

The Patcomm PC-500 is a hot new radio that should be able to meet the needs of many radio amateurs, with the added good news that it won't cost a lot, either!

CQ Reviews:

The Patcomm PC-500 Dual-Band Transceiver

BY KEN NEUBECK,* WB2AMU

Patcomm's new PC-500 is a rugged, compact dual-band transceiver that comes equipped with any two amateur radio bands requested (at time of order) between 160 and 6 meters. What is particularly nice is that since each band can be selected by plugging in individual band modules, you have the option of purchasing additional modules that can be used as needed.

Basic Description and Features

The PC-500 covers all of the SSB and CW portions of the HF bands from 12 meters down to 160 meters. On the 10 meter band the radio covers from 28.0 to 29.0 MHz, and on 6 meters it covers from 50.0 through 50.4 MHz.

The PC-500 measures 8"W x 2.75"H x 7.5"L and weighs 3.5 pounds. The compact size allows it to be used mobile or portable, as well as in a base-station setup. The radio has a maximum power output of 15 watts and is adjustable down to 1 watt output through the use of a power tuning knob on the front panel. The power consumption is .75 amps during receive. During transmit the PC-500 draws 2 amps at 5 watts output and up to 5 amps at 15 watts output. (If you want even less power consumption on receive, the backlight to the LCD and the S-meter can be disconnected to reduce the current draw by 150 mA.)

The PC-500 has a nice, easy-to-read, yellow LCD display that is situated in the middle of the radio. There is a decent-size S-meter on the left, and on the right is the main tuning knob with a finger

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Front panel view of the PC-500 dual-band transceiver. There is a large S-meter panel on the left and a main LCD display for showing two lines of frequency, one for the receive mode and the other for the transmit mode.

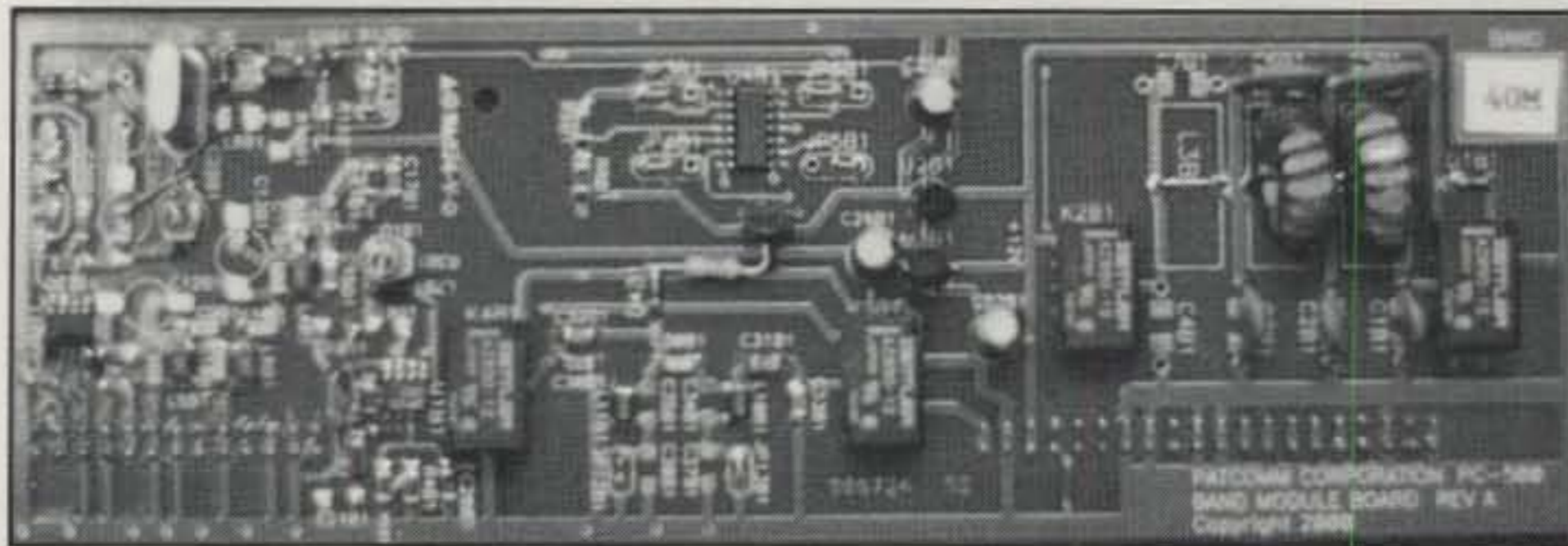
indentation for ease of tuning. Two lines are displayed—the receive frequency on the bottom line and the transmit frequency on the top line. In addition, the mode and memory are displayed on these lines. This is good for running split-mode operations. The top line may also display other information, such as key speed, when certain modes are used. Pushbutton switches for various selections are on the front panel. There is a 1/4 inch headphone jack on the front panel that accepts mono headphones.

