

The Art of Low-Power Hamming

More Build 'em Notes and FT-817 Tips

The areas of ultra-light HFing, pedestrian mobile, and HF back-packing continue to draw an increasing number of folks into our QRP arena. Everyone I have talked with seems to be having a ball. I am referring to the numerous 100 watt amateurs gearing up with a Yaesu/Vertex FT-817 or SGC-2020 plus some portable antennas and accessories such as those featured in our last two columns. These "crossover QRPers" may or may not realize that using only 5 watts is a handicap, but that actually may be working in their favor. They are getting on the air, having fun, and working the world while portable with a low-power setup.

In light of that fact, this month's column features more good news and views of both ultra-light HFing and the FT-817. We are on a roll of non-stop fun, and we want you amidst the action with us! An interesting array of new items/goodies and ideas is lined up for discussion, so let's get started!

Cool Little Power Supply

The Yaesu/Vertex FT-817 has become a very popular transceiver for portable HF and VHF operating, and it is also being called the most energy-hungry 5 watt rig on today's market. Indeed, the little FT-817 requires 13.5 volts at 2.0 amperes or 27 watts input to produce 5 watts output. That calls for a high-capacity battery pack for sure, but MAHA Energy and W4RT Electronics are presently answering the demand with 9.6 volt/1700 mAh NiMH packs. Finding a small 13.5 volt/2 amp power supply for operating the FT-817 indoors or from an AC line has been more challenging, however, as most supplies are as large as (or larger than) the transceiver. That's no fun. We all prefer a small pocket-size AC supply for traveling, right?

Well, friends, MFJ Enterprises, Inc. has the answer with their new model 1317 switching-type power supply shown in photo 1. This new delight is more than a heavy-duty wall adapter; it is a big-time power supply that delivers 13.8 volts at up to 2.89 amps. That's 40

watts total, and the power supply measures only 1.4"H x 2.5"W x 4.0"D. The power supply runs cool and seems very well filtered and protected from stray RF energy. Its output cable is terminated in a popular 2.1 mm coaxial plug, with an added 3 inch "pigtail adapter" converting that plug to a special miniature equivalent used with the FT-817. The MFJ-1317 can also serve double duty as a NiCd or NiMH battery charger for the FT-817. Overall, the power supply and adapter cable add up to a terrific deal. The power supplies are available from amateur radio dealers nationwide. Check one out!

Easy-Brew Battery Pack

So you say you have an FT-817 and would like to convert its supplied FBA-28 refillable alkaline battery tray into a rechargeable battery pack and would like our opinion. Good idea, but there is a small hitch—and also a simple solution. Loading eight ultra-high-current NiMH cells into the battery tray is a snap (eight snaps, actually). Charging the cells while they are in the tray and in the



Photo 1— The new pocket-size MFJ-1317 switching-type power supply is a gem! Unit measures only 1.4"H x 2.5"W x 4.0"D and delivers 13.8 volts DC at up to 2.89 amps—enough "juice" to power all your QRP gear simultaneously. Power supply is also equipped with a cable and mini-coaxial plug to fit the FT-817.

