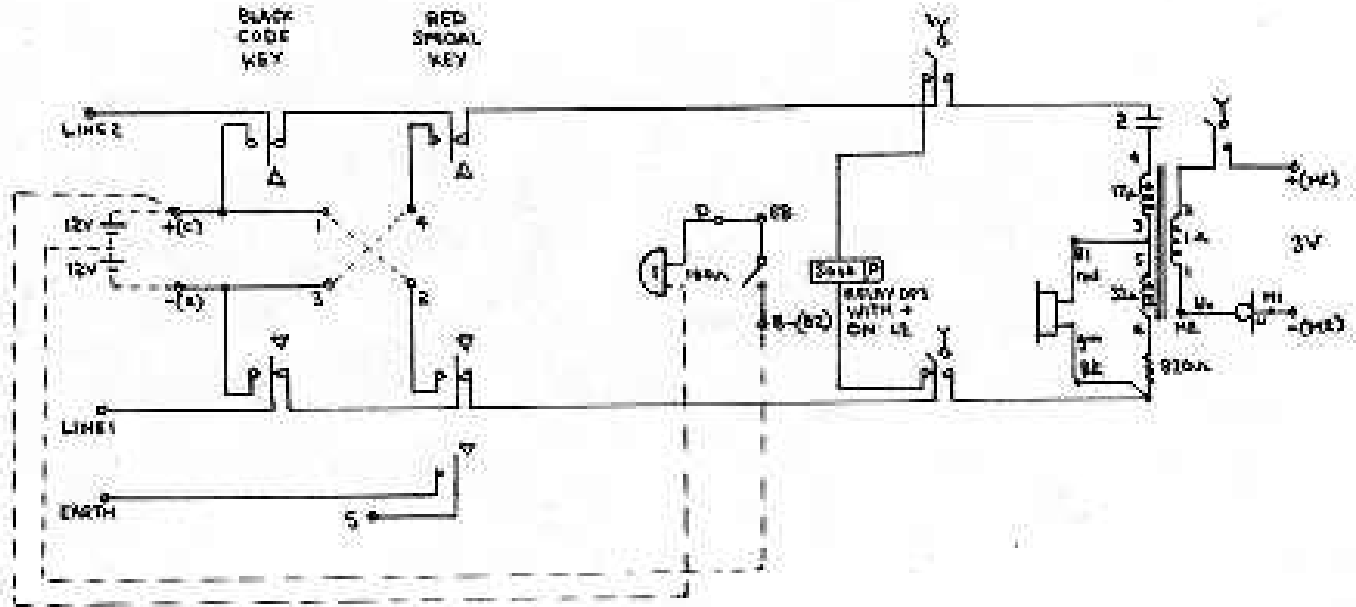


# Railway Local Battery Telephones

D Phones are simple phones used to provide communications between two points. They will not connect to a normal switchboard or to an automatic exchange.

These phones are generally used between signal boxes, and between signal boxes and signal posts etc.



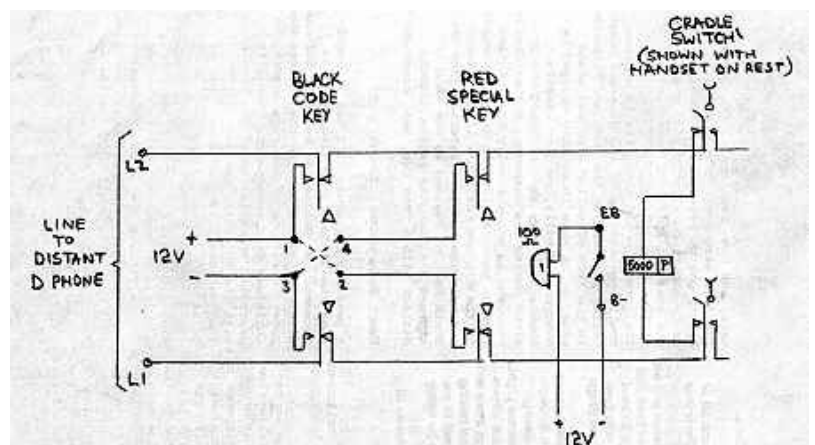
The phones are battery operated and use a single pair of wires for the interconnection.

Two batteries are required at each end. A 3 volt battery is used to power the microphone and a 12 volt battery is used to ring the bell or operate a bell relay at the far end and also to ring the local bell when the phone is fitted with a bell relay. It is possible to increase the voltage to 24 should the line resistance be so high that 12 volts is insufficient.

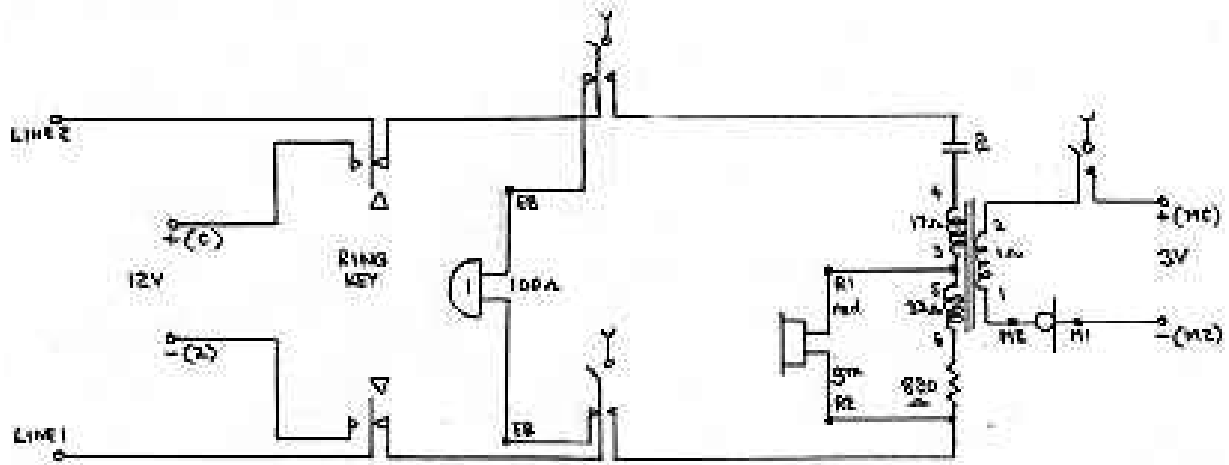
The speech circuit is very simple. It consists of a microphone and 3 volt battery, receiver, induction coil (transformer) and a series capacitor to isolate the circuit from line signaling voltages.

Signalling is also simple. When the caller presses the black button, 12 volts is connected to line. This operates the relay at the far end and the relay contact rings the bell. If the red button is pressed, the 12 volt condition is again applied to the line but is reversed. The receiving relays are polarised and only respond to current in one direction.

If two D phones are connected somewhere down the line, one can be reversed so that its polarised relay can be operated by the red button and the reversed 12 volt condition.



Such an arrangement permits the connection of three D phones to a line with separate ringing between them. More D phones can be connected but then more than one phone will have to respond to any ring. The users then have to differentiate who is required by counting the number of rings sent to line.



There are also simple single button D phones available. These do not have a relay but use the 12 volts ringing condition directly to ring the bell.