Although an unconfirmed rumor, we hear some readers have not been on the HF bands in several weeks—possibly one or two months (gasp!). We have the perfect suggestion to boost your interest at least 10 dB—go QRP! Yes indeed, friends and fans. Whether you are stifled by antenna restrictions or a limited budget, or if you have already worked the world with high power, QRP will open a new dimension in real radio enjoyment. Build one or two low-power projects along the way, too. Homebrewing simple circuits is half the fun of QRP.

Is QRP a pursuit for all seasons? You bet, and that point is being proven every day regardless of the sunspot count. While tuning 30 meters only a few nights ago, for example, we spotted USØZ calling CQ with no takers. I answered him while running only 4 watts with my little Elecraft KX-1, and he snapped back a heartwarming reply with an RST of 339. After the usual exchange, he also dropped to 4 watts and we enjoyed a solid two-way QRP QSO. Doing the same thing with 50 or 100 watts just would not have the same pizzazz. Yes, we are having fun with QRP, and yes, there’s room for you, too. Check out the QRP action on 7040 or 14060 kHz one weekend soon. Now let’s bring on the hot news of the month!

The Hamfest Buddy

We have been promising to reveal a new quick-brew mini project for several months and the time has now arrived. Our new treat is called the Hamfest Buddy (photo A). It is a go-anywhere QRPp transmitter for fun or emergency use, and it also serves as a wireless BFO for monitoring favorite frequency activity with a portable AM-mode shortwave receiver. You can assemble the Buddy in an hour, it operates from an ordinary 9-volt battery, and it is also available as a low-cost kit.

I call it the Hamfest Buddy because it is perfect for putting you in the mainstream of QRP action at hamfests. How so? QRPers attending hamfests habitually gather in an out-of-the-way motel room after show hours to compare circuits and rigs or just to get on the air for fun. The best way to spot that activity is with a semi-wide-bandwidth receiver covering the ever-popular QRP frequency of 7040 kHz. The Hamfest Buddy fills that bill by acting as an adjustable BFO for the receiver, plus it lets you transmit back on the same frequency. In addition, the little transmitter can be used stand-alone style for emergency preparedness while traveling to or from hamfests. Power output is low (50 or 60 milliwatts typical) but quite adequate for general motel-area coverage with only a 2- or 3-foot wire as an antenna. Also, some good QRP records have been set using even less power and an outdoor antenna. Try it. Who knows? You might even outdo Tommy Rockford, K6ATX, when he used a grid-dip oscillator to expose the crook’s hideout and call for help in the classic amateur radio novel *SOS at Midnight*!

What about a mating receiver for the Buddy? That’s the good part. It works with small AM/FM/shortwave radios such as the little Grundig Mini 300 or Grundig FR200 shown in photo B. These famous-name radios are low-priced, remarkably sensitive, and well-calibrated (the Mini 300 even...
has a digital readout and clock-radio function for a travel alarm). They are available from leading amateur radio dealers such as Universal Radio, Inc. (5830 Americana Pkwy., Reynoldsburg, OH 43068; telephone 1-800-431-3939 or via <www.universal-radio.com>). The radios are mainly designed for receiving the international shortwave broadcast bands (e.g., 41/40 meters) and lack a BFO, but that is no problem here. You just place a Hamfest Buddy within a few inches of the receiver and it radiates a BFO signal into the radio for copying CW. Also, since the receiver’s (AM) bandwidth is around 6 kHz (and the Buddy has two switch-selectable frequencies approximately 2 kHz apart), you hear all the action with ease. When you wish to call a station, just grab the key and start transmitting. It’s that simple.

We may be moving a bit quickly here, so let’s slow the pace and I will explain.

Circuit Details

Study fig. 1 and you will see the Hamfest Buddy is basically a one-transistor transmitter with some unusual mods and expansions. Notice, for example, the switch connected between the crystal and ground. It short out VXO inductor L2 to give the Buddy its two operating frequency capability. Next notice the two resistors connected to the transistor’s emitter. During key up or receive, the 10K-ohm resistor limits circuit current to approximately 0.8 ma and output to 10 or 20 microwatts. This is the ultra-weak (BFO) signal that radiates to a nearby receiver tuned to the Buddy’s frequency. There it beats with incoming signals to copy CW tones. Switching VXO inductor L2 in/out of the circuit then shifts the receive range a couple of kilohertz for tuning.

