

11A ANNOUNCEMENT SYSTEM
RECORDED ANNOUNCEMENT FACILITIES
INTERCEPT TRAFFIC-TYPE
GENERAL DESCRIPTIVE INFORMATION

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1. GENERAL
A. Purpose

1.01 The 11A announcement system is designed to handle traffic associated with changed numbers, particularly PBX numbers and heavy vacant code traffic after occurrences such as cut-overs from manual to dial switching systems, conversions to 7-digit dialing, and changes in office designations. Options are provided so that the system can be used in step-by-step, panel, No. 1 crossbar, No. 5 crossbar, and crossbar tandem offices. The announcement system may also be used for either line intercept or vacant code and selector level intercept.

B. System Arrangement (See Fig. 1.)

1.02 General: The 11A announcement system consists of the KS-16765, L2 announcement set, the KS-16754, L4 amplifier circuit, 20 intercept trunk circuits, busy tone circuit, voice and alarm circuit, and control and alarm circuit. These circuits are enclosed in a portable aluminum cabinet measuring 10 inches deep, 25-3/4 inches wide, and 49-9/16 inches high. The front and rear covers can be removed for access to the equipment.

1.03 KS-16765, L2 Announcement Set: The KS-16765, L2 announcement set is a magnetic recorder-reproducer capable of recording or reproducing audio signals for a duration of 2 minutes. The announcement set has a variable cycle feature which permits the machine to automatically adjust the length of the cycle to correspond with the length of the recorded announcement. The recording is repeated continuously as long as one of 20 possible calling parties is connected to the circuit. The announcement set can be removed from the cabinet when it is desirable to record in a quiet location.

1.04 KS-16754, L4 Amplifier Circuit: The KS-16754, L4 amplifier circuit is a moderate-powered transistor amplifier which amplifies the voice announcement coming from the announcement set.

1.05 Intercepting Trunks: The intercepting trunk circuits consist of from 1 to 20 intercept trunks capable of handling a maximum of 20 calls simultaneously. When a calling party dials a number for which intercept facilities are provided by the announcement system, a trunk circuit is seized. After an interval, ringing is tripped by the intercepted trunk and the calling party hears the recorded announcement. If a

