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73 Reviews

The QX-535 Receiver

THE R. E. Goodheart Company's QX-535 is a 200 to 550 kc receiver which, although useless for amateur frequencies "as is," is a very valuable addition to many communications receivers for use as a "Q5-er," or, with the addition of crystal converters, may be used as a high-quality communications receiver itself.

The QX-535 is basically a BC-453 receiver that has been repackaged in a trim, attractive case, complete with fused transformer-type power supply, speaker and all controls. The photo shows the physical arrangement of the components inside the QX-535 case. Note that the tube compartment cover of the BC-453 has been removed. This, along with the use of a perforated case, insures adequate cooling of the receiver.

The circuit is a six-tube superhet with an *if* of 85 kc (with three double-tuned circuits at this *if*), and another tube in the full-wave rectifier circuit. The *if* transformers have an

adjustable coupling consisting of a slug that may be reached by removing the screw-on caps on the *if* cans, and pulling a small shaft in and out. The coupling is at minimum in the "shaft-out" position, and this position should be used for maximum selectivity.

By tuning the QX-535 to the *if* of your present receiver, then coupling it to the output of your receiver's *if* strip, the QX-535 serves as a "Q5-er," or outboard selectivity aid. Most receivers use an *if* at 455 kc, but the QX-535 may be used as a Q5-er for any *if* in the 200 to 550 kc range. This conversion to a second *if* of 85 kc with the QX-535 will give you a bandwidth of only 2.0 kc at 6 db down, and 6.5 kc at 60 db down. This means an AM (double-sideband) station will just barely fall within the QX-535 bandpass, and even close adjacent-channel interference will be reduced to a great extent. Offsetting the BFO to one side of the center frequency of the *if* will provide exceptionally good single-sideband and single-signal CW reception. Unfortunately, the BFO pitch control is not very convenient to adjust, being located near the rear and at one side of the BC-453 case. However, it is possible to make a minor modification to use the front-panel "align input" control as a BFO pitch control (reference 1).

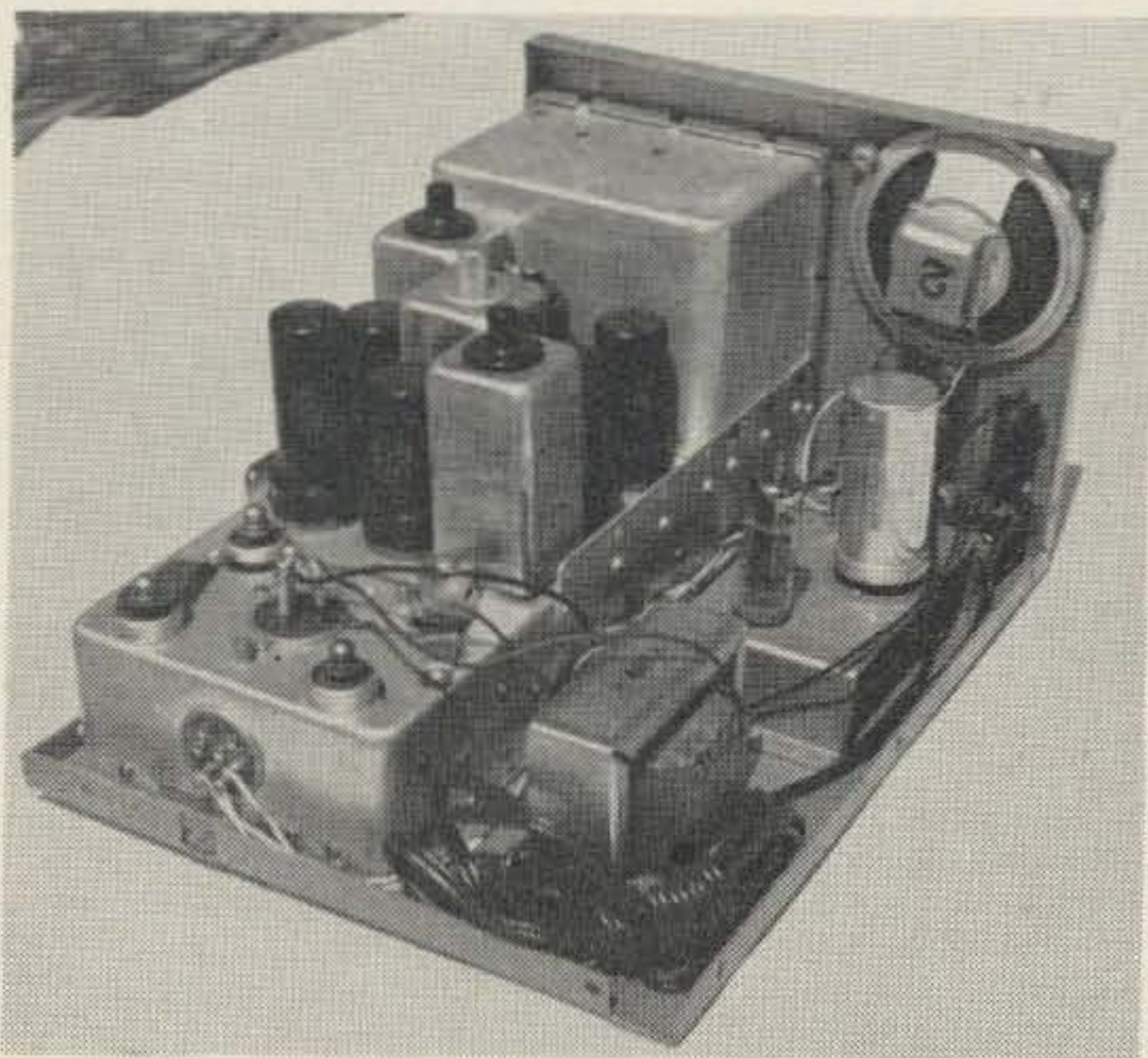
When using the QX-535 as a Q5-er, it is quite impressive to use both the normal receiver's speaker and the QX-535 speaker, and tune across a few signals. As you tune across a given signal, you will hear it in the receiver speaker first, then it will come in and *pass through* the QX-535 bandpass before it disappears from the receiver's speaker. This, besides being an impressive demonstration of the QX-535's selectivity, may be a useful feature to use, for instance, in AM phone nets. The normal receiver may be used to listen for the net stations on their usual ten kc spread of "net" frequencies, while the QX-535 may be

