

Yaesu FT-897 All-mode

Regular author
 Roger Cooke
 G3LDI takes a
 look at the new
 all-mode
 transceiver from
 Yaesu. He's been
 busy putting his
 extensive Norfolk
 'Antenna Farm'
 to work...and
 enjoying the
 process very
 much indeed!

When I was asked to review this transceiver by the Editor, I told him I was looking forward to doing just that as I was toying with the idea of replacing my Icom 271/471 combo with this rig to run my Satellite Gateway. Such is the profusion of transceivers made by Yaesu these days, it's really difficult to keep up with it all!

I was thinking of the FT-847 of course. However, it's always good to look at a new transceiver in the comfort of your own home to compare and test it with friends on the air.

As I do not now have access to sophisticated test equipment, I cannot verify the figures and specifications quoted in the manual. I can, however, compare it to my FT-1000MP and also give subjective opinions.

Rugged Construction

When I opened the 897's box, the first thing that struck me was the weight and rugged construction of this transceiver. It weighs in at around 4kg (about 8.6lbs) and is aptly suited to portable operation, and I think it will stand up to transit quite nicely.

The transceiver reminded me of something that the military would have designed. The other



● Roger Cooke G3LDI says that the Yaesu FT-897 (shown here fitted with the optional automatic antenna tuner) provides everything you'll need for an Amateur Radio holiday!

thing that I was surprised at was the minimal number of controls on the front panel.

Ergonomically, the FT-897 is quite an attractive rig, and would be ideal for holidays or for business trips to fill up the evenings. I set up the rig on a table in my garden and cheated slightly by taking a coaxial lead from the main antenna tower* at my QTH. Despite my large antenna system... and running on batteries, it's possible to work some DX on simple portable antennas.

*Note: Roger has his station

set up in a former horticultural nursery not far from Norwich in Norfolk, in Eastern England. His antenna, which many of us can only dream of, includes towers over 30 metres high!

Editor.

Vital Statistics

The FT-897's vital statistics are 220 x 80 x 262mm (7.87 x 3.15 x 10.3 inches). It will sit on a desk and tilt up for easy view and the rubber feet will not mark the desk. It also has a rubber handle for comfortable portability.

For review purposes the transceiver arrived with the FC-30 Automatic Antenna Tuner Unit (a.a.t.u.) already attached. This optional accessory bolts neatly onto the left-hand side of the rig.

On the rear panel four SO-239 antenna sockets are provided: the main h.f. antenna connects into the antenna tuner and a link then connects to a socket on the rig. An N-type connector is provided for 144 and 430MHz operations.

Provided with the rig are the MH-31 hand microphone, a d.c. power cable, operating manual and warranty card. The FNB-78 Ni-MH battery pack was also fitted on the review unit and a battery charger was included in the box. However, these are all



● The FT-897 with the optional automatic antenna tuning unit detached. The easy-carry 'rubberised' handle can be seen on the right.

Mode Transceiver



labelled as optional accessories in the manual. The optional list contains no less than 19 items...which can push up the purchase price of the transceiver considerably.

Menu Driven

The rig is not quite as simple as the front panel would have you believe as it's menu driven...much like any rig these days. And of course it's a really good idea to spend several hours reading the manual with the rig switched on in front of you before trying to use it on the air!

If you have had a menu driven rig before...this will seem like a refresher course, but if it's your first introduction, it will take some time to master the various functions. The controls double up in function and together with the huge menu selections that are available, the transceiver functions can be set up and memorised for all modes.

Looking at the front panel, alongside the main tuning knob is a control marked **F**. The **F**-key gives access to the menus. A short press initiates a display at the bottom of the liquid crystal display (l.c.d.) which shows 17 separate menus, selected by the **MEM/VFO** knob on the right-hand side of the front panel. Below the display there are three buttons, **A B** and **C**. Above

these, on the display, there are labels which are selectable from the three buttons.

Pressing the **F** key for 1 second provides entry to the main menu. Again the various settings are selectable using the **MEM/VFO** knob and on this menu there are a total of 91 to choose from. When I first used this setting-up procedure, I had difficulty in selecting the menu I wanted. It was not available.