The back panel is very simple and includes the antenna input, keyboard input, power-supply jack, and key input. There is no external heat sink or fan required because the radio runs cool. It requires a power supply between 11.5 and 14.5 volts DC.

The key input is the miniature size. For straight-key input, the dash side must be grounded when operating in the manual key mode from the menu. The type of key can be selected on the

front panel (keyer or manual) by following the instructions in selecting the key-speed switch and lock switch to toggle manual mode on or off.

As spelled out in the radio's specifications, the basic electronics of the radio is a combination of DDS (direct digital synthesis) and crystal mixing techniques used to generate a very stable, low phase-noise synthesized signal. A crystal frequency standard is used as the reference for drift-free operation. The receiver is a single conversion design that uses a high dynamic range preamp and a double-balanced mixer to achieve strong signal-handling characteristics. In the SSB mode the transmitter uses a combination of RF clipping and VOGAD (Voice Operated Gain Adjusting Device, a type of automatic gain control that maintains 100% modulation even when the speaker's voice varies widely in amplitude) to achieve excellent audio quality and punch without distortion.



This is an individual band module, which happens to be for 40 meters (see the identification at the top right-hand corner). The radio comes equipped with two bands of your choice when you order it; each additional band module costs \$35.

The PC-500 can store up to four memory positions for each band which may be read from the LCD display.

Now let's look at what makes this radio particularly special with respect to other radios out there.

Special Features

The following features of the PC-500 are standard and worth noting, given that you won't find some of them on other radios:

- Two modes of tuning: Variable Speed Tuning (VST), which changes the tuning rate based on the speed with

which you turn the dial, and standard tuning in 10 Hz tuning steps.

- Digital Variable Filter (DVF), which has a continuously adjustable bandwidth between 600 and 2700 Hz. This allows you to tune away stations adjacent to the one you want to hear. I found this feature works very well during contests when QRM is present. Patcomm points out that the DVF is inside the AGC loop. This is important, as it means that filtered signals do not cause pumping of the AGC, which in turn could cause desensing of the receiver, making it difficult to hear weak signals. This

is a major feature that is unique to Patcomm radios.

- Built-in iambic CW keyer, which allows the use of any standard paddle.

- Keyboard interface, which enables sending CW using an AT-style computer keyboard. Also, the frequency can be entered and the memory accessed by the keyboard through the use of the LCD display.

- Easy-to-remove band modules. The PC-500 can hold two different bands at the same time. Changing the band requires removal of the cover (four screws) and simply unplugging one band module and replacing it with another.

There is significant use of surface-mount components in the PC-500. Examination of the circuit boards and the components used in the radio shows very good quality work throughout as evidenced by the even layout and distribution of components on the circuit board as well as the overall durability of the unit.

