

Product Review

Yaesu FT-897D

I was looking for a, “One Radio Do All” in the 100 watt category that will cover from 1.8 to 440 mhz. It also had to be eye appealing and user friendly. One major factor I looked at was current drain on the battery when using any rig portable. The Yaesu FT-897D seemed to fit my needs.

Current Drain, batteries and power supply:

When you use an HF rig and turn the drive down to the final RF section of a rig in the 100 watts class, they do not perform well in the current drain category. If you want to operate at only 5 watts output so you can classify yourself as true QRP, it is best to look at rigs like the Yaesu FT-817, Icom IC-703 or maybe the Elecraft K2. They draw very little current off of your DC supply. Sometimes the bands are not all the good or maybe there are times you just want more power output from your rig to make that needed contact. So a rig in the 100 watt power output category is needed.

Here are my findings for current drain on various radios I was able to test.

	Yaesu FT-897D	Kenwood TS-480SAT	Icom IC-7000	Icom IC-703+	Yaesu FT-817
Receive	.66	1.1	1.13	.530	.360
Watts	Amps	Amps	Amps	Amps	Amps
5	4.1	4.7	7.82	2	1.6
10	5.4	5.9	8.9	2.6	
30	8.2	8.7	12.7		
50	10.9	11	15.2		
70	12.7	12.5	16.9		
100	15.5	15	>18.3		

As you can see from the above chart, the Kenwood fairs pretty good compared to the FT-897 when it comes to power consumption. The only issue I had with the TS-480 SAT is, it is a bigger radio and the control head is just another thing to carry along when setting up portable. Although the Kenwood has a built in tuner, I mostly use resonant antennas and a tuner is not needed. The answer to using other rigs for portable is, “carry a bigger battery.” When I operate portable I would either operate at QRP/5 watts out or 40 watts out. At 40 watts output power the signal strength is about ½ of an S unit down on the receive end of the signal. That’s not much but look at the savings in current drain. The more current you save, the longer you can operate off of the battery.

If all you are going to operate at a 5 watts output power level, than get a rig designed just for that. But if you want a rig that can do both high and low power with the least amount of current drain, I felt the 897 is a rig to consider.

The optional internal battery pack is something to consider. My problem with these packs are they are just to expensive. By the time you pay for the two batteries and the charger designed

to work with these batteries, you will pay around \$269 from www.w4rt.com. One battery pack is rated at 4.3 amps. With the internal batteries you are limited to a maximum power output level of 20 watts. I owned an FT-817 with a set of rechargeable batteries in the battery tray inside of the rig. The internal batteries were more of a nuisance than anything. The batteries will go dead just sitting in the rig in a few weeks. You never really know what state of charge the batteries are in. You end up always giving the batteries a quick top off charge before you take the radio portable and that is really not good to do to the batteries. I am sure if have two fully charged batteries inside of the FT-897D you are set up for a fun afternoon of operating. You could always charge the one battery pack with a solar cell as you work off of the other.

For now I have a Yuasa 17 amp hour external battery and I can run at the 100 watt power level if I choose. I checked the price of a 26 amp hour gel cell from a local distributor and they only cost \$54 new. I think this is a much more cost effective way to go and it offers higher power out as well as a longer operating time in the field.

The rig's display constantly shows the DC operating voltage of the radio so you can tell what condition the batteries are in.



The above picture shows the bottom cover removed from the 897. This is where the optional battery packs would go.

Yaesu also has an optional internal switching power supply that will fit in place of the battery packs. The power supply comes with its own bottom cover. The bottom cover that is supplied with the power supply adds about one inch more to the radio's actual thickness. The picture below shows the side of the 897 with the standard bottom cover on and the power supply placed next to the rig showing its actual size. The part of the power supply that is black in color is the part that is outside of the rig and adds thickness to the rig as well as added weight.



Setup and operation menus:

So many hams complain about the numerous menu functions of this radio. If you like to fine tune a radio to fit you needs you will need menus and this radio has them, lots of them. They are not all that hard to get a grasp of.

