8A ANNOUNCEMENT SYSTEM

EQUIPMENT DESIGN REQUIREMENTS

COMMON SYSTEMS

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the framework, equipment, and circuits to be used in the manufacture of a final terminal-type transcribed announcement system. The equipment includes some units of Western Electric Company manufacture and others made by outside suppliers. The system provides announcement service to calling parties by means of transcribed announcements dictated and controlled from a remote location.

1.02 This specification is reissued to incorporate previous appendix changes.

1.03 This specification covers composite information for an announcement system capable of handling traffic on a line terminal basis. The system is intended primarily for customer-sponsored telephone service such as public service and theatre schedules, sales information, and similar announcements accompanied by an advertisement.

Capacity

1.04 The 8A announcement system is a line terminal system designed for a maximum of 20 announcement trunks when used in conjunction with a KS-16765, List 1 announcement set, and a maximum of 100 announcement trunks when used in conjunction with a KS-16534, List 1 recorder-reproducer. In either of these arrangements, the existing traffic load on the central office is increased in direct proportion to the calling rate of the announcement system.

1.05 The area which may be served is limited to the facilities of the central office in which the announcement system is installed, since no provision is made for announcement subcenters. Commercial 115-volt, 60-cycle, ac power supply is required on the sponsoring customer's premises.

Description

1.06 The 8A announcement system is designed to give subscribers a predetermined number of complete announcements through regular telephone facilities. Equipment located on the sponsor's premises enables him to dictate, monitor, and change the announcement at will. The announcement may vary in length within the limits of the type of recorder-reproducer employed in the system.

8A Announcement System Arranged to Operate With KS-16765, List 1 Announcement Set

1.07 This arrangement, shown in Fig. 1, provides announcement service at the least expense commensurate with good performance. The announcement may vary in length from approximately 5 seconds to a preset maximum not exceeding 2 minutes. The announcement set mechanism will automatically adjust the announcement cycle to conform with any length of announcement up to the preset maximum.

1.08 The operator control equipment consists of a KS-16765, List 1 announcement set and an associated standard telephone set located on the sponsor's premises, usually remote from the central office. This represents a single-channel system which is disabled while the announcement is being recorded, checked, or changed. However, an announcement which is in progress may be monitored without disturbing the normal cycle of the announcement set.

1.09 Where it is required that the system remain in operation while the announcement is being changed or checked or during a trouble