I spent quite some time trying to sort out why I could not access the menu I wanted and on reading the manual more closely, I noted that menu 1 says **EXT MENU**. This was off, by default, and on switching it on, all the menu pages became available. So it is possible to exclude those that you don't want to see. This was not explained in the manual!

Setting the parameters in the main menu pages is achieved by rotating the main v.f.o. dial, much like the FT-1000MP, so this was quite straightforward. However, it does pay to take some time and study the sequence needed to set up the parameters correctly, so I'll provide an example by supposing you wanted to operate c.w. for a contest. Starting from scratch the sequence of setting up would be:

- 1: Press **F** for one second.
- 2: Turn the **MEM/VFO** knob to select menu No.1, labelled **EXT**

MENU. Rotate main v.f.o. to show **ON**.

3: Using **MEM/VFO** knob, select menu 24, **CW DELAY**. Again use the main v.f.o. control to select the required parameter.

4: As in step 3, select menu 27, **CW PITCH**. I prefer 400Hz, but this is adjustable to 800Hz. (The default is 700Hz).

5: Select menu 30, **CW SPEED**. For contesting, I use around 25-30w.p.m. Select the speed you require.

The other c.w. parameters can be used as default, assuming you are using an external keyer. Then check through the list in the manual to make sure you have finished. Then press the **F** key again for 1 second to store.

Now, if you wish to use split operation (the transceiver does have two v.f.o.s) this facility will have to be selected using the **ABC** buttons, and the short press on **F1** (These select **MFa** on the bottom left of the display) then pressing button **C**.

When you tune in a c.w. station, an l.e.d. lights up on the front panel as soon as you have tuned the station in correctly and the signal is in the centre of the pass-band. To finalise the c.w. settings, you can then also adjust the DSP setting on the main menu to give you a choice from 60 to 240Hz selectivity.

Note: The process described actually takes longer to explain

Product

Yaesu FT-897 all-mode transceiver.

Company

Yaesu UK Ltd.

Contact

Sales
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Pros and Cons

Pros: The Yaesu FT-897 is a super little rig. It's well designed and constructed, performing functions that 30 years ago we all dreamed of! The transceiver is ARTS equipped (Auto Range Transponder System)... ideal for RAYNET operators.

Cons: It's a really good idea to spend several hours reading the manual with the rig switched on in front of you before trying to use it on the air! Pity the list of optional extras is so long

Price

£1099

Summary

If you buy the FT-897 you'll enjoy using it. I certainly did!

Thanks

My thanks go to **Yaesu UK Ltd., Unit 12, Sun Valley Business Park, Winnall Close, Winchester, Hampshire SO23 0LB**, for the loan of the review transceiver.



● Rear panel view of the FT-897. This transceiver provides portable 'Amateur Radio in one unit' from 1.8 to 430MHz, with many built-in features. You don't even have to carry a keyer for c.w. use...as it comes complete with a built-in version!

than to actually perform! But setting up all the menus for the various modes will enable you to select any mode and be confident that it will work as you would expect. All the parameters will be correct for that mode and if you wish to start from the beginning again, you can return to the default parameters.

Tuning A Pleasure

Tuning the transceiver is a pleasure. The dial has a good solid feel to it...typically Yaesu I think, as it's much like the design of the FT-1000MP, only smaller.

There's no shuttle jog tuning, but for a quick move up the band, you can use the MEM/VFO/CH control again, and the main dial has two settings, coarse and fine. The coarse setting is 20Hz/step for

● Top inside view of transceiver showing auto antenna tuning unit.



● Inside view of main chassis showing optional Collins filters fitted.

s.s.b./c.w. and 200Hz/step for a.m. and f.m.

Fine tuning takes it down to 10Hz/step for s.s.b./c.w. and 100Hz/step for a.m. and f.m. Here I had a problem because when I received the

rig, I could not get it down lower than 100Hz per step no matter what I did. I thought either the manual was wrong...or I had a faulty rig!