Performance

I was able to try out an early production version of the PC-500 during the January VHF contest weekend. On the first day of the contest I operated on 6 meters at 10 watts output for the single-opera-

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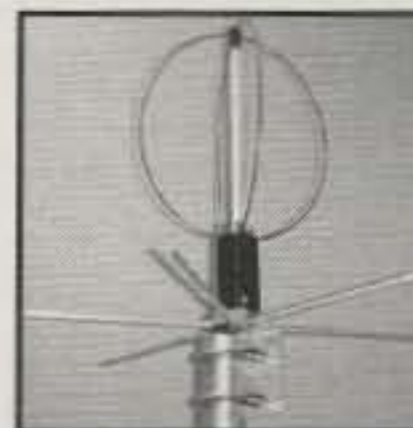


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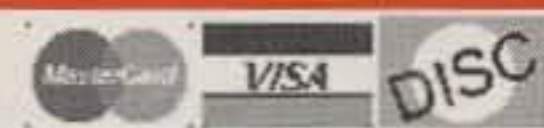


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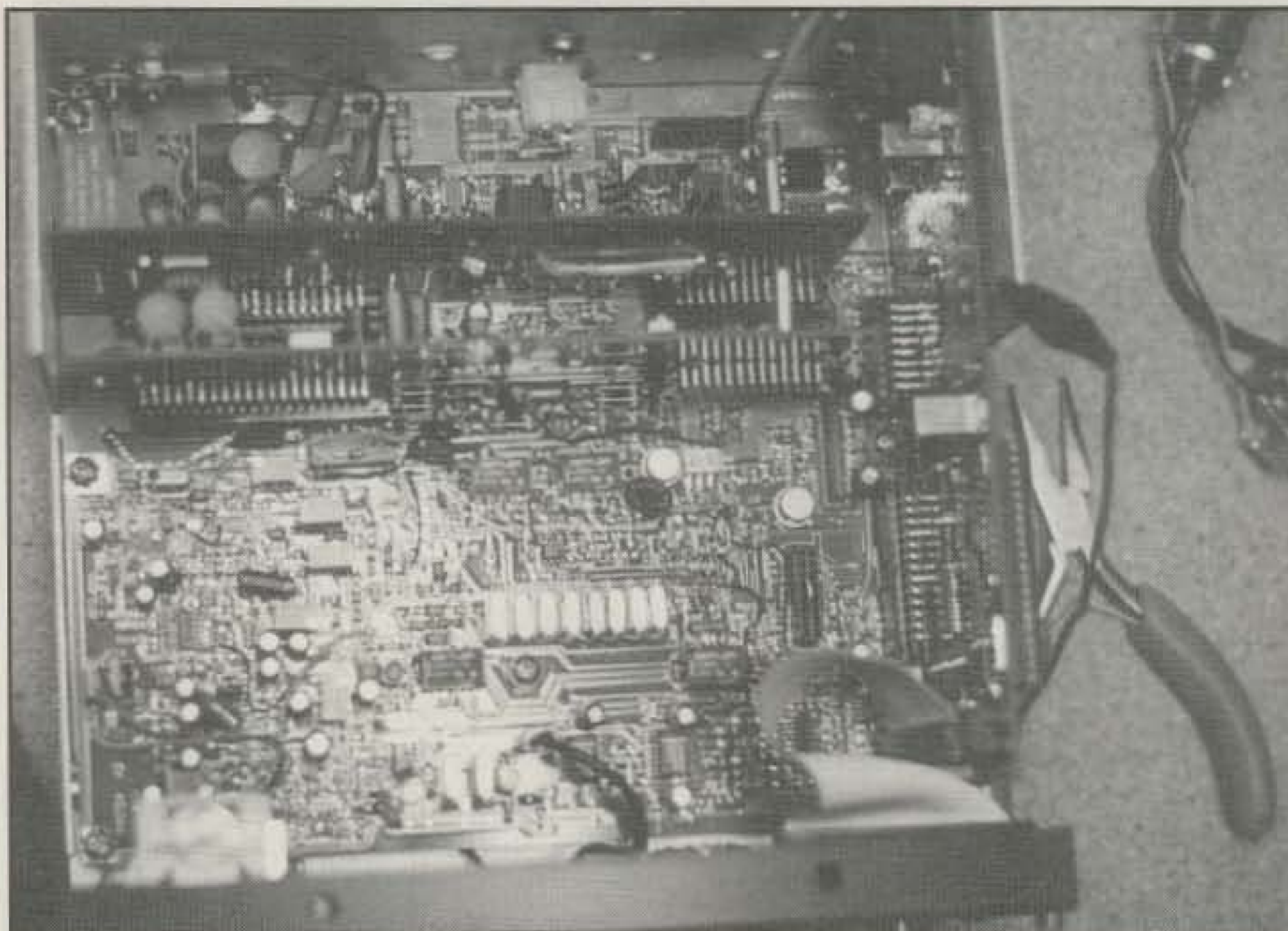
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The cover of the PC-500 comes off after removing four screws. Under the cover is the main motherboard with two band modules plugged in. Most of the components on the circuit board are surface-mount technology.

