

Yaesu's FT-897 isn't designed to be the "carry anywhere" radio that the FT-817 is, but it can be operated portable with optional internal batteries. WB6NOA looks at two options for batteries and chargers.

## Battery Power For the Yaesu FT-897

BY GORDON WEST,\* WB6NOA

**T**he Yaesu FT-897 all-mode, 1.8-430 MHz transceiver has a removable base plate that reveals a shallow compartment for twin 4500 mAh nickel metal hydride (NiMH) battery packs selected by the battery A and battery B switch on the top of the unit. With two battery packs installed, you have 9 amp hours of battery capacity. The FT-897 will automatically sense that it's operating on battery power and drop back to 20 watts PEP HF output, and a little less on the 2 meter and 440 MHz bands. Since the twin internal batteries fit inside the bottom cover, you won't add an inch to the existing frame of the equipment.

In this article we'll look at two sources of the battery packs and required chargers: Yaesu itself and W4RT Electronics. The Yaesu part number for the NiMH battery pack is FNB-78, and you may install one or both. Each pack sells for around \$120 under the Yaesu brand, or \$100 from W4RT Electronics.

W4RT Electronics ([www.w4rt.com](http://www.w4rt.com)) reminds Yaesu users that the FT-897 battery packs require a special charger to bring each battery back up to a full 15 volt DC charge. For \$85, the W4RT Electronics OFC-897 One Fast Charger is less expensive than the two-part Yaesu system—the fast charger, Model CD-24, priced at \$120, and the PA-26B AC charger (required for charging from an AC power source) at an additional \$85. Depending on your needs, though, there are some benefits to the Yaesu unit, which we'll discuss later.

From a straight cost perspective, the W4RT system not only saves money, but can help keep the radio affordable. "I think I lose some sales when I start adding up the various components to keep the 897 on the air on internal batteries," commented a dealer at the recent Southwestern Division ARRL Convention. "But when I tell the customer a hundred bucks for the battery, and 85 bucks more for a fast battery charger, all from W4RT, they usually buy the Yaesu radio on the spot and order the W4RT battery and charger system direct. The less-expensive battery system helps me sell the radio."

W4RT has crafted a nice business of accessories for the Yaesu product line. This includes custom antenna tuners manufactured by LDG, backpacks specifically designed to hold either a big or small radio system out on a hike, CW and SSB filters, and several interesting DSP additions to the FT-817 micro-HF radio.

I ordered a pair of batteries and the fast charger, and within a week they arrived, all packaged in bubble pack and with



Two internal battery packs (4.5 amp/hours each) provide up to 9 amp/hours of portable operation for the Yaesu FT-897. They can be charged without being removed from inside the radio.

enough documentation to make the battery installation a plug-and-play affair. Page six of the Yaesu FT-897 manual describes the simple process of removing six screws on the bottom cover, dropping one or a pair of batteries into the vacant holder inside the equipment, and simply plugging the three-pin battery leads into a connector. Be sure to align the batteries so the multi-pin charging plugs are next to each other. This allows the rear cover to drop back into place after removing the two plastic plug hole covers.