Tuning c.w. was awful and on s.s.b. it was not much better, although you could compensate

on the **IRT** control. However, when I reverted back to default, the problem disappeared. I later noticed a button on the microphone labelled **FST**. This has the effect of doubling the tuning rate, and so does a quick press of the power switch. You will then notice a little 'running man' in the bottom right-hand corner of the display which appears when you increase the tuning rate....I could find no reference to him in the manual either!

The microphone jack is a square-pin Molex-type connector. I cannot see why the standard metal DIN socket was not used here as it would make changing microphones a whole lot easier. (I don't know of any other rig using a Molex-type connector for a microphone).

The phone jack is a standard 0.25inch jack. This will accept either mono or stereo plugs.

The **AF** control is a centre control of two. The outer control is a **Squelch** control which can also be programmed as an r.f. control...much more useful in my opinion. The clarifier **RIT** control doubles as an **IF shift** control, and again this is programmable. The **BAND UP** and **BAND DOWN** controls are self explanatory.

The **MEM/VFO/CH** control is used for v.f.o. frequency tuning, memory selection and also function selection as previously described. The **DSP** button provides instant access to the digital signal processing selection menu.

The **HOME** button is programmable to a favourite frequency or group of four. The **V/M** key switches control between the v.f.o. and memory.

Battery indicators **A** and **B** indicate status for the Ni-MH battery pack when it's installed. The l.e.d. blinks orange when a charge is necessary.

Rear Panel

Let's now look at the rear panel. Firstly there's a power input jack for the d.c. supply and the ground terminal...a very important feature which should not be overlooked. A good ground **is essential** and if you're ever operating portable...please don't forget to take a suitable ground stake along with you.

The rear panel's 8-pin DIN socket is used for interfacing to

a PC, connection to the FC-30 Automatic Antenna Tuner, or to a linear amplifier. It's unlikely that all three would need to be connected if this rig is used for portable operation, but you can't anyway!

The rear-panel mounted 6-pin DIN socket is for connection to a TNC. There are also three jack sockets, one for the ALC connection on the linear amplifier, a second for a Morse key, and the third for an external speaker.

Finally, there are two antenna sockets: One, an SO-239 type, is for h.f. and the second, an N-type is for 144/430MHz. The h.f. socket is linked to the FC-30 (when used) and the antenna connected to a socket on the a.a.t.u.

Comprehensive Memory

The FT-897 is provided with a comprehensive memory facility. Again, it's a similar arrangement to the FT-1000MP, with a **Quick Memory Bank** (QMB) and then 200 regular memory channels.

The QMB information can be transferred to the regular memory channels if you wish to save it. Operational parameters can be stored in the 200 regular channels, you can then use those to change quickly...and start tuning.

Even split frequencies can be stored. So again it's a very versatile operating system and much will have to be learned before the operator becomes completely familiar with it.

Memories can also be partitioned into groups and very fast mode/band changes can be accomplished this way. When you start operating on a memory channel, tuning the main v.f.o. places **MTUNE** into the display. However, the regular memory is not lost.

The operator can have four **'Home'** channel memories. These are modes/frequencies (for example) are used a lot and quick access is required to one on each of h.f., 50, 144 and 430MHz. It's also possible to label the memories with alphanumeric tags for identification.

Built-In Keyer

The FT-897 has a built-in keyer, with both weight and speed adjustments. The speed range is

quite large at 4-60w.p.m. Three 40 character memories are available, which can be programmed to use as a beacon if required.

Personally I prefer my external keyer, but an internal facility means one less piece of gear if you're using this transceiver portable.

Incidentally...just in case you feel in need of some tuition, there is a built-in c.w. trainer too!

The Package

Let's now look at the 'package' provided by the FT-897...and in short the transceiver could provide most of what you need while on holiday! The receiver covers from 100kHz to 470MHz in sections. The first section is 100kHz to 56MHz, then 76 to 108MHz. This section is for wide band broadcast f.m. only and will provide your 'easy listening' when you're relaxing.

