

# REVIEW THE IC551D SIX METRE 100 WATT TRANSCEIVER

Reviewed by Gil Sones VK3AU1  
Test figures courtesy Kevin Phillips  
VK3AUQ

**The IC551D is a new six metre transceiver. It is a high power version of the recently released IC551.**

The packaging and styling is like the IC701 and the IC211, however the IC551 and the IC551D have inbuilt microprocessor control. In previous rigs this could only be provided by the remote controller.

The microprocessor sorts out the signals from the knobs and switches and controls the dial display and the phase locked loop frequency control.

With all such arrangements you should always remember that the display is not an actual counter output. ICOM recognise this and provide an accessory marker. In Melbourne this is not necessary as you may check calibration on a harmonic of VNG. Yes, even Telecom have harmonics.

The unit tested was not fitted with FM as the FM unit is sold as an accessory overseas. They will be fitted to later shipments and may be retrofitted to units without them. This is very simple, as many of the features are in bolt-in, plug-in modules.

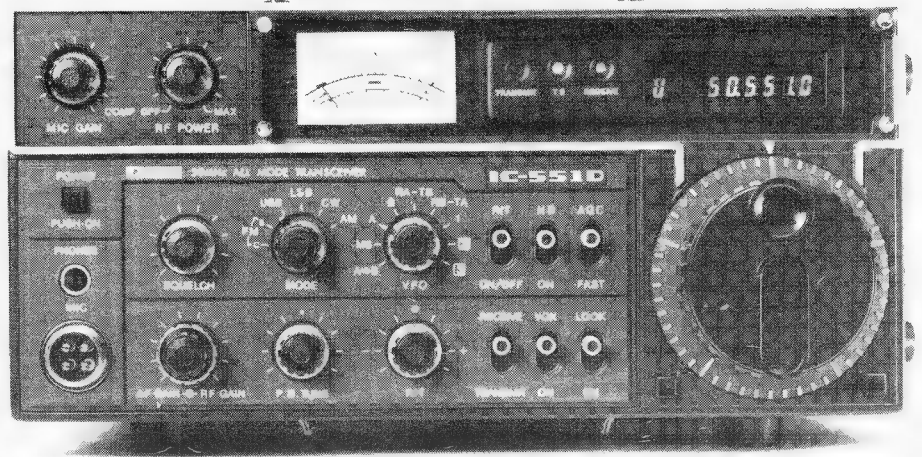
The VOX is very interesting as it uses a bucket brigade delay line to eliminate the clipping of the first syllable. This is a very advanced feature and is indicative of the thought and development ICOM put into their equipment. The circuit is similar to the circuit AR readers have seen in Evan VK3ANI's VOX Advance.

Another feature not often seen on VHF equipment is Pass-band Tuning. This can be quite handy for dodging annoying Channel 0 sidebands when listening for beacons.

Together with the Pass-band Tuning ICOM have provided an RF processor which helps greatly under weak signal conditions. The reviewer was able to use this to great advantage when working tropospheric DX. Under such conditions the extra punch provided by the processor helps considerably.

One of the advantages of having a built-in microprocessor is the number of VFOs and memories which may be provided. In this context VFO is probably a misnomer as the VFO function is really achieved by a variable memory storage. There are two such VFOs provided together with three memories.

Facilities are provided to transceive on either VFO or any memory. Split frequency operation may be achieved using either VFO for receiver transmit. This can be a



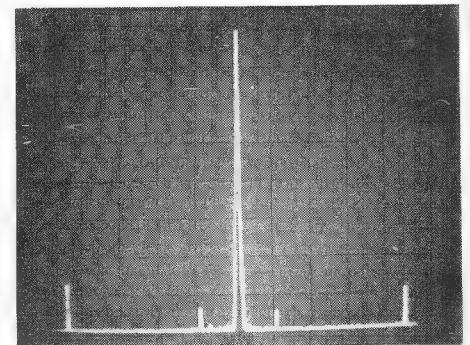
The IC551D

very handy feature for DX working. You can also align VFO B with VFO A by a flick of a switch.

Scanning is provided by any of the three memory frequencies or between two of the memory frequencies. This can be very useful for monitoring beacons or to search for signals in a band segment. The scanner stops when a signal exceeds the squelch threshold.

The squelch is operated from the AGC line in the SSB and CW modes and for FM it is the normal FM squelch or mute. The squelch is triggered by minute AGC voltage and is a considerable operating convenience. It was not possible to test it in the very subjective threshold between just hearing weak signals and imagining you are. Band conditions did not oblige in this area.

The power supply type IC S20 is interesting in that it uses a high frequency DC to DC converter to convert the rectified mains voltage to 13.8 volts DC. This results in a much lighter power supply at the expense of some extra complication of circuitry. The shielding is good and the power supply does not radiate noticeable RFI. However, don't sit your transistor radio next to the transceiver front panel as the microprocessor and display radiate for a few inches near the panel.



IC551D, spurious outputs, HP spectrum analyser, frequency 52.05 MHz CW 2 MHz/div. horiz., 30 kHz bandwidth, 10 dB/div. vert.

A similar power supply is built into the IC551 which is the 10 watt output version.

One interesting point in the power supply is the use of Swedish interference suppression capacitors. Evidently ICOM wanted quality components and were prepared to search for them. This is an indication of the engineering design effort that ICOM put into their gear.

Another interesting point is the extent to which ICOM have developed and refined the VXO or rubber rock. In this rig

there are three such oscillators and they are stable. A great deal of design effort has evidently been put into this development.

On the air the IC551D draws compliments for the quality of the signal and the receiver digs out the weak signals. During the test period the band opened with a tropospheric opening and with an opening to Japan. The IC551D performed admirably in both instances.

Another area the IC551D shines in is cross modulation performance which is most critical in a Channel 0 area. When tested, using a KLM 11 element beam, with line of sight to Channel 0 15 km away, the IC551D was able to read signals which were unreadable on a couple of other 6 metre rigs. This is a pretty severe test as previously at this location it had not been possible to point the beam close to Channel 0. A very big plus feature in any area plagued by Channel 0.

One difference between the IC551 and the IC551D other than the power output is in the retention of the memory when the rig is switched off. The IC551 has a power supply built in which may be used to retain the memory whilst the IC551D merely has the provision for an accessory power supply to perform this function. The result of this is that at switch-on the VFOs and the memory are initialised out of the Australian Band. To get back up to 52 MHz is quite a chore even when using the fast tune position with 1 kHz steps. There is, however, a neat way to get 10 kHz steps by selecting the FM mode. Select FM, give the knob a couple of turns and then switch back to SSB.

The receiver sensitivity was found to be 0.09 microvolt for a 10 dB signal plus noise to noise ratio. A little bit better sensitivity is obtainable by using the Pass-band Tuning to narrow up the IF selectivity.

This would only really apply to CW signals.

The transmitter produced 96 watts which is somewhat better than the 80 watts in the handbook or the 50 watts promised on the box. The power was all on the one frequency, too, as the spectrum analyser photo shows, with spurious outputs being in the region of 65 dB below full output. This is better than the specification of 60 dB down.

The frequency displayed was found to be accurate to better than the dial display accuracy. This is a tribute to ICOM's excellent oscillator design and would be hard to better.

All things considered, the IC551D is a very well engineered 6 metre rig.

Enquiries regarding supply and price of the IC551D should be directed to VICOM and their distributors. ■