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FT-897 Battery Modification

[Stephen T. Reynolds \(W4CNG\)](#) on November 11, 2002

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A Battery Modification for the FT-897

By Stephen Reynolds W4CNG

A.R.E.S. DEC Metro Atlanta Ga.

The FT-897 is very new to the market and already has drawn a lot of comments and recently been dubbed "The ARES Radio". Like all things made these days, most do not come with all of the options installed which leaves lots of customization to the user. For portable use, batteries are a must have. As with the FT-817 the FT-897 has an internal slot for batteries or AC power supply. Battery options from the manufacturer are always expensive. It took almost a year before some aftermarket solutions to appear for the FT-817. There are none yet for the FT-897 in the case of batteries. So how to get some batteries into the radio without breaking the budget.

The Yaesu battery options for the FT-897 are well over \$120 each with the charger at \$80, both of which are in short supply. That is \$200 for one battery, or \$320 for twins. This battery option is less than \$85 with all items new. I have a FT-817 and one of the pouches that contains a 12Volt 2.3Ahr Gel Cell. I opened up the bottom of the FT-897 and found that there is room for 2 of these batteries side by side in the bottom compartment. The two batteries will give me 12Volts at 4.6Ahr capacity. How to fit and connect this up to make it work. Picture 1 shows the overall layout of what goes where.

Note the black tape covering up the + leads of the batteries. The - lead is on the bottom.



Page 1

A 50V 25A diode bridge is tie the two batteries together as you do not want to parallel them. The bridge also provides for charging both batteries together but isolated. The picture below shows the diode bridge.

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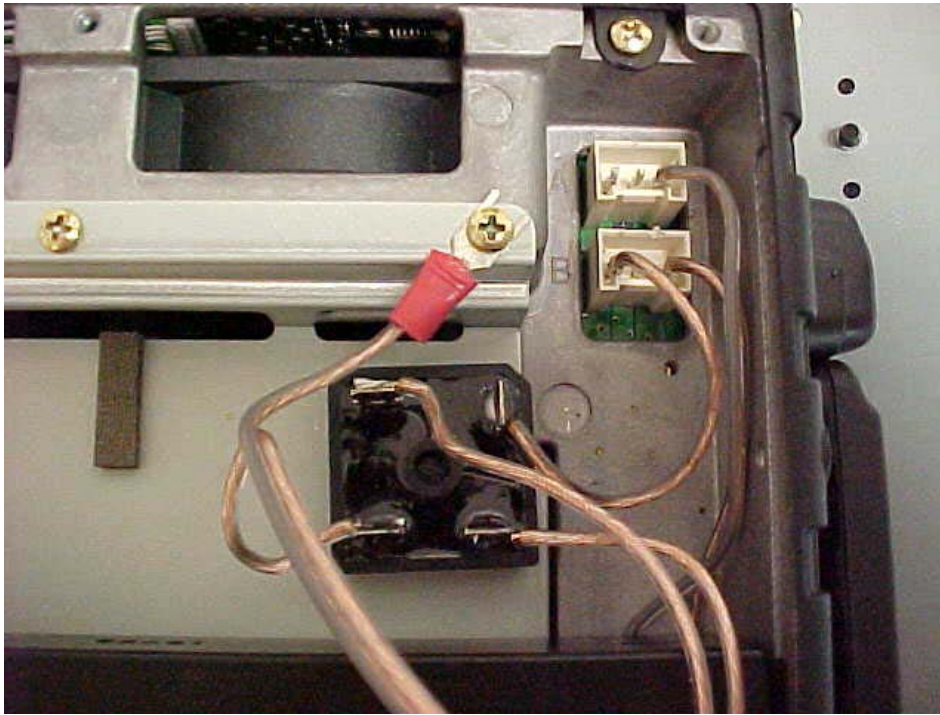
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The connections to the diode bridge are as follows. Battery 1 to AC, Battery 2 to the other AC, output is + terminal which goes to the B plug left pin. The right pins of both the A and B plugs are the ground connections for the batteries. The wire on the left with one lead terminated in a lug is the charger input. The charger + lead goes to the - lug on the diode bridge. I used industrial strength double sticky tape to secure the diode bridge.

This combination of circuitry gives you the following:

- + External charging of the batteries with one connection.
- The same external charging connection can be connected to another larger Gel Cell for longer portable operation.
- Plug into cigarette lighter in the car in the event you do not have a power cord for the radio.

Page 2

The following picture shows the short pigtail for external charging/powering of the radio. It is an Anderson PowerPole connection, which matches all of my other power connections. I used 18 Ga stranded wire for all connections. Delicate soldering is required for the connections to the two battery connectors in the radio.



Notes on battery operation:

You can only run 20 watts on battery regardless of what the power setting on Menu 075.

You can lower the power below 20 watts. Set the top battery switch to B to operate off this battery modification. If you have 12Volt power supplied to the rear main power connector, the Batt B light will glow green. If you are operating on battery the light blinks orange.

