

NO. 4A 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 of the framework, equipment, and circuits to be used in the manufacture of the No. 4A announcement system.

1.02 This specification is reissued to incorporate previous appendix changes.

Capacity

1.03 Two types of distributing centers are available in the No. 4A announcement system. One acts as a main center where the announcement machine is located together with a network of announcement trunks. The other acts as a subcenter which receives the announcements from the main center over two cable pairs and/or dual carrier facilities, and then distributes them over a network of trunks. The maximum capacity of the subcenter is 300 trunks. For the main center the maximum capacity is 300 trunks with a dual-channel Audichron machine, and 100 trunks with the single-channel machine.

Description

1.04 The No. 4A announcement system is designed to give customers a predetermined number of brief time announcements through regular telephone facilities. The essential parts of the system are the Audichron machine, distributing and alarm units, and trunk units. The essential difference between the dual-channel and the single-channel announcement systems are as follows. The dual-channel Audichron machine which provides an automatic transfer feature in case of trouble on one channel, may be provided with an Audichron converter which will operate the Audichron machine from the office 48-volt

battery should the commercial 115-volt, 60-cycle ac supply fail, and also may be driven from a regulated frequency power supply if required.

1.05 The single-channel Audichron machine is not arranged for either a converter or a regulated frequency power supply.

Audichron Machine

1.06 The Audichron machine is a floor cabinet and is normally located in the operating room but may be located otherwise as specified by the telephone company. The dual-channel machine is comprised of two complete announcement sources, each with its own film records and amplifiers, with provision for automatic transfer from one channel to the other in the event of low volume or failure of the announcements for any reason. This machine also contains a switch for transferring incoming calls from the machine to either a spare switchboard position or a high quality microphone so that emergency manual announcements may be given by an operator in case both automatic channels should be out of service at the same time.

1.07 The single-channel machine, which has only one announcement mechanism, has an automatic transfer to a switchboard position for emergency manual announcements in case of failure and a manually operated transfer key for maintenance purposes. The single-channel machine is not arranged for microphone announcements. Emergency manual announcements must be made from a switchboard position.

1.08 The announcements for each channel are recorded on a strip of film which is wound helically on the outside of a chromium-plated drum and scanned by an optical system consisting of a light source, a series of lenses, and a photoelectric cell. The optical system is mounted, with its associated preamplifier, on a carriage which travels back and forth parallel to the axis of the drum.

1.09 One machine is required for each system and is rented from the Audichron company. In a dual-channel machine, maintenance work may be done on one automatic channel while the other is in use. In a single-channel machine, maintenance work can be done only while the system is on an emergency manual announcement basis.

Distributing and Alarm Units

1.10 The distributing circuit, under control of interruptions furnished by the Audichron machine, provides the signals necessary to connect the announcement trunks through to the Audichron machine.

1.11 Duplicate distributing circuits are provided on the equipment unit and a key thereon is used to transfer from one distributing circuit to the other in case of trouble.

1.12 The alarm circuits provide the signals necessary to set off the central office alarm system in case of trouble in the distributing unit or in the Audichron machine, and to give indication of the kind of trouble that has occurred.

1.13 The distributing and alarm unit at a subcenter is provided in areas where for trunking reasons it is more economical to provide more than one distributing center. This unit (1.16) is provided with duplicate distributing circuits, each with its own amplifier, and with alarm circuits to set off the office alarm system in case of trouble.

1.13.1 Remote Alarm: This system is arranged to operate with remote alarm feature in subcenter only.

Announcement Trunk Units

1.14 Announcement trunk circuits give customers access to the announcements from either type of distributing center.

Time Source

1.15 A radio receiver per KS-12059, or other means may be provided for obtaining time reports from a time standard, but is not a part of this system except when a regulated frequency power supply is furnished, in which case

a radio receiver per KS-12059 is also provided with this equipment. (See 4.04 and 4.05.)