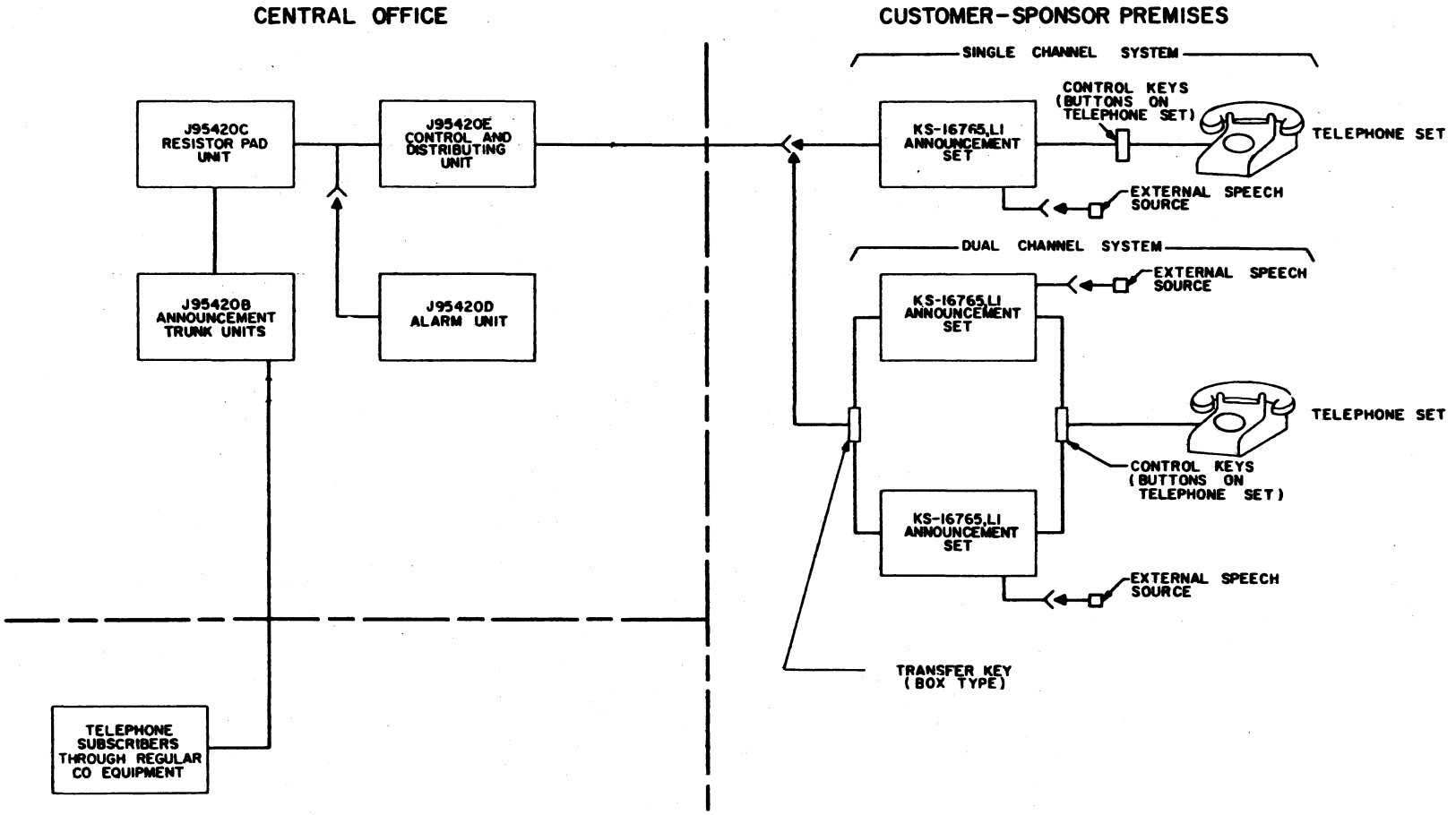

Fig. 1 — Connecting Diagram for Equipment Units in 8A Announcement System Using KS-16765, List 1 Announcement Set

