

If you require less than 5-10 AH or so of energy, one excellent power source to consider are sealed lead-acid gel-cells. These are available from a number of distributors for under \$25 or so and can be recharged hundreds of time with an inexpensive automotive battery trickle-charger (don't use more than 1 amp of charging current and stop charging when the battery voltage rises to about 13.8 volts or the battery starts to get warm).

If you require between 10-25 AH or so of energy, a power source worth considering is motorcycle batteries. They can also be recharged with an inexpensive automotive battery trickle charger. One down side to these batteries is their liquid electrolyte. They can leak electrolyte if they are not kept upright or subjected to a lot of shock. The electrolyte is corrosive and will damage whatever it comes in contact with. If this is a problem, sealed lead-acid gel-cells are still available at these higher energy densities for a few dollars more but are generally a bit heavier than their liquid electrolyte cousins.

Even better are deep-cycle marine batteries. These can be drained and recharged many more times than an equivalent automotive battery.

Expect to pay a bit more for these batteries, however.

If you are running more than 15 watts or so of output power, make sure you use heavy wire to connect the power amplifier to the battery with and keep the length of wire as short as is practical. 16-gauge wire should be sufficient if you keep the lengths short for power levels up to 50 watts. For more than 50 watts or power cord lengths of more than a few feet, use 14 gauge or thicker wire for optimum performance.

Failure to do this will result in significant voltage drops occurring in the power cord, which will reduce the voltage available to the power amplifier and reduce its power output.

It is advisable to buy a cheap analogue voltmeter that can be clipped onto the battery during a broadcast to monitor its condition. Any sudden drop in voltage across the battery indicates it is discharged, and measures should then be taken to end the broadcast or use another power source. Digital voltmeters are harder to read from a distance or at night and are more expensive.

Transmitting equipment

You'll need an FM transmitter. A number of kits are available. Kits that run off of 12V DC are most convenient given the ready availability of 12-volt batteries. Several companies sell inexpensive transmitters that are suitable (see links at end of article).

If you want your signal to propa-

gate for more than a few miles, you will need one or more power amplifiers.

Antennas

A good antenna is absolutely essential to getting the most out of your transmitter. Nothing can affect your signals propagation so dramatically as the antenna.

Some of the factors you will want to consider when selecting an antenna include whether your station is operating in a portable environment or from a vehicle. Also of great importance is where your listeners are relative to you. If they are all roughly in one direction away from your transmitting location, you can utilise a beam antenna with a lot of gain that will really boost your signal.

If they are all around you, however, you will probably want to use an omni directional antenna such as a 5/8-wave ground plane antenna to reach the most listeners.

Whatever antennas you end up using should be checked with an SWR meter for proper operation. The SWR meter is connected between your transmitter and antenna and will tell you if your antenna is resonating on your transmitting frequency. If it is, you will get a low SWR reading (less than 2:1). If the reading is greater than about 2:1, your antenna is probably improperly adjusted and you should adjust it before you begin using it. Some of the more expensive models also read power output, though these are usually only accurate on amateur bands.

Make sure you purchase enough co-ax cable to allow you to place your antenna a reasonable distance from your transmitting equipment. RG-58 is adequate for short runs of cable (say, less than 25 feet), but higher quality cable such as RG-8X (mini-8) or RG-8 should be used if longer runs are needed.

Audio

Some radio stations will want the ability to broadcast pre-recorded material from a tape or CD as well as live material from a microphone. A mixer is an essential piece of equipment for such operation. By connecting them between your microphone, CD player, tape player, and transmitting equipment you will be able to switch between any of several sources or mix them together.

Miscellaneous

It is advisable to bring along an FM radio. This will allow you to monitor your transmissions to make sure you are getting good modulation and you are tuned to the frequency you want to be. To check your modulation, tune between your operating frequency and the frequency of another local station and

"Radio in a suitcase!"

● Whitney Lanphear

Wantok Enterprises based in Grunthal, Canada has developed an entire radio station that fits inside a case, roughly the size of the average briefcase. The station includes transmitters, a six channel audio mixer, compact disc and MP3 players, a cassette recorder and player, as well as microphones. The only thing the customer needs to provide is power. The station is capable of running off of 13.8/2 volts DC battery, which can even be charged with solar power.

This radio in a single case is also capable of re-broadcasting any audio source. It is portable, but can also be used as a permanent FM radio station.

The price of the equipment is £2,960.51. For foreign buyers there is no applicable tax, but customers are still subject to shipping, insurance, customs entry or licensing fees. Other products available from Wantok Enterprises include a television in a suitcase and accompanying weather station in a suitcase.

Ron S Robbins Wantok Enterprises, Box 89, 171 Main Street, Grunthal, MB R0A 0R0, Canada (+1 204 434 6423; fax 434 6442; email info@wantokent.com).

compare volume levels. When the average volume level is about the same, you're modulation is probably about right.

Buy yourself a decent scanner. Program the scanner with the local police department, mutual aid frequencies, and anything else you think is relevant. Headlamps (head-mounted torches) are invaluable for night-time broadcasting. Purchase some red tail-light-repair tape at your local auto supply store and cover the lens with it to turn the beam red and thus preserve your night vision.

And finally...

Under no circumstances should you ever attempt to operate a pirate radio station from a building you regularly frequent (eg home or office). This is asking to be caught. You should choose between operation from a vehicle, human-portable operation, or temporary occupation of an empty building.

This article originally appeared at http://www.tranquileye.com/free/micro_1990s/radio_hitchhikers_guide_1994.html

For more information about FM transmitter kits, see <http://members.tripod.com/~transmitters/compare.htm>.

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