

# K9YA Telegraph

Robert F. Heytow Memorial Radio Club

Volume 9, Issue 6, June 2012

## SAVXO

Stand Alone VXO Kit from the 4SQRP Group

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The Stand Alone VXO (SAVXO) kit, designed by Jim Kortge, K8IQY, is the 4SQRP Group's newest offering. It is one of their ensemble players with starring roles played by the SS-40 receiver, NS-40 transmitter, K8IQY Magic Box and now,

the ingénue, SAVXO VXO. Used individually or combined into a system they supply a high fun and efficiency to cost ratio.

The SAVXO kit may be ordered with crystals for the QRP calling frequency at 7.040 MHz or 7.122 MHz for check-ins to the Four State Wednesday night 40-meter net. Ordered by mail, my SAVXO kit (7.040) arrived about one week later and, as with all 4SQRP Group kit offerings, comprised a high quality silk-screened printed circuit board and all components. Thanks to the clear, correct and profusely illustrated assembly manual the kit required only two trouble-free hours of assembly time. Based on RF probe readings and no smoke escaping, my example passed all three tests detailed in the manual.

About keeping the smoke inside: the manual cautions at each test concerning power leads at header VXP: *Pay attention to this step, as there is no reversed power protection built into this circuitry. The header terminal closest to you in the above photo is the negative power lead (Ground) and the header terminal farthest away is the positive power terminal (Plus).* The two header terminals' proximity requires special care; the mini-grabber test probe leads I used worked admirably.

The manual includes simple instructions for winding the binocular core transformer (the only core in

the kit) and the option to build to complement the rock-bound NS-40 transmitter or as a "Stand Alone Frequency Control Element in a homebrew transmitter or driving an existing transmitter where one side of the crystal is grounded." Hint: If winding the core for use with the NS-40 differentiate the secondary, five turn side, with a dot of Liquid Paper® or similar to help assure proper installation.

Suggestions for putting the SAVXO on other frequencies and bands are also included in the manual.

The aluminum baking pan I build all my electronics kit assembly projects in has ½" raised sides. Those sides made a convenient prop to support the inverted, partly populated SAVXO, board while soldering. When mounting L4 examine the associated photograph closely, the inductor mounts at a diagonal, not parallel, to the PCB's side.

Another assembly note: The VXO header output floats, "...does not share a ground common to the rest of the SAVXO PCB." However, the VXO header does have "hot" and "cold" terminals. That polarity must be observed when coupling to the, for example, NS-40's crystal's solder pads.

*"...keeping the smoke inside..."*

CONTINUED - SAVXO ON PAGE 8

### Inside This Issue...

SAVXO	Page 1
Genesis - Part 3 of 3	Page 2
The Venerable "Go Box" - Part 1 of 2	Page 4
U.S. Secret Service Visits Radio Row	Page 5
The Maritime Radio Historical Society	Page 6

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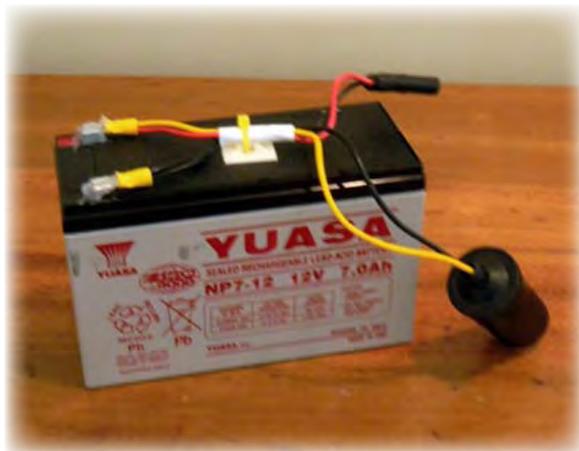
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- An antenna for the HT—likely something better than the stock “rubber ducky” that comes with it. I favor the Diamond helical whip RH77CA with a BNC fitting (I use this antenna for all sorts of things). Of course, the Yaesu and Wouxun units need an appropriate BNC to SMA adapter. The Diamond whip also works well on the Yaesu FT-817ND multi-band rig. There is also a version of the Diamond whip with an SMA connector.



- Some sort of auxiliary power supply arrangement. This can be the car adapter, a “wall wart” charger, or a small power supply that will provide enough current for the operation of the HT. Save your batteries for real emergencies! I have a nice 7 AH gel cell that I picked up at a ham fest. With a little care, this is more than sufficient for the better part of a day’s operation away from the grid. Oh yes, don’t forget spare fuses. Aluminum foil chewing gum wrappers aren’t really a good substitute!
- In addition, if circumstances permit, I bring along a magnetic mount whip and a length of coaxial cable, with appropriate fittings. If I am indoors, I can set the whip on a window, or use it on top of a vehicle if that is where I am.
- Don’t forget an up-to-date ARRL *Repeater Directory*, especially if you travel out of your home geographic area. Also, if you have computer access, there are good on-line repeater directories. I have often printed out the salient pages when I’m traveling to a new area, for convenience, as they can be more up-to-date than the ARRL *Repeater Directory*.
- Last, but not least, is the instruction manual of a “cheat” card for your HT. It is amazing how quickly you can forget the subtleties of operating your HT.

Have fun! Be inventive! Think “outside the box.” ■

Using the lazy ham’s method to determine frequency, i.e., clipping a test lead to the VXO’s hot terminal and placing said lead near the shack’s QRO rig and tuning. My SAVXO spans 7.032 MHz to 7.040 MHz. Yours may vary a bit from those numbers.



4SQR Group specs the SAVXO with 250 mW of RF power, and suggests it may be used as a standalone QRPP transmitter by adding a low-pass filter. Jury-rigging the SAVXO into the NorCal Power Meter (*K9YA Telegraph*, November 2008) followed by a dummy load and adjusting onboard trimmer TR1, the measured output ranged between 0 and .3 watt.

In an upcoming issue of the *K9YA Telegraph* we’ll share box seats as the 4SQR Group’s troupe of four join forces and strut the stage ionospheric.

Join the friendly and helpful SAVXO community on Yahoo! Groups.

A page with SAVXO modifications:  
<http://w5usj.com/4sqrpsavxo.html>

#### **K9YA Telegraph Reviews:**

K8IQY Magic Box, December 2010  
SS-40 receiver, December 2011

### Call for Articles

Like what you’re reading in this month’s *K9YA Telegraph*? If so, you’re in good company, as amateur radio operators in more than 100 countries agree with you. Know what else? Hams just like you write the *K9YA Telegraph*.

Evidenced by your feedback we know we’ve hit on a winning formula: **YOU + K9YA Telegraph = A Great Read**. But without your side of the equation, it just doesn’t add up.

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