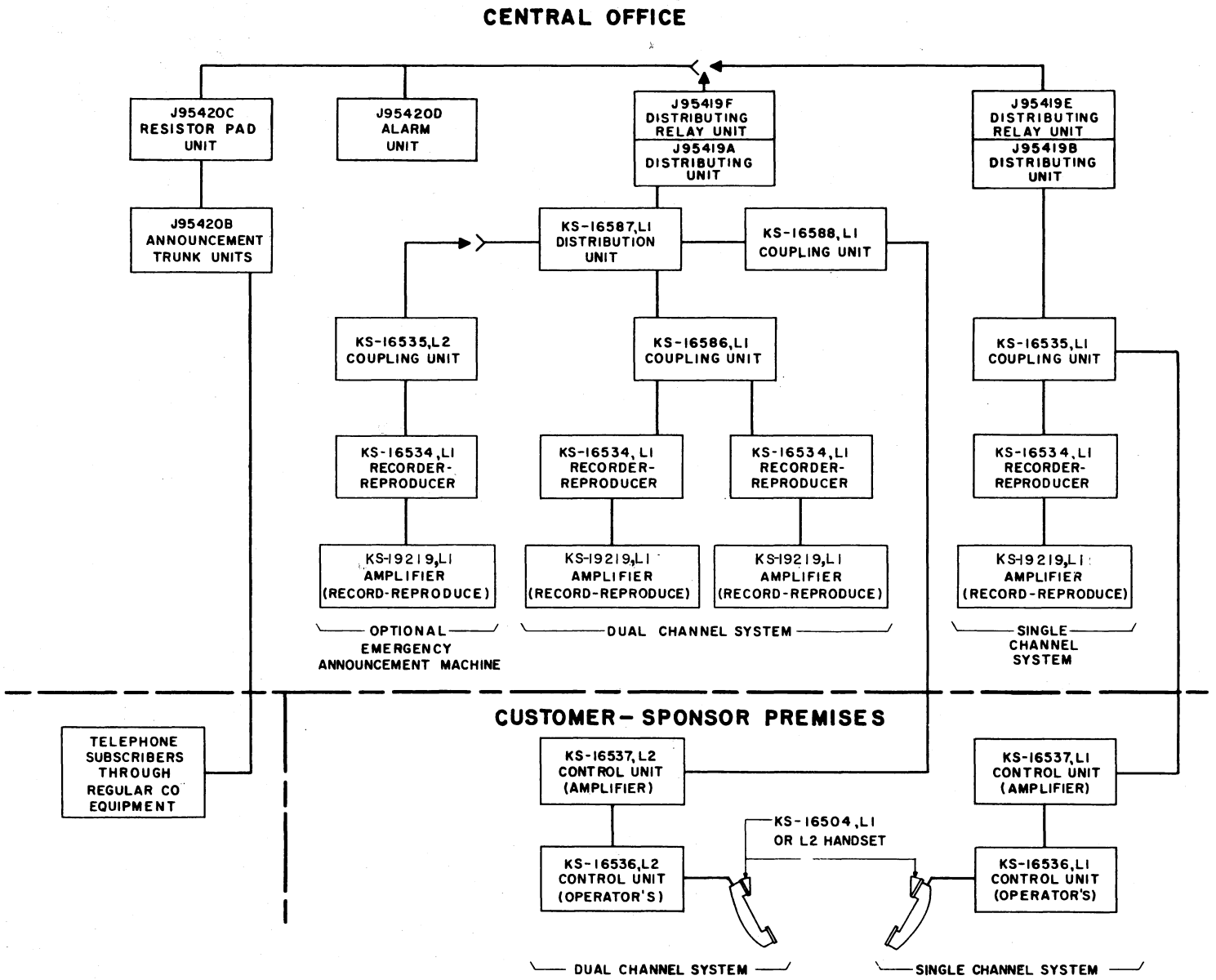

Fig. 2 — Connecting Diagram for Equipment Units in 8A Announcement System Using KS-16534, List 1 Recorder-Reproducer and Associated Audio Facilities

condition in the answering set, a second announcement set is provided on an optional basis. This constitutes a dual-channel system with a separate manually operated key used to connect either announcement set to the telephone set and central office facilities.

1.10 In the event of failure of the 115-volt, 60-cycle ac power required to energize the announcement sets, the sponsor can make live announcements with the telephone set connected directly to the central office line facility. The ringer of the telephone set then functions as a call-waiting signal to indicate that a request for the announcement has been received.

1.11 The live announcement procedure can also be applied during a failure in the announcement set.

1.12 An external speech source such as a tape recorder may be connected to the announcement sets to permit dubbing pre-recorded announcements on the announcement sets. The external speech source is not furnished as a part of this announcement system.

1.13 Further reliability of service may be provided by use of a central office alarm unit which is also furnished on an optional basis. This unit brings in a central office alarm and prevents charging when voice failure occurs on the announcement bus. When the alarm unit is not provided, charging during voice failure is possible under certain conditions such as tube failure in the announcement set. However, the sponsor can verify that the announcement is being transmitted by periodically monitoring or checking the announcement set.

1.14 Connection between the sponsor's premises and the central office requires the use of only one cable pair or equivalent line facility.

1.15 The central office equipment required for this version of the 8A announcement system consists of a control and distributing unit, resistor pad unit, announcement trunk units, and the optional alarm unit, all of which are arranged to mount on 23-inch relay-rack framework of either bulb-angle or sheet-metal construction.

8A Announcement System Arranged to Operate With the KS-16534, List 1 Recorder-Reproducer and Associated Audio Facilities

1.16 This arrangement, shown in Fig. 2, may be employed where the use of more elaborate and expensive equipment is indicated by specific requirements involving heavier calling rate, longer announcements, automatic continuity transfer, or extreme reliability. The announcement may vary in length from approximately 12 seconds to a preset maximum not exceeding 4 minutes. The recorder-reproducer will automatically adjust the announcement cycle to conform with any length of message up to the preset maximum.

