## tech-tips

## TELEPHONE RINGING AND SPEECH CIRCUIT

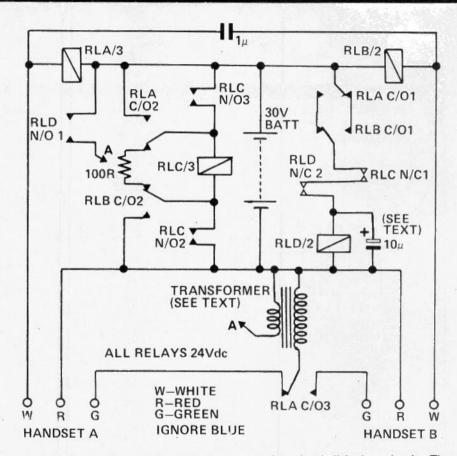
This circuit was designed to be used by children as a language teaching aid in primary school. For safety reasons, power is -taken from a dc battery source, necessitating the incorporation of an ac generator in the circuit.

If handset A is lifted, RLA is activated changing over contacts RLA energising RLD. RLD has a pair of N/C contacts wired in series with its coil and this causes the relay to vibrate. The contacts would not however, change over fully, and a capacitor is wired in parallel and stores enough charge to allow the relay to change fully. The value of the capacitor will depend on the type of relay being used but the value selected should be chosen to cause the relay to vibrate at about 25 Hz.

A second set of contacts is wired in series with the transformer, which in the prototype was an old 250 to 125 V transformer with the 125 V winding being used as the primary. The output of the transformer is fed to the third set of contacts of RLA which selects which telephone is to be rung.

On lifting the other handset relay RLB will energise and the exclusive OR arrangement of contacts RLA and RLB will inhibit the bellringing circuit.

To prevent either bell ringing again if one of the handsets is replaced RLC is included. When both handsets are



raised RLC energises and is self-latching, one set of its contacts being in series with RLD. When both handsets are replaced, RLC is shorted through the 100 Ohm resistor and turns off,

resetting the bellringing circuit. The 1 uF capacitor provides the required coupling for speech between the two handsets.