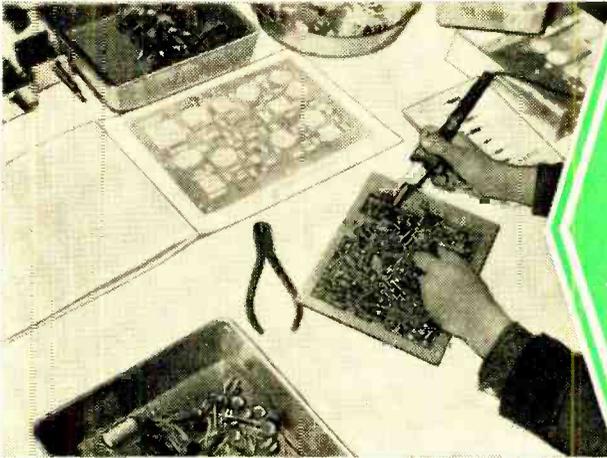


BUILDER'S KORNER

THANKS TO PRINTED CIRCUITS and other modern techniques, the enjoyment of high-performance radio reception is no longer limited to those whose pockets are bulging, or who are willing to mortgage off the old homestead to make a down payment. For just over \$100, plus some pleas-

it is virtually impossible to select a wrong resistor due to misinterpretation of color codes. All resistors are mounted in clearly marked cards bearing their *R* numbers, which agree with markings on the printed-circuit boards as well as on the schematic diagrams and photographs.



Knight 83YZ726 De luxe All-Band Amateur Receiver

ant and instructive hours, the beginner or veteran can acquire a general-coverage communications receiver with sensitivity and selectivity comparable to or greater than many which cost several times more.

The Knight Model 83YZ726 de luxe all-band amateur receiver (Allied Radio, 100 N. Western Ave., Chicago 80, Ill.) should appeal both to amateurs and short-wave listeners. The kit was designed and engineered for simplicity of assembly, without sacrificing performance. Anyone who can read directions should be picking up stations from all parts of the world within 24 working hours.

You Can't Go Wrong. As a typical example of Allied's "convenience engineering,"

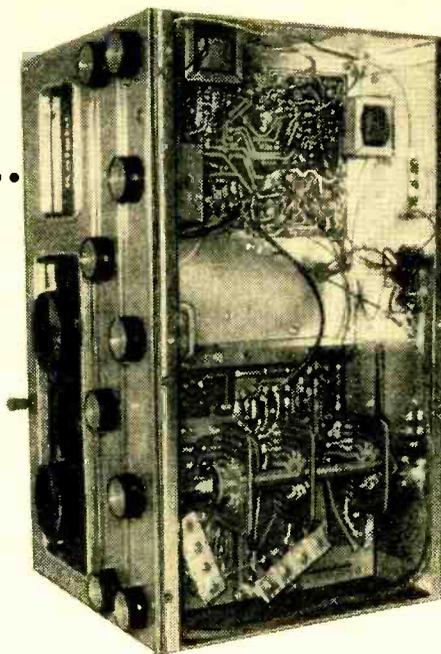
All other parts are marked with similar clarity. In cases where polarities are important, or where more than one method of mounting might be possible, parts are color-keyed to prevent mistakes.

The printed-circuit boards not only simplify wiring, but also provide lead dress uniformity which makes possible the high performance with minimum difficulty due to differences in wiring. The high-gain circuits are recessed and shielded to prevent interaction between stages. Leads are, in general, so short that they are almost non-existent.

The Knight receiver has 1.5-microvolt sensitivity (for 10-db quieting), placing it in a class with much more expensive re-

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Wiring of Knight receiver is greatly eased by the use of printed circuit boards and switches. In this view, note board at top and multiple-gang switch at bottom.



ceivers. The Q-multiplier provides razor-sharp selectivity for single-signal reception of c.w. signals and reduces interference to single-sideband and amplitude-modulated phone signals.

Bands covered are: Band A, 540 to 1650 kc. (broadcast); Band B, 1.6 to 4.6 mc. (ship-to-shore, amateur, etc.); Band C, 4.4 to 12.4 mc. (foreign broadcast, amateur, etc.); and Band D, 12 to 30 mc. (including three amateur bands, plus Sputnik frequencies).

The kit comes less speaker, but has an output stage with a transformer designed to match 3- to 8-ohm loudspeakers. Small speakers are available for less than \$2, or almost any discarded radio will yield a suitable speaker. Just add a simple baffle or enclosure.

Some Features. In these days of double conversion, one might wonder about image interference. The Knight uses only one i.f. frequency (two stages) at 455 kc., offering reasonably good selectivity (made better by the built-in Q-multiplier) and good image reduction. In preliminary tests, the "front end" of the set seems to be adequately selective to minimize images to a negligible point.

