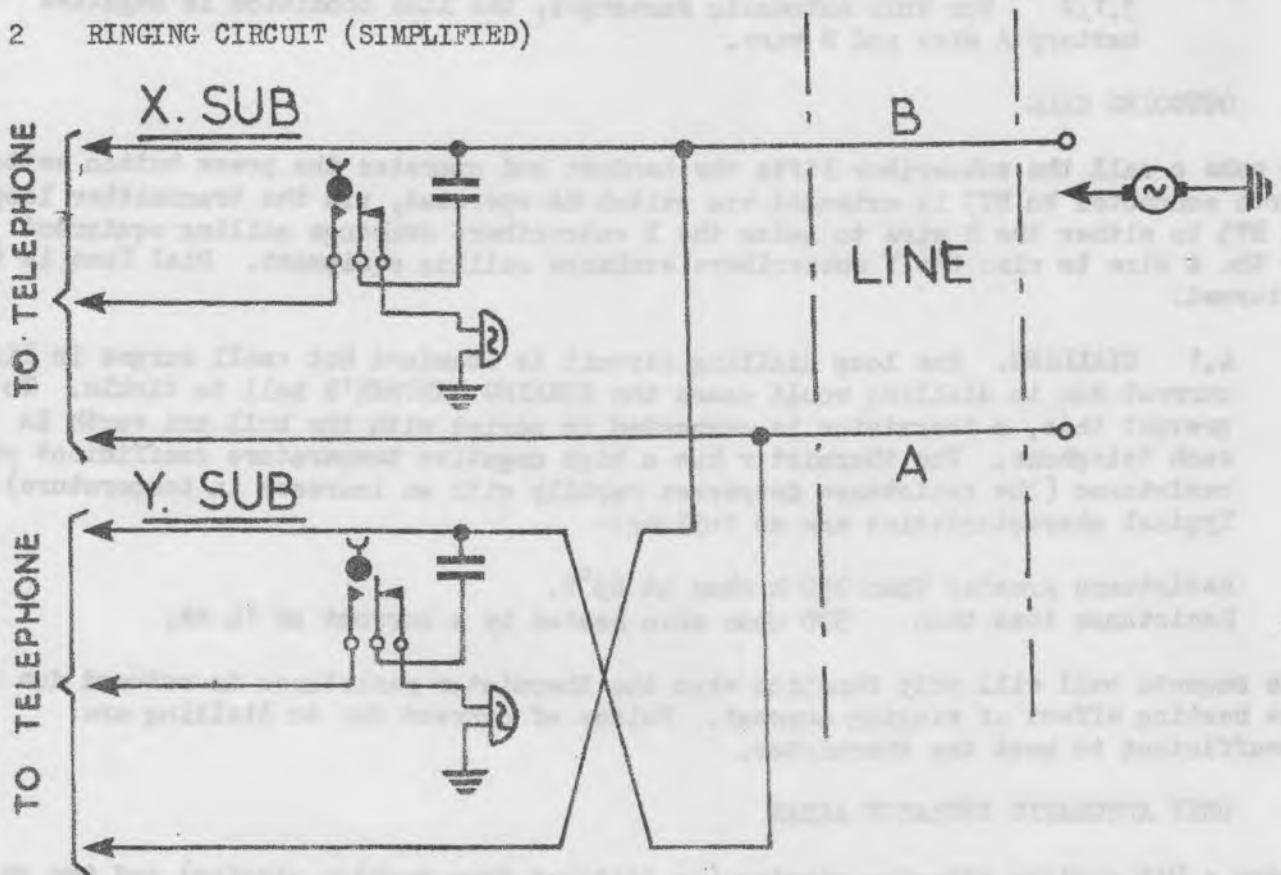


SHARED SERVICE USING 700 TYPE TELEPHONE

1 GENERAL

Shared service is a means of providing telephone service to residential subscribers having a low calling rate. It affords economy in line plant and enables two subscribers to share a common speech pair, each conductor of the pair providing an individual ringing circuit to earth, and an individual calling signal to the telephone exchange.

2 RINGING CIRCUIT (SIMPLIFIED)



In auto areas the X subscriber receives ringing over the B wire, while the Y subscriber receives ringing over the A wire.

The gravity switch springs ensure the earthed bell circuit is disconnected when the telephone is in use. Some shared service telephone circuits employ an additional capacitor connected between bell and earth instead of the gravity switch springs. Either of these two methods will avoid a DC drain path and an unbalanced earth being connected to line when the telephone is in use.

3 AUTOMATIC EXCHANGE AREAS

The telephone is modified by the addition of a changeover switch with associated parts and a Thermistor.

3.1 LINE CONDITIONS. There are two line conditions that will be found in automatic telephone exchange areas for shared service working:-

3.1.1. For Non-Director Exchanges, not Unit Automatic Exchanges the conditions will be negative battery A wire & B wire when connected to uniselectors. When connected to Linsfinders the conditions will be earth A wire, negative battery B wire.

3.1.2 For Unit Automatic Exchanges, the line condition is negative battery A wire and B wire.

4 OUTGOING CALL

To make a call the subscriber lifts the handset and operates the press button switch. Earth connected to BT7 is extended via switch SA operated, via the transmitter loop to BT5 to either the B wire to seize the X subscribers exchange calling equipment or the A wire to seize the Y subscribers exchange calling equipment. Dial Tone is then returned.

4.1 DIALLING. The loop dialling circuit is standard but small surges in line current due to dialling would cause the SHARING PARTNER'S bell to tinkle. To prevent this, a thermistor is connected in series with the bell and earth in each telephone. The thermistor has a high negative temperature coefficient of resistance (the resistance decreases rapidly with an increase in temperature). Typical characteristics are as follows:-

Resistance greater than 250 k ohms at 65°F.

Resistance less than 500 ohms when heated by a current of 14 mA.

The magneto bell will only function when the thermistor resistance is reduced due to the heating effect of ringing current. Pulses of current due to dialling are insufficient to heat the thermistor.

5 UNIT AUTOMATIC EXCHANGE AREAS

Where a UAX employs vibrator ringing (as distinct from machine ringing) and two or more telephones are being rung simultaneously full heating of the thermistor cannot be guaranteed. It is therefore necessary to fit a valve electronic CV 425 in parallel with the thermistor in this type of exchange area.

The valve is a germanium diode and acts in conjunction with the 1.8 uF capacitor to form a voltage doubling circuit. This ensures that when ringing is connected from the UAX, the thermistor is quickly heated, so that after a few cycles of ringing current its resistance falls.

REFERENCES: EI Telephone Stations C3110, C3120, C3140
Notes for Students, Internal 0201A

T1/JRW

- END -