

IRCA Technical Column

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my "much-beloved" AUDIO SWITCHING NETWORK

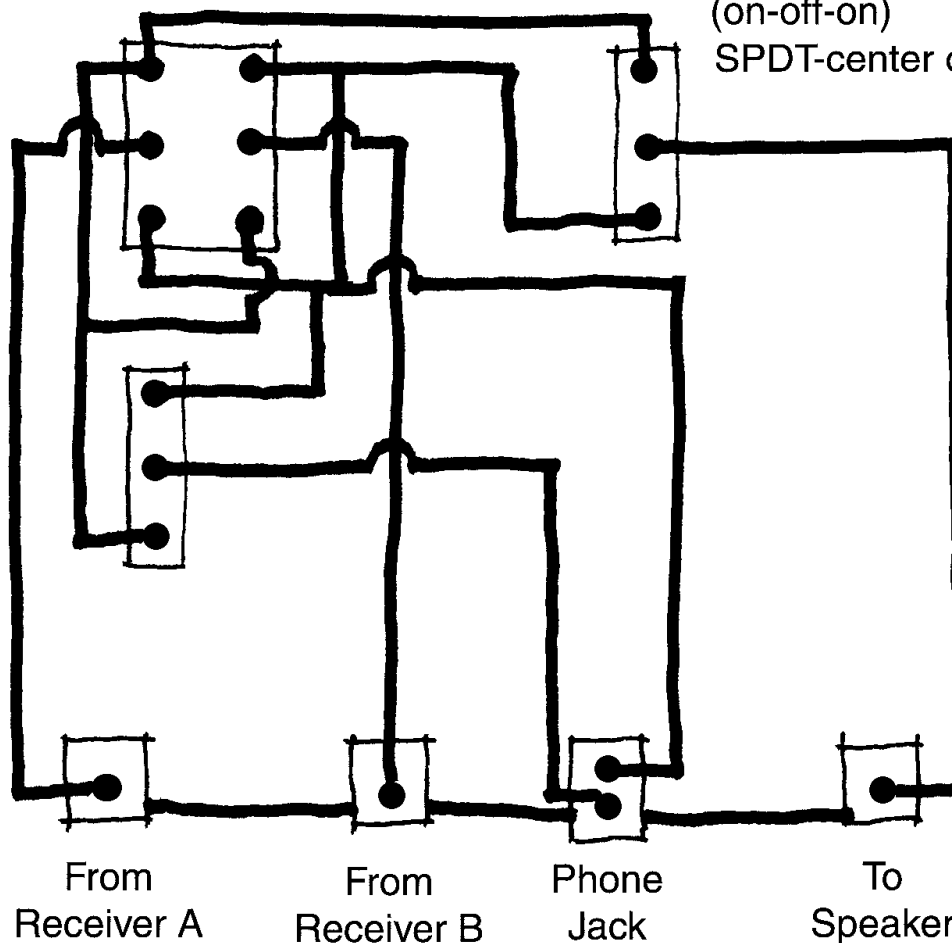
John Bryant, February 2001

In a recent e-mail to my Northwest DXing buddies, I mentioned that I was building a new rack box to go under my new receiver and that I was putting in not one but TWO complete sets of "my much-beloved" audio switching network. Guy Atkins immediately shot back a query asking just which circuit I had in mind. I realized that, though I believe that I wrote a small article about this for DX Ontario, I've really not shared my marvelous "find" as I should have done. It is classified as a "find" because Don Phillips published the original circuit in DSWCI Shortwave News in 1998. My circuit is a slight modification of Don's design. What this simple circuit does is to take two audio inputs and put either signal in both sides of a pair of stereo headphones, or it puts one of them in each phone simultaneously. The device will also, simultaneously but separately, put either signal out to an outboard speaker. That is it! Sounds simple, but it is a wonderfully useful device.

"PRIORITY SWITCH"
(on-on)
DPDT

SPEAKER SWITCH
(on-off-on)
SPDT-center c

MONAURAL/
BINAURAL SWITCH
(on-on)
SPDT



All input/output jacks are RCA, except for the stereo headphone jack.
All "returns" or "grounds" are tied together at the jacks.

