Bike-to-Bike On A Budget

Communications For Less Than $99 Per Bike

By Fred Rau

BIKE-TO-BIKE communications systems have been around for a long time, but up until just recently, have required some fairly extensive, and expensive, hardware. Working for MCN, I have tried out almost every type of system available, and though some have worked exceptionally well, I have always wished for something considerably less complex, less expensive, and more easily portable from one bike to another. Now, at last, technology has caught up with my wishes, and I thought I'd share my findings with you on how to put together your own, customized communications system, for less than $99 per bike.

First of all, keep in mind that my criteria for this article excluded most of the more popular systems in use today. That doesn't mean those systems are inadequate in any way—they just don't meet my needs, or my budget. My requirements were as follows: A) Must have a minimum operating range (under less-than-ideal conditions) of two miles; B) must not require attaching anything to the outside of my helmet; C) must not require any wiring to the motorcycle; D) must be portable enough to carry in my jacket pocket; E) must either not attach to the motorcycle, or if it does, be removable with less than 10 seconds of effort; and finally, F) cost no more than $99 per unit.

The Radios

What made my dream possible was the advent of the Family Radio Service (FRS), and later, the General Mobile Radio Service (GMRS). You are probably all familiar by now with the little blister-pack walkie-talkies that are being sold almost everywhere that use these new-to-the-public FM frequencies. What you may not know, however, is the difference between the two. I won't go into a lot of technical detail, but basically, the GMRS units are just higher-powered and longer range versions of the FRS units, with extra channels.

By law, FRS radios are limited to 0.5 watts of output, but GMRS radios are limited to 5.0 watts, or ten times as much (for a handheld unit). However, don't assume because you bought a GMRS radio, that it has 5.0 watts of output. The majority being sold right now only have 1.0 to 2.0 watts of power. That's because they can be built considerably cheaper that way. Check the radio you intend to buy very carefully for the transmitter's peak output rating. I've found, in practice, that a GMRS/FRS radio will give you an average operating range of about one mile per one watt of output in the real world. I am currently using a 3.0-watt unit that will operate over about 2.5 to 3.0 miles in the city, and stretch out to nearly 5 miles out in the desert.

FRS radios are limited to 14 channels in the 462 MHz frequency, and GMRS units add another 8 to those, for a total of 22 channels. However—and this is very important to remember—even if you purchased a high-powered GMRS unit, when you operate it on any of the first 14 channels, it will automatically cut its transmitting power to the lower, FRS setting. This is done so that the GMRS radios can communicate with the older FRS units.

In addition, most of these radios come with built-in sub-channels, often called "privacy codes" or "privacy channels." These sub-frequencies can help you avoid all the background chatter on the main frequency. When looking for a radio, I'd suggest getting the most sub-channels you possibly can. We've found units with as few as 22, and as many as 99. But remember, whoever you want to talk to must be on the same sub-channel as you, or they won't hear you.

As far as model of radio, so long as you get the features and power rating you desire, it doesn't seem to matter. You might want to look for weatherproof units, however, and of course, something relatively small and lightweight. There is even a unit currently available that straps on your wrist, and has full GMRS capability, called the Wristlinx (but the specs show its power output to be a dismal 300 mW). With prices on GMRS radios plummeting in the past year, you can easily pick up a good pair of quality radios for as little as $49.

One last note on the radios, however: By law, you must self-license with the FCC to legally operate a GMRS radio. We realize, of course, that probably 95% of purchasers either don't bother, or don't even know about the regulations, but if you're a stickler for doing the right thing, you can apply for your FCC GMRS license using the Universal Licensing System website at http://wireless.fcc.gov/uls/. However, the license will cost you more than you probably paid for the radios: $75.

The Headsets

There are dozens of headsets available for GMRS radios that will work in a motorcycling environment. However, given my self-imposed budget restraint of $99 per total unit, and the fact that the average radio that met my needs cost $32, I only considered those headsets that would work well with a motorcycle helmet, and cost $67 or less each. That narrowed the field to only three units, which I have reported on in the next page. Keep in mind that there are even better headsets available for this application, if you don't mind paying the price. But then again, I don't see the need.

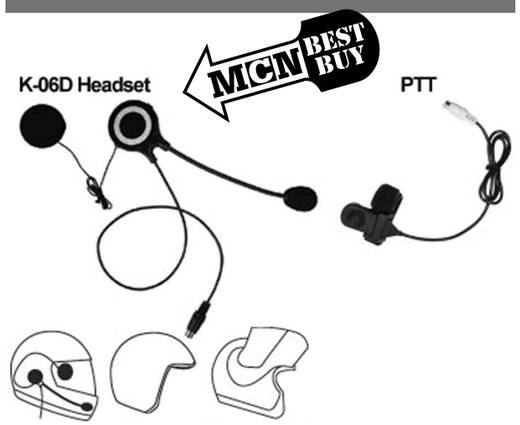
Though most of the radios will work in the voice-activated (VOX) mode, I would recommend that you get a headset with a remote push-to-talk (PTT) switch, and use it. VOX is notoriously unreliable in a motorcycling mode, as wind and engine noise tend to set it off.