Parts, you will need the following from Radio Shack. 2 Batteries PN 23-187A, and 1 diode bridge PN 276-1185. The two tabs on the Radio Shack batteries can be soldered to, tabs on other brands may not solder. I use a wall wart that came with my FT817 battery pouch that will recharge a single battery in 5 hours, 10 hours for two. There are lots of charging possibilities out there to use.

Good Luck

Member Comments:

This article has expired. No more comments may be added.

FT-897 Battery Modification

by [WB2LCW](#) on November 12, 2002

[Mail this to a friend!](#)

Very good idea..These Batteries are available for a few dollars at hamfests I have a bunch I use for my HT..I sthier room for two 6v 4ah types? these are real cheap even at Home Depot in the "Emergency Exit sign" department..

FT-897 Battery Modification

by [WDOCT](#) on November 16, 2002

[Mail this to a friend!](#)

Great article but I'm wondering, why not parallel the batteries?

73,
Steve wd0ct

FT-897 Battery Modification

by [KE6WED](#) on November 17, 2002

[Mail this to a friend!](#)

Nice innovation and costs less overall!

Unfortunately it restricts you to 4.6 a/h which is half the Yaesu capability. The Yaesu packs are 4.5 amp/hour each and with two of them it's 9 a/h. One pack is \$118 for 4.5 amp/hour or \$236 for 9 amp/hour vs your \$80 for 4.6 amp/hour so your method is cheaper except you can't get full capacity and it's heavier (lead acid vs. NiMH).

After doing a little research I found that the Yaesu packs are not a bad deal. I found I can build the same size pack with the same capacity by using 4/5AA solder tab NiMH 1200 mah batteries. A 13.2 volt 4.8 a/h pack takes 44 batteries and is almost exactly the same size as one Yaesu pack. The best price I've found in quantity (OEM price) on these batteries is about \$2.55. That's \$112 then you need connectors and assembly. It's a little high capacity than the Yaesu packs but not enough to justify building it yourself. If someone can find a much better price it might be worth it though.

So, I've concluded the Yaesu packs are actually the best deal - but the Yaesu charging units are outrageously priced. Therefore the solution I'm pursuing is to buy the Yaesu batters and homebrew my own charger. At the moment I'm using an off-the-shelf NiMH charger sold for radio control cars. Cost about \$50 bucks. I may just stick with that.

73's
Ron Curry
N6QL

RE: FT-897 Battery Modification

by [KM4BA](#) on February 27, 2003

[Mail this to a friend!](#)

I agree on the point that you can't duplicate the Yaesu capacity for less. With the batteries selling in the \$100 range now it's hard to build them for less without compromising the capacity.

With regard to the Yaesu charger, the unit is well designed, is compact, and will accept either 12 or 24v input. You can feed it with a standard HF power cable, so the Yaesu AC adapter is not needed.

If you look carefully you will find that most of the RC chargers will not handle the number of cells in the Yaesu packs. The higher pack voltage is a big plus and the radio is designed to operate over that range.

I found that an RC charger which could handle the number of cells was over \$100, and was much larger. Also required different cables, etc. So I ended up with the CD-24 and have been quite pleased. (As I have been with the radio in general)

All that said, if I did not have the \$\$ to do the Yaesu system, the Lead acid approach shown above is quite neat and inexpensive.

Have fun!

Alan Barrow
km4ba

RE: FT-897 Battery Modification

by [ZL1WDC](#) on April 10, 2003

[Mail this to a friend!](#)

I have read all the above comments from various hams and i am happy to say that there is a solution to this battery issue.

There are available NiMH Sanyo batteries type HR-4/3FAU which come in two types, 400mAh or 450mAh. Search on google with HR-4/3FAU and you get both PDF's: sanyo.wslogic.com/pdf/pdf/HR-

4-3FAU%204500.pdf

I opted for the 4000mAh because of price here in New Zealand of \$14NZ (\$6.50US) but you can get the larger for about \$6US online. The usable space available for each raw battery pack not including packaging is approx 91mm(W) X 174mm(L) X 24mm(H). This is allowing just enough room with heatshrink or tape to be within the limits of the radio's compartment. Each battery is 18mm wide X 67mm long. You can fit 5 abreast in two rows with a couple mm between each row for soldered tags, although tig welding is the way to go for high current applications. At the bottom of this row you can add the last 11th cell longways with room for a fitting to be incorporated into the heatshrink pack to poke out the available pre-drilled holes on the radio. This isn't a difficult solution and I am currently building a pack for \$170NZ (\$90US) including packaging. The commercial packs are \$400NZ here because of freighting to NZ. So making your own is worth the effort in this case. Importing a pack is \$300NZ with \$80 of that being freight. The radio is worse @ \$3300NZ (\$1800US), thus holiday shopping in Singapore pays the trip. Happy building!