1.17 On the sponsor's premises, the control equipment consists of a wall-mounted amplifier unit and a desk-mounted operator control unit together with a special handset for recording and monitoring. A headset, for monitoring only, and a cord and plug assembly to facilitate connection of the operator control unit to an external speech source such as a tape recorder are furnished on an optional basis. All other equipment is located in the central office.

1.18 The system is available in single- or dual-channel arrangements employing single or duplicate sets of recorder-reproducers and associated audio facilities which constitute the announcement machine. The choice between the two arrangements depends primarily upon the sponsor's need for continuity of service.

1.19 The single-channel system has a single announcement machine coupled to the announcement distributing loop or bus with the result that the customer's oral announcement will go out live to calling subscribers who happen to be connected to the system while a recording is being made. Voice failure will bring in a central office alarm and busy the system. The system will remain in this state until the trouble is cleared and the alarm retired. The sponsor receives a visual repeat-dictate signal to indicate an alarm condition.

1.20 The dual-channel system has two complete announcement machines with a coupling unit arranged to transfer automatically either machine on or off the distributing loop or bus. In normal operation, either machine may be on

line with the other machine standing by. With this arrangement, all recordings are made on the stand-by machine, thus eliminating live announcement while dictating. After dictation and checking, the stand-by machine is switched on line by the sponsor and the new announcement is simultaneously sent out over the distributing loop and also dubbed on the second machine which is now the stand-by unit. If voice failure occurs, the system brings in a central office alarm and automatically transfers to the stand-by machine to continue the announcements. While the system remains in this alarm condition, any new announcement dictated will necessarily go out live as in a single-channel system. Further reliability is provided in the dual-channel system by duplicate sets of distributing relays which are also arranged for automatic transfer if a relay fails in either set. A manually operated transfer key on the distributing unit may be used to place either set in operation with the remaining set available for testing and maintenance. In the event of an alarm condition during which both machines are out of service, the system is made busy and the sponsor receives visual live-dictate and repeat-dictate signals to indicate the condition. Where conditions are such that reliability and service continuity are of extreme importance, the dual-channel system can be furnished with a third announcement machine as an emergency facility. A manually operated transfer switch, located in the central office, places this emergency machine in operation and takes the two regular machines out of service for testing and maintenance purposes.

1.21 In both single- and dual-channel systems, the central office equipment provides control facilities to permit monitoring, dictation, checking, and testing by maintenance personnel. A manually operated central office switch transfers the system from remote control by the sponsor to local control at the central office and vice versa.

1.22 Connection between the remote-control equipment on the sponsor's premises and the central office requires the use of two cable pairs or equivalent line facilities for a single-channel system. A dual-channel system requires the use of three such facilities.

1.23 The central office equipment for this second version of the 8A announcement system is also arranged to mount on 23-inch relay-rack framework which, with the exception of the announcement machine bay, may be of either bulb-angle or sheet-metal construction. The announcement machine bay is restricted to bulb-angle type framework by conditions described in 5.03. The KS-16534, List 1 recorder-reproducer exceeds the guardrail limitation by a considerable amount with the result that special conditions apply to the announcement machine bay as further described under Floor Plan Arrangements.

1.24 In either version of the 8A system, the announcement trunk units are associated with a group of line terminals on a trunk per terminal basis. These announcement trunks are accessible to subscribers dialing the proper number and are connected to the announcement machine via the announcement distribution loop or bus. Calls may be cut through immediately, regardless of whether or not an announcement is in progress, or they may be cut through to coincide with the start of an announcement. In either case, the subscriber will remain connected for the duration of either one or two complete announcements. These features are available on an optional basis with the announcement trunk units.

1.25 The announcement trunk units are provided with optional apparatus for use with various types of central offices and are arranged for cross connection to the respective traffic register circuits as required. Optional wiring is provided for connection to a totalizer circuit on trunk units arranged for immediate cut through.

