

The Art of Low-Power Hamming

Gearing Up for QRP Fun

Two of the most popular attractions of QRP continue to be its high fun-per-dollar ratio and the remarkably small size of associated gear. Indeed, the go-anywhere flexibility of modern QRP transceivers puts you right in the middle of today's hot HF action regardless of your location, spare time, or budget. Those same factors, incidentally, often limit our use and enjoyment of full-size 100 watt setups.

A dazzling array of rigs and accessories is presently available to modern QRPers. Heading that list at this time are MFJ's Cub and 90 series transceivers, SGC's deluxe SG-2020 transceiver, Elecraft's fancy K1 and K2 kit transceivers, and the Yaesu/Vertex new FT-817 transceiver. All but one of these rigs have been discussed in recent QRP columns (probably because my plans to purchase an FT-817 are akin to an on-again/off-again love af-

fair), so the time has arrived to discuss the new FT-817 (also see the review in the April 2001 issue). Say you assumed such after studying photo 1? Okay, let's begin with details on that "Outbacking with QRP" story and then shift focus to the FT-817. Fair enough?

Outbacking with QRP

As illustrated in photo 1, life in the QRP lane truly has its benefits. Here Rhonda Comer, KG4FVL (a.k.a. "The Ham Goddess") lets the old pros wrestle with their heavy-duty gear at Field Day while she has a blast of fun with a little Yaesu/Vertex FT-817. Are we serious? You bet amigo radio aficionados! Rhonda rocks the bands and bags all the prime DX with QRP! Even after Field Day she continued walking right through the pile-ups and working good DX such as YBØ/Indonesia while running less than 50 watts with her "big rig."

Yes, friends, and there is more than just good hype here, too. Rhonda is a shining example of our new generation

of radio amateurs, and encouragement that there will be a future generation of amateurs, a concern all of us should consider quite seriously. She works at an exceptionally demanding job, commutes over 100 miles round trip daily, and has precious little spare time, yet her enthusiasm for hamming pegs the meter. Rhonda acquired her Tech license in late 1999, and with the encouragement of her husband, Tony, K4KR, she passed her General license exam in April 2001. Rhonda then took to HF DXing and QRP like a duck takes to water!

So how did little miss QRP acquire the title of the "Ham Goddess"? She expressed enthusiasm for acquiring an HF license, and, like typical encouraging males, several local club members said she would never do it (as Buddy Holly sang, "that'll be the day"). A challenge ensued. If Rhonda failed, she would bow down and address the boys as "lord" and "sire." If she succeeded, the boys would bow down, chant "Hail to the Ham Goddess" and kiss her ring. Photo 2

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Photo 1— Like many new-generation HFers and proud FT-817 owners, Rhonda Comer, KG4FVL, a.k.a. "The Ham Goddess," prefers working SSB rather than CW on QRP—and she does great with it, too!

Photo 2— One of the local radio club members (Glenn, KE4YZK) kisses the ring of the "Ham Goddess" during her crowning ceremonies at a club meeting. Meanwhile, fellow amateurs (behind cameraman) struggle with foot-in-mouth entanglements. (Photo courtesy Robert Cain, N4IXT)





Photo 3— The Yaesu/Vertex FT-817. The unbelievably small and super-featured unit is the first generation of ultra-portable “do it all” transceivers. The rig is also being supported with a continuously increasing number of terrific after-market accessories. (Photo courtesy Yaesu/Vertex)

shows just who won! Would you like to congratulate Rhonda? Then listen for KG4French Victorian Lace in the General portion of 20 meters SSB on weekends and say hello. Just do not tell her that working exotic DX with QRP can't be done. She will certainly prove you wrong every time!

How It's Doing: The FT-817

Like many of you, my interest and enthusiasm level went off scale when Yaesu/Vertex introduced their new FT-817. Here in one unbelievably small package is a 5 watt all-mode 160 through 6 meter plus 2 meter and 70 cm transceiver complete with full shortwave coverage and internal battery pack (photo 3). Just sling it over your shoulder, add a small multi-band antenna, and you are set for big-time QRP fun anywhere and anytime. Awesome! This little gem is tops for emergency preparedness or survival communications. You can use it to monitor foreign news broadcasts, follow underworld and guerrilla activities, communicate via local area FM repeaters, and just say hello to friends both near and far during normal or calm times. It is the ideal “do it all radio,” a full communications system in one tiny box!