Closing the key connects the 100-ohm resistor in parallel with the 10K-ohm resistor so circuit current rises to approximately 30 ma and output increases to 50 or 60 milliwatts. This change in current also produces an automatic 500- or 600-Hz frequency shift, which makes a good CW offset. Since the oscillator runs continuously, there are no noticeable key clicks or chirps like those found in many single-transistor circuits.

You now probably are asking if slightly more power can be squeezed out of the transmitter, and the answer is yes—with a caveat. A 2N2222 is capable of 250 to 400 milliwatts of output by increasing collector potential to 12 volts and reducing the (100 ohm) emitter resistor’s value, but experiment carefully here. The transistor may overheat and die when emitter resistance is less than 60 or 70 ohms.

AGC action in low-cost shortwave radios (especially those without an RF gain control) usually leaves much to be desired, so the receiver may experience front-end overloading during transmit. A short jumper wire clipped between the radio’s whip antenna and earphone socket’s ground connection helps reduce such overloading. If you mate a communications-grade SSB/CW receiver with the Hamfest Buddy and do not need its wireless BFO function, incidentally, disconnect one end of the 10K-ohm emitter resistor (that way it will be readily available for future in-field use with an AM-only shortwave receiver).

Overall size and portability was a prime consideration when I designed the Hamfest Buddy, so I made its output/bandpass filter optional and placed it outside the box (a 1.5" x 1.75" AGC cartridge fuse box is perfect; a dental floss case or pill box also works well). The filter is not mandatory when using a 2- or 3-foot clip lead for an antenna. Using a hand magnifier also helps.

Realizing that many of our amateur radio friends would like to build the Hamfest Buddy but do not have the time to hunt down parts or lay out a circuit on perfboard, I put together some low-cost kits complete with all parts, crystal, PC board, and “can’t miss” notes. The kits do not include a plastic case (you supply that item), but they have been favorably endorsed by seasoned amateurs and newcomers alike as a genuine “fun project.” They are available direct to you from me, Dave Ingram, K4TWJ, 4100 S. Oates St. #906, Dothan, AL 36301. The kits are $16 plus postage ($2.00). Specify if you want a 7.040, 10.106, 14.060, or 3.58 MHz crystal in your kit, and I will ship a Hamfest Buddy directly to you.

Hamfest Buddy Kits Available

Fig. 1–Circuit diagram of the Hamfest Buddy, a unique one-transistor mini-rig and fun project that goes with you anywhere, anytime.

| NOTE: |
| 20m = 220pF |
| 30m = 330pF |
| 40m = 470pF |
| 80m = 750pF |

Assembly Notes and Operation

While the Hamfest Buddy’s low parts count and simple design make it an ideal first “build it” project for newer amateurs, a few helping Elmer notes always warrant mention.

Remember, when working with small parts, transistors, and PC boards, always use a low-wattage “pencil” iron and extra thin solder (such as RadioShack .022 silver bearing solder) to avoid bridges between close-spaced connections. Using a hand magnifier also helps.

Fig. 1–Circuit diagram of the Hamfest Buddy, a unique one-transistor mini-rig and fun project that goes with you anywhere, anytime.
cates an open circuit (did you remember to include an RF choke between +V and the transistor’s collector?). If current is within limits but you do not hear the Buddy’s signal, tune ±10 kHz of the crystal frequency. The VXO coil or the receiver’s calibration may have altered exact frequencies. If necessary, connect a 2- or 3-foot clip lead to your receiver’s antenna socket and place it near the Buddy until you hear its signal. If you only hear the Buddy on key down, try a lower value emitter resistor in place of the 10K resistor. Maintain diligence and patience. Troubleshooting is a good learning experience.

The Buddy also makes a neat, fun item for club meetings and hamfests. Just sneak up behind a friend tuning a receiver and ask if he/she hears the rare DX calling him/her on 7040 kHz (or your particular Hamfest Buddy’s frequency). Then make up a wild DX call and transmit to the nearby receiver with the Hamfest Buddy in your pocket (no antenna needed here). What a gag!

Conclusion

We wrap up this month’s column with a guaranteed-to-please topping for the Hamfest Buddy—a mating (and ridiculously simple) pocket key for emergency use (fig. 3). The key (and I use the term loosely!) is a monaural 1/8-inch phone plug with its terminals shorted and part of a spring cut from a ballpoint pen slipped over its end. You just half-insert the plug in the Buddy’s socket and then press down on the plug to send CW. Adjust spring length for comfortable tensioning, and store the spring in the plug’s back section for carrying. It’s funky, but it works! Remember the Hamfest Buddy is a flea-power fun rig and enjoy!

73, Dave, K4TWJ