Power Equipment

1.26 Regular 48-volt central office battery is used to operate the 8A announcement system circuits.

1.27 A 1000-cycle tone source is required for test and alignment of the KS-16534, List 1 recorder-reproducer and associated audio facilities.

1.28 Either 130-volt plate, signal, or telegraph battery or 100-volt coin control battery is required for the J95420D alarm unit. A suitable existing battery supply may be used, if available, for this equipment. If not available, it will be

necessary to furnish a 130-volt supply such as the 403B (J86592) power plant.

1.29 Central office announcement machines are operated on commercial 115-volt, 60-cycle ac power. Announcement systems equipped with the KS-16765, List 1 announcement set will remain out of service during a power failure at the central office. In systems which employ the KS-16534, List 1 recorder-reproducer and associated audio facilities, interruptions due to power failure may be minimized by the use of battery-driven emergency power plants recommended as follows:

EQUIPMENT	POWER PLANT	CODE	RATING	TRANSFER ALARM EQUIPMENT
Single-channel announcement	504A	J86611C, List 1	312VA	J86611A, List 5
*Dual-channel announcement	504B	J86617A, List 1	500VA	Included

*May include a third machine for emergency announcement facility.

1.30 On the sponsor's premises, commercial 115-volt, 60-cycle ac power is required to energize either the KS-16765, List 1 announcement set or the amplifier control unit associated with the KS-16534, List 1 recorder-reproducer. During a power failure, live announcements may be made with announcement set facilities as described in 1.10. However, the system is operative only while the commercial power is still available at the central office. Systems equipped with the KS-16534, List 1 facilities will permit monitoring during a power failure at the sponsor's premises but all other operator control functions are inoperative.

Floor Plan Arrangements

1.31 Relay-rack bays equipped with announcement systems using KS-16765, List 1 announcement set facilities require no special consideration with respect to floor plan arrangement.

1.32 The relay-rack bays required for announcement systems using KS-16534, List 1 facilities will always include one bay per announcement machine and additional bays sufficient to mount any overflow of trunk units. Maintenance requirements and the projection of the recorder-reproducer mechanism into both front and rear aisles dictate that only one announcement machine may be mounted in a bay and that it be mounted at a specific height from the floor in order to provide clearance for track-type rolling ladders. The machine occupies the bottom 5 feet 4 inches of the bay. Mounting space above this level is available for the distributing unit, trunk units, and associated equipment. Any additional units are mounted on adjacent or nearby bays which may be located either to the right or left of the machine bay. However, the area over which the announcement system equipment may be distributed is limited by circuit restrictions affecting the length of the announcement distributing loop or speech bus.

1.33 With bay line-ups on standard spacing (3-foot 0-inch or 2-foot 6-inch maintenance aisle and 3 feet 8 inches over-all between maintenance aisles), the front projection of the announcement machine beyond the guardrail does not interfere with passage of a standard 12-inch or 14-inch wide track-type rolling ladder. The rear projection is such that interference is possible and rear guardrail extensions are provided to protect the machine. It is also recommended that the ladder handrail be located on the side away from the machine bay in both front and rear aisles.

1.34 The direction of slant of the ladder and the addition of guardrail extensions and junction bars to adjacent bays in the line-up shall be in accordance with Section 800-614-159, Part 2H. The necessary details are specified on ED-95103-10 and ED-95103-11.

1.35 The use of a narrow standard 12-inch wide ladder in the wiring aisle will permit easier handling in the reduced aisle space.

1.36 The inconvenience of reduced aisle space may be avoided, where other space is available, by locating the machine bays in a column line or an isolated area where aisle restrictions do not apply.

1.37 The overflow trunk bays have no projections beyond the guardrail. Except for the distributing loop length restrictions previously mentioned, no special requirements apply to the location of these bays.