After first hearing about the FT-817, I started scrounging loose coins, calling in markers, and selling extra gear to purchase my own FT-817 (This is going to be a fun rig, I thought to myself!).

Before my funds reached “purchase level,” however, first-look reviews were published in *CQ*, *QST*, and in the *QRP Quarterly* magazine. All three reviewers voiced the same opinion of the optional CW filter being more of a necessity than an accessory for the little delight. Hmm . . . Reading further, I also learned the FT-817 utilized semi-QSK rather than full break-in operation, its keyer lacked dot/dash memory, and SWR metering capabilities were challenging to menu access. I then talked with several FT-817 owners and they added hollow-sounding transmit audio, RF feedback via the external DC input line, and ineffective AGC to the list.

Photo 4— The SWR of a quick-assembled dipole, delta loop, or vertical whip is often slightly higher than expected, but LDG's new Z-11 automatic antenna tuner cuts it down to size with the push of a button. It also includes built-in SWR metering to eliminate guesswork when operating portable. (Photo courtesy LDG Electronics)



Serious drawbacks, you ask? Not for the first generation of a new-style transceiver, I would say. Furthermore, I am still convinced the operator rather than the rig makes the big difference in hamming success.

I really wanted an FT-817, so I started visualizing solutions, concessions, and more fancy “frills” to fit my needs and make it an even better rig for others. My notes and findings follow. Check them out. They will help you enjoy your FT-817 to the max.

Horizons-Expanding Ideas

First, T/R switching time can be menu-set to simulate full break-in operation by “dropping out” or receiving between letters or words rather than “holding in” throughout a full CW transmission. Then a Tick keyer or chip (available from Embedded Research, P.O. Box 92492, Rochester, NY 14692; web: <www.frontiernet.net/~embres>) can be added for deluxe CW operation. The Tick sports dot/dash memory, one or two transmit message memories, beacon mode, right- or left-hand paddle operation, and more, and all functions (including speed adjust) are accessed via a single push-button. A Tick can almost make an FT-817 an automatic operating rig. It is a gem.

Finding an SWR bridge as small or smaller than the FT-817 can be rather challenging, but it (and a small antenna tuner) are very important accessories when operating portable or using off-the-wall (condo balcony?) skywires. The ideal solution here is combining both items in one package such as the LDG Z-11 Automatic Antenna Tuner with SWR monitor shown in photo 4. The Z-11 measures only 1.25”H x 5”W x 8.5”D and is available from LDG Electronics (1445 Parran Road, St. Leonard, MD 20685; toll free 1-877-890-3003; or <www.ldgelectronics.com>). It handles up to 60 watts, matches almost any coax-fed antenna, and tunes automatically with the touch of a single button. There is even a slave unit and cable that plug into the FT-817 and provide automatic mode selection and T/R switching when the Z-11’s “Tune” button is punched. The tuner draws only a few ma of current while tuning; then its latching relays hold their tune-setting so it draws zero current during normal operation. The Z-11 also includes panel-mounted LEDs for reading SWR levels whenever the unit is switched “on” and regardless of whether the tuner is or is not in line. It is super-neat! (See *N7RR's sidebar for a device that makes using the Z-11 even easier—ed.*)

Taking the FT-817’s SSB and FM audio from “flat” to “fantastic” is also a cinch: Just replace the rig’s hand microphone with a little Heil BM-10 headset with boom mic (photo 5). The headset is available with your choice of mic element. I favor the HC-5, as this full-range/mini Goldline element will really make the FT-817 sound great. If you are a serious QRP SSB DXer, however, you may prefer the limited-range HC-4 “DX



Photo 5— Heil Sound's famous BM-10 headset gives you hands-free portable operation with an FT-817. Choose the BM 10-5 version, and you will have the best-sounding mini-rig on the air!