Bottom Line

With the RocketMate headsets and a pair of AT&T GMRS radios I found on sale at Wal-Mart, I have reliable, clear, simple communications from bike-to-bike for a total outlay of $87.14 per bike, including taxes. Average working range is about 3 miles, and the rechargeable battery packs last me about three days of normal use on the road. A recharging unit came free with the radios, as did the battery packs. The RocketMates have a small, weatherproof PTT switch that I attach to the handlebars, within reach of my left thumb. When I get off the bike, I can either just unplug the switch and leave it in place, or pull the Velcro tab and take it with me. The radio, switch and wiring all fit easily into my jacket pocket and can transfer to any bike I'm riding. I can also simply unplug the headset and use the radios as handheld units when I get where I'm going, for keeping in touch with my wife or friends at rallies or races. And I can install extra headsets in our bike testers' helmets, and use a handheld to talk to them on the track when we're doing bike tests or photo shoots.

You'll have terrific functionality and versatility, and at a very reasonable cost.

RocketMate K06D — $63.00



Function ●●●●◐ Value ●●●●◐ Durability ●●●●◐ — Warranty ●●●●● Versatility ●●●●○ Total ●●●●◐

Built by a division of Klein Electronics, Inc., called "RocketScience," the RocketMate line of headsets were the most comprehensive we came across, with an extensive line of adapters, cables and headsets built for hooking you up to almost any kind of radio, stereo or cell phone you happen to have. The headset for our radios cost only $34, but we needed an optional cable, also, that cost another $29, hence the total listed price of $63. However, the additional cable also allowed adding a radio, tape deck or MP3 player. The microphone boom is steel, unlike the plastic used on most others, the earpieces are padded, and all connectors are heavy-duty and weatherproof. It's a real quality unit, and the only one here with a lifetime warranty. The boom mike allows use with full-face, open-face and even modular helmets. Installation was easy, and audio quality excellent. The mike picks up a bit of wind noise at highway speeds, but less than most others we tried. **RocketScience—HeadsetUSA: www.rocketquality.com** For technical info.; **www.headsetusa.com**, or call (800) 959-2899 for purchase info.

Sierra Electronics IMC - HS100 — $60.00

Function ●●●●◐ Value ●●●●◐ Durability ●●●●○ — Warranty ●●●◐○ Versatility ●●●◐○ Total ●●●●○

Sierra's headsets were almost on a par with the RocketMate units, but not quite. The connectors are a bit less durable (the wiring came loose on ours after several month's use and had to be fixed), and the microphone is not quite as directional, picking up a bit more wind noise. The ultra-slim speakers worked very well, however, and will fit in almost any helmet (the RocketMate's are a bit bulkier). The warranty is two years, and plug adaptability to various models is better than Iasus, but not quite as extensive as that of RocketMate. But, if you want a unit where the mike can be installed in the helmet liner, rather than using a boom, this is the one to buy.
Sierra Electronics—(800) 338-6938; www.sierra-mc.com

Left: For those of you who don't want to hassle with finding all the pieces and assembling your own system, hoping everything matches up, Sierra offers a complete system of two radios and headsets, guaranteed to work together. The only glitch, as we see it, is that the system is only offered currently with the lower-powered FRS radios. But if you don't need the longer range of GMRS, this could be the ideal setup, at a really good price.

Sierra EH-465 Kit — $170.00

Iasus NT NoiseTerminator — $39.99

Function ●●●○○ Value ●●●●○ Durability ●●●◐○ — Warranty ●●◐○○ Versatility ●●○○○ Total ●●●○○

The Noise Terminator is unique in that it utilizes an induction throat mike to pick up sound vibrations in your throat, rather than working from airborne sound waves. This almost totally eliminates background and wind noise, but also tends to muffle your transmissions somewhat, making it difficult for the receiver to understand you. The problem is worse when the wearer is heavyset (like me), with a fleshy throat, but works better on thin people. To alleviate this problem, Iasus makes a GP model with dual throat pickups, but it costs $60 more. The single, earbud speaker is low-fidelity, and uncomfortable to wear for long periods of time (again, though, there is a higher-priced version offered with regular helmet speakers). Also, the VOX systems on most radios won't work with a throat mike, and the Iasus units are not adaptable to all models of radios. Warranty is 12 months only. Their higher-end units are much better, but don't qualify for this comparison.
Iasus Concepts—iasus-concepts.com; US Dist: **www.clearercom.com**