

# Tune in to wireless communications

By CURT HARLER

**W**hen it comes time to "reach out and touch" someone, wireless communications is definitely the way to go. Whether it's the boss assigning a task or a working calling in for advice or to have a spare part delivered, wireless is usually the best way for grounds workers to stay in touch.

Wireless radio and cell phones not only save trips back to the shop but are a safety feature for employees who often are working alone out on a course or at a customer site. Several new products and systems are available.

The Radius GP350 from Motorola is a popular, rugged portable unit. It is available as a VHF or UHF model and comes with programmable frequencies, multiple private line or digital private

line, programmable power output, programmable internal VOX, time-out time and the Quik Call II feature for paging. The 16-channel model includes priority scan and signaling capabilities. A two-channel VHF unit, which operates in the 146-174 MHz range, will cost about \$730. The 16-channel version is about \$100 more. For the UHF models, running in the 403-470 MHz range, add about \$50 to the cost of either of the VHF's.

Icom, America of Bellevue, WA has a pair of simple, portable radios with a minimum of switches and keys to keep operation easy. The IC-F3S is the UHF model and the IC-F4S is the UHF transceiver. Both use SmarTrunk II for tele-

phone interconnect and unit-to-unit calling. Conventional mode with CTCSS and DTCS encode/decode is available for operation in out-of-service areas. The VHF units operate in the 163-150 or 146-174 frequency range. The UHF's are keyed to 400-430 or 440-470 MHz, according to version.

Maxon has a good line of two-channel and four-channel radios, especially suited for areas where interference is not expected to be a problem or for applications where cost is a major consideration. The CP-0510 is a five-watt VHF unit with a forgiving, flexible whip antenna. It comes with a charger, belt clip and a one year warranty for under \$190 at most distributors. Maxon also makes a line of mobile/base station radios.

Another line of low-cost units is put out by Uniden. For under \$150 they have a two-watt, single channel unit available in a range of fixed VHF or UHF frequencies. All come with a rechargeable battery and a one-year warranty.

Uniden's top-of-the-line SPH225 and SPU554 are far more powerful and feature 99 channels and a phone-like keypad as standard features. They are programmable by channel for 12.5-15 kHz narrowband or 25-30 kHz wideband operation. That feature allows com-

patibility with the mixed narrow/wideband systems which will become more common as the new FCC rules are applied to the marketplace.

Several dealers, including Radio Shack, offer CB-band

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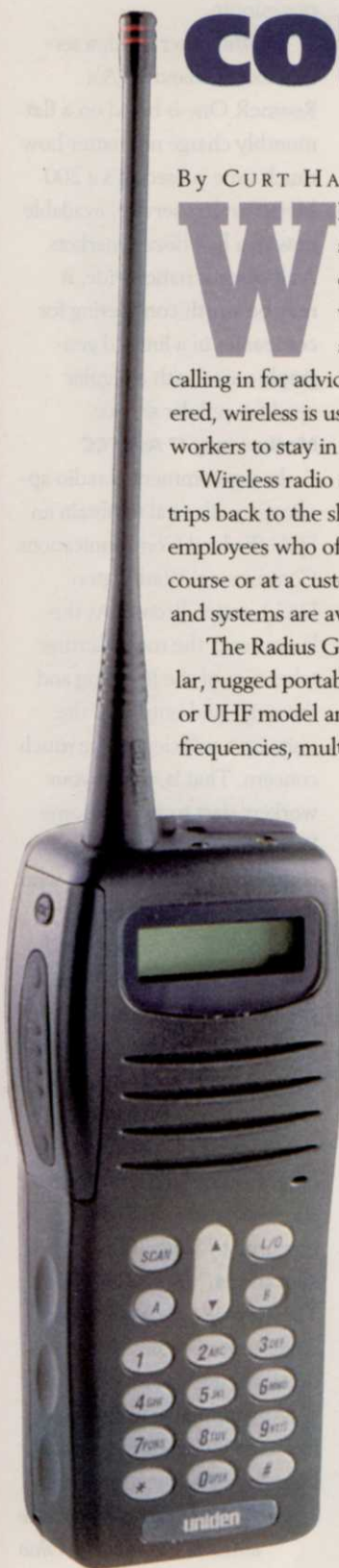
walkie-talkies. Good for short-range use, or linking to a mobile with a CB radio, they can provide good service as long as the operation can find a channel that is not being used by locals for chit-chat or the conversation is nothing proprietary or secret.

Watch out for GMRS units. That means General Mobile Radio Service and radios intended for personal use only. Sometimes they are marketed as Family Radios. While they're fine radios with decent range (up to two miles), commercial use of the radios isn't allowed.

