

American Telephone and Telegraph Company

BELL SYSTEM PRACTICES
Teletypewriter and Manual
Telegraph Station and PBX
Installation and Maintenance

SECTION P65.902
Appendix 6
Issue A, 6-1-52
Long Lines Department
Dist. Class. 400AC-600AC

PLAN 13

APPLIQUE CIRCUIT PER BSP SECTION P91.948

TO BE USED IN CONJUNCTION WITH THE

SELECTIVE RECEIVING CIRCUIT

PER BSP SECTION P90.982

1. GENERAL

1.01 This appendix contains a description of an applique circuit to be used in conjunction with the selective receiving circuit shown in Section P90.982.

1.02 The power for operation of this applique circuit is obtained from a separate teletypewriter rectifier in addition to certain of the power features of the selective receiving circuit.

2. FUNCTIONS

2.01 The functions provided by this applique circuit when used with the selective receiving circuit are described below.

(a) Receipt of the assigned 20 impulse station code will light a visual signal and start the teletypewriter motor. The signal will remain lighted until released by a manual key or until the 22 impulse master disconnect code is received to turn OFF the power.

(b) Receipt of the 20 impulse master connect code will perform simultaneously at all stations the functions of (a) above.

- (c) Receipt of the 22 impulse master disconnect code will turn OFF the power to the teletypewriter and extinguish the connection lamp at any station that may be connected.
- (d) Receipt of the assigned 24 impulse station code will turn ON the power to the transmitter-distributor, if there is tape in the gate and light the visual indicator of (a) above. The indicator may be released by the manual key. The power to the transmitter distributor is turned OFF automatically when the tape runs out.
- (e) The keyboard of the teletypewriter is disabled when the transmitter distributor is sending and the typing reperforator of the 102A assembly may be made blind at the same time if desired.
- (f) Break control is provided so that the distant end may stop the transmitter distributor when necessary. Transmission may be resumed following operation of the break release key.
- (g) Keys are provided for manual start and stop of either the teletypewriter or the transmitter distributor.
- (h) Busy indicator lamp is provided.

3. EQUIPMENT ARRANGEMENT

- 3.01 This applique circuit together with the associated selective receiving circuit is installed at the teletypewriter station.
- 3.02 The functions of the applique may control a 19-type teletypewriter or a 102A assembly.
- 3.03 The control keys and lamps are mounted on the teletypewriter table.

4. CIRCUIT DESCRIPTION

- 4.01 If the attendant dials the 20 impulse code to activate the 15-type unit on the 19 set, the 60-type selector in the 64C1 receiving unit connects

ground through its contacts 1 and 2, to the winding of the A relay, Figure 1, P90.982, causing it to operate. This relay operated connects ground through its bottom contacts 1 and 2 to the winding of relay KU, Figure 1, which operates and locks up through its bottom contacts 4 and 5, bottom contacts 2 and 3 of the DK relay and bottom contacts 1 and 2 of the KU relay to ground. The KU relay operated connects ground through its top contacts 6 and 7, to the winding of the signal engineering relay, Figure 6, associated with the power supply of the 15-type teletypewriter motor. This relay operates and connects power to the motor causing the 15 unit to be activated.

4.02 The operation of the A relay, Figure 1, P90.982, in addition connects ground through its top contacts 1 and 2 to the winding of the E relay causing it to operate and lock up through its bottom contacts 1 and 2, top contacts 3 and 4 of the KU relay, Figure 1, and the break contacts on the lamp release key, Figure 12, to ground. This relay operated connects ground through its top contacts 1 and 2 to the beehive lamp shown in Figure 10. This lamp may be extinguished by operating the lamp release key, which opens the locking circuit of the B relay causing it to release.

4.03 If the attendant wishes to disconnect the 15-type teletypewriter from the circuit he dials the 22 impulse code which connects ground through contacts 1 and 3 of the 60-type selector to the winding of the DK relay, Figure 1, causing it to operate and lock up through its bottom contacts 1 and 2 and bottom contacts 1 and 2 of the KU relay to ground. The DK relay operated opens the locking circuit of the KU relay by means of bottom contacts 2 and 3 on the DK relay. As soon as the KU relay releases the DK relay falls down since the release of the KU relay opens the locking path of the DK relay through lower contacts 1 and 2 of the KU relay.

