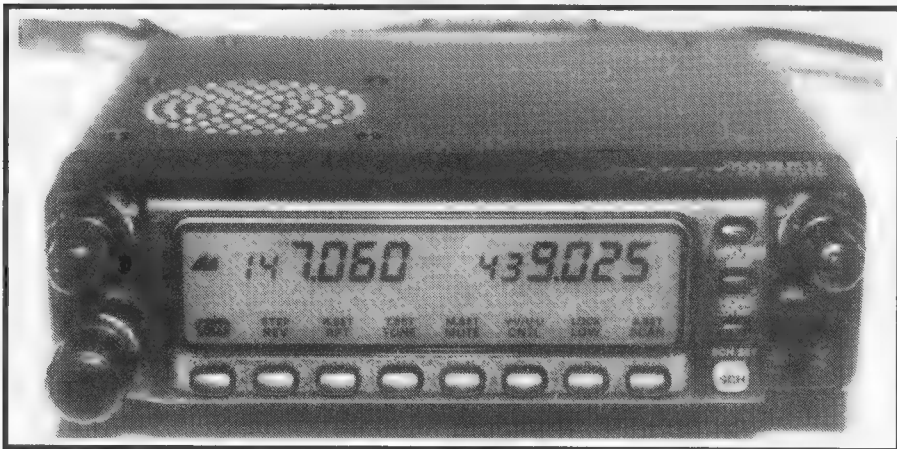


■ Equipment Review

Yaesu FT-8000R Dual Band Mobile Transceiver

Reviewed by Ron Fisher VK3OM*



A front view of the FT-8000R, clearly showing the second row of functions above the remaining seven buttons when the "F/W" button is pushed.

(Photo by Ron VK3OM)

In the March 1997 issue of *Amateur Radio*, I reviewed the rugged Yaesu FT-2500M 2 metre mobile transceiver. This time I will look at the latest dual band mobile transceiver, the FT-8000R. This transceiver covers both the two metre and 70 cm bands with power outputs of 50 watts and 35 watts respectively.

Even with the addition of a considerable amount of electronics, the new dual bander is actually smaller than the current single band model.

The FT-8000R includes an efficient cooling fan attached to the rear heat sink panel. This operates at all times the transceiver is switched on with the fan speed increasing when the transmitter is keyed. The FT-8000R is supplied with a mobile mounting bracket, a hand held microphone and a generous length DC power lead.

The transceiver features a very wide receive coverage from 110 MHz to 550 MHz and from 750 to 1300 MHz, but with the cellular telephone frequencies

blocked out. Reception modes of both AM and FM are included with AM being selected automatically on the aircraft band. The transmitter uses FM and is configured for use on the two amateur bands only. The overall size is 140 mm wide, 40 mm high and 152 mm deep with a weight of just one kg.

The operational features of the FT-8000R include dual receive capability with either the same band or cross band operation. It is also possible to set the

transceiver up as a cross band repeater. There are 108 memory channels with 54 allocated to each of the two amateur bands. Packet operators are well catered for with both 1200 and 9600 bps operation available. A rear panel jack has been provided to allow easy interface for a packet modem.

A new feature that Yaesu call "The Smart Search" automatically sweeps the band and loads active frequencies into dedicated memory banks. Yaesu claim that this feature can identify active repeater and simplex frequencies when you visit a new location. Of course, the frequencies have to be active for the feature to work.

The FT-8000R has a built in diplexer so there is only one antenna connector. There are advantages and disadvantages in this. It, of course, makes it easy for direct feed of a dual band antenna but, if you prefer a separate antenna for each band, you will need an external diplexer. The antenna connector is an SO-239 which just might raise a few eyebrows among dedicated 70 cm operators.

FT-8000R On The Air

The FT-8000R is very easy to get on the air and this is certainly helped with the superb "Omni-Glow" LC display which gives all the information needed. Designations for the eight buttons under the display are shown on the display. When the "F/W" button is pushed, the remaining seven buttons have second functions which are displayed above the original designations. All very neat and you just cannot go wrong.

On initial switch-on for a couple of seconds, or at any time later by pushing and holding down the audio gain control on either side of the transceiver, the



The FT-8000R indicating power supply voltage (see text).

(Photo by Ron VK3OM)



The MH-42B6j hand held microphone supplied with the FT-8000R. (Photo by Ron VK3OM)

battery voltage is shown on the display (see photo). This is very handy to keep a check on the state of your car battery, or the power supply if you are using the transceiver at home.

Tuning the FT-8000R has been very well thought out. Let's go through the options. Firstly, the tuning steps via the main tuning control can be set to 5, 10, 12.5, 15, 20, 25 or 50 kHz segments. I usually chose 25 kHz steps as this fits in with the Australian band plan. If you want to tune through the general coverage receiver segments you can select either 10 MHz or 1 MHz steps to get to the frequency you want quickly.

The microphone supplied with the FT-8000R is the MH-42B6J. This has up/down buttons on the top and four small buttons on the lower front. Only one of these has any function on the FT-8000R. This is the "P" button, which allows VHF/UHF band changing from the microphone. One thing that I am not sure about is the modular connector for the microphone. The plastic plug is actually moulded on to the microphone cable so fitting a new one, if trouble occurs, would be virtually impossible. I guess time will tell just how reliable these connectors are.