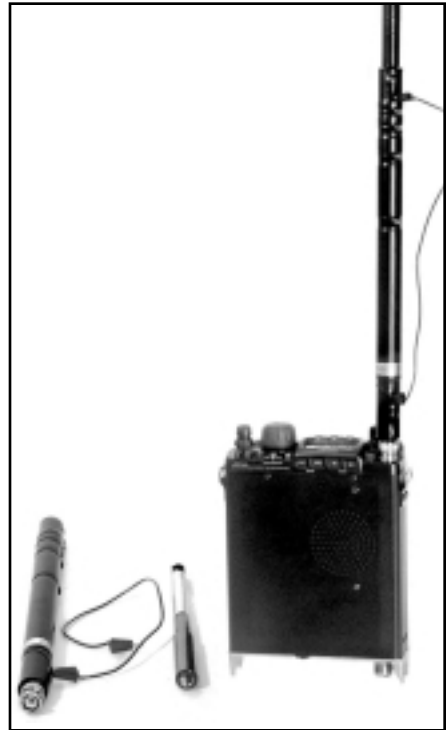


Photo 8— Notice the two miniature antennas in this picture, gang. They plug directly into the FT-817 (or any other HF QRP transceiver) and operate 80 through 10 meters, plus 6 and 2 meters. They are only 3 to 4 feet tall when extended, made by Waters and Stanton in the U.K., available in the U.S. through PowerPort, and they really work!



Photo 6— Cutting Edge Enterprises' new PowerPort case for the Yaesu/Vertex FT-817 coddles the transceiver in soft padding. It also includes an extra compartment for an optional PowerPort battery pack or other accessories.



Photo 7— The optional fanny pack for the PowerPort FT-817 case carries the complete transceiver like a belt-clipped talkie. The rig case attaches to the fanny pack with two belt clips (supplied). The fanny pack has two generous-size zippered compartments for carrying additional accessories.

element." It gives the FT-817 more "talk power" and helps compensate for the lack of a speech compressor.

Remember to get Heil's AD-1YM Yaesu/modular/FT-817 mic plug adapter when purchasing a BM-10, and you are set to rock. Need more mic info? Just ask Bob Heil or his well-informed assistants at Heil Sound, Ltd. (5800 North Illinois, Fairview Heights, IL 62208; telephone 618-257-3000; web: <www.heilsound.com>).

Clearing RF feedback entanglements in the FT-817 is also easy. The RF re-enters the rig via its external DC power socket, so just add a round snap-on

toroid core like that used on a computer monitor cable to the "transceiver end" of the DC supply's cable (a good idea for any home or mobile setup, too). A handy toroid is item number 623-04444167261, available for \$2.21 from Mouser Electronics at 1-800-346-6873.

Sidestepping the CW filter requirement and AGC problem involves what I call "operating savvy." That is, you reduce the FT-817's AF gain and use its RF gain to control overall volume and avoid overloading by strong signals. You then use the FT-817's RIT/clarifier to tune a desired station for a real low pitch tone and just ignore the rest.

Human ears, even those with dropouts or peaks in audio response, still make good CW filters!

Fun Time!

We have discussed easy fixes for most of the FT-817's "first generation" shortcomings. Now let's look at some special treats for this cult-inspiring mini rig. First is the padded "Worldpouch" carrying case available from Cutting Edge Enterprises/PowerPort (1-800-206-0115; <www.powerportstore.com>) and shown in photos 6 and 7. The case's main compartment holds an FT-817, and its zipper extends down the side for easy access to the mic plug/socket. A removable waterproof bag for the FT-817 is also included in that compartment (jacuzzi portable, anyone?). A smaller front/top compartment holds an optional 12 volt/2300 mAh, 12 volt/2300 mAh rechargeable battery. A rapid/3 hour charger is included with that battery. As an alternative, an optional tray for six alkaline "C" cells or the rig's mic plus a miniature paddle can be stored in the compartment.

Three New Add-Ons for the Yaesu/Vertex FT-817

By Bruce Prior, N7RR
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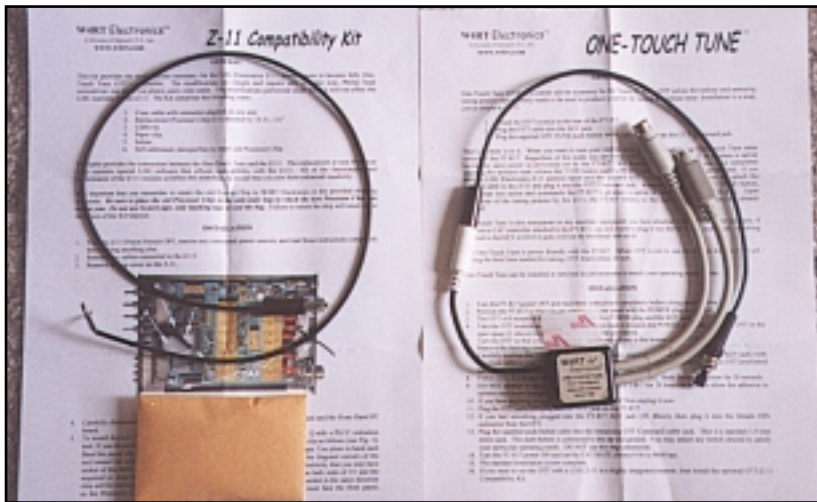
The extremely popular 160 meter through UHF all-mode, low-power Yaesu/Vertex FT-817 continues to attract new add-on products. W4RT Electronics has produced three of them.

