

# Yaesu FT-ONE amateur transceiver

The Yaesu FT-ONE transceiver is a unit which certainly is in keeping with the latest technology standards. It is a new concept in amateur transceivers with features that make it an outstanding piece of amateur station equipment.

The purpose of the review was not to check that the unit met the specifications given but to evaluate its performance in actual on-air use.

As seen in the photograph there is quite a lineup of lever switches, knobs, and push switches, together with tuning knob, LED indicators, and digital readouts. Six of the knobs are dual concentric controls. The outer meter

receive is excellent. Frequency determination is achieved by the CPU and controlled by the keyboard. The keyboard also controls the memory banks for the two ten position VFO's and the auto and manual frequency scanning facility.

Although there are a large number of controls it is easy to operate. However, to obtain maximum efficiency the

knob or the manual or auto scanning facility.

Tuning rate is normally 20kHz per turn of the tuning knob, in 100Hz steps. The fine tune switch allows the rate to be reduced to 2kHz per turn in 10Hz steps. A 1MHz switch allows that tuning rate over the whole range. In the auto position scanning up or down in frequency is in 100Hz steps. In the manual position scanning either 100Hz or 100kHz can be selected.

There are no "preselector" or tuning controls for peaking the received signal. The receiver band pass filters are selected automatically to correspond to the operating frequency.

The transmitter covers all the amateur frequency bands including the new WARC 79 allocations in the 10MHz, 18MHz and 24MHz bands.

Tuning steps are the same as for the receiver and can be selected in the same manner.

The transmitter features solid state power output and is controlled by the 4-bit CPU.

Automatic final protection as provided will restrict transmitting power if an improper load is connected. A standing wave ratio less than 2:1 is recommended and at that ratio the power is reduced to about 90%. A 50Ω load must be presented to the transceiver. Facility to check the SWR is provided and the procedure is given in the transmitter tune-up instructions.

The frequency determination and memory facility together with associated switch positioning allow a wide choice of operating frequencies to be very easily selected. As well as transceiver operation, split frequency and cross-band operation is made easy. Reversal of transmit and receive frequencies as well as change of sidebands is readily achieved.

Frequency readout is a digital display with resolution to 100Hz. A miniature display indicates the VFO operating channel and when the clarifier is activated it indicates the amount of frequency offset, plus or minus, required to zero beat a signal. The clarifier has a



reads operating conditions selected by the meter switch (top left hand) while the inner meter indicates signal strength and ALC value. The bottom right hand corner is the computer processing unit (CPU) keyboard, which controls the operating frequency, scanning, and VFO selection. Under the tuning knob are the fine and fast tuning, clarifier and frequency lock switches.

On the rear panel are the connections for external attachments, (linear amplifier, VHF transverters) antenna, ground, AC power, DC power, external speaker, FSK and CW keys, fuses, and memory backup power switch.

Controlled by a microprocessor, the flexibility of the FT-ONE on transmit and

operator needs a good understanding of the functions of each control, especially the bandwidth, IF, audio peak frequency, notch filters and the RF speech processor and compression controls. In some cases interaction occurs when setting the controls to achieve a desired effect.

Transmission and receiving modes are: LSB, USB (A3J/J3E); CW (A1/A1A); AM (A3/A3E); FSK (F1/F1B); FM (F3/F3E). Designations in brackets are as per WARC 79.

The frequency range of the FT-ONE is 150kHz to 30MHz on receive, continuous coverage. No switching is required for setting various bands or segments thereof. Full coverage tuning can be controlled by the main tuning



range of plus or minus 9.9kHz, in frequency steps of 100Hz. Used with the fine tune button the step rate is 10Hz.

The RF power output checked on a Bird Wattmeter was in excess of 100 watts.

On SSB the reports on quality and sharpness of signal ranged from very good to the best SSB signal heard. Such reports were received from amateurs professionally engaged in broadcasting and audio work. Also, reports were that the RF speech processor did not deteriorate the audio quality. The automatic microphone gain control (AMGC) and VOX (voice operated TX/RX switching) were smooth in operation and effective. Both local and DX reports concurred, including one from a short-wave listener who was listening to checks being given.

Observing the FT-ONE performance when operated by an experienced and very capable CW operator provided an opportunity to assess its capabilities in that mode, both with normal keying and with the optional electronic keyer fitted. Full break-in "QSK" operation was excellent even at 50wpm. And the use of bandwidth, IF shift, audio peak frequency and notch filters allowed very weak signals to be copied with relative ease. The operator's comment was — "Its performance is a CW operator's dream, particularly for contest operation." There was complete absence of key clicks or thumps, or noticeable desensitizing of

the receiver. Operation using a keyboard was similar.

Reports received during radioteletype contacts were very complimentary, noting how clean and sharp the transmission was. The FSK shift circuit is designed for 170Hz. The frequency displayed is the true carrier frequency. However, the keying is set in the reverse sense and with the RTTY terminal unit used it was necessary to use the reverse sense on transmit, returning to normal on receive, which was AFSK from the phone jack. As with CW the bandwidth and IF filters could be used to advantage.

Audio power output of 3 watts naturally overloads the inbuilt speaker and judicious use of the audio gain control is necessary. However, with an outboard speaker that restriction is eliminated.

The bandwidth control can be used as a tone control when receiving SSB. On AM, full bandwidth provides normal domestic quality from local and overseas broadcast stations.