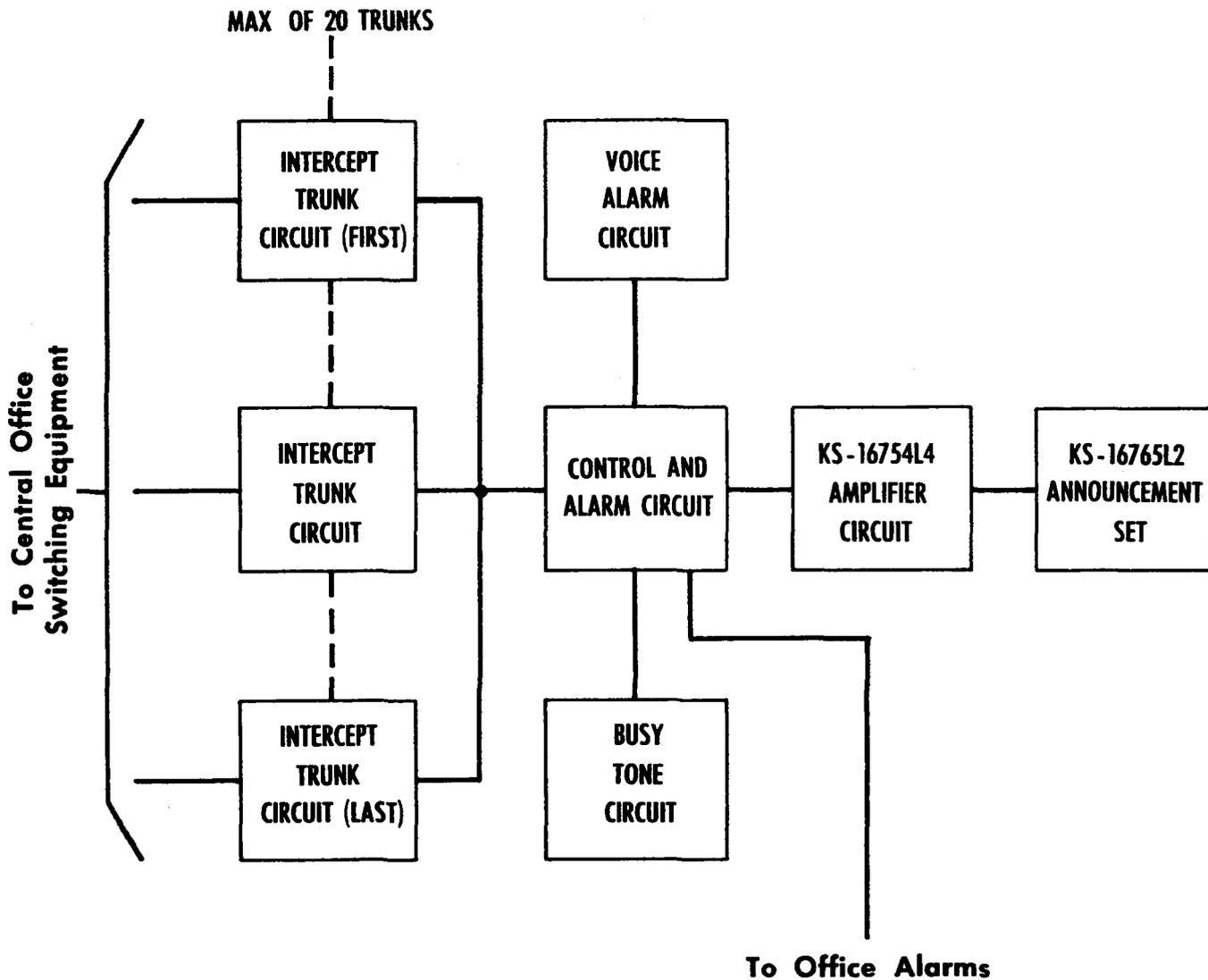


Fig. 1 — 11A Announcement System

second party seizes an idle trunk, the trunk circuit allows the calling party to "barge in" on the recording. If the recording is not in progress, a start signal is supplied to the control and alarm circuit by the trunk circuit. The control and alarm circuit starts the recording from the beginning.

1.06 Voice and Alarm Circuit: If there is voice failure in the recorded announcement, the voice and alarm circuit seizes a relay in the control and alarm circuit. The control and alarm

circuit seizes a relay in the busy tone circuit, which provides a busy tone to the calling party.

1.07 Control and Alarm Circuit: The control and alarm circuit receives a start signal from the intercepting trunk and starts the recorded announcement. If there is a voice failure, the control and alarm circuit connects the busy tone from the busy tone circuit to the calling party. The control and alarm circuit also lights a pilot lamp and operates an office alarm.

1.08 Busy Tone Circuit: The busy tone circuit is a transistorized circuit capable of supplying 120 interruptions per minute (ipm) to the calling party when seized by the control and alarm circuit.

2. EQUIPMENT FUNCTION

A. Intercepting Trunks

2.01 Line Intercept: The calling party seizes an intercepting trunk, and either ringing potential or silent interval battery is connected to the trunk. If the seizure occurs during the silent interval portion of the ringing cycle, no circuit function takes place. If the seizure occurs during the ringing interval, or when ringing is applied, the B transistor in the trunk control circuit conducts and operates a slow release relay. The slow release relay, in conjunction with a TR tube, trips the ringing and operates the PC relay. The operated PC relay grounds the lead to the control circuit which starts the recorded announcement. When the calling party disconnects, a peg count register records the call.

2.02 Vacant Code or Selector Level Intercept:

When the intercepting trunk circuit is used for vacant code or selector level intercept, the transistor portions of the trunk control circuit are disabled. Battery and ground are connected to tip and ring conductors through the windings of the A relay. When a calling party seizes a trunk, the A relay operates, operating a slow release relay. The slow release time of this relay allows continued dialing after seizure of the trunk. No ringing potential is applied when a call is intercepted at the vacant code stage. The PC relay, operated by the slow release relay, grounds the sleeve lead to step-by-step selector circuits and grounds the lead to the control circuit which starts the recorded announcement. When the calling party disconnects, a peg count register records the call.

B. KS-16765, L2 Announcement Set

2.03 Remote Recording Phase: The remote announcement record cycle is initiated by the operation of the D relay. The D relay condi-

tions the amplifier input and output circuit for the record function, enables the bias oscillator circuit to generate the high-frequency bias current required for magnetic recording, and operates the start (ST) relay. The ST relay applies power to the recording drum motor, connects filament power to the amplifier circuit, connects operating voltage to other control relays, and energizes the erase coil which erases the previous recording. After the recording has been erased, the record-reproduce head is pulled into contact with the recording drum and dc plate supply voltage is connected to the amplifier circuit. Speech, which is applied through T1 and R1 leads of the circuit, is recorded. The maximum recording time is 2 minutes. The record cycle can be terminated by removing ground from the D relay.

2.04 Local Recording Phase: The local announcement record cycle is initiated by operating S4 switch to DICTATE. A 52-type telephone headset can be connected to J3 and J4 jacks to record the announcement. Other circuit operations are identical to the remote recording phase except that the D lamp lights, providing a local indication of the record cycle.

