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COMMON SYSTEMS
INTERCEPTING TRUNK CRCUIT
ANNOUNCEMENT SYSTEM NO. 11A

CHANGES

B. Changes in Apparatus

B.01

Supserseded	Superseded By
A, C, D Diodes - 420B App Fig. 1	A, C, D Diodes - 533F App Fig. 1
D1, D2 Diodes - 458A App Fig. 1	D1, D2 Diodes - 533K App Fig. 1
A Relay - AJ8 - Option S - App Fig. 1	A Relay - AJ115 Option R - App Fig. 1
R, T Resistors - 221A, 383 Ohms - App Fig. 1	R, T Resistors - KS-50810,L-1A, 383 Ohms - App Fig. 1

D. Description of Changes

D.01 The A relay in FS1, an AJ8 option S, is replaced by an AJ115 option R, to permit the relay to release from a PBX outdial-type trunk, such as SD-5E001-01. The AJ115 relay, option R, has a higher nonoperate and release value so that the A relay will not hold up to the H relay in the PBX trunk. Circuit Note 106 is added to show this change, and Note 104 is changed to show the new options added for this purpose.

D.02 Certain apparatus is replaced on a line-out basis to update the codes of apparatus used in the circuit. These are listed in B.01.

F. Changes in CD Section 11

F.01 In SECTION II, add 2.04:

2.04 The greater sensitivity provided by the option S (Mfr Disc.) A relay under marginal conditions may cause outdial PBX trunks, such as SD-5E001-01, or its predecessor, SD-65657-01, to lock up on a hold condition upon disconnect. This lockup occurs to the PBX trunk as the H relay in the trunk reoperates and locks up again before the central office equipment completely releases. Replacing the option S A relay by the option R (Standard) A relay is a recommended improvement for this problem which occurs when the trunk is used on vacant code or selector level intercepts on lines associated with the PBX outdial trunks mentioned.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5245-GFC

WE DEPT 25120-WCR-GFC-GLW

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COMMON SYSTEMS
INTERCEPTING TRUNK CIRCUIT
ANNOUNCEMENT SYSTEM NO. 11A

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This circuit is used to connect subscribers who have dialed a number to which calls cannot be completed to a recorded intercept announcement. It is used in the portable 11A announcement system which is intended for temporary intercept service during periods of heavy intercepting requirements due to new office cutover, changed office name, changed or disconnected subscriber numbers, etc.

SECTION II - DETAILED DESCRIPTION

1. SEIZURE AND ANNOUNCEMENT CUT-THROUGH

LINE INTERCEPT

1.01 When this circuit is used for line intercepting, X, Y, and Z wiring options are not provided and the A relay does not function. Also, the OS lead is grounded from the control circuit during normal operating conditions. Fig. 4 provides battery on the sleeve lead to the connector bank multiple circuit in those cases where the line circuit is removed from the lines being intercepted. Option W provides a ground to disable the connector permanent signal timing in SXS offices which have been modified to provide connector permanent signal release.

1.02 When this circuit is seized on an intercepted call to a line, either ringing potential or silent interval battery is connected to the ring of the trunk. If the seizure occurs during the silent interval portion of the ringing cycle, the A capacitor prevents the operation of the B transistor. If seizure occurs during the ringing interval or when ringing is applied, the B transistor conducts on the negative half-cycles and operates the SR relay in its collector circuit. Capacitor E bypasses a portion of the ringing current to protect the transistor. Capacitor C maintains collector current flow during the positive ringing half-cycles. The TR tube breaks down, but ringing is not tripped due to the series 2700-ohm resistor.

1.03 The SR relay operated:

(a) Cuts through the ring conductor from the calling end to the control circuit.

(b) Operates the PC relay.

(c) Shorts out the 2700-ohm resistor in series with the TR tube.

(d) Shorts out the A capacitor. Resistor F prevents excess discharge currents through the A capacitor.

(e) Connects capacitor B, which has been prechaged through resistor E and PC break-contact 4, across the winding of the SR relay.

1.04 With the TR resistor shorted out, the TR tube trips the ringing. With the ringing tripped, talking battery is connected to the circuit. The B transistor conducts due to the battery on the base from the ring or, in some cases (eg, SXS local train), talk battery is connected to the tip and thence to the base of the A transistor which conducts. The A or B transistor maintains the operating circuit of the SR relay. SR is slow to release because of capacitor B in shunt with its winding to hold over the interval from tripping of ringing to connection of talking battery.

1.05 PC operated grounds the ST lead to the control circuit to start the announcement set and connects the tip conductor through to the announcement set. PC operated also removes resistor E from connecting to ground. The recorded announcement is now fed back to the calling end.

VACANT CODE OR SELECTOR LEVEL INTERCEPT

1.06 For this application, option X or Y is furnished and the OS lead is opened by a key in the control circuit to disable the transistor portions of this circuit. Battery and ground through windings of the A relay to the tip and ring conductors are connected in the proper polarity for the various types of office to prevent returning charge supervision. When the trunk is seized, the A relay operates. Relay A operated operates SR. The slow-release SR relay prevents its release on dial pulses should additional digits be dialed after seizure of this trunk. The C diode increases the release time of the SR relay.