The next section is 118 to 164MHz and finally 420 to 470MHz. Transmit functions are allowed in Amateur bands only. The received is a double conversion superhet with i.f. frequencies of 68.33MHz and 455kHz. The DSP is at audio, but works very well.

I found the selectivity quite adequate as the transceiver came, and using the DSP and audio tailoring it performs very well, even on a crowded band. Unfortunately propagation was not at its best when I tried the rig, but if you want even better performance there's provision for two extra Collins filters, 500Hz for c.w. and RTTY and 2.3kHz for s.s.b.

I quite like the FT-897's manual's description of use of the Intercept Point Optimisation (IPO) on h.f. This sounds very technical and is jargonese for switching a pre-amplifier on and off! There's also an attenuator for use on the l.f. bands, something that's essential at night on those bands.

The transmitter power output is 100W on h.f. and 50MHz, 50W on 144MHz and 20W on 430MHz. The power level drops to 20W when battery power is employed.

Audio reports were not the best I have received, most said that it lacked brilliance, even with the speech processor on, and the audio tailoring set for



● Microphone and rapid charger unit and interconnecting leads.

maximum high lift. I was unable to use a Heil insert due to the Molex type microphone connector, but I would think this would improve the transmit audio a huge amount.

On The Air

Using the transceiver on the air was very easy and a pleasure to operate, once I had all the parameters set correctly. As mentioned the audio reports were adequate, my voice instantly recognisable, but not the quality of the FT-1000MP with a Heil insert. I would have been upset had it been so anyway! The receive audio is good, and even better when used with the external speaker, not essential for portable use.

For c.w. operations I used my external keyer and again the rig was a pleasure to use. Setting the timing to overcome relay chatter is essential, and also using DSP with 60Hz width and 400Hz peak makes for easy reception.

I had a report of key clicks from a local station. But in fairness we were well over S-9 with each other, and some of this could have been due to being not so far away from each other.

Tone Search

I was intrigued by the manual's description of CTCSS tone search. I've always used tone access to the repeaters so I accessed the local repeater with a traditional whistle and then invoked the search.

The CTCSS tones were found in seconds! A little bleep confirmed this, then I saved it

with the F key. Both 12.5 and 25kHz channel spacings are available, together with various repeater shifts.

Digital Modes

Most digital modes can be used with the FT-897, and a TNC can be connected to the DIN connector on the rear panel. Alternatively computer and soundcard operation can be used, enabling most of the

digital modes to be employed. The rig employs s.s.b. audio frequency shift keying (AFSK) and frequency shift keying (FSK) is not possible.

Levels can be adjusted in the menu and the main thing to remember is that RTTY and the like are 100% duty cycle modes. (This means you shouldn't transmit for long periods). Both 1200baud and 9k6baud packet operation are possible.

Full Scanning Features

Full scanning features are provided, with skipping of certain channels possible. Priority scanning is also available as is the programmable memory scanning of 10 special purpose memory pairs. The operator can also have dual watch of the two v.f.o.s where every five seconds the transceiver will switch to the second v.f.o. and then back again.

The display can also be programmed so that the operator can have a different colour display for different operating conditions. For example, you could have a different colour for c.w., s.s.b., certain memory groups HOME frequency and so on.

The transceiver is ARTS equipped (Auto Range Transponder System). This system uses a DCS signalling to inform you when you and another similarly ARTS equipped station are in range of each other. This can be useful during search and rescue operations to maintain communications...ideal for Raynet operators.

As I've already briefly mentioned...the rig can be used for broadcast reception on short wave or broadcast stations on Band II v.h.f. or on medium wave. A complete package!

Automatic power-off function is provided and it's programmable. If you leave the rig for a certain period while using battery power it will switch off.

A spectrum scope is available too, and this monitors activity either side of the operating frequency. Channel size is selectable and the display is a bar-graph type. Unfortunately, receiver operation is disabled while this is implemented.

The Yaesu FT-897 is a super little rig. It's well designed and constructed, performing functions that 30 years ago we all dreamed of! Pity the list of optional extras is so long.

If you buy the FT-897 you'll enjoy using it. I certainly did!

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