Binaural Receiver - Frequency Dependent Components

Reference	Qty	Xc or X_L	40 m	30 m	20 m
Capacitors					
C45, 46	2	70 ohms	330	220	150
C43	1	50 ohms	470	330	220
C44	1	21 ohms	1000	680	560
Inductors					
L5 (T37-6 toroid)	1	100 ohms	24 turns	20 turns	17 turns
L6, 7 (T37-6 toroid)	2	70 ohms	20 turns	17 turns	14 turns

Turns are the number of turns of #28 or smaller wire on a T30-6 or T37-6 powdered iron toroid. Space turns evenly around the core. If an L meter is available, squeeze or spread turns to achieve the inductance shown in the table. For other ranges, use A_L = 39 and calculate the number of turns using the formula:

$$N=100[\text{desired uH}/A_L]^{1/2}$$

Note that the approximate A_L value is different than the Amidon data sheet and includes corrections appropriate for this number of turns of #28 to#36 wire in this frequency range. The cross section area of the T37 and T30 toroids is very similar, so the same number of turn is used for either core.

The input filter and splitter is a low-pass structure. It provides a good match to 50 ohms at the design frequncy and a reasonable match at lower frequencies. Power splitting is well balanced and low-pass at all frequencies from the design frequency on down. The 20 meter input circuit may be used on 30 m, 40 m, and below, but the 40 m circuit will be lossy above 40 meters. With a direct conversion receive using broad band mixers, signals may be received at odd harmonics of the VFO. Thus a receiver with a 40 meter VFO and a 15 meter low-pass input network will receive both bands at once. FM broadcast and TV signals are particularly troublesome as they may be received on the higher odd harmonics of the VFO. The input circuit in the Binaural receiver schematic provides good attenuation of FM and TV signals when designed for 20 meters and below. For higher frequency use, additional low-pass or band-pass filtering is