To access and setup menus, push and hold the "F" (function) key for about 2 seconds. The display will now show the setup menu. There are 91 menu items you can adjust to your liking. WOW, 91 of them! That does not mean you have to change or even look at all of them. Just address the menu items that you would like to change. Once the menu screen is displayed, turn the **MEM/VFO CH** knob to dial through the 91 selections. To make a change to any one of the menu items, turn the **MAIN VFO** knob. To save your selection, push and hold the "F" key until you hear a BEEP.



The above picture shows menu item number 75 that adjusts the power output level. One nice feature of this rig is, when the display shows 100, you are getting 100 watts of output power. If you dial in 5 watts, the rig is at the 5 watt level. The Kenwood TS-480 is the same. What you read is what you get. Icom is not like that. Icom uses reference numbers that range from 0 to 10. On the IC 703, if you dial in 3, it does not mean you are at the 3 watt level. The 3 is just a reference number and no more.

The maximum power output is as follows: 100 watts from 1.8 to 54 mhz, 50 watts on 144 mhz and 20 watts on 440 mhz (CW, SSB, Digital and FM). On 60 meters, the frequencies are preset in memory slots, cannot be changed and the radio will put out 100 watts on those frequencies. This radio will work on AM at a reduced power level. Minimum power is adjustable down to 5 watts.

You can adjust the power output on 440 mhz independently of other bands, the same goes for 144 mhz. This means you can set the rig to put out 5 watts on 144 mhz and the radio will still put out 100 watts on HF and 20 watts on 440 mhz without going into the setup menu and changing the power level every time you change bands.

What I did was to download a PDF copy of the operation manual and print out pages 52 and 53. These two pages are a copy of all 91 set up menu options. This will make it easy to select what item you would like to change. Within the setup menus you will find changes for the following functions and many more: Mic Gain, VOX controls, CW speed, power output level, CAT rate, display colors, beep tone level and the list goes on. Enter the setup menu, change as

many items as you like and then push and hold the “F” key to save all of your changes.

The operational menus are a little different. They are in groups of three each and there are 17 rows of there to choose from. To access them all you have to do it hit the “F” key for one half second and you will be able to scroll through each of them. These menu items are the ones you will use most. Examples are: A/B, A=B, VOX, SPLIT, ATT, BK, KYR, RPT, REV and so on.



The above picture shows menu selection “J”. SPOT is a button you hold on and the rig will send an audio tone through the speaker which can be used to match the tone of a receive CW signal so you know you are on the correct frequency. More on this later. The [BK] means the radio is setup for break in CW (semi break in or QSK). The [KYR] shows the internal keyer is being used. If the brackets are not displayed, the function is off. Tap the button to turn this function on or off. If you hold down the [KYR] button, it will take you to the CW Speed set up menu number 30. Turn the main VFO to change the speed and hold the “F” key down until you hear a beep. This is a shortcut to the set up menu. There are numerous shortcut keys like this in the operation menu. Another one would be [VOX]. By holding that one down you will access the VOX delay setup menu.

When I received this radio, I put one day aside and just played with all of the menu features this radio had to offer. It really is not all that hard. Almost all of today’s radios have some sort of menu scheme so you better get use to menu driven radios.



CW filter installation and operation:

Installing a CW filter in this rig could not be easier. Just remove the top cover of the rig. You will have to unplug one of the cables that is attached to the toggle switch on the top cover. I left the speaker lead attached but it is also easy to unplug. Look at the bottom left hand corner of the main board and you will see the 500 hz CW filter already installed. It just plugs in, it's as simple as that. Once the lid is back on you have to go to the setup menu and tell the radio that the filter is installed. To go from narrow to wide selection you can use the operation menu. You can install two CW filters in this rig if you like. Yaesu offers a 500 hz filter and Inrad offers a 300 hz bandwidth filter. You can pick and choose, either of the filters on the fly, via operation menu. Instead of two CW filters, you could install one CW filter and one narrow SSB filter.

This rig has a very good built in CW keyer and also three memory slots for CW messages. I loaded slot A with just my callsign, B with a CQ DX and C is CQ QRP. What I don't like is how you load the memory slots. You have to dial in the letters by using the VFO. I guess they think I don't know how to send CW. On my Kenwoods, I hit the memory key, hold it on for two seconds and then I send CW via my paddles....memory slot is now loaded. It is so much simpler on the Kenwood's. I guess Yaesu and Icom both figure hams can't send CW. I call it, "Dialing for code!"