2.05 Reproducing Phase: After a recording has been made, the amplifier input and output circuits and the record-reproduce head circuits are automatically conditioned for the reproduce function. The reproduce cycle of operation is initiated when ground is applied to the ST relay. This ground is supplied by a relay in the control and alarm circuit which is operated by a ground supplied by the intercepting trunk circuit. The ST relay applies filament power to the amplifier circuit, energizes the drum motor, and connects operating voltage to other control relays. After approximately 1 second, the record-reproduce head is pulled into contact with the recording medium on the drum, and plate voltage is supplied to the amplifier circuit. The recorded announcement is reproduced on T and R leads. At the end of the recorded announcement, the stop (STP) relay is operated. As long as ground is applied to the ST relay, the recording will be repeated. The recycle time is controlled by internal switches and relays.

C. KS-16754, L4 Amplifier

2.06 The KS-16754, L4 amplifier is a plug-in printed circuit containing a 3-stage transistor amplifier, an input transformer for operation from various impedances, a gain control, and an output transformer. The transistor amplifier circuit consists of two direct-coupled common emitter stages followed by a transformer-coupled class B push-pull output stage. The KS-16754, L4 circuit amplifies the audio signals from the KS-16765, L2 announcement set when a calling party seizes a trunk circuit associated with the announcement system.

D. Voice Alarm Circuit

2.07 Presence of Voice Announcement: The voice alarm circuit checks for the presence of an audio signal from the KS-16765, L2 announcement set. When a start pulse is supplied, the recorded announcement appears on the tip and ring leads of the voice alarm circuit and the ST relay will operate. The ST relay removes resistance ground from the D capacitor and closes an operating path for the A relay. The audio signal applied to the tip and ring is amplified and rectified by the A transistor. The rectified voltage will build up in steps across the C capacitor and will be applied to the B transistor. This voltage is in such a direction as to cause the B transistor to be cut off. The A relay does not operate.

2.08 Absence of Voice Announcement: If there is a voice failure, the D capacitor will discharge, causing the B transistor to start toward saturation. The A relay will operate after a timed interval. When the A relay operates, ground is applied to the alarm (ALM) relay. After a restoration of the audio signal, the circuit will reset itself in approximately 15 seconds.

E. Control and Alarm Circuit

2.09 Circuit Control: The control and alarm circuit receives a start signal from the intercepted trunk circuit. This start signal operates the ST relay which starts the announcement set, operates the ST relay in the voice alarm circuit, and makes the busy tone circuit inoperative. The circuit will now receive the recorded announce-

ment and route it into and out of the KS-16754, L4 amplifier to the voice and alarm circuit, and to the calling party connected to the trunk circuit.

2.10 Alarm Control: When the announcement set is removed from the cabinet or when there is voice failure, the alarm (ALM) relay is released. A major alarm appears at the office alarm circuit, the ALM pilot lamp is lighted, and busy tone is transmitted to the calling party. The alarm can be silenced by releasing the AUD RLS key. When voice is restored, the R key is operated and held for a few moments until the voice alarm circuit restores to normal and ALM relay operates. If a fuse should operate, the FA relay will sound a minor alarm and light the FA lamp.

F. Busy Tone Circuit

2.11 The busy tone circuit consists of an oscillator circuit and pulse amplifier circuit. The oscillator circuit is controlled by the charging and discharging of capacitors and conduction of diodes which are timed to cut the transistor on and off to produce 120-ipm pulses. When there is a voice failure in the recorded announcement, the control and alarm circuit seizes the busy tone circuit and connects the 120-ipm pulses to the intercepting trunk circuit.

3. OPERATION

A. Recording and Monitoring

3.01 Recording: When the noise level is high in the area around the announcement system cabinet, the KS-16765, L2 announcement set may be removed to a quiet location when a new recording is to be made. Busy tone will be applied to all trunks while the announcement set is out of service. An announcement may be recorded by connecting a 52-type telephone headset to J3 and J4 twin jacks and operating S4 to DICTATE. When the announcement set is ready to receive the message, the D lamp lights. The maximum recording time is 2 minutes.

3.02 Monitoring: The recorded announcement can be monitored at the cabinet or when the announcement set is removed for recording

an announcement. Monitoring is achieved by connecting a 52-type telephone headset to J3 and J4 twin jacks and operating S4 to CHECK.

B. Typical Call

3.03 When the calling party dials a number for which intercept facilities are provided by the announcement system, the switching equipment seizes an idle trunk circuit. After an interval sufficient for all internal circuits to prepare for the announcement, ringing is tripped and the calling party hears the recorded an-

nouncement. A peg count register records the call. If the calling party hangs up before the announcement cycle is completed, the talking path is broken and the recording coasts to a stop unless other trunk circuits are connected to the circuit.

4. MAINTENANCE

4.01 No special maintenance facilities will be required for the trunk, announcement set, and alarm circuit facilities of this system.