1.07 Relay SR operated:

(a) Cuts through the ring conductor from the calling end to the control circuit.

(b) Operates the PC relay.

(c) Grounds the sleeve lead to step-by-step selector circuits.

1.09 No ringing potential is applied when a call is intercepted at the vacant code stage; therefore, shorting out the TR resistor has no effect. Also, with the transistor circuit disabled, shorting out the A capacitor has no effect.

1.10 The PC relay operated grounds the ST lead to the control circuit to start the announcement set, cuts through the tip to the control circuit, and provides a second path for the S lead to SXS selectors to ground.

2. DISCONNECT

LINE INTERCEPT

2.01 When the originating end disconnects, on-line intercepting, talking battery, and ground are removed from the tip and ring and the A or B transistor stops conducting, releasing SR.

2.02 SR released disconnects the ring from the announcement set, grounds the PC lead to the control circuit, and releases PC. PC released removes ground from the ST lead to the control circuit ending this trunk start indication to the announcement set, opens the tip lead, and removes ground from the PC lead. The PC lead is thus grounded for the duration of the release time of the PC relay, which is increased by the D diode. This ground pulse is used to advance a peg-count register to record the number of calls in the system.

VACANT CODE OR SELECTOR LEVEL INTERCEPT

2.03 Upon disconnect by the originating end in this case, the A relay releases releasing SR. SR released performs the same functions as for line intercept. PC released removes the sleeve lead busy indication for selector level intercept.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

None.

2. FUNCTIONAL DESIGNATIONS

2.01 Relays

Designation	Meaning
A	Seizure
PC	Peg Count
SR	Slow Release

2.02 Transistors

Designation	Meaning
A	Arbitrary
B	Arbitrary

2.03 Tubes

Designation	Meaning
TR	Trip Ringing

3. FUNCTIONS

3.01 Provides means for tripping ringing on line intercept.

3.02 Arranged to hold over dial pulses after seizure.

3.03 Arranged to prevent charging.

3.04 Provides and maintains a start signal to the announcement set under control of the originating end.

3.05 Provides means for cutting through unlimited recorded intercept announcements to the originating subscriber without waiting for the beginning of the message.

3.06 Provides means for operating a peg-count register for each call.

3.07 Arranged for calling party control of disconnect.

4. CONNECTING CIRCUITS

4.01 When this circuit is shown on a keysheet, the connecting information thereon should be followed.

(a) Announcement System No. 11A Control Circuit - SD-95967-01.

(b) Line Intercepting (typical circuits).

(c) SXS Connector Bank Multiple Circuit - SD-32128-01.

(d) SXS Connector Circuit - SD-30215-01.

(e) Panel Final Selector Circuit - SD-21200-01 and ES-239664.

(f) Crossbar No. 1 Line, Link, and Connector Circuit - SD-25553-01.

(g) Crossbar No. 5 Line, Line Link, and Connector Circuit - SD-26030-01.

(h) Vacant Code Intercepting (typical circuits).

(i) SXS Selector Bank Mulitiple Circuit - SD-32123-01.

(j) SXS Local Selector Circuit - SD-30200-01.

(k) SXS Toll Transmission Selector Circuit - SD-31841-01.

(l) Panel District Circuit - SD-21630-01.

(m) Panel Office Selector Circuit - ES-240252.

(n) Crossbar No. 1 Office Link and Connector Circuit - SD-25033-01.

(o) Crossbar No. 5 Outgoing Trunk Circuit - SD-26085-01.

SECTION IV - REASONS FOR REISSUE

A. Changed and Added Functions

A.1 This circuit is issued concurrently with Issue 3B and will incorporate the changes indicated in Appendix 2B.

A.2 This circuit is also reissued to increase the release time of relay SR to greater than 200 ms so that it will remain operated between the time ringing is tripped and talking battery is applied by the No. 1 crossbar incoming trunk SD-25302-01.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5822-WJL-MAT

B. Changes in Apparatus

B.1 Added

Resistor E, KS-13490,L1 10,000
Fig. 1

Capacitor B, KS-16390,L8, 40
Mfr Disc. Fig. 1

Diode D1, 458A, Fig 1

Diode D2, 458A, Fig. 1

D. Description of Changes

D.1 On FS1, SR make-contact 11 is deleted. The anodes of diodes D1 and D2 are connected to SR relay 12M. The cathode of D1 is connected to 1L of relay PC. The cathode of D2 is connected to 4M of relay PC.

D.2 The negative terminal of capacitor B is connected to the junction of resistors C and D. The positive terminal is connected to the make of added contact SR 11M and one side of resistor E. The fixed side of SR 11 is connected to 1U of relay SR. The other side of the E resistor is connected to 4 break of relay PC.

D.3 On sheet 3, diodes D1 and D2, resistor F, and capacitor B are added to App Fig. 1.