Technical Correspondence

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HUM PROBLEMS WHEN SWITCHING THE K9AY LOOPS

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I am pleased to report that many hams have successfully built the receiving antenna described in the September 1997 issue of *QST*.[1] I had some concern that variations in local ground conditions and nearby structures could reduce the antenna's performance, but the performance I obtained seems to be readily duplicated.

[1]Gary Breed, K9AY, "The K9AY Terminated Loop—A Compact, Directional Receiving Antenna," *QST*, Sep 1997, pp 43-46.

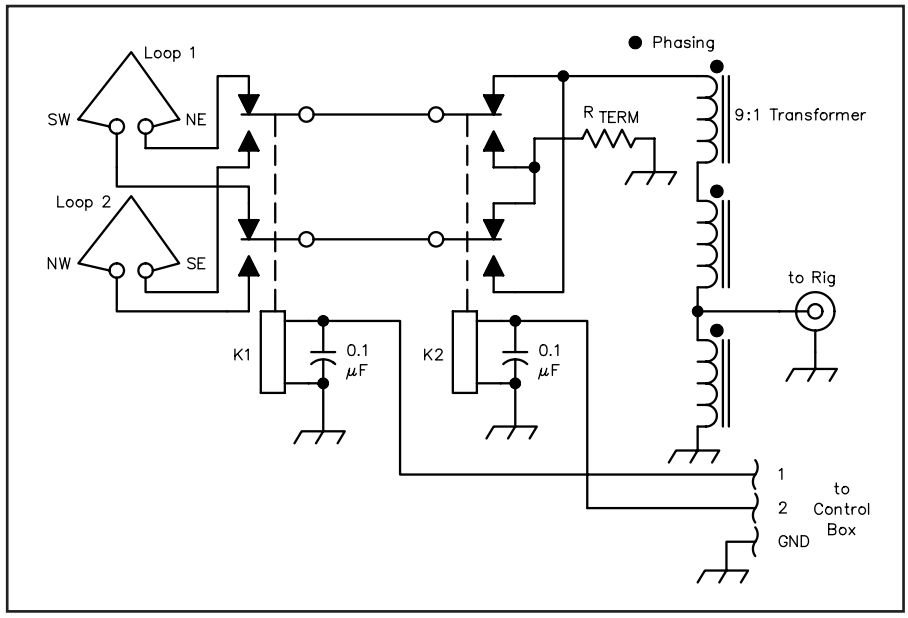

Figure 1—A revision of the schematic shown in Figure 5 of the September 1997 *QST* article.

There is one problem that needs to be addressed. When the loops are switched to the northwest direction, an ac voltage is sent down the coax to the relay box. A few hams have reported hum or distortion when the antenna is switched in this direction. Two explanations are possible: a ground loop due to widely separated antenna and station grounds, or modulation of the core of the matching transformer. The presence of hum was not evident in my prototype, but to avoid either cause of the problem, I recommend using a *separate* three-conductor control wire to operate the relays. The power is solely 12 V dc, and no current flows through the transformer. The modifications are shown in the accompanying figures, which can replace Figures 5 and 6 in the original article.

Secondary benefits of this arrangement include the option of using an existing 12 V power supply to provide the operating voltage, and the ability to use an additional conductor to carry power to an antenna-mounted preamplifier.

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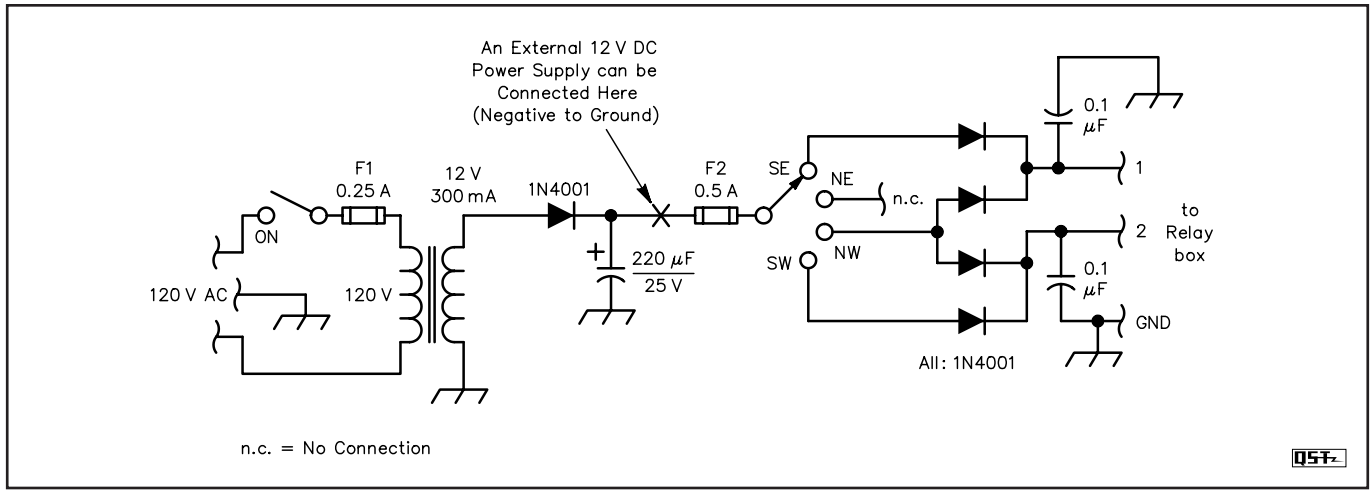

Figure 2—Changes to Figure 6 of the original article.