Condensed Specifications, QX-535

Price.....	\$37.50 FOB Los Angeles (16 lb.), or \$39.95 delivered in USA.
Tuning range.....	200-550 kc, with dial divisions each 10 kc.
Intermediate Frequency..	85 kc with three double-tuned circuits.
Selectivity.....	2.0 kc at 6 db down, 6.5 kc at 60 db down.
Possible Use.....	(1) As a second-conversion unit, tuned to the receiver <i>if</i> , or (2) with crystal converters as a complete receiver.
Manufacturer.....	R. E. Goodheart Co., Box 1220, Beverly Hills, California.

used for added selectivity in rough copy conditions. This would also be of use in contest operation, using the main receiver to tune for calls, and the QX-535 to narrow the bandwidth for maximum interference-rejection.

In addition to the possibility of using the QX-535 as a Q5-er, is the use of the QX-535 as a tunable *if* with band-switching or separate single-band crystal converters. This has been described several times in amateur radio publications, and only brief details of this technique will be discussed here. For circuits and full information, check the references at the end of this article. This approach to a communications receiver for the ham bands is not only a very effective one, but it is inexpensive.



For instance, let us consider the case of a new ham who must limit his receiver budget to \$100. You know as well as I what kind of performance he could buy in a commercial receiver for \$100. Well, the new ham could take \$40 of his budget and buy a QX-535. Then he could build a deluxe all-band crystal converter—even without a good junkbox for the components—for less than the remaining \$60. And that ham would have a receiver, when he was finished, that would be very hard to beat as to stability, selectivity and sensitivity. W3SMV uses a homebrew converter with a BC-453 in this type of circuit and has the features of (1) stability from warm-up to within 400 cps, and after warm-up to within 20-30 cps; (2) bandwidth of less than 2 kc; and (3) sensitivity of less than one microvolt.

There is enough space left in the QX-535 case to build in a two-tube single-band crystal converter. One approach that could be used in making an all-band receiver out of a QX-535 would be to build an 80 meter converter inside the QX-535 case, then build an outboard all-band converter to cover 40 through 10 (or 6) meters, using the 80 meter range as a tunable *if*. Of course, the 80 meter converter should be provided with two crystals and a crystal

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(QX1535 from page 67)

switch for complete band coverage, tuning perhaps 3500-3850 and 3700-4050 kc. This would cover all of the ham bands up to ten meters, where switched crystals should be again provided in the outboard converter for complete band coverage.

The QX-535 as a basic unit could prove to be a useful addition to almost any receiving set-up. The references to follow include several different ideas various hams have had on how to use the BC-453. The QX-535 may be used in all of these ways, and is nice to use since it not only is complete with power supply and controls, but is a nice-looking package, and, far from being the least consideration, quite inexpensive.

... K3KMO

Letter

Dear Wayne,

In the plastic bag you will find some braid which has been soaked in flux and oven dried. This may not be new to you but it was to me and I have never seen anything about it in any of those other pubs., so I would like all the people and hams, too, who read your magazine to know about it. The deal is this; if you need to repair some gear, especially surplus equipment, lay an end of the braid on the solder joint and apply a hot solder iron to the braid and watch the braid soak up the solder! Brush the joint with some solvent and it will shine like new. Try it. I use this method to make old tube sockets "New."

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