

73 TESTS THE IC-230



ICOM has come up with a two meter transceiver which has set many manufacturers to burning the mid-night oil in their labs. It has 66 channels of synthesized operation, and that covers all of the standardized FM channels from 146.0 to 148.0 — the dial readout is for the receiver and the transmitter can be switched to send 600 kHz higher or lower, as well as on the same channel for direct (simplex) communications. It is exceptionally versatile.

The receiver, which is the most important aspect of any transceiver, is a beaut. Mr. Inoue and his engineers went for every dB they could with this one, always being careful not to forget the probables of intermod, overload, and other discouraging miseries we've had with more than one of the other rigs on the market.

The receiver is dual conversion. Single conversion is on the horizon, but we haven't tried a receiver using it that was quite as good as a well designed double conversion job. They'll be along, you may be sure, as the scientists cram more and more transistors into those IC chips. The 230 has an FET front end and high-Q helicalized cavity resonators to keep out the garbage. By keeping the gain in the i-f the Icom gang got rid of a lot of the overload problems. They made up for it with a six stage i-f amplifier. The two local oscillators are zener regulated for stability.

The transmitter puts out at least ten watts and is also zener regulated in the oscillator. It is load protected in case your antenna falls off or gets shorted, and the low pass filter in the output will be appreciated by television viewers you drive past.

Now, outside of all the technical data on the unit, how does it work? Is it easy to change channels while driving?

The rig, being very small, mounts just about anywhere in a car. We put it on the side of the transmission hump next to my knee, facing up. It didn't take a half hour to get into

place, even for a mechanical klutz. This puts the controls in easy reach of the hand, including the upper-lower offset switch for the transmitter which is on the top of the unit instead of the front panel. You have to get at this one when you move to the 147 MHz channels unless you make a small modification to put that function on the 146-147 MHz segment switch — and this is a very simple mod.

There are two knobs for switching channels, one for the hundreds of kHz, and one for the 30-kHz jumps. With this simple system you can switch from one repeater to another without even looking at the rig — which is excellent for driving. You just count the switch positions as you turn the knob. This is particularly handy for someone like Wayne who has to put on his glasses for the simplest of reading. It's a bore having to put your glasses on in the car just to change a repeater channel.

The 66 channels makes it so you can use most of the repeaters on the air today. If you do much traveling you'll appreciate having every standard channel in the rig. How many crystals would that take? If you wanted them all it would take 132 crystals, and at \$4 each that would come to \$528. You could get by for half that because most of us don't need the reverse pair crystals, but that is still a bundle.

The ICOM will put you on the reverse pair, if you want. This is almost imperative these days when you are flying so you won't lift every repeater for three hundred miles around every time you talk. It's also useful when you are close by the other op and can get him better on the repeater input frequency than the output. It happens.

If you hook another 230 owner you can use any of the simplex channels for fairly private contacts. Or even a locally unused repeater input or output channel.

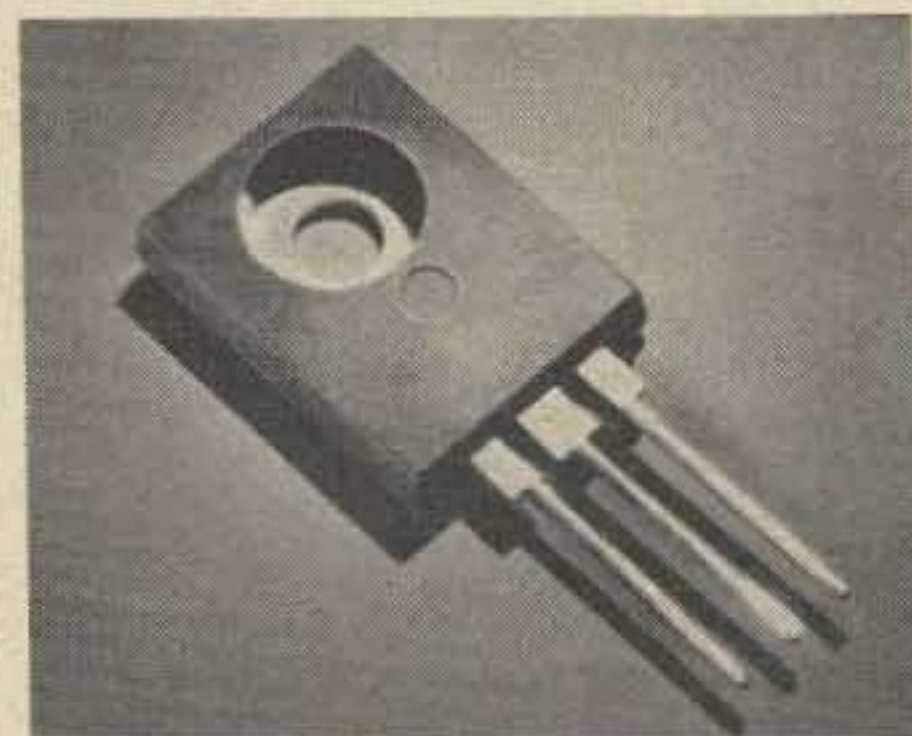
The ICOM 230 has worked without a flaw all through the New Hampshire

winter, from about 20 below zero on up. It has always been right on channel on both transmit and receive, and it has always sounded superb. It is one of the few ham rigs that works well on top of the local mountain. Most of them have trouble with the several commercial repeaters up there, or even miseries from ham repeaters on adjacent channels. One well known rig loses sensitivity and cross modulates when the next channel lower is coming through strongly. Another very well known rig is totally useless on the mountain — everything comes through.

About the only drawback of the IC-230 is that it doesn't get the splinter repeaters, but even that can be corrected by changing a crystal, if you've got splinters in your area.

Bravo ICOM 230.

PUSH-PULL AMPLIFIER APPLICATION NOTE



The advantages and design of broadband push-pull amplifiers are described in an application note available from TRW Semiconductors. The 8-page application note discusses, in particular, 60 and 120W 225-400MHz push-pull amplifiers using TRW J02000, J02005 transistors.

The application note describes the basic concept of the push-pull approach and compares it with conventional designs.

Schematic drawings present the complete electrical circuit for 60 or 120W push-pull amplifiers, and layouts for components, heat sinks and circuit board. The electrical circuit for a push-pull driver amplifier providing up to 30 watts output is also presented.

The application note includes specification ratings, electrical characteristics and package dimensions for TRW J02000 and J02005 rf Power Transistors. The units incorporate internal integrated circuits to reduce the effects of the reactive part of the input impedance to nearly zero. J02000/J02005 units are rated for 30/20 watts and 200-400 MHz.

Further information and a copy of the application note are available from Sales Manager, TRW Semiconductors, 14520 Aviation Blvd., Lawndale, CA 90260; phone (213) 679-4561.