4.04 When the attendant desires to start a distant transmitter distributor the 24 impulse code

dialed causes the 60-type selector ground through its contacts 1 and 4 to the winding of the G relay, Figure 2, P90.982, causing it to operate. This relay operated connects ground to the winding of the B relay, Figure 1, P90.982, causing it to operate and lock up as described previously, and in addition energizes the lamp signal through its top contacts 1 and 2. In addition relay G operated connects ground through its top contacts 1 and 2 to the winding of the MS relay causing it to operate. Relay MS operated connects ground through its bottom contacts 1 and 2 to the winding of the KU relay causing it to operate and lock up as explained previously. In addition, it connects ground through its top contacts 1 and 2 to the winding of the transmitter power relay, Figure 6, causing it to operate and so energize the transmitter distributor motor. This ground which causes the MS relay to operate will also be connected through top contacts 4 and 5 of the MS relay to the winding of the MA relay so that it will be unable to operate as this arrangement grounds out the battery supply for the MA relay. When the last digit in the code is dialed, the selector steps off its contacts so that ground is removed from the winding of the MA relay which will operate providing there is tape in the transmitter distributor so that the sixth pin contact will be closed. The closure of this sixth pin connects ground to the winding of the MA relay so that the battery furnishing power for the MS relay now flows through its winding, contacts 4 and 5 of the MS relay, the winding of the MA relay, and the sixth pin contact to ground.

4.05 Relay MA operated by means of its top contacts 3 and 4 removes ground from the winding of the CM relay. The CM relay released completes the control magnet circuit through its lower contacts 2 and 3 and lower contacts 4 and 5 of the MA relay. Relay CM is a slow release relay so that there will be sufficient time for the motor of the transmitter to obtain full speed before any characters are transmitted from the distributor. This means that it will be unnecessary for the teletypewriter attendant to insert any letters signals ahead of the message in order to account for any mal-speed conditions of the motor.

4.06 The disconnection of the transmitter distributor is affected when the tape in the gate runs out.

4.07 Since the external break circuit, Figure 8, will most likely be operated by the long selector dial pulses, the locking circuit of the A relay is so arranged that the operation of the MA relay, Figure 1, will open it by means of its lower contacts 2 and 3. This locking circuit will remain open until the CM relay releases and closes it through its top contacts 2 and 3. The delay time of the CM relay is sufficient to permit the release of the above mentioned A relay.

4.08 It will be noted that there is provided a break release key which upon operation opens the locking circuit of relay A in the external break circuit so that it releases. The power disconnect key upon being operated applies ground to the DK relay causing it to operate and thus disconnect the power from the teletypewriter as described previously. The power connect key upon being operated applies ground to the winding of the KU relay causing it to operate, lock up and also start the teletypewriter motor as described previously. The transmitter distributor stop key upon being operated opens the circuit of the control magnet and at the same time applies ground to the winding of the MA relay so that the tape gate may be opened, tape re-lined and tape lid put back in place without the operator losing control of the circuit. The transmitter start key is so arranged that upon its operation ground is connected to the winding of the MS relay in the same manner as when the 60-type selector applies ground to this relay so that upon the release of this key the distributor transmits any tape in the gate to the line.

5. INSTALLATION

5.01 The applique circuit together with the selective receiving circuit is furnished mounted in an apparatus cabinet as shown on Drawing 23069-ED-107.

5.02 The manual control keys will be mounted in the key box of the XRT205 table per Drawing 23173-134. On other type tables the keys may be mounted in 151 or 201 type jack mountings.

5.03 Interconnections for the applique circuit, receiving unit, teletypewriter apparatus, power relays, keys and lamps are shown on Application Schematic P91.933.

6. MAINTENANCE

6.01 All equipment associated with this circuit arrangement shall be maintained in accordance with instructions contained 'n Bell' System Practices.

7. TESTING

7.01 Before placing this circuit arrangement in service, the correct operation in accordance with this appendix shall be checked in conjunction with the selective receiving circuit.

8. REFERENCES

8.01 This applique circuit is covered by the following sections and drawings:

Section P91.933	Application Schematic
Section P91.948 (23069-SD-33)	Applique Schematic
Section P91.948.1 (23069-T-116)	Applique Wiring
Drawing 23069-ED-107	Equipment
Drawing 21373-134	Key Mounting XRT205 Table

8.02 A complete list of BSP sections and drawings concerning the 64C1 selector system will be found in Section P65.902.1.