

# BUILD THE "2 + 2" REMOTE VOLUME CONTROL

By LYMAN E. GREENLEE

...AND CONTROL AUDIO DEVICES  
FROM UP TO 50 FEET AWAY

**D**O TV AND RADIO commercials irritate you? If so, you can build a remote volume control that will let you reduce or blank out the sound from up to 50 feet away, and the whole thing will cost about \$2 and require just 2 hours of work. With a remote volume control, you don't have to leave your easy chair or make an extra trip to the TV set when the telephone rings. Simply flip a switch or set a control.

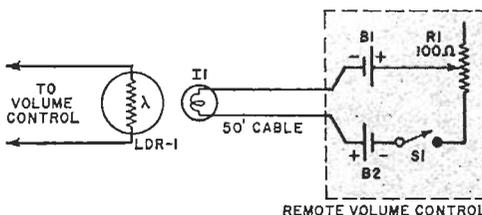
The "2 + 2" remote volume control gets its name from the cost and construction time. Once built, it can be connected to your set in a matter of seconds and can be removed just as quickly. While connected and turned off, it has no detectable effect on the normal operation of the set, nor can it cause any damage or introduce hum.

**Light-dependent resistor** *LDR1* in the schematic diagram is the heart of the "2 + 2." It is optically close-coupled to a controlled intensity lamp (*I1*) that causes an increase or decrease in the resistance of *LDR1*. The intensity of the light is dependent on the amount of current flowing through *B1*, *R1* and *B2*, and it can be increased or decreased by varying the setting of *R1*. Any increase or decrease in the intensity of the light results in a corresponding decrease or increase in the resistance of *LDR1*.

Although *B1* and *B2* develop a total potential of 3 volts, there is little danger of burning open the 2-volt (#48) lamp since the maximum current through the circuit is limited by the d.c. resistance of the 50'-long twin-line cable connecting *B1* and *B2* to *I1*.

To use the "2 + 2" remote volume

control in your TV set, radio, or phonograph amplifier, simply clip one of the leads from *LDR1* to the wiper lug and the other to the signal ground lug of the set's volume control. With the "2 + 2" turned off, adjust the set's volume control for the desired maximum loudness. Then operating the "2 + 2" will reduce the volume from this point.



REMOTE VOLUME CONTROL

Lamp *I1* and light-dependent resistor *LDR1* must be mounted in light-tight box. Parts in shaded area are contained in separate box at remote location.

**The batteries, switch** and potentiometer can be mounted in any convenient size box. However, *LDR1* and *I1* should be hooked in a small i.f. transformer can to take up as little space as possible and facilitate easy sealing with tar or pitch to exclude outside light.

The bottom of the transformer can should be cut to make the can about  $1\frac{3}{8}$ " long, but leave enough metal to provide a pair of  $\frac{1}{4}$ " tabs on opposite sides (bottom) of the can. Mount *LDR1* on a  $1$ " x  $\frac{3}{4}$ " piece of phenolic board, set it at the bottom of the transformer can, and fold the tabs over to hold it in place. If necessary, enlarge the hole in the top of the can, and mount *I1* and a  $\frac{3}{4}$ " rubber grommet here. Finally, seal the can. -30-