

A REVIEW OF THE ICOM IC 202

The Icom 202 breaks new ground on the two metre scene with a complete SSB package about the same size as the well known IC 22 FM unit. Furthermore the IC 202 has a self contained battery supply making it usable as a hand held portable.

Even though it is compact, all the usual facilities are included. A noise-blanker, "S"/RF output meter, and receiver off-set tuning are all standard features.

The ICOM 202 is distributed in Australia by Vicom International Pty. Limited of 139 Auburn Road, Auburn, Vic. The model used for this review was supplied by them and details of price and delivery can be obtained from them.

As supplied the 202 covers from 144.0 to 144.4 MHz in two bands of 200 kHz each. A normal VFO is not used, instead a stable, variable crystal oscillator (VXO) is employed. As we shall later see this has exceptional stability and also a very accurate and linear dial calibration.

Normal accessories supplied are a good quality PTT dynamic microphone, an over-the-shoulder carry strap, a set of dry batteries, a packet of connectors compatible with the rig, and an instruction manual.

The IC 202 measures 183/61/162 mm and weighs in at 2 kg complete with the internal batteries.

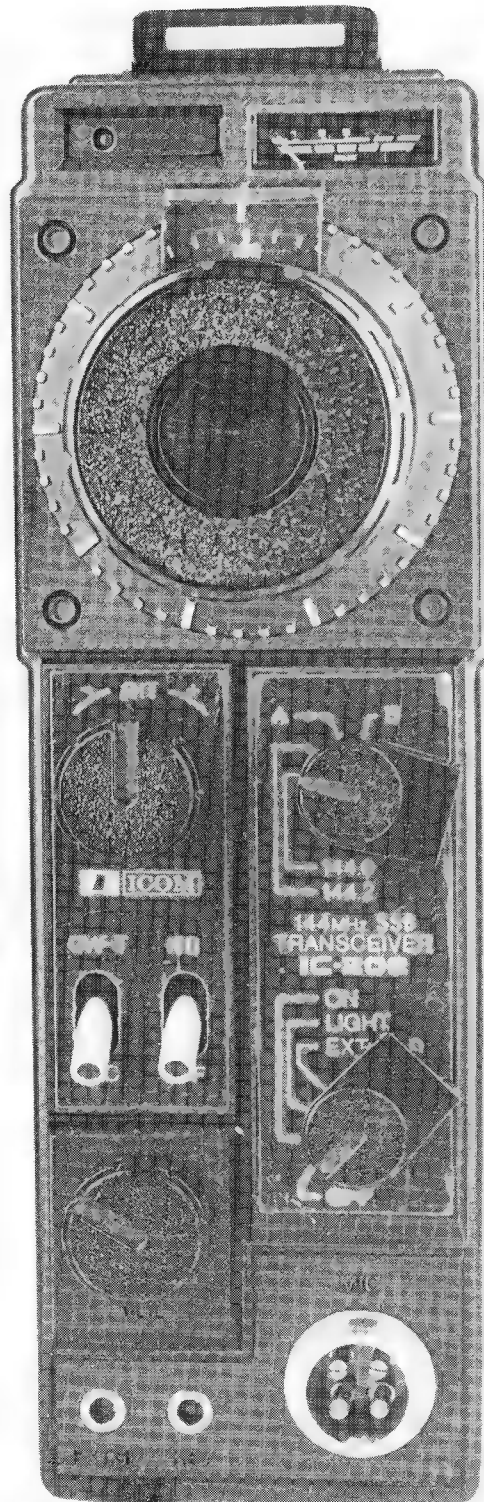
A quarter wave whip antenna is built in and this conveniently telescopes right into the cabinet. Connected in parallel with this is a recessed SO239 coax socket which enables the set to feed an external antenna.

Also provided are 3.5 mm sockets for an external speaker and the CW key. An external power socket is also fitted.

