

Figure 6: Typical wiring plan for telephone extensions. The 3rd wire (sometimes called 'the shunt wire') forms part of the sometimes quaintly termed 'anti-tinkle' circuit.

a) the answering tone is heard in the 'phone from the distant data centre eg REWTEL or,

b) the 'called' person (who must of course have a modem and some means of receiving/sending data) plugs in a modem at the distant end.

Although *practical*, it is nevertheless *contrary to BT regulations* unless the equipment is type-approved and meets the requirements laid down in BT's Technical Guides No. 26, 30 and other relevant documents.

Extensions

For other connections to the telephone line, including the addition of extension telephones, answering machines and suchlike the usual cause of practical problems is 'bell tinkle' on one telephone while dialling on another. And the usual cause of confusion is the 3- or 4-wire telephone instrument cords (see **Fig. 5**) and their connection to the 2-wire telephone line. **Fig. 6** shows the principle of connecting extensions, the object of which is to disconnect the bell circuits no matter which telephone handset is lifted.

Ringing Detectors

Figure 7 (a) shows an arrangement for detecting the incoming 'ringing current' which normally rings the ac bell. The rectified current is used to operate the safety isolating relay which in turn can be used to initiate the necessary sequence to operate the Line relay. As with an outgoing call this places a DC

'loop' across the line (via the line transformer winding), which 'trips' the ringing supply at the exchange and causes the telephone link to be set up from end to end. The transformer not only provides the DC 'holding' path, it also extends the analogue path to the modem tone circuitry.

If the ringing detector were to be placed directly across the line it would be necessary to ensure that during the normal course of a call, while speaking (or transmitting tones) or during dialling, the detector circuit could not cause shunting problems on the signal path. And of course it is essential to ensure that any circuitry which is connected to the line follows the principle of maintaining the full isolation between the BT 'safe' side (the telephone lines) and the potentially dangerous side. After all, any equipment which includes a CRT with multi-kV of EHT is literally potentially lethal!

Perspective

My old school motto 'Respicere Prospice' (Look backward — Look forward), when

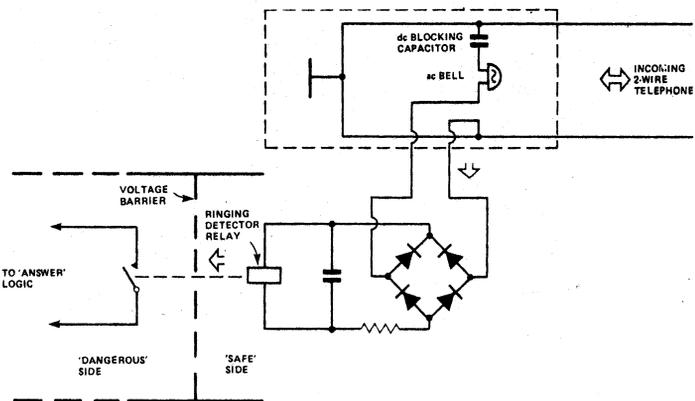


Figure 7(a): Ringing detector circuit. The relay operates to the rectified ringing current. The relay contact can then be used to initiate the automatic all answering sequence.

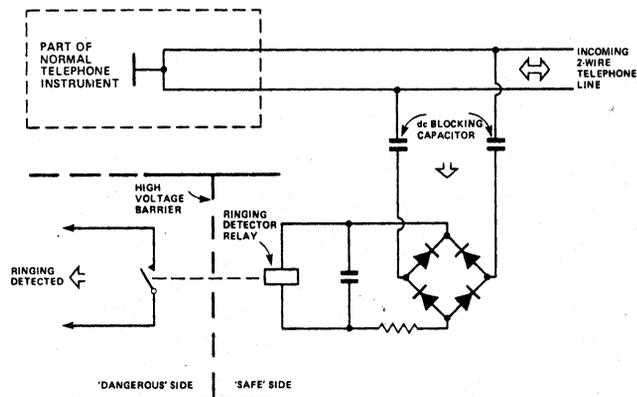


Figure 7(b): If a ringing detector circuit is used, it must not 'bridge' the safety barrier.