The FT-897D has one neat feature I really like for making sure you are sending on the same frequency you are receiving so you do not send out of the other ham's passband. There is a little LED just to the top left of the main VFO knob that blinks with the CW being received to let you know you are right on the mark. If it's not blinking, you are not on the correct CW frequency. I found this feature very useful. I usually set my CW pitch control for 800 hz. For some reason the 800 hz tone did not sound right on this rig so I set it at 600 hz. I do have hearing losses and I am sure that is part of the problem. When I went to tune in a CW signal I was always a tad off. I was use to the 800 hz tone. With the little LED blinking I was able to be right where I should be.

Audio DSP:

I found the audio DSP to be very useful. I mostly use CW and here is where the rig's DSP really shines. It's not as good as the IF DSP in the Icom IC 7000 but it's not IF DSP, it's audio DSP. Once I find a CW signal I want to work I hit the DSP button on the top right hand side of the rig. The operation menu changes to DSP control and I can now narrow the bandwidth down to either of the three preset (set by the factory) bandwidths. Your three choices are 240, 120 and 60 hz. They really work great and I use them all of the time. It not only narrows the audio passband but gets rid of a lot of background noise. Another DSP feature is Digital Noise Reduction. I think the bandwidth function does a better job in getting rid of the background noise on CW than the noise reduction does.

For SSB it also has a low and high cut selection for the passband. It also has Digital Noise Reduction as well as a Digital Notch Filter. You can also adjust your mic audio output via the DSP. I have mine set for cutting off the low frequency response. This is nice for working DX, you want more highs than you do lows.

General operating notes:

Some of the knobs on the rig are multi functional. By pushing in the MEM/VFO knob you can change the frequency of the radio by 1 mhz at a time. By just tapping the power button lightly you will change the VFO's tuning step to fast. Tapping the power button once more puts it back

to default tuning speed. There is a little unmarked button to the right of the audio level control. By tapping the button once you turn on the RIT function. Tap again and the RIT is turned off. To zero out the RIT, turn the RIT off and turn the main VFO, the RIT will reset. If you push and hold this same button you will access the IF Shift. The only way to set the IF Shift back to center is to manually do it.

If you turn the MEM/VFO knob you will step through the frequency by either 2.5 or 5 kHz steps. You can change this value in the setup menu. This is most useful for going from the bottom of the band to the top of the band.

The display is easy to read, but if your eyes are not that good, you can set the display up for larger characters. The color of the display can easily be changed via setup menu.

Within the operational menu you can set one group up for easy access to almost whatever control you like. I set mine up as follows: A = power lever, B = CW speed and C = VOX Delay.

Band changing and mode changing is very easy. To the right of the main VFO are four buttons. The top two buttons are for changing modes (USB-LSB-CW-CWR and so on). The bottom two buttons are for changing bands.

Personal notes:

Like I said in the beginning of this review, "I needed a One Radio Do All" and this radio really fits my needs. I really liked my FT-817 when I had it but this model offers so much more. It's a great general coverage radio that can transmit on all of the HF bands, including 60 meters, as well as 6 meters, VHF and UHF. It has plenty of power if needed and does a nice job with reasonably low current drain at low power output levels.

By adding the optional Yaesu internal switching power supply you have an even better radio for taking with you when you go on the road. If you go camping and the campsite has AC power, you can plug the rig into the power grid. If they do not have AC power, just unplug the power cord that comes from the internal power supply and attach the proper power cord that can be connected to a battery. Even with the internal power supply installed the rig is still small in size and not too heavy to carry around. This is probably one of the most versatile rigs I have even owned.

The FT-897 series radios have been around for a long time and have proven themselves to be a very rugged radio. For a radio in the \$850 price range, you surely will get your money's worth.

The Yaesu FT-857 is the 897's smaller brother with pretty much the same features with the exception of no extra space on the bottom of the rig for batteries or built in power supply. The 857 also has a removable control head. They seem to both use the same motherboard. If size and weight are a major factor, get the FT-857. It is also about \$100 cheaper.



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