As the advertisements for the IC 202 state that the use of ni-cad batteries is recommended it seems a strange omission that no provision is made to recharge them. It would be necessary to either run temporary connections into the set, or remove the batteries and charge them in an external holder. Also it would appear that overall performance would be reduced by using ni-cads as there is only space for nine cells. With normal dry batteries, the recommended 13.5 volts would be available, but only 11.25 volts with ni-cads.

IC 202 CIRCUIT DESCRIPTION

A total of 7 FET's, 20 transistors, 27 diodes, 3 zener diodes and 7 IC's are employed.



The circuit is single conversion on both transmit and receive using a 10.7 MHz IF channel with a filter giving a 2.4 kHz band pass.

The VXO operates on a crystal frequency of 14.61 and 14.63 MHz for the two ranges supplied as standard. The band switch has provision for two additional crystals as well as an external VFO input. As far as can be ascertained no matching VFO is built by Icom to suit the 202. Output from the VXO is multiplied by nine with two tripler stages up to 133.7 MHz. In the receiver section, this is mixed with the incoming signal to produce the 10.7 MHz IF. The crystal controlled BFO on 10.6985 MHz is also used as the carrier generator for the transmitter.

The receiver follows current design trends with a dual gate FET RF stage to an FET mixer. The IF channel consists of two FET's and one IC followed by a balanced four diode product detector and an LM380M audio IC. Fast attack slow release AGC is applied to two IF stages and the RF stage.

The receiver BFO is also used as the transmitter carrier generator.

Transmitter audio from an IC amplifier is fed along with RF from the carrier generator to an IC balanced modulator, then via a single FET stage to the 10.7 MHz filter

which is common with the receiver circuit.

Output from the filter goes to the transmitter mixer and combines with the VXO output to give the operating frequency. Four stages take this up to the normal three watt output level.

Full diode switching is used in the IC 202 thereby eliminating the bulk of a relay.

THE IC 202 ON THE AIR

Let me say right away that the performance of this little rig is quite superb. The dial mechanism is very smooth although perhaps a little too fast in the tuning rate. Both the dial scale and the "S" meter calibrations are rather small and ageing eyes will need a good pair of spectacles. However, considering the compact nature of the set, it is hard to see how these could be increased in size.

The various control knobs are rather small, but perhaps the worst feature is the very blurred designations for these controls. They are also an odd orange colour which does not stand out against the black panel. Surely white would be better.

Although the dial calibrations are small, their accuracy is surprising. Checked against our frequency counter, the maximum error was less than 1.5 kHz at the

main dial calibration points. As the 202 does not include a calibrator, it is nice to know that dial can be relied on. Stability was excellent also. At a constant temperature the frequency did not vary by more than 100 Hz or so.

Before putting the IC 202 on the air, I had doubts that the three watts output would make a worthwhile impression on the band — but not so. Many times it outperformed a ten watt output FM transceiver over the same path, and several successful contacts were made that would have been difficult on FM.

Unfortunately time was not available to do a full sensitivity check on the receiver but no doubts are held that the published figure of .5 uV would be easily met.

Receive audio was clean and easy to read. In fact it would be difficult to pick it from the sound you expect from your normal HF transceiver.

A set of dry batteries would have rather a limited life and some form of external power supply is recommended. Current drain on receive varied from 85 mA to 140 mA with the noise blanker and dial light switched on. Transmit drain was 165 mA under no output conditions up to 600 mA at full output and 650 mA with the dial light on. This was measured with 13.5 volts input.

INSTRUCTION BOOK

The book supplied with our IC 202 was written in Japanese but an English version is now available. However it would appear that little or no service information is included. The circuit diagram is of large size and very easy to follow.

The IC 202 is sold with a full twelve month warranty by Vicom International and of course they have a full back-up stock of spare parts. ■

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Inserted on behalf of the Divisions
by the Executive, P.O. Box 150,
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QSP

900 MHz AMATEUR BAND

According to Ham Radio Jan. '76 a 900 MHz amateur band is receiving consideration both in and out of FCC. Amateur space and satellite communication would find a new band in the 900 MHz region particularly valuable — it's high enough, says Ham Radio, to get away from a lot of noise and low enough that atmospheric absorption is not a problem. ■