## **Niceties of radio**

Depending on the application, there are a number of additions which make use of the radio more effective in the field.

Headsets are handy for workers in noisy environments or when they need to perform



a function (like a repair) and still have both hands free.

A host of antennas are available both for base stations and for mounting on pickup trucks or other mobile units. In buying a VHF antenna, the higher the gain figure the more expensive the antenna. Expect to pay about double for a 4.5 dB gain unit what the asking cost is for a 3.0 dB unit.

Before buying any unit, grab the radio and play with it for a while. If it will be used with a belt holster, wear it and see whether the antenna pokes the wearer in the ribs. Heavy is good if it means tougher de-

chargers and holsters (as well as radios from many manufacturers) is BearCom, Dallas. The company has outlets in many major cities. However, there is a lot more to efficient power systems than just re-charging the battery.

Most radios come with trickle chargers that work overnight. It is possible to buy rapid chargers that can do the same job in an hour. That can be convenient when crunch time comes. A rapid charger costs about double what a normal charger would run.

The best way to handle any unit with a battery is to allow

radio by the superintendent.

#### **Cellular solutions**

There are a host of cellular solutions available. When purchasing cellular phones, keep in mind that the phone is likely to be used only in a limited area — around an office park or within the city limits. Purchase a plan which allows the most unlimited local calling and forget about adding on low-cost roaming capability or the other niceties one might purchase if the phone were being used by a world traveler.

If cellular is chosen for certain applications, good cellular service can be purchased from the local phone company or even at a kiosk in a local mall. A word of advice: sign up for the shortest contract time possible.

Cellular rates are notoriously variable and have trended downward each year. Do not get locked into a long-term contract. Two years is the maximum term one should consider.

It is possible to buy pre-paid cellular time, recharging the card as needed. Topp Telecom's TracFone is an ultra-compact portable cellular phone well suited for occasional use. The advantages of the TracFone include its low initial retail price (\$99 at Radio Shack or Circuit City, which includes 60 minutes of air-time), no monthly fee, and limited exposure to abuse, since the amount of phone time which can be stolen is limited to whatever is left of the \$30 or \$50 credit stored with the phone. The need to recharge the phone could become a nuisance for units in frequent daily use, but for occasional emergency or back-up use it pro-

vides a means of controlling who makes calls. Each unit has its own phone number and local calls run about 80 cents per minute.

On the other hand, a service like Midland USA's Roamer One is billed on a flat monthly charge no matter how much time is used. It's a 200 MHz wireless service, available now in a half dozen markets. As it spreads nationwide, it may be worth considering for companies in a limited geographic area with a regular need for cellular service.

#### **Mother may I? Ask FCC**

In any commercial radio application, it's vital to obtain an FCC (Federal Communications Commission, Washington, D.C.) station license. At the lowest end, the manufacturer takes care of the licensing and the range and output of the units isn't sufficient to be much concern. That is, unless your workers start to step on some licensed operator (like a taxi company or other vendor) who has assigned frequencies.

The FCC requires a certificate of frequency coordination for any large-scale use. This would include most mobile uses where a base station is in touch with trucks operating around town. Contact the Personal Communications Industry Association, 500 Montgomery St., Suite 700, Alexandria, VA 22314-1561. They provide frequency coordination for businesses and educational users. **LM**

Any reputable radio dealer has free FCC applications and frequency coordination forms.

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## *Not all radio communications is person-to-person. Wireless is showing up in areas like golf course sprinkler system control.*

sign; heavy is bad if the unit will be carried around for a long time. Many firms are designing units which look more presentable. "Two-way radios are being used in a variety of businesses that want a cut above the old brick-style radio units," says Sal Farina, Uniden's national sales manager.

Portable battery packs are convenient to have for those long, overtime days. So are fast chargers. If several radios will be used in the business, consider a gang charger. Gang chargers will re-charge a half-dozen or more radios at once and they eliminate the mad scramble to find open power outlets at the end of the work day.

One good, commercial source for accessories like

the battery to discharge fully before re-charging. It is also a good idea to avoid over-charging a battery, allowing it to sit in the charger. Overcharging can damage a battery.

With some units, it's possible to erase the short-term memory effect that nic-cad batteries are prone to. Try operating the unit until the ni-cad is completely discharged, then recharge it fully. Repeat the process at least three times.

Not all radio communications is with people. Wireless is showing up in non-communications areas, as well, for instance, on wirelessly controlled golf course sprinkler systems. Timing, quantity, and specific areas of the course to be watered can be controlled from a portable