FT-897 Battery Modification

by [NØDJJ](#) on April 20, 2003

[Mail this to a friend!](#)

Great article I found batteries at Batteries Plus. If you happen to have a special price (ie: state, city, government) you can get them for 28 bucks each other wise they are about 34.00. I had problems finding them at the 'Shack. the part number is.....LC-SA122R3U. Hope this helps.

73 NØDJJ

FT-897 on batteries AND FP-30 power supply??

by [KC2LBO](#) on May 4, 2003

[Mail this to a friend!](#)

Here's a related question - as "elegant" a solution to ac power supply or battery operation Yaesu may have done with this FT-897 rig, the manual is silent about those of us that need both!

What a pain to unscrew those little screws and remove the base, screw in the power supply when you get back to base. And when you have to run out, unscrew the six little screws, without losing them or stripping the threads, pull off the power supply, put in the batteries, find the original base, screw that in again, hope you didn't lose the little plastic caps, pop those off first, put the little rubber caps from the batteries back on the charging ports... whew...

With all the thought that seems to have been put into engineering this rig, it can't be this silly to go back and forth from battery to AC power can it?

Does anyone know if it is "safe" to leave the batteries and battery bottom in all the time and just plug the DC cord from the FP-30 power supply in, and leave it next to the radio when its at base? Will the radio know to run off that DC plug instead of the batteries? If so, does it go back up to full power?

Nothing in the manual, but that isn't much of a surprise.

Thanks for any suggestions or advice!

73,
Walter KC2LBO

RE: FT-897 on batteries AND FP-30 power supply??

by [WM4U](#) on May 14, 2003

[Mail this to a friend!](#)

Did you get any replies to your question? I just got my 897 and 2 free batteries. Don't know if you can operate the rig off 13.8 volt power supply with the batteries in it or not. The manual is a joke on this matter. Also wonder if there is anything fancy about the charger. Looks like if you could figure out the pinouts on the batteries, you could use most any charger. Anyway, have you learned anything new?

73,
Pete

RE: FT-897 on batteries AND FP-30 power supply??

by [KC2LBO](#) on May 14, 2003

[Mail this to a friend!](#)

No, not specifically I'm sorry to say, but MUCH comment going on over at Yahoo groups, and here is what I have figured out from that research, and my own operating experience so far...

I have the batteries in with the original case bottom back on, I don't bother screwing the bottoms on and off depending on which power I'm using. I keep the FP-30 power supply on top of the 897. The DC cord is JUST too short to put the FP-30 on bottom. I will fix that after Dayton with Powerpals/poles to add enough wire to move it to the bottom, or for that matter, across the room until I send it all back to Yaesu for the power supply RF noise repair, but that's a whole different story.

When the FP-30 is plugged in and turned on, the radio senses it and runs at full power off the power supply. However, the battery light will still show which position the battery switch is in, but it doesn't matter - the batteries are not being used when an external DC power is connected.

Now, I just unplug the power supply and the radio and go and the batteries kick right in! I can even charge the batteries with the external charger now and then while operating off the plugged in power supply. And even if I bring the 897 on the road to use with batteries but will be near AC power at some point, the power supply is small enough to pack too!!

Keep in mind, the same switch on order applies - connect power supply, turn power supply on, turn radio on second. radio off first, power supply off second, THEN unplug power supply while all is off.

RE: FT-897 Battery Modification

by [N3TUK](#) on December 19, 2003

[Mail this to a friend!](#)

Great Article.

after doing a search I found out that this type of battery is exactly the one used in lot of panasonic concordors and is less than \$19 bucks per unit NEW.

The model is Panasonic AG-BP212. 12V 2.3 Ah

http://www.abuys.com/battery_panasonic.htm#B
Not a bad deal.

My 2 cents.

Luis/n3tuk

FT-897 Battery Modification

by [2E1EVB](#) on March 7, 2005

[Mail this to a friend!](#)

Very interesting article thank you. I am considering purchasing the ft-897d i presume that the mod is the same as they are very similar radio's?.

I live in the uk and cannot find the parts in preparation of getting the radio, the bridge rectifier i have found is 25A but the voltage rating is 400w, can anybody suggest a compatible part source in the UK also the batteries i have found that a possible replacement for radio shack would be the yuasa (www.cpc.com) 2.3Ah but again iam unsure any help appreciated.

And thank you again for saving us hams from parting with money.

FT-897 Battery Modification

by [AI4DG](#) on April 8, 2005

[Mail this to a friend!](#)

My local Wal-Mart is closing out 2.3 amp-hour batteries like this for \$5. They're meant for R/C cars and are near the toy section. They come in a plastic hanging blister pack with green cardboard (and a wall-wart charger).

RE: FT-897 Battery Modification

by [WB3BD](#) on October 13, 2006

[Mail this to a friend!](#)

...a rather late comment, but....

doesn't the W4RT Electronics OPP-897 pack (4.5 Ah), designed to fit the rig, solve part of the problem (at \$89 bucks) ? ...has anybody actually purchased and used these?

Best, Gerry, WB3BD/7 (Laramie,WY)

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