2. SUPPLEMENTARY INFORMATION

800-600-000 — List of General Equipment Requirement Sections
801-000-000 — Equipment Design and General Equipment Requirements and Engineering Information — Common Systems
951.008.01 — General Description — No. 8A Announcement System
800-614-159 — Rolling Ladders — Installing
A204.567 — Tests and Inspections — Heavy-duty Transcribed Announcement Equipment — Control Circuit
A438.928 — Apparatus Requirements and Adjusting Procedures — Heavy-duty Transcribed Announcement Equipment
A493.261 — KS-16534 Recorder-Reproducer and Associated Audio Facilities Adjusting Procedures
A509.928 — Piece-part Data and Replacement Procedures — Heavy-duty Transcribed Announcement Equipment
C70.451 — No. 8A Announcement System, Using KS-16765, List 1 Announcement Set or 2-type Telephone Answering Set Station Control Apparatus
C70.453 — No. 8A and 9A Announcement Systems — Station Control Apparatus
J86592 — 802-751-151 — 403B Power Plant
J86611 — 802-802-160 — 504A Power Plant
J86617 — 802-802-161 — 504B Power Plant
KS-16504 — Handset
KS-19219 — Amplifier (Record Reproduce)
KS-16534 — Recorder-reproducer
KS-16535 — Coupling Unit (Single Channel)
KS-16536 — Control Unit (Operator)
KS-16537 — Control Unit (Amplifier)
KS-19739 — Amplifier
KS-16586 — Coupling Unit (Dual Channel)
KS-16587 — Distribution Unit
KS-16588 — Coupling Unit (Remote Control)
KS-16765 — Announcement Set
Floor Plan Data — Section 7.1, Sheet 44
Section 9.2, Sheet 7

3. DRAWINGS

WECo J drawings should be ordered by referring to the prefix and base number and requesting the current dash (—) number.

Key Sheet

SD-96515-01 — No. 8 Announcement System

Circuits

SD-95254-01 — Application Schematic — Single Channel System
SD-95255-01 — Application Schematic Dual Channel System
SD-95261-01 — KS-16535 Coupling Unit Circuit
SD-95262-01 — KS-16586 Coupling Unit Circuit
SD-95263-01 — KS-16587 Distribution Unit Circuit
SD-95264-01 — KS-16588 Coupling Unit Circuit
SD-95265-01 — KS-16536 Control Unit Circuit
SD-95266-01 — KS-16537 Control Unit Circuit
SD-95267-01 — KS-16534 Recorder-reproducer Schematic
SD-95286-01 — Announcement Circuit — Employing KS-16765, List 1 Announcement Set
SD-95293-01 — Key and Telephone Circuit
SD-95854-01 — Distributing Circuit for Single Channel Announcement Machine
SD-95855-01 — Distributing Circuit for Dual Channel Announcement Machine
SD-95864-01 — Announcement Trunk Circuit — for Use With No. 1 or 5 Crossbar, Step-by-step, or Panel Office in the Same Building
SD-95865-01 — Alarm Circuit
SD-95869-01 — Control and Distributing Circuit
SD-99360-01 — KS-19739 Amplifier Circuit
SD-99723-01 — KS-19219 Amplifier Circuit

Equipment

ED-95103-10 — Typical Bay Layout — Single-channel Machine
ED-95103-11 — Typical Bay Layout — Dual-channel Machine
ED-95103-12 — Typical Bay Layout Using KS-16765, L1 Announcement Set
J95420E-( ) — Control and Distributing Unit

J95420B-( ) — Announcement Trunk Unit—For Use With Panel, Step-by-step, No. 1 Crossbar, or No. 5 Crossbar Offices
J95420C-( ) — Resistor Pad Unit
J95420D-( ) — Alarm Unit

4. EQUIPMENT

J95420B — AT&TCo Std — Announcement Trunk Unit — For Use With Panel, Step-by-Step, No. 1 Crossbar, or No. 5 Crossbar Offices

Equipment — J95420B-( )

List 1 — Assembly, wiring, and equipment per SD-95864-01, Fig. 1, and "F" option, for a single-circuit trunk unit.

List 2 — A&M Only — Wiring and equipment per SD-95864-01, Q and ZE options only, required in addition to list 1 for battery cutoff panel office first or intermediate trunk of hunting group.

List 3 — A&M Only — Wiring and equipment per SD-95864-01, "N" option only, required in addition to list 1 for battery cut-off panel office single trunk or last trunk of hunting group.