The One-Touch Tune™ overcomes the lack of a tune function in the FT-817. It installs on the back of the radio and plugs into the accessory (ACC) socket in the rear of the FT-817, but a pig-tail socket allows the operator to continue to use the ACC circuit for other purposes. From any operating mode one push of the plug-in switch transmits a carrier for use with an automatic or manual tuner.

Even more convenient, the associated Z-11 Compatibility Kit fires the One-Touch Tune™ from the front Tune button of the LDG Electronics Z-11 Auto Tuner. This combination enhances the FT-817 for any operator, but the two add-ons are especially helpful for visually-impaired operators.

The third add-on from W4RT Electronics is the One-Plus Power™ custom battery pack. The fully-fused 1650 mAh NiMH battery fits into the bottom of the FT-817. It includes a replacement battery cover door and high-adhesion rubber feet. The battery can be slow-charged through the internal FT-817 charger like the standard Yaesu/Vertex accessory battery pack, but it can also be quick-charged through a charger jack. For maximum protection of the rig, the battery is automatically disconnected from the rig while quick charging.

Pricing is as follows: One-Touch™ \$59.95 plus \$7 s/h; Z-11 Compatibility Kit \$9.95 including s/h plus \$10 refundable deposit for the replacement Z-11 processor; One-Plus Power™ \$59.95 plus \$7 s/h. Contact: W4RT Electronics, 3077K Leeman Ferry Road, Huntsville, AL 35801; e-mail: <info@w4rt.com>; <http://www.w4rt.com>.



Installation of the One-Touch™ is a snap. The Z-11 Compatibility Kit is almost as easy, mostly requiring the replacement of the standard Z-11 processor.

Gene Iwanski, KB7UEN, and his guide dog, Princess, show off the FT-817 transceiver and Z-11 Auto Tuner with One-Touch Tune™ and Z-11 Compatibility Kit installed.



Finally, the carrying case has double belt clips on its back, an antenna pocket on its left, and two clip-anywhere swiveling mic hangers. An optional fanny pack “rounds out” the Worldpouch. It fits around your waist, supports the carrying case, and includes two zippered compartments to carry all kinds of accessories such as one of the new pocket-size 80 through 6 meter telescoping HF antennas. Say, what?

Yes, friends and fans, those little mini whips you see attached to and lying beside the FT-817 in photo 8 are miniature ATX “Walkabout” multiband antennas made by Waters and Stanton of the UK and sold in the U.S. by PowerPort. The antennas are akin to a break-down and pocket-size version of the famous Outbacker. Their lower section is 12 inches long and included a jumper lead you move between taps along its length to select 40 through 10 meter operation. The jumper is not employed for 80 meters (the full helical winding is used), and the upper section is collapsed down for 2 meter operation. You adjust that whip section, incidentally, to lengths between 18 and 48 inches for covering CW and SSB segments of 80 through 6 meters. The antenna’s lower section is fitted with a BNC (or upon request, PL-259) connector, and plugs directly into your rig’s antenna socket. I

understand the antenna can handle up to 10 watts, so it should also work with other ultra-compact transceivers if they are set to low power. Waters and Stanton suggest adding a short counterpoise or ground-simulating wire to the FT-817 for best in-field use with this mini ‘tenna (length determined by the formula $180/\text{frequency in MHz} = \text{length in feet}$), and it is a very good idea. The antenna is too small to produce a band-blasting signal, but it is a neat accessory for weight- and size-conscious travelers.

Wrap Up

Yaesu’s little FT-817 is proving to be more than just a new QRP transceiver; it is inspiring a new breed of traveling-light amateurs! Almost every day I hear of some exciting new goodie someone has developed for the FT-817. These items include carrying cases, quick-deploy antennas, tiny mics and keys, battery packs of all types, and more— items we plan to spotlight in upcoming columns. If you have a special gem to enhance portable operations in the great outdoors, let me know pronto and let’s get some well-deserved attention headed your way. Meanwhile, keep on working QRP and having a ball with ultra-portable gear!

73, Dave, K4TWJ