MUSIC ON HOLD

I read the article, "Music on Hold," by Jules Gilder, in your November 1979 issue, w uch interest and would like to make so constructive suggestions.

First: As it is described, the unit will not work on many phone systems—namely, those that employ switching methods that cause the line voltages described to be reversed in polarity upon connection of the calling number to the called number. Diodes D2 through D5 in Fig. 1 perform the required switching function, to allow the basic circuit to peform properly, regardless of the polarity.

Second: The device resistance is too high for many phone systems. To hold the line properly, the device must have a low enough resistance actually to access the line if the phone were in the hung-up mode. Normally, that would require a value of 1000 ohms or less to be placed across the line—or whatever value of resistance would be required to reduce the 48 volts normally present on the line to approximately half that value.

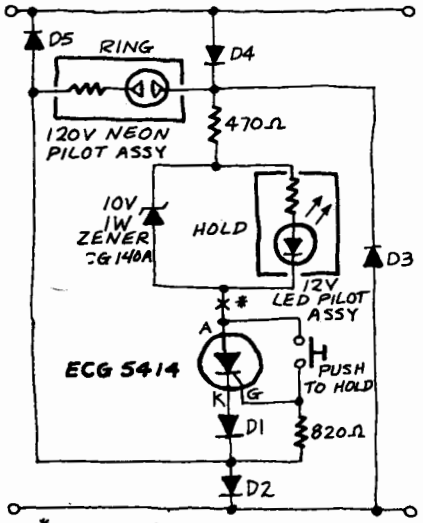

FIG. 1

With typical 48-volt, 70-mA systems, the resistance would be 800 to 850 ohms. Mr. Gilder's circuit would not be capable of such a low resistance without additional circuitry to prevent damage to the LED. I

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have accounted for that problem in the enclosed diagram through the use of a LED pilot-lamp assembly shunted by an appropriate Zener diode. The series resistance of 470 ohms produces a total device resistance of 850 ohms. A neon 120-volt pilot-lamp assembly is included to indicate incoming calls, in the event that the phone-ringer is switched off. We have employed the described circuit for some time, with excellent results.

Third: While our circuit does not employ an audio-injection feature, it would be compatible with Mr. Gilder's idea. Should a transformer be include in the circuit, the DC resistance of its wiring should be measured; and that value should be subtracted from the 470-ohm series resistor.

BRUCE L. MACKEY
Cortland, NY

Mr. Mackey is correct. The music-on-hold circuit will, indeed, fail to operate on any telephone system that employs switching methods which cause the line voltages to be reversed in polarity upon connection of the calling number to the called number.

His second suggestion looks as if it will work well, although I have not experienced any difficulties with the resistance value indicated. His approach, however, will certainly work on systems that I have encountered, and on systems that require lower hold resistances.

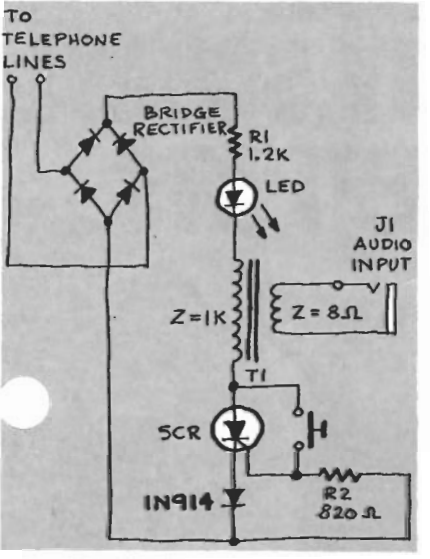
JULES H. GILDER

Technical Editor (retired)

MUSIC ON HOLD

I read the article that Bruce L. Mackey had in your June 1980 issue about "Music on Hold," by Jules Gilder.

Mr. Mackey is right: the device will not work if the voltage polarity reverses. When I built the device, I had the same problem, but eliminated it by adding a bridge rectifier.



You need not change the device otherwise, to have music on hold. Just install the bridge rectifier as shown in the diagram, and everything will work fine.

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