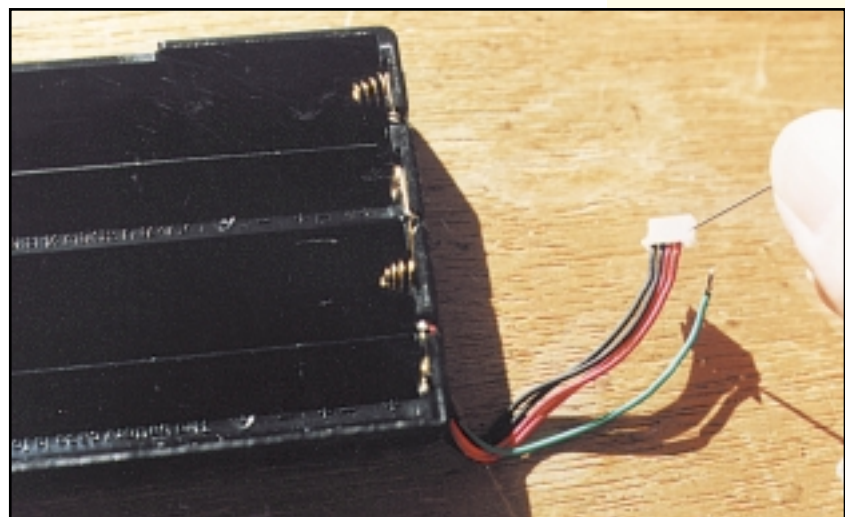


Photo 2— The FBA-28 refillable battery tray supplied with a Yaesu/Vertex FT-817 is designed to hold eight AA cells. The green wire on right side of the tiny power plug prevents battery charging current from reaching the tray so alkaline cells can be used. By using a magnifier and the tip of a straight pin to release the green wire (and then protecting it with a fold of tape), eight rechargeable, high-current NiMH cells can be used in the FT-817's battery tray. (Discussion in text.)



Photo 3— Check out this unique YoYo Deluxe portable antenna from DWM Communications. Each YoYo—err . . . reel—is loaded with 40 feet of insulated wire you pull out to a desired dipole length, then rewind into the reel after use. Wires from each reel connect to the center-located PL-259 you plug into your rig. Clever!

transceiver rather than moving them into a separate holder, however, calls for a quick modification to the battery tray's tiny power plug. Why? A basic battery charging circuit is included in the FT-817. When menu-activated, it passes charging current from an external power source to the battery pack. It also trickle charges a battery pack any and all the time the transceiver is on, even when the charging circuit is not menu-activated. This battery-charging feature must be disabled when alkalines are in the FT-817 (or they may explode from charging current), but enabled when rechargeable cells are in the FT-817.

Now look closely at the tiny power plug on the FBA-28 battery tray and you will see five wires—two black (–V), two red (+V), and one green (charge control). *When the green wire is connected, charging is inhibited; when it is disconnected, charging is enabled.* Disconnect the green wire, and the FT-817 senses its refillable FBA-28 tray is a rechargeable battery pack. It is that simple. You can use your tiny cutters to quickly cut the green wire if desired, but resoldering it if you later decide to switch back to using alkaline cells is not easy. A more effective idea is to release the green wire from its plug (photo 2), then cover its bare-wire tip with a tiny fold of tape for safety. Restoring the tray to

original condition then involves just pushing the green wire's tip back into its connector's socket.

Use your magnifier and study the battery tray's plug. One side has some tiny (*tiny!*) plastic strips that hold the black, red, and green wires in place. Slip the point of a straight pin under the green wire's tiny plastic strip just barely enough to release the wire, then tape its end so it cannot cause a short, and the mod is completed.

That's it! Do not attempt

to perform the mod, however, until you understand the following precautions:

1. Remove the battery tray from the transceiver and remove all cells in it before performing the green-wire mod.
2. Do not cut, change, or release any wires on any cables, plugs, etc., in the transceiver.
3. Do not load alkalines in the battery tray with the green wire disconnected.
4. Installing a 3 ampere fuse in series with the positive wire of the FT-817's external DC cable is a good safety precaution to consider.

Good luck, and enjoy your new rechargeable battery pack!

'Tenna Tips

Portable antennas and pint-size tuners continue to dominate the scene of favored HF accessories, and an impressive variety of both items is available to fit every need. Mini-verticals were highlighted in recent columns, so now let's briefly discuss wire antennas such as 40 and 20 meter dipoles and longwires.

