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Convert Stereo Headphones For Use Aboard Aircraft

Save some money by changing your ordinary stereo headphones into an aircraft headset.

By Terry Speicher

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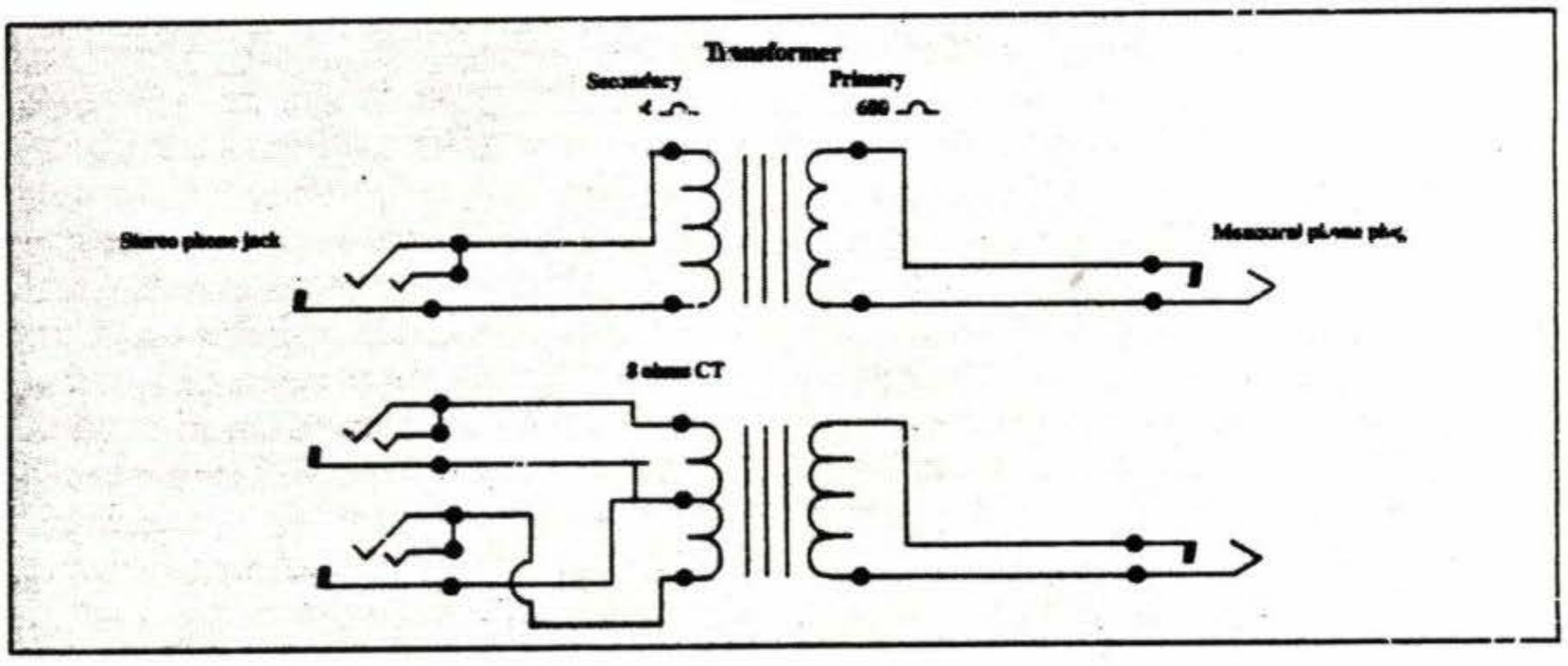

