, which is rated at 40 watts RMS from 25 to 50 MHz, and is more efficient in the lower end of its range. This is ideal for hamming on 10 meters.

I tried several different transistor/driver combos, but experimentation showed the ECG340 and the MRF497 to be the best combo. The HR2510 and HTX-100 have non-tunable RF final sections, which restrict the number of useful combos.

After replacing these two transistors, and a few capacitors on the bottom of the board, and retuning/rebiasing the RF section, you will find that the rig's power out has greatly increased! Please refer to the tables for proper parts and tune-up data.

## Results

All readings were taken on a power meter, using a 1 kHz test tone, with the signal fed into a dummy load. Normal voice (mine, at least) stays in the 60-65 watt range. The new PEP/Carrier ranged from 75W/11W at

28.075 MHz, to 90W/12W at 29.7 MHz.

For lower SSB power, I simply punch in the MIC GAIN button, which approximately halves the output power. The carrier power stays the same, but I suspect you could increase it to 20 watts for FM operation, with no detrimental effects. For the HTX-100, an internal adjustment and an external control governs low power output.

You might think this power modification would run into big bucks, but not so. My only investment is \$25 and a little time on the bench. Best of all, I've kept it in one package!

Before the mod, using my peaked-out HR2510, I noticed the heat sink was almost too warm to touch; now, after the power mod, the heat sink only gets moderately warm, attesting to the fact that the transistors are not as stressed as before. Also, folks that knew my rig "before" and "after" have noticed the extra power punch and clean audio quality. I'm satisfied!

## Resources

For proper alignment procedures, consult the service manuals for the HR2510 and the HTX-100. They will also give you the proper information in reference to parts locations, maintenance setups, etc. For the Uniden HR2510, contact Uniden Parts Dept., 9319 Castlegate Dr., Indianapolis IN 46256. For the Realistic HTX-100, contact your local Radio Shack, or Tandy National Parts, 900 North Side Dr., Fort Worth TX 76102.

For the ECG340, contact your local ECG Sylvania dealer; price is about \$3.40 plus tax. The MRF497 is available through RF Parts, 1320 Grand Ave., San Marcos CA 92069, telephone (800) 854-1927 for orders only; price is \$14.95 plus \$5 shipping.

I'd like to hear from other operators experimenting with the HR2510. Good luck! **73**

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## Uniden HR2510/Realistic HTX-100

### Power Modification Parts

Procedure	HR2510	HTX-100
Relocate capacitors to bottom of board	C112, C116	C117, C118
Replace 2SC2086D transistor with ECG340; note pinouts! (See note below.)	Q134	Q34
Replace MRF477 with MRF497	Q132	Q502
Set bias of MRF497 @80-85 mA, USB	VR112	VR11
Check output of radio with meter of at least 100W and dummy load; adjust ALC to peak with 1 kHz tone	VR104	VR5 (VR6 low pwr adj)
Spread coils for maximum power	L121, L123	L14, L16
Check AM/FM carrier level and adjust	VR107	n/a
Check CW power level and adjust	VR103	VR13

Pinouts of 2SC2086D and ECG340 are exactly opposite:  
2SC2086D = BCE, ECG340 = ECB.

In the HTX-100, VR5 can be adjusted for maximum power output, and with front panel control pulled out, low power can be set with VR6.