In the ready-for-instant-use category, the unique YoYo Deluxe antenna made by DWM Communications (P.O. Box 87, Hanover, MI 49241; phone 1-517-563-2613; <www.qth.com/dwm>) and shown in photo 3 is quite popular. It consists of two wind-up reels that are each loaded with 40 feet of flexible, insulated wire, which in turn are connected to a center-located PL-259. You just pull the needed wire from each reel (for example, 33 feet for 40 meters, 16 feet for 20 meters, etc.), anchor the end supports/reels, plug the PL-259 into your transceiver or tuner, and tweak the SWR for perfection. After operating, you wind the wires back in their reels, unplug the PL-259, and the YoYo Deluxe is ready for its next outing. That's spiffy!

With respect to flexibility, the YoYo Deluxe can plug directly into a transceiver's SO-239 socket, into an extension RG-58 coax cable (good for extra height and rig/antenna separation), or into a simple antenna tuner. The tuner approach is especially attractive, as it streamlines SWR tweaking, plus it helps minimize RF feedback (assuming the tuner and rig are separated a few feet and isolated by a toroid on their interconnecting cable).

If you prefer a more "disposable" antenna or longwire for portable use, consider the suggestions outlined in fig. 1. The first one is a half-wave radiator and its quarter-wave counterpoise, both cut from a quarter- or half-pound spool of thin, enamel-coated wire (or plastic-insulated hookup wire if you find it at a low price). The half-wave wire can be positioned vertically, horizontally, or sloping; its counterpoise can simply be laid on the ground below it; and the setup will exhibit a slight signal gain just like the popular half-wave vertical antennas.

The second antenna idea involves extending the counterpoise to a half wavelength and raising it in the air just like the main radiator so both half-wave wires can radiate and produce big-signal results. Both of these skywires exhibit a high feedpoint impedance, so their ends are routed "down and around" as necessary to connect to binding posts on a basic T-type tuner as shown in fig. 2.

This circuit is my favorite design for an antenna tuner because it matches high,

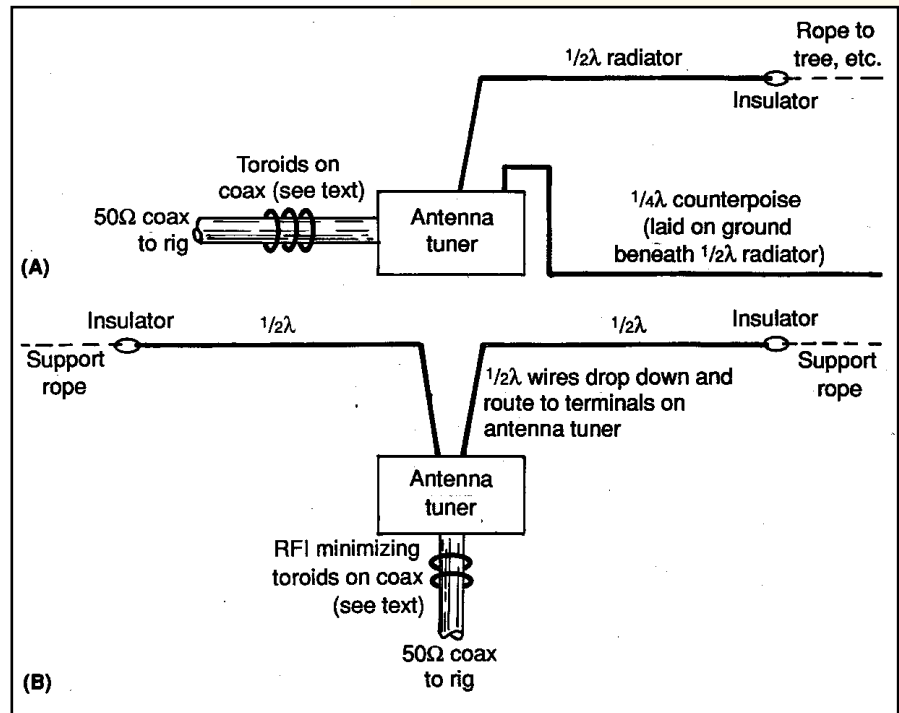


Fig. 1— Outline of two easy-to-implement, disposable wire antennas capable of producing big-signal results. "A" is an end-fed 1/2-wave antenna with its 1/4-wave counterpoise. "B" is a full-wave doublet with its center wires dropping down and connected to a tuner.