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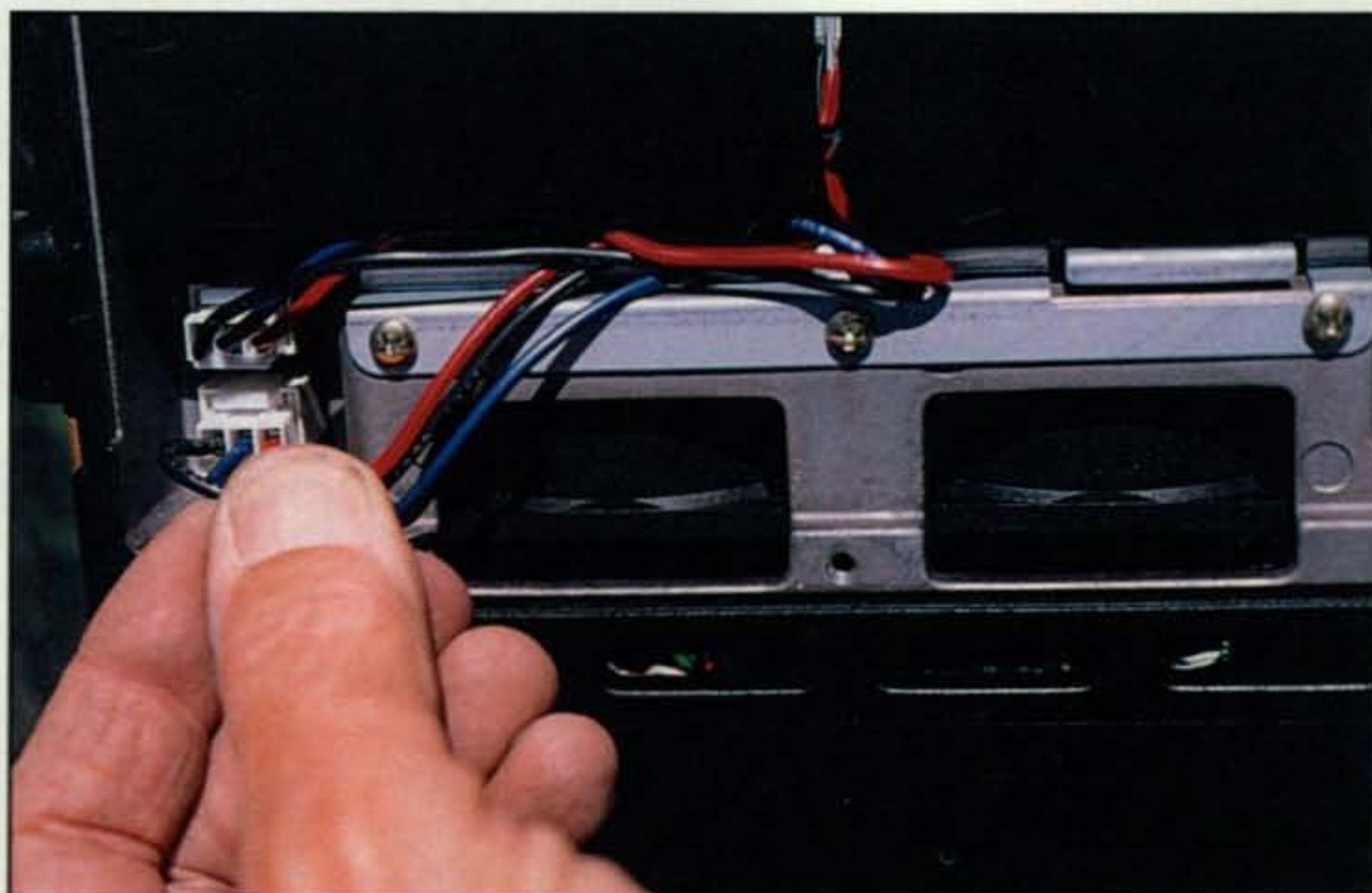
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The battery packs simply plug into sockets inside the FT-847.

You can begin operating the equipment immediately, because W4RT sends the batteries partially charged (as does Yaesu). In fact, W4RT recommends *not* fast charging the batteries until they are more than half discharged (less than 13.2 volts on the 897's front-panel battery-voltage display).

When you are ready to charge with the W4RT fast charger on AC, first plug in the multi-pin battery connector on the rear of the equipment, and then plug in the 16 volt AC transformer. The lightweight plastic charger control unit rests near the equipment, *ventilation holes up*. The folks at W4RT caution to make sure that the ventilation holes are up, and we found out why.

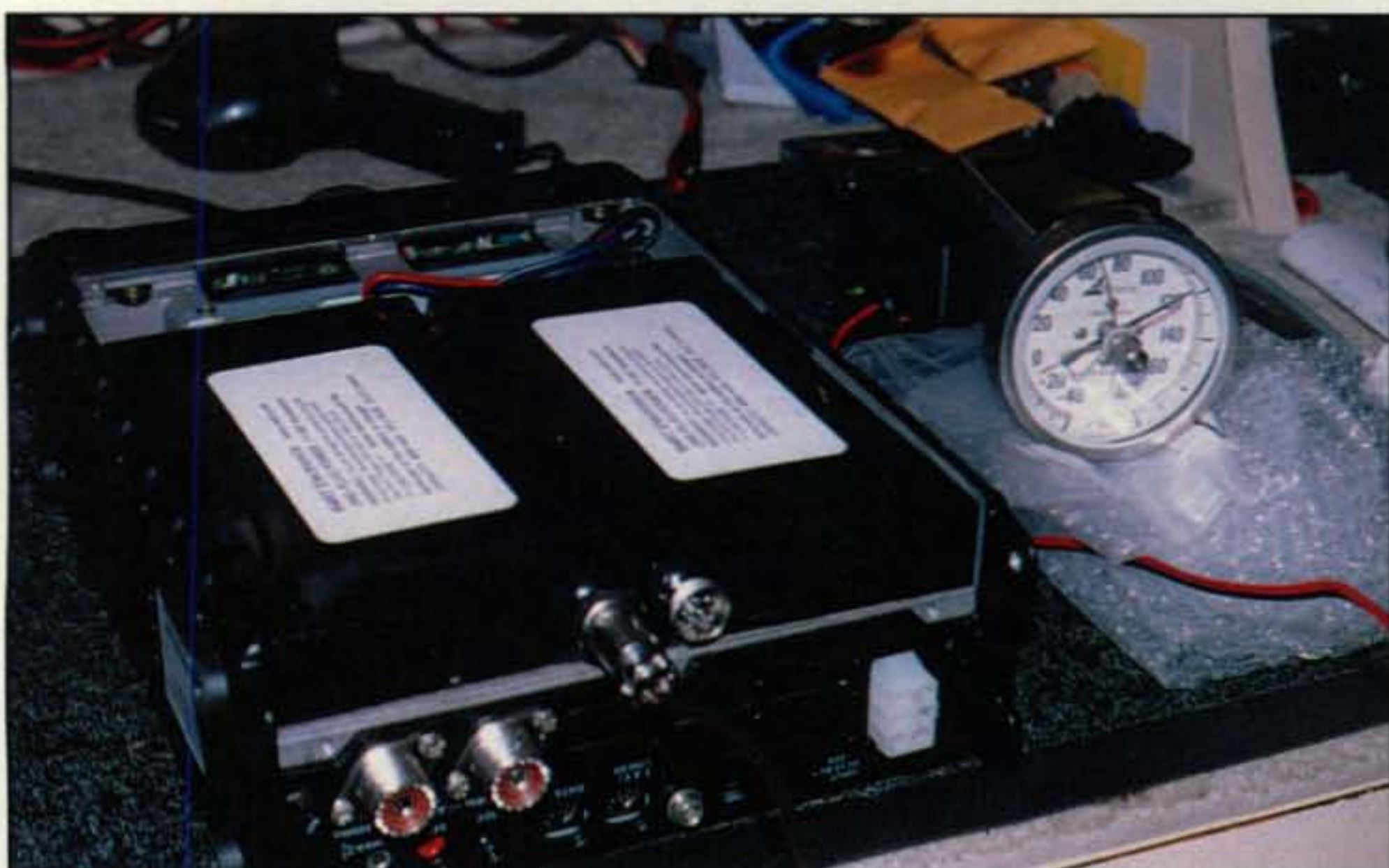
After three hours of fully charging a relatively depleted 4500 milliamp/hour battery pack, the AC transformer was only warm to the touch, but the charger controller, which cycled to automatic trickle after recharging, was very warm. We measured the temperature at 130 degrees, and we were told this is somewhat normal to restore a pretty much discharged battery back to full charge in just a few hours.