However, the transmit audio quality was rated as excellent. Yaesu seem to

have solved the earlier problem of spitty speech. Even without asking, several stations commented on the almost broadcast quality of the transmitted signal. I wonder how it would sound with a MD-100 desk microphone connected.

A wonderful feature is the "time-out timer". Everyone should have one of these (and use it). This can be set in one minute intervals from one minute to sixty minutes (some repeater!), and the transceiver will return to receive mode after the pre-set time is exceeded, which saves the embarrassment of timing out the repeater.

FT-8000R on Test

The first test was for power output and current drain. My test showed that the specified power output was spot on. The transceiver produced 50 watts on two metres with 13.8 volts to the power cord (13.7 volts on the transceiver display) with a current drain of 10 amps. At 70 cm power output was measured at 37 watts and current drain at 8.5 amps.

I then reduced the voltage to simulate a rather sick car battery. At 11 volts the transceiver was still producing a healthy 30 watts output on two metres and, with the voltage down to 9.5 volts, the output was an amazing 15 watts. Below this the transceiver stopped transmitting and receiving. However, you will still be able to call for help long after the battery has stopped cranking the engine.

Power output is selectable at two lower levels if required. These are ten and five watts respectively and are the same for both bands. My tests showed these to be as specified.

The next important feature for a mobile transceiver is the audio output capability, both electrical and acoustic. The in-built speaker is built into the top of the cabinet. It is small, about 4 cm in diameter and has very limited power handling capability and low frequency response. In other words, an external speaker is a very desirable extra.

In fact there are two external speaker output sockets so that it is possible to feed a separate speaker from each of the two receivers. A mix of both sides is available on one socket. Measured power output across a four ohm load was 3.4 watts at maximum output with 14% distortion; at two watts output distortion

had dropped to 3.4%. The specification states 5% at two watts. These figures are very satisfactory and feeding a good external speaker you will make a lot of noise.

Talking of noise, the measured audio signal to noise ratio relative to full power output was -45 dB, a very reasonable figure. Receiver sensitivity is specified for both amateur bands for both the main and the sub receiver. There is no specification for out-of-band receiver performance so I decided to check sensitivity on the amateur bands and at 120 MHz in the aircraft band (which is probably the one I would use the most).

The radio switches to AM mode on the air band and sensitivity measured 10 dB S/N at 1 μ V input. Sensitivity on the amateur bands for 12 dB SINAD is specified at 0.18 μ V for the main receiver and 0.25 μ V for the sub receiver. My measurements confirmed these figures with a generous margin.

In summary, the technical performance of the FT-8000R is first class and should please the most critical operator.

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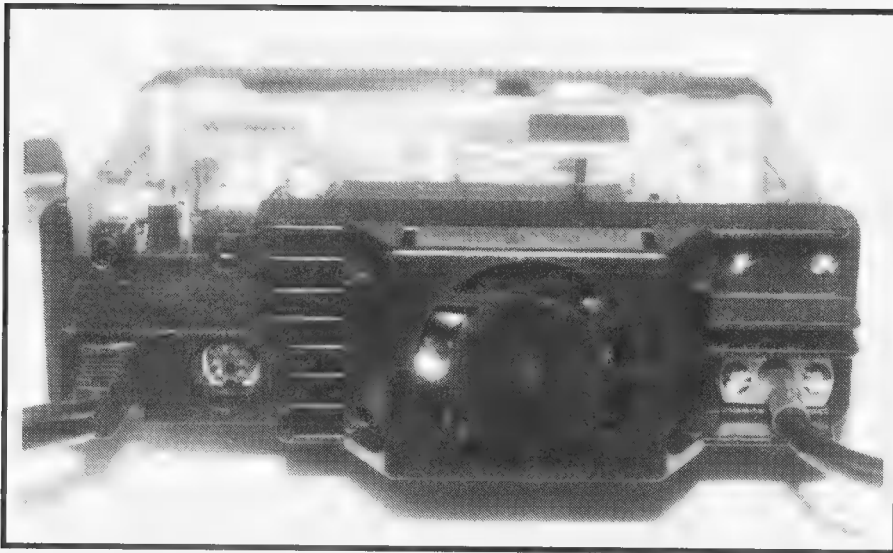
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A rear view of the FT-8000R with the covers removed. Note the large but quiet cooling fan.
(Photo by Ron VK3OM)

FT-8000R Instruction Book.

Yaesu seem to be setting the standard in excellent instruction books these days. First and foremost, you actually get a circuit diagram! Another thing that I find most useful is the "Quick Code Sheet"

which lists all of the hidden functions and tells how to access them quickly. Keep a copy in your glove box.

The instruction book runs to 64 pages and is very easy to follow. Top marks to Yaesu!

FT-8000R – The Bottom Line

At a new selling price of \$799 this transceiver is absolutely excellent value and, of course, Dick Smith offer a full two year warranty. With its Mil-spec approval this transceiver is designed for hard work so the chance of needing the warranty is fairly remote. Our transceiver was supplied to us by Dick Smith Electronics and you should contact them for any further details.

*24 Sugarloaf Road, Beaconsfield Upper VIC 3808

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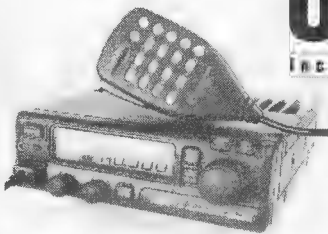
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