Other features are: the easily readable LED indicators showing which of the various functions are in action; receiver RF attenuator which is continuously variable reducing the strength of the incoming signal to the receiver front end circuit; scanning control from microphone and no frequency drift detected or commented on.

Overall dimensions are 380mm (W) x 165mm (H) x 465 mm (D) and mass is

approximately 17kg. Optional fitments are electronic keyer (used during evaluation) and FM unit.

The FT-ONE is an exceptional piece of amateur equipment, pleasing in appearance with good front panel layout. It is solidly constructed. Internally it is well engineered.

Frequency selection from the keyboard and VFO memory bank is simple, any incorrect entry is indicated by "E" in the digital display.

Although no detailed circuit or block schematic are included in the operator's manual, there is no difficulty in installing optional fitments if instructions given are followed. However, the reviewer felt that the manual should be more explicit in some areas.

The cooling fan runs continuously and was quite noticeable and should be made quieter if possible.

The FT-ONE performed as would be expected from the specifications. In fact, some specifications seemed quite conservative.

During evaluation many local and DX contacts were made on all amateur bands except 1.8MHz. Modes used were SSB, CW, AM, and RTTY, all performing equally well.

For the amateur who wants a top quality transceiver, for whichever mode preferred, the FT-ONE will meet those requirements. The unit under review was supplied by Dick Smith Electronics. Price \$1795. (P.J.H. VK2APQ).

## DID YOU MISS THESE PROJECTS?

### INFRASONIC RUMBLE FILTER

July 1980

Rumble can still be a problem when listening to records; particularly with amplifiers having response down to DC. This low cost infrasonic rumble filter effectively removes all rumble noises below 20Hz and can give a substantial improvement to record reproduction in some circumstances.

Estimated cost of parts \$10.

### EXPERIMENTER'S POWER SUPPLY

November 1979.

An ideal power supply for the hobbyist who is new to electronics. The output is switch adjustable to give seven different voltages at up to 500mA which means that it will drive most circuits of interest to the beginner. As a bonus, the power supply is completely safe because it has no mains wiring.

Estimated cost of parts \$28.

### HEADLIGHT REMINDER ALARM

May 1980.

Ever had a flat battery in the car because you had left the headlights on? If so, then you know how inconvenient it is and how expensive it can turn out to be. There is a way to avoid this inconvenience and possible expense, with our simple, yet effective Headlight Reminder Alarm.

Estimated cost of parts \$5.

### SOUND TRIGGERED PHOTO FLASH

September 1970.

How would you like to be able to take photographs like those spectacular shots of breaking light bulbs and splashing liquids? You can take them with almost any normal camera and electronic flash unit, by using this low cost trigger unit. It's easy to build and offers facilities not found on any other design that we've seen.

Estimated cost of parts \$22.

### HIFI AUTO-SWITCH

March 1980.

Do you often inadvertently leave your hifi system running for days on end? Do you have a problem with a messy array of power plugs "piggy-backed" into a wall socket? Would you like your entire system to switch off automatically at the conclusion of a record or tape? If the answer to any of these questions is "Yes" then our Hifi Auto-Switch presents a neat solution to your problem.

Estimated cost of parts \$29.

### FAN SPEED CONTROL

December 1979.

Just the thing to help you sleep on these hot, sticky summer nights — a speed control to let you adjust even the largest domestic fan to give a gentle breeze, at the same time cutting the blade noise to a whisper which cools and soothes without raising goose pimples.

Estimated cost of parts \$15.

Complete construction details (we do not sell parts) available from: Electronics Australia, 57 Regent St, Chippendale 2008. PRICE \$3.00 each project or by mail order, PO Box 163, Chippendale, 2008. PRICE \$3.00 each project (includes postage).



# DICK SMITH

presents the transceiver  
you've all been waiting for

the brilliant  
YAESU FT-ONE

*Chosen by Dr David Lewis  
for the 1982 Antarctic  
Scientific Expedition*



## look at these features

- ALL mode – even FM\* – so you can 'go anywhere' – on its own, or teamed up with a transverter. It's brilliant!
- ALL band – it receives from 150kHz to 30MHz continuous, with resolution down to 10Hz! And the transmitter includes all the new WARC bands.
- ALL microprocessor controlled – which makes operation nice and easy for you (including keeping track of the FT-ONE's 10 VFO's!)
- ALL area operation: run it from 100 – 120 or 200 – 240V AC in the shack, or 13.5V DC when mobile!
- ALL solid state (of course!) with a massive complement of 659 semiconductor devices, including over 70 IC's!
- ALL performance – with better than 0.3uV sensitivity and more than 100W PEP output (SSB).

## be quick- first shipment stocks limited

You've dreamed of owning a transceiver like this  
Now your dreams can come true!

No longer in the 'luxury' category, Yaesu's new FT-ONE is very affordable – especially when you compare it to other general coverage transceivers. If you want a transceiver that commands the bands, you won't do better than the FT-ONE.

And you won't do better than buying your Yaesu from Dick Smith Electronics: Australia's leading factory-approved Yaesu agent . . . after all, we're the ones who give you a full 12 month guarantee AND guarantee to match or better any genuine Yaesu price offered by other suppliers!

all this for only **\$1795**  
\* FM board optional at extra cost

Cat. D-2852

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