CIRCUIT EXPLANATION

CROSSPOINT SWITCH
H-851053-A

(Written specifically for circuit issue 1, but may also apply to later issues. Refer to H print for appropriate E issue number.)

GENERAL

The crosspoint switch is a matrix switching device which provides transmission and control paths under the direction of other circuitry. FIG. 15A provides two (2) transmission and control outlets simultaneously. All other figures provide one transmission path and one control path per outlet.

For simplification of this description, relay switch position 11 is chosen for switch-through, which means that relay 10 of the TEN'S relay and relay 1 of the UNIT'S relay are seized (relays 20 and 1 of FIG. 2B). For eight (8) conductor switches, relays 10A and 10B of the TEN'S relay and relay 1 of the UNIT'S relay are seized, (relays TOA and TOB and UO of FIG. 11B). Other relay switch positions for the remaining outlets follow the same pattern of operation.

FEATURES

(a) Provides a means of selecting and holding any one group of four or eight conductors to any of fifty or one hundred outlets

(b) Springs and contact bars used for transmission paths are equipped with gold plated contact surfaces (+, -). Spring contacts are phosphor bronze and bars are of stainless steel for control circuits (C, EC, AR)

CIRCUIT OPERATION

1.00 FIGS. 1A, 2A and 2B

1.01 Seizure

Ground forwarded on terminal AR closes relay AR. Ground is connected to the allotter multiple bars associated with terminals (1) and (5) (terminals (2) and (12) of FIGS. 2A and 2B). Relay AR operates and closes relays 10 and 1 (relays 20 and 1 of FIG. 2A). Relays 10 and 1 operate (20 and 1 of FIG. 2A), lock to ground on terminal LK and switch leads "+", "-", C and EC through to the bank multiple bars. After the call has been switched through, ground is removed from terminal AR, opening relay AR. Relay AR restores.

1.02 Release

Removal of ground from lead LK opens the TENS and UNITS relay (10 and 1 of FIGS. 1A and 2B and 20 and 1 of FIG. 2A in this example). The TENS and UNITS relays restore and disconnect leads "+", "-", C and EC from the multiple bars. The circuit is now at normal.

2.00 FIGS. 3A, 3B, 4A, 4B and 5A

Operation is similar to that described in Section 1.01 except that the ground is connected to the allotter multiple bars associated with terminals (1) or (2) and (21) or (23) ("S" or "R" wiring). Locking ground of the UNITS relay of FIGS. 3B and 4B is through terminal LKU ("T" or "U" wiring). Switch-through leads are "+", "-" and C only.

3.00 FIGS. 6A and 10A

Operation is similar to that described in Section 1.00 except that ground is connected to the allotter multiple bar associated with terminals (1) and (23) (assumes that the cross-connect terminal strip A10 is connected to C10). Switch-through leads of FIG. 6A are "+", "-" and C only.

4.00 FIGS. 7A, 7B, 8A, 8B and 9A

Operation is similar to that described in Section 2.00 except that the switch-through leads are "+", "-", C and EC.

5.00 FIGS. 11A, 11B, 12A and 13A

5.01 Seizure

Ground forwarded on terminal AR closes relay AR. Ground is connected to the allotter multiple bars associated with terminals (1) and (23) or (2) and (21) ("S" or "R" wiring). Relay AR operates and closes relays 10A, 10B and 1 (relays TOA, TOB and UO of FIG. 11B). Relays 10A, 10B and 1 operate (TOA, TOB and UO of FIG. 11B), lock to ground on lead LK and switch leads +1, -1, T, R, CO, EC2, EC1 and CF (T1, R1, TO, RO, H, EC1, ECO and CR of FIG. 11B) through to the bank multiple bars. After the call has been switched through, ground is removed from terminal AR. Relay AR restores.

5.02 Release

Removal of ground from lead LK opens the TENS and UNITS relays. Relays 10A, 10B and 1 (TOA, TOB and UO of FIG. 11B) restores and disconnects leads +L, -L, T, R, CO, EC2, EC1 and CF (T1, R1, TO, RO, H, EC1, ECO and CR of FIG. 11B) from the bank multiple bars. This circuit is now at normal.

6.00 FIG. 15A

Operation is similar to that described in Section 1.00 except that ground is connected to the allotter multiple bars associated with terminals (2) and (21) and switch-through leads are designated +2, -2, C2 and EC2.