List 4 — A&M Only — Wiring and equipment per SD-95864-01, "M" option only, required in addition to list 1 for ground cut-off panel office first or intermediate trunk of hunting group.

List 5 — A&M Only — Wiring and equipment per SD-95864-01, "R" option only, required in addition to list 1 for ground cut-off panel office single or last trunk of hunting group.

List 6 — Wiring and equipment per SD-95864-01, "S" option only, required in addition to list 1 for No. 1 or 5 crossbar office.

List 8 — Wiring and equipment per SD-95864-01, "X" option only, required in addition to list 1 for step-by-step office.

List 9 — Wiring and equipment per SD-95864-01, "K" and "G" options only, required in addition to list 1 when two complete announcements are furnished to the calling party before cut off.

List 10 — Wiring and equipment per SD-95864-01, A option only, required in addition to list 1 for panel office.

Note

A. Provide optional wiring as required.

J95420C — AT&TCo Std — Resistor Pad Unit

Equipment — J95420C-( )

List 1 — Assembly, wiring, and equipment for one resistor pad unit arranged for 28 resistor pads and equipped with four resistor pads per SD-95864-01, Fig. 2.

List 2 — Wiring and equipment required in addition to list 1 for one additional resistor pad per SD-95864-01, Fig. 2.

Note

A. One resistor pad is required for each announcement trunk.

J95420D — AT&TCo Std — Alarm Unit

Equipment — J95420D-( )

List 1 — Assembly, wiring, and equipment per SD-95865-01, Fig. 1, 5, and G option, for one alarm unit.

List 2 — Wiring and equipment per SD-95865-01, Fig. 2, and "W" option, required in addition to list 1 for dual-channel system.

List 3 — Wiring and equipment per SD-95865-01, Fig. 3 required in addition to list 1 when office interrupter or timing circuit is not available.

List 4 — Wiring and equipment per SD-95865-01, "X" option only, required in addition to list 1 when alarm unit is located in a No. 5 crossbar office.

List 5 — Wiring and equipment per SD-95865-01, ZC option only, required in addition to list 2 to provide remote release of alarms. (See Note C.)

Notes

A. Provide optional wiring as required.

B. Where alarm unit is located in a panel or No. 1 crossbar office, equipment per SD-95865-01, Fig. 4 is required in addition to list 1 and shall be located on the fuse panel.

C. Furnish ZB wiring when list 5 is not furnished.

J95420E — AT&TCo Std — Control and Distributing Unit

Equipment — J95420E-( )

List 1 — Framework, assembly, wiring, and equipment per SD-95869-01, Fig. 1 and 3, and one KS-19739, L1 amplifier for one control and distributing unit.

List 2 — Wiring and equipment per SD-95869-01, T option only, required in addition to list 1 when maximum resistance in external circuit loop for tripping is 1000 or 1500 ohms.

List 3 — Wiring and equipment per SD-95869-01, V option only, required in addition to list 1 when maximum resistance in external circuit loop for tripping is 950 ohms or less.

List 4 — Wiring and equipment per SD-95869-01, Fig. 2, required in addition to list 1 when alarm features are provided.

Miscellaneous Equipment

J95419A — Distributing Unit for Dual-Channel Announcement Machine

J95419B — Distributing Unit for Single-Channel Announcement Machine

J95419E — Distributing Relay Unit for Distributing Circuit

J95419F — Distributing Relay Unit for Dual-Channel Distributing Circuit

J95419S — 1000-Cycle Supply Attenuator Unit

Announcement Sets

4.01 The interconnection of telephone and announcement sets required on the sponsor-customer premises is shown on SD-95293-01. Connecting information is also shown for an external speech source.