medium, or low impedance; it is small; it "remembers" its settings without applying voltage (auto tuners "forget"); and it is flexible in assembly. The variable capacitors, for example, may be 250 pFd or 365 pFd according to what you find at

hamfest flea markets. Remember to insulate their bodies and shafts from a metal enclosure (a plastic box works well here). The coil is wound on a pill bottle 1.75 inches in diameter and 2.0 inches tall. It consists of 25 turns of number 16 or 18 copper or bare wire with taps at 2, 4, 8, 16, and 20 turns. A small, self-supported by its own leads 2-turn coil 0.5 inch in diameter is added at the coil's "top end." A switch can be used for selecting coil taps, or a simple clip-lead-to-ground arrangement can be used—your choice. Mount the tuner in some unique plastic enclosure and then enjoy using it. Fun (and also emergency preparedness) reigns supreme!

More W4RT Goodies

Remember the high-current NiMH battery pack and "One Touch Tune" module produced for the FT-817 by W4RT Electronics and featured in our recent QRP columns? More neat items have been added to that FT-817 support line, and folks are snapping them up like crazy. First is a small pocket, or "Pack-It," reference manual containing all the operating information in the rig's original/supplied manual plus some extra notes and tips for maximum transceiver enjoyment (photo 4). The little "Pack-It"

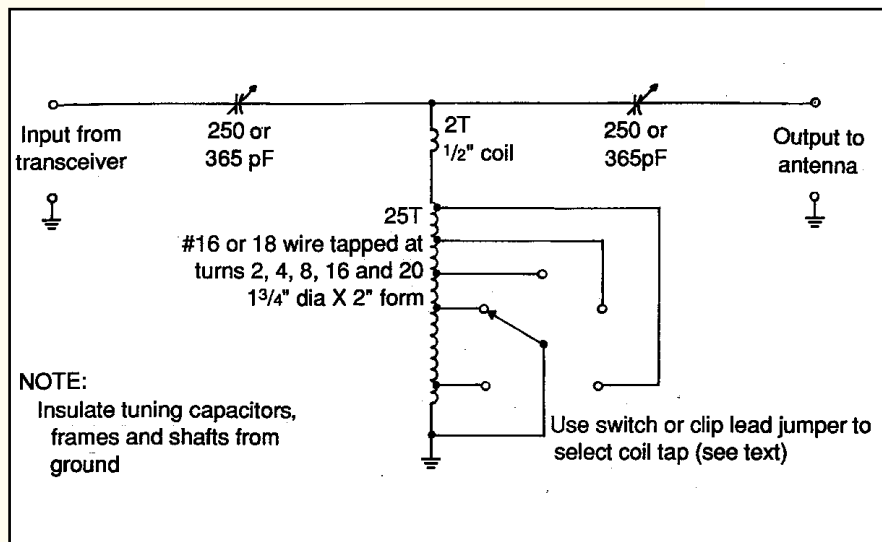


Fig. 2— Circuit diagram of a simple T-type antenna tuner for use with dipoles, longwires, and doublets. (Discussion in text.)