The Yaesu brand fast charger may run a little bit cooler, plus it is also designed for mobile use, taking power from your vehicle DC source or running it at home on an AC to DC power supply. This means you might want to consider how you plan to charge the equip-



Be sure to keep the ventilation holes UP on the W4RT fast charger. The unit gets very warm after a few hours of charging, so you don't want to block ventilation.





Each battery charges separately and runs the radio separately (there's a switch to select which one to use), allowing one pack to charge while the other is in use. Note the thermometer at the far right, measuring 120° F on the charger module!

ment before you decide which charger system to buy.

Either way, four hours to charge a big 4 1/2 amp/hour battery pack inside a radio is pretty swell, whether you do it off DC or AC. W4RT has redundant fail-safe circuits in both the battery pack and the charger assembly to ensure that fast charging always clicks out before the battery starts to overcharge (typical of NiMH charging techniques and "smart charger" circuits built into both Yaesu and W4RT charging systems). "Our circuit is a multi-stage charging process," explained Barry Johnson, W4WB, of W4RT Electronics. "As the NiMH charges, its voltage and temperature both rise, but not by much, until the pack reaches 80% of capacity. At that point, the voltage and the temperature both start to rise rapidly. We stop the high-rate charging when the temporal voltage slope is negative ( $dV/dt = <0$ ), meaning that the voltage has peaked and is starting to decrease. When the red light goes out, we start a trickle charge."

If you're planning on taking your FT-897 for a hike, do consider one—or a pair—of 4.5 amp/hour batteries that fit nicely inside the chassis. If you plan to run the equipment strictly mobile, the Yaesu CD-24 four-hour charge system is all that is required. The Yaesu PA-26 is only necessary for converting house-power AC down to 13.8 volts DC.

The W4RT Electronics system with its relatively hot-running OFC-897 could also work without the AC transformer for mobile-only use. However, it needs a minimum of 16 volts DC to begin slowly charging the internal battery. This DC

voltage is well beyond what you would normally get from your mobile system, and unless you want to dedicate several large solar panels to give you a higher voltage source, the best bet for mobile use with the W4RT system would be to purchase an inexpensive DC-to-AC power inverter and run the fast charger with its large AC adapter from that inverter.

Once you have those batteries charged, you will have a great time operating absolutely portable with over 9 amp/hours of internal voltage. Thus, if you enjoy portable operation, the FT-897 with its built-in single or double battery pack will keep you on the air for some time!

For more information, contact your favorite dealer or:

W4RT Electronics, 3077-K Leeman Ferry Rd., Huntsville, AL 35801; web: <<http://www.w4rt.com>>.

Vertex Standard (Yaesu), 10900 Walker St., Cypress, CA 90630; phone (714) 827-7600; web: <<http://www.vxstdusa.com>>.

#### Additional Battery Sources

The Yaesu batteries are also available from Batteries America, 2211-D Parview Rd., Middleton, WI 53562; phone 800-308-4805; on the web: <<http://www.batteriesamerica.com>>. W&W Manufacturing is introducing its own version of the battery pack this month. No price was set at press time. For more information, contact W&W Manufacturing, 800 South Broadway, Hicksville, NY 11801-5017; phone 800-221-0732; web: <<http://www.ww-manufacturing.com>>.

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