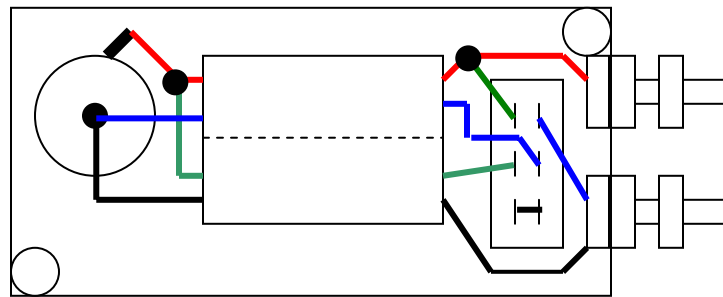


K5OOR Balun as built by AD5X  
Phil Salas AD5X

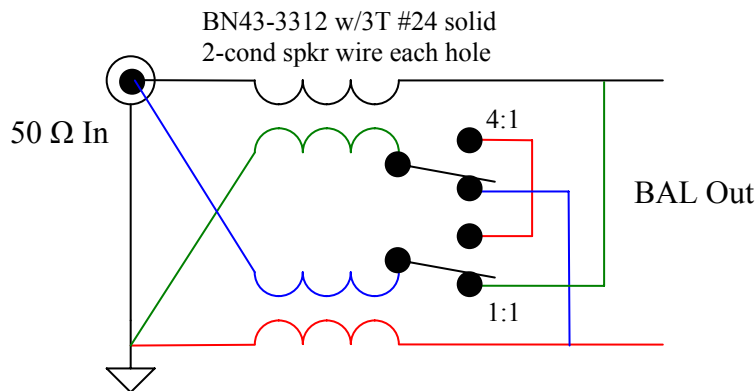
Virgil K5OOR designed a broadband 4:1 or 1:1 balun based on a BN43-3312 binocular core (www.partsandkits.com) used in the HF Packer Amp. These cores are just \$2 each. I built two baluns – one as a 4:1 balun only, and one switch-able as either a 4:1 or 1:1 balun. For each winding, Virgil used two pieces of 20 gauge Teflon coated wire, but I substituted 24 gauge 2-conductor solid speaker wire from Radio Shack.

Wind three turns (about 8" total length) of the 2-conductor speaker wire through each hole. I built the switch-able balun into a 2.38x1.38x0.8" plastic box (All Electronics 1551-HBK \$1.20), and the 4:1-only balun was built into 1.97x1.38x0.8" box (All Electronics 1551-GBK). The switchable balun is slightly larger to make room for the switch. The switch is the All Electronics SSW-37. For an RF input connector, I used a single-hole SO-239 connector (Radio Works #409) to maximize the internal space. The balanced outputs are on #6 screws. I used stainless steel screws on the 4:1 fixed, and brass screws on the switch-able balun. The final unit is very small. As you can see in the photos, the final unit is very small.

Measured performance is quite good. I connected the two baluns back-to-back in the 4:1 mode. One 50 ohm input then became an output and was connected to a broadband 50 ohm load. I measured a 1:1 VSWR from 1.8-25 MHz, a 1.1:1 VSWR at 29 MHz, and a 1.5:1 VSWR at 55 MHz. Insertion loss was measured at 0.3 watts when driven by a 5-watt source (my IC-703). This equates to only about 0.13 dB loss for each balun!



4:1/1:1 Balun Wiring Diagram



New Schematic: 4:1 & 1:1 Switchable Balun



4:1 Balun



4:1 Balun Inside



Switchable 1:1/4:1 Balun



Switchable Balun Inside



Balun on IC-703