Announcement Machines

4.02 The component units of the single-channel announcement machine, which are interconnected in accordance with SD-95254-01, are as follows:

Central Office Equipment

One — KS-19219, List 1 Amplifier (Record Reproduce)
One — KS-16534, List 1 Recorder-Reproducer
One — KS-16535, List 1 Coupling Unit
One — Record and Monitor Headset per SD-95254-01, Fig. 6

Sponsor-Customer Equipment

One — KS-16504, List 1 or 2 Handset
(List 1 — With cord and terminal lugs)
(List 2 — With cord and plug)
One — KS-16536, List 1 Control Unit (Operator)
One — KS-16537, List 1 Control Unit (Amplifier)

Optional Equipment

Monitoring Headset per SD-95254-01, Fig. 8

4.03 The component units of the dual-channel announcement machine, which are interconnected in accordance with SD-95255-01, are as follows:

Central Office Equipment

Two — KS-19219, List 1 Amplifier (Record Reproduce)
Two — KS-16534, List 1 Recorder-Reproducer
One — KS-16586, List 1 Coupling Unit
One — KS-16587, List 1 Distribution Unit
One — KS-16588, List 1 Coupling Unit
One — Record and Monitor Headset per SD-95255-01, Fig. 8

Sponsor-Customer Equipment

One — KS-16504, List 1 or 2 Handset
(List 1 — With cord and terminal lugs)
(List 2 — With cord and plug)
One — KS-16536, List 2 Control Unit (Operator)
One — KS-16537, List 2 Control Unit (Amplifier)

Optional Equipment

Monitoring headset per SD-95255-01, Fig. 9.

4.04 The emergency announcement machine (the optional third machine for a dual-channel system) consists of a complete single-channel machine arranged for local remote control by use of the KS-16535, List 2 coupling unit. The interconnection information is shown on SD-95255-01.

4.05 A source of 1000-cycle tone is required in the central office for test and alignment of the announcement audio facilities. The J95419S 1000-cycle supply attenuator unit and a patching cord per SD-95254-01, Fig. 13 or SD-95255-01, Fig. 14 are provided to facilitate the use of this tone supply.

4.06 The arrangement and mounting information for the announcement machine components are specified in the typical announcement system bay layouts shown on ED-95103-10 and ED-95103-11.

4.07 The installation and maintenance information for the equipment on the sponsor-customer's premises is covered in C70.453.

5. GENERAL NOTES

5.01 Where the T and R announcement distributing loop is run on cable rack together with regular central office switching leads, 2-conductor armored cable is specified in order to provide magnetic shielding. However, the magnetic interference may also be prevented by maintaining 1/4-inch minimum spacing from the switching leads involved. Where the latter method is feasible, the use of armored cable becomes unnecessary.

5.02 Where distributing loops for different announcement systems are run adjacent to each other but not in common with regular central office switching leads, it is considered unlikely that magnetic interference will occur.

5.03 To keep the heavy gauge T and R loop length to a minimum in systems using the KS-16534, List 1 recorder-reproducer, the resistor pads per J95420C for the trunk units are mounted at the top of the announcement equipment bays and connected by standard gauge wiring to the respective trunk units.

5.04 No provision has been made to mount the KS-16534, List 1 recorder-reproducer and associated audio equipment units on sheet-metal frames because the projection of the announcement machine beyond the guardrail proved unacceptable for use in the standard floor-plan arrangement for No. 5 crossbar offices. Consequently, the bulb-angle announcement machine bays, as shown on ED-95103-10 and ED-95103-11, must be located, in No. 5 crossbar offices, either in a column row or an isolated area where the aisle projections can be tolerated. All other units may be mounted interchangeably on either bulb-angle or sheet-metal framework.

5.05 Unless otherwise indicated, general requirements for wiring shall be as follows:

(a) Surface wiring to be No. 24 gauge type BW wire.

(b) Local cable to be No. 24 gauge type BU wire.

(c) Wiring between units on same bay to be No. 24 gauge type BU loose wiring.

(d) External wiring on cable rack to be No. 24 gauge type C or A in cable and No. 22 gauge type BH wire for four leads or less.

(e) Battery and ground leads shall be No. 24 gauge wire fused up to 1-1/3 amperes and No. 22 gauge wire fused up to and including 2 amperes.

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J95420B,L7	Mfr Disc.	1	J95420B,L6
J95420A	Mfr Disc.	2	J95420E

The above equipment has been replaced as indicated. Where A&M Only items appear, the issue numbers shown are those of the issue in which the rating was first applied.

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