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SS-40 Receiver

4SQRP 40-Meter Receiver Kit

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Like all its offerings, the latest kit from the 4SQRP Group, the SS-40 40-meter receiver, designed by Jim Kortge, K8IQY, promises much and delivers the goods in full measure. I always look forward to building the Group's kits because I know that in addition

to adding a useful and high performance piece of gear to the shack I'll enjoy the hassle-free building process. Plus, the hams at 4SQRP stand behind their kits with prompt and courteous assistance; they make the kit building experience a happy one.

From the 4SQRP Group Website

The SS-40 high performance receiver is the latest design effort from Jim Kortge, K8IQY. SS stands for "Stable and Sensitive."

Intended as a companion receiver for the NS-40 transmitter, a Magic Box TR system between the SS-40 and NS-40 allows effortless transceiving, and RIT results since the receiver is independently tuned.

Specifications and Design Features

Sensitivity (MDS): -132 dBm.

Selectivity: 500 Hz IF Filter with great skirts.

Opposite Side band Rejection: Outstanding, greater than 50 dB!

Noise floor: Better than 30 dB below the 40M band noise average.

Audio stage: Drives speakers to undistorted, clean, room filling volume, or use earphones.

Tuning Range: 25-30 kHz of stable, smooth, and easy tuning.

Super VXO: Three crystals, NO DRIFT, not even from a cold start!

Audio Derived AGC: That is smooth, very effective, pleasant to hear, and easy on the ears.

Normally I inventory a newly received kit's parts and sort them into egg cartons. This time due to perceived time constraints and actual impatience I chose to forego this all-important step and commence building. Unfortunately, during the last few construction steps I found several capacitors and an inductor missing. Thanks to Terry, WAØITP, the absent components were quickly received and installed.

The well-written PDF construction manual is clear, comprehensive and thoroughly illustrated with color photographs and sharp line drawings. Addenda include a winding tutorial for T1, a binocular core transformer. The kit includes metal film, ¼ watt, 1% tolerance resistors "for their lower noise characteristics"—so, thoughtfully, you will find a table denoting metal film resistor color codes. Join the helpful SS-40 community at <http://groups.yahoo.com/group/SS-40/> for sharing, support and discussion.

"...sharing, support and discussion."

All components but the mixer (ADE-1) are through-hole. For the winding averse, there are only two toroids and the binocular core transformer requiring your attention. Most anyone who has built a kit will find few, if any, hurdles constructing the SS-40. Test gear needs are minimal, requiring only a DVM and RF probe to run the basic smoke tests and final alignment and set up.

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The front panel comprises tuning and volume controls, antenna, headphones/speaker and muting jacks. A DC power jack is the back panel's sole occupant. About the muting jack: if you're not using the SS-40 with the Magic Box and its T/R switching and muting facilities then, "If the lead going to the tip of the mating connector for this jack is grounded, the muting circuitry is activated and the receiver audio will be greatly attenuated."



The completed PCB was mounted in the 4SQRP suggested Ten Tec TP-41 enclosure using the drilling template provided at <http://www.wa0itp.com/ss40.html>. All went well after enlarging the holes for the two potentiometer shafts from the indicated 1/4" to 5/16". I also enlarged the power jack opening to 1/2" to accommodate the power plug from the regulated wall wart used with the SS-40. The knobs are same used on my Ft. Tuthill 80 transceiver (see: *K9YA Telegraph*, June 2010), namely, Eagle knobs with these Mouser numbers: 450-2034-GRX .59" D x .55" H and 450-2039-GRX 1.39" D x .71" H.



I've been waiting for the front panel label—the Magic Box's (see: *K9YA Telegraph*, December 2010) label really enhanced its appearance and utility. When the

SS-40 label is available (currently there's a place holder link in its stead) it will be printed, laminated and mounted. The receiver has few controls and jacks so, aside from esthetics or to inform shack visiting ops, the label is not essential but would be a definite plus. The Ten Tec enclosure is simple and elegant in its design.

Monitoring 40-meters my SS-40 tunes from 7.014 MHz to 7.040 MHz, the receiver works flawlessly with sweet sounding signals popping out from the quiet front end. Quiet is an understatement; with no antenna connected there is no discernible circuit noise. Recently, after disconnecting my antennas for a passing thunderstorm, and forgetting to reconnect afterward, I hooked up the SS-40 to monitor the band. Hearing nothing whatever I checked the power supply and headphones only to find the HF antenna was still disconnected.

Selectivity is good; once a desired signal is peaked in the passband nearby signals fail to interfere, with no perceptible AGC pumping, during ragchews or low key operating events. Sensitivity is excellent, even with my low dipole; I easily copied European and South American stations on summer evenings when the flux was well below 100.

Unlike some QRP gear that fail to deliver on the promise to supply sufficient audio to drive a speaker, the SS-40 provides enough drive to comfortably power a four-inch speaker to shack-filling audio or push the QRP-assigned, RS Optimus NOVA 44 headphones to painful volume levels.

More great stuff from Jim and the 4SQRP Group! ■

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study the bicycle and the ham radio antenna. After mounting up, they charge from the lot in a hail of grit and noise.

Riley and Alice press on and reach Kingman shortly before sunset. After finding a campsite and seeing to McBark's needs, they head for a nearby Cracker Barrel Restaurant. But the rocking chairs on the porch are filled with hungry, waiting patrons. They settle for a Smith's Supermarket that hosts a deli and a microwave.

This is the last town large enough to support a full-service bike shop. In the morning they'll get a checkup and have the wheels trued before heading into the desert. ■

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