One unique feature is the printed-circuit bandswitch. This not only simplifies construction, but improves stability by providing added rigidity and uniformity. Use of multipurpose tubes produces 11-tube performance with only nine "bottles."

The average kit builder or the beginner

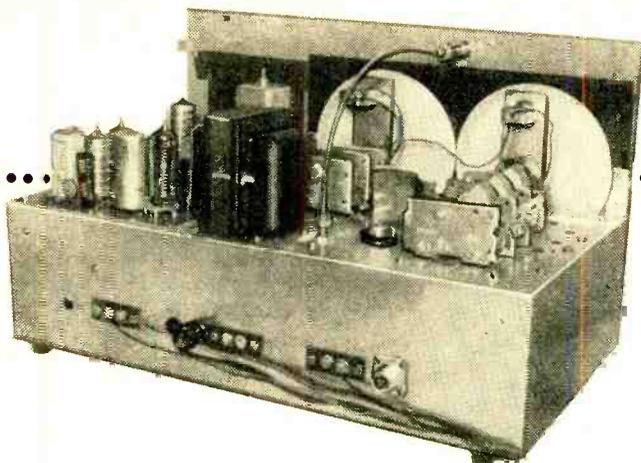
may be somewhat dismayed by the number of small parts furnished with the kit. One convenient method of segregating them into groups, without complicating the search process, is to use cake pans for each category.

Preparation of shielded wire can be a tedious job, but it cannot be hurried. Shielding often means the difference between a piece of electronic equipment doing what it's intended to do or something undesirable. The frayed ends of a poorly prepared braid can cause not only faulty operation of the receiver but permanent damage.

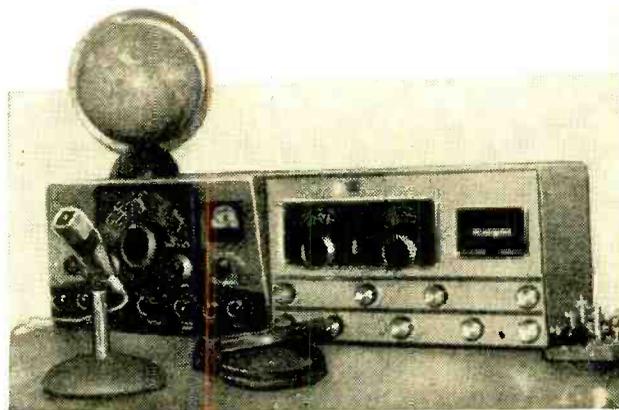
The almost overpowering temptation to get the receiver finished and on the air must be subdued. The trimmer strips must be connected firmly and in exactly the right positions for best results. Follow the diagrams carefully.

The latter suggestion applies even more critically to the assembly steps that follow. Be sure that the pre-tuned coils are mounted exactly vertical to permit easy access for tuning.

Important Steps. One of the most important groups of steps consists of those which involve the positioning and alignment of the tuning shafts and knobs of the main tuning capacitor and bandspread capacitor. Unless aligned carefully and checked and



Completed assembly rear view (above) shows the two types of antenna input available—coax and screw terminal connection. View at right shows receiver ready for action in the ham shack.



rechecked frequently during the mounting of the corresponding dials, the receiver will not have the right "feel" and inaccuracies in calibration and difficulty in interpretation of dial readings will result.

Under normal conditions, the receiver will pick up strong signals from all parts of the world, even without further alignment. Alignment by ear can greatly improve performance, and if the builder is familiar with the spectrum, he can find enough check points to calibrate the receiver with reasonable accuracy—without any other instruments. For optimum performance, however, there is no substitute for the signal generator and VTVM.

Several antennas were tried. Although improvement was noticeable when the set was connected to a properly terminated and tuned antenna for the frequency being used, excellent performance can be achieved with a short piece of hookup wire as antenna. The manufacturer has anticipated a variety of approaches to the antenna problem

and provided both coax and screw terminal connectors.

Some Accessories. The receiver is available with or without an S-meter kit and a 100-ke. crystal calibrator kit. For the casual listener, the S-meter may not be important. But to the ham or would-be ham, and as an aid in alignment, the extra investment is worth while. The crystal calibrator is extremely useful in spotting special short-wave broadcasts, and in locating band edges for ham work.

Although the Knight 83YZ726 lacks the massiveness of more expensive receivers, it performs well and should provide many pleasant hours of listening. The ham who has a high-priced ham-band-only receiver will find the Knight receiver invaluable for listening to Sputniks and other signals, including broadcast, that fall outside the amateur bands. For the beginning ham or the short-wave listener, there is probably no better way of getting in on the listening end quickly and inexpensively.