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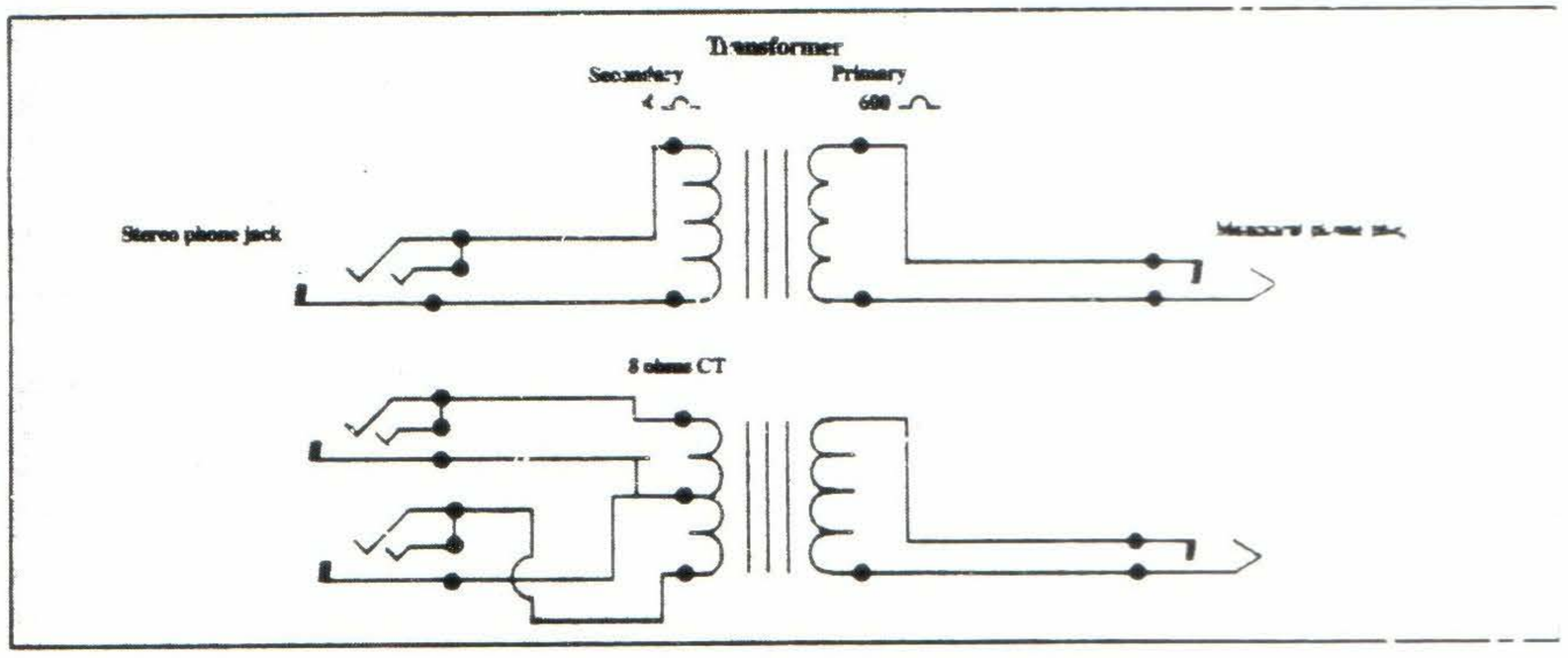

inflated prices being charged for 600-ohm, monaural avionic headsets?

We had a perfectly good set of headphones, which we used with our stereo. Trips to local flea markets and garage sales unearthed a seemingly endless supply of cheap headphones, ranging in the $1–$5 area. We decided to try to modify one of these for aircraft use and subsequently did several more for friends.

The standard stereo headset, with an impedance of 8 ohms, must be modified to handle 600 ohms. It is preferable to construct a conversion module into which you can plug the headphones, rather than to modify the electronics in the headset. This way, you can use them for avionic purposes or with your stereo, as before. To our surprise, this was a problem with a relatively simple solution.

In the conversion, the first thing to understand is that a stereo headset has two speakers, each with an impedance of 8 ohms. These are supplied with power through an industry-standardized three-lead plug and cable assembly. One lead goes to each speaker and the third lead is shared.

For use in aircraft, both speakers must be wired in parallel. It is necessary to create an adapter that shorts the left and right channel leads together to give 4-ohm impedance, and which uses an audio impedance matching transformer to convert the 4 ohms to 600 ohms.

So now you have to go to your local supplier and get:

1. One .2-or-greater-watt audio-output transformer with a 600-ohm primary (1200 ohms, center-tapped will do) and a 4-ohm output (8 ohms, center-tapped also will do, especially if you'd like to use more than one headset.)
2. A standard ¼-inch phone plug.
3. One or two standard three-lead stereo phone jacks. One if it's just for you; two if you're sharing.
4. Approximately two feet of shielded twin-lead phone cable.
5. Something to house the transformer, and you can be inventive about this. We used PVC pipe. You could use an electronics utility box.

You will need rudimentary electronics equipment: a soldering iron, insulation tape, solder and some form of wire stripper. Hopefully, you have some experience in using them; otherwise, get help.

Now, cut a 9-inch piece of cable and solder one end to the phone plug. Determine which leads on the transformer will give you a 600-ohm output, and solder these to the other end of the cable. Be sure to insulate the solder joints.

Cut one or two 6-inch lengths of cable (for one or two headsets.) Attach one wire of this cable to *both* the right and left terminals on your three-terminal phone jack. Attach the second wire of the cable to the common terminal of the phone jack and your device should be functional. Happy flying!