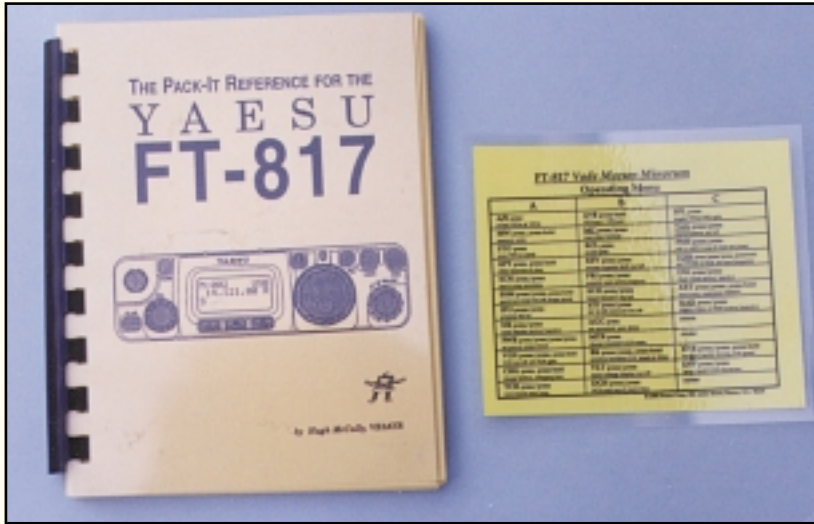


Photo 4— Do you find remembering menu settings and keystrokes for special features on the FT-817 challenging? This small “Pack-It” operating guide and quick reference sheet are the ideal solution, and you can use them anywhere and anytime. They are available from W4RT Electronics.

manual is supplied with two laminated quick-referenced guides for accessing the FT-817’s numerous features and functions, and it really proves helpful when traveling or using the FT-817 on an occasional rather than daily basis.

The second new W4RT item is a dual Collins mechanical-filter mod supporting both CW and SSB operations, and

it really puts the little FT-817 into the big-rig category (photo 5). There is only one slot for an optional Collins filter in an FT-817, so until now an owner had to choose a preferred mode for custom filtering. Ah, but this mod lets an owner enjoy the best of both worlds, and the cost (which includes custom installation) is less than purchasing both optional filters from dealers. Furthermore, easy menu selection lets you quickly

switch between wide/SSB and narrow/CW filters for CW (super handy for contesting). Both filters exhibit the Collins famous high quality and steep-skirted selectivity. The SSB filter is 2300 Hz wide and the CW filter is 500 Hz wide, plus an optional 300 Hz wide filter is also available. More details are available on the web at <www.w4rt.com>.

Flash! W4RT Electronics has just announced the highest current NiMH battery pack yet for an FT-817. It’s a whopping 1800 maH pack, and it still fits inside the FT-817. (See this month’s “What’s New” column.)

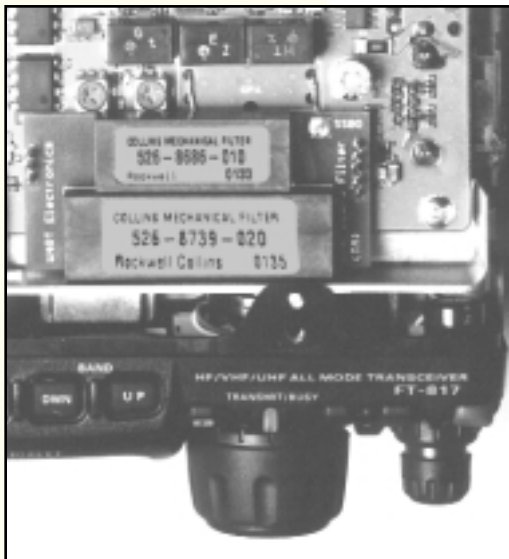


Photo 5— The new W4RT Electronics dual Collins filter mod for an FT-817 turns the little rig into a big-time performer with steep-skirted passbands of 2300 Hz for SSB and CW wide, plus 500 Hz or 300 Hz for CW narrow operations. The filters/mods are available at <www.w4rt.com>.

Wrap Up

The closing wire is once again upon us, but there are still many more homebrew ideas and rig tips to share with you. What can I say except tune in again next time for more QRP fun, keep on working the world with low power, and may the force of good signals be with you! 73, Dave, K4TWJ