tor portable mode and made a handful of contacts running from the battery in the car. Even with strong signals coming in from some local stations, I found no evidence of front-end overload.

Later, at night, I got on the air on 40 meter CW with the PC-500 and a switching power supply, running 15 watts output. I came upon a contest going on in eastern Europe. I was sur-

prised by how well I was able to make contacts with low power. I answered various CQs from stations in Hungary and elsewhere in eastern Europe with excellent signal reports. The receiver is very good, and in this contest situation I particularly liked the ability of the DVF to filter out adjacent QRM.

I had a chance to fire up a PC-500 in the PSK-31 mode on 20 meters using



This is the PC-500 with a computer keyboard plugged into it along with a laptop computer that is hooked up through the microphone jack of the radio for operation in the PSK-31 mode. An optional cable is used to connect the computer to the radio, along with the optional VOX board which can be bought for running the PC-500 in the PSK-31 mode.

a laptop computer. PSK-31 is done in the SSB mode on the PC-500. I was able to make a contact using 15 watts on 20 meters with Ken, K8CHE, in Ohio. This was my first PSK-31 QSO. As the duty cycle was much higher in this mode, the radio was warmer but still performed fine.

There is a slight bit of tuning noise that can be heard when moving the dial on 50 MHz. This is a function of the LCD frequency display but has no impact on hearing any radio signals on the band and is not present when the dial is stopped on one frequency. As far as birdies go, I only found one way up the 6 meter band—well away from the calling frequency and the lower part of the band, where most activity takes place. (As an aside, virtually all of the new radios from Japan have birdies showing up on the 6 meter band). Patcomm uses a design that does not use any negative-voltage power supplies and this helps keep down the number of birdies. There was no synthesizer-generated noise heard when moving the tuning dial of the PC-500. By the way, the manual was excellent in explaining the features of the radio.

Summary

The list price of the PC-500 is only \$395, and this includes any two bands of your choice when you order the radio. The price is a real bargain considering all of the features that come with it.

This is a hot radio and ideal for either the beginner or the experienced ham who enjoys working a preferred group of ham bands. As discussed earlier, the PC-500 can be used either as a base station or in a mobile or portable setting. It will be interesting to see how the other companies respond to the features and performance Patcomm has presented.

Each additional band module is only \$35 and is packed in an ESD (electrostatic discharge) bag; it's easy to add more of your favorite bands with minimal cost. The microphone is \$25, and if you have a standard Yaesu microphone it should fit into the jack. PSK-31 capability is added through the use of a VOX board (\$25) and a PC interface cable (\$20). An optional noise blanker for eliminating ignition noise and other power-line noise sells for \$35. The mobile bracket is \$40.

Hams looking for more information may contact Patcomm by telephone at 631-862-6511, fax 631-862-6529, or by visiting their website at: <<http://www.patcommradio.com>>.

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