Pictorial Diagram

AUDIO SWITCHING NETWORK

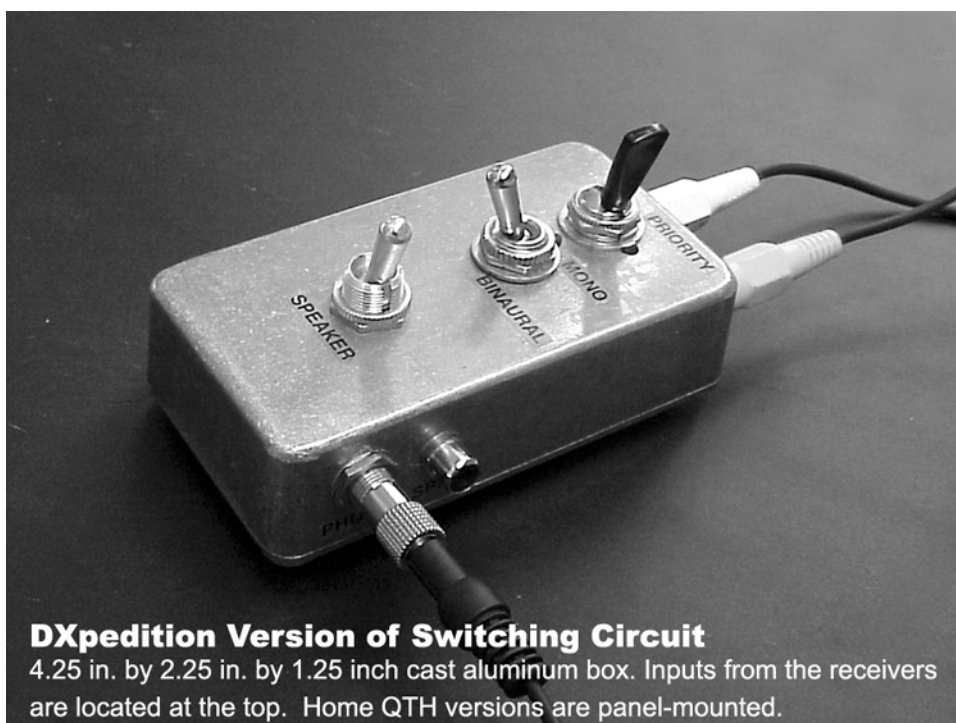
I first built my original version of this circuit to give me the best chance of comparing the DXing or listening performance of two receivers. Wearing stereo headphones hooked to this network, you can switch instantly back and forth between two different radios, with the flip of the **Priority Switch**. Or, if you throw the **Mono/Binaural Switch** to Binaural, you have one receiver in each ear. In the Binaural Mode, throwing the Priority switch swaps the inputs to opposite sides of the head. I'm not sure what this latter capability could be used for, but it is kind of neat. Generally, I drive the network from the External Speaker port of each receiver. I have never found any way to do a listening comparison between two receivers that is so effective as this. If running receiver comparisons were the only use for the circuit, it would still be worth having.

It didn't take me long, of course, to find a second major use for the circuit: "checking parallels." In both SWBC DXing and International MW DXing, it is often possible to at least tentatively identify a station by simultaneously receiving a stronger signal from the same network being broadcast on another *known*

station or frequency. (The two stations are "broadcasting in parallel.") The usual technique for "checking parallels" is either by using two of the memory channels in the receiver and switching back and forth quickly or by using two radios and manipulating the volume controls appropriately. Either technique works well when both signals are relatively strong, but when the target signal is really "down in the mud" there is NOTHING like using this network to put one signal in each ear, simultaneously. There were several times when, with the old techniques, I would have sworn that two Indonesian stations were broadcasting national news from Jakarta in parallel only to find out, in "stereo" in the Binaural mode, that I was hearing the same female announcer but actually hearing her work in two different programs!!! Also, only when I began to use this network did I discover that All India Radio feeds the national network news programs to some of its regional outlets via satellite and some by land lines. Compared to the direct broadcast from New Delhi, about two-thirds of the regional broadcasts are delayed by a second or so. The delay itself is not very important, but not discovering it over several years of using the "old techniques" of parallel checking indicates how poor they really are.

I discovered a third use for "my beloved" the first time that I took a miniaturized version of it on one of the Grayland DXpeditions. Since I normally only bring one receiver on DXpeditions, I soon discovered that I could use this network and a long audio cord to "listen over the shoulder" of one of my compatriots. I just plug the network into my receiver (Receiver A) and my compatriots' radio becomes Receiver B. I can hook to some radios directly to my compatriots' Speaker Out port. Others require us to use a "Y" connection at the headphone jack. Hooked up that way, when Dave Clark shouts "Holy S***, CHECK 972!!!" at 3 AM, I can be listening to his radio with one or both ears instantly while everyone else has to decide whether to abandon what they have been listening to themselves. On DXpeditions, this network is also useful to compare each other's receivers while in pedal-to-the-metal DXing situations.

A fourth use for this circuit is the one that has me buying more switches this week. Many of us have begun to use MiniDisc recorders rather than cassette tapes. Invariably, these wonderful recorders are stereo machines. DXing using two receivers, each feeding one channel of the stereo deck, sounds just wonderful, frankly. This is an especially attractive idea since the Fast Forward mode of MiniDisc technology uses a sampling rate that keeps the audio relatively understandable while speeding through the track, so you can whiz through the track later and not miss the ID. It's probably taken you much less time than it took me to realize that this networking circuit is perfect as an interface between the deck and a set of stereo phones, allowing you to listen to either channel A or Channel B or both, at the flick of a switch.



Final Remarks

Don Phillips' original DSWCI article stressed using high-quality, new switches since most users of this circuit quickly become addicted to switch flipping. I agree whole-heartedly. The best quality full-sized switches in a sturdy mount should still hold the parts costs at around \$20.00 and will last you for many years.

I'd like to thank Don Nelson and Guy Atkins for their usual excellent behind the scenes advice that refined this article considerably.