Power Source

1.16 A regular 24- and 48-volt central office battery is used to operate the announcement system circuits.

1.17 The dual-channel Audichron machine is operated on a 115-volt ac supply obtained from either a commercial supply or a controlled frequency supply per KS-12060 regulated frequency power supply. The single-channel Audichron machine is operated only from a commercial 115-volt ac supply. Both machines also require 48-volt central office battery.

1.18 The power supply for the single-channel Audichron machine is connected to the Audichron machine through a 10-ampere fuse-tron via No. 14 American Wire Gauge leads.

1.19 When the regulated frequency power supply is provided, the dc and ac power supply fusing and wire sizes are as specified on SD-95159-01. When the regulated frequency power supply is not provided, the power supply for the dual-channel machine is as follows. The 48-volt dc supply to the Audichron converter is through a 30-ampere fuse-tron via No. 4 American Wire Gauge or larger leads as required to prevent more than a 1-volt drop at 22.7 amperes. The commercial 115-volt ac supply is connected to the converter through a 12-ampere fuse-tron via No. 10 American Wire Gauge leads. The connection from the 20-ampere circuit-breaker on the converter to the dual-channel Audichron machine is via No. 12 American Wire Gauge leads.

1.20 The regulated frequency power supply per KS-12060, L1, supplies a controlled frequency source of power where an accuracy deviation limit of approximately ± 1 second per day is desired. The units consist of one control panel per KS-12061, two oscillators per KS-12062, L1, one power panel per KS-12063, and two amplifiers per KS-12064, which are mounted on a 19-inch relay rack bay and which derive power from the 48-volt central office battery and the commercial 115-volt ac supply.

1.21 In case of commercial power failure, a battery-driven converter is furnished by

the Audichron Company to take up automatically the 115-volt ac load for the dual-channel machine until service is restored. This converter shall be located in the power room and be connected with the power room alarm system. The converter and control panels may be provided by the Audichron Company in a cabinet, or mounted on a relay rack frame, or unmounted. The cabinet type may be mounted on a sheet metal table per ED-80811-01, Group 1, and the unmounted type equipment may be mounted on a standard relay rack such as ED-90370-01, Group 1, with the control panel mounted at the top of the frame. No converter is provided for emergency operation of the single-channel Audichron machine.

1.22 The amplifiers for the distributing and alarm unit in a subdistributing center and in a single-channel office are operated on a 115-volt ac supply obtained from a commercial utility or from the emergency power plant, J86565. The 2-conductor No. 14 American Wire Gauge flexible steel-covered cable to the equipment from the power supply shall be furnished as required.

Manual Announcements

1.23 Two arrangements are available for emergency manual announcements when the automatic channels of the dual-channel Audichron machine of the No. 4A announcement system are out of service. When the machine is located in the operating room, these announcements are normally made over a high quality

microphone associated with the machine. When the machine is located outside an operating room, these announcements shall be made at a spare switchboard position. For the single-channel machine, the emergency announcement must be made from a spare switchboard position.

1.24 The emergency announcement trunk gives customers access to manual time announcement at a switchboard position. When the emergency bell rings and the answering lamp lights, the operator connects to the answering jack and gives time announcement once every 12 seconds. The timing is indicated to the operator by the cord lamp which lights for a 2-second silent interval and is extinguished for the 10-second announcement interval. When there is no call waiting, the cord lamp remains steadily lighted. The operator uses the switchboard clock or calculagraph as the time source.

1.25 During periods of light load or intermittent load, the operator may withdraw the plug and rely upon the call bell to give notice of any unanswered calls. (See 4.02.)

1.26 The telephone company shall provide a time source, furniture, location, and means and methods of handling manual announcements not mentioned in this specification. When a switchboard is used, the telephone company shall specify the position. (The answering lamp and jack may be multiplied.) When a microphone is used, they shall specify an Audichron machine equipment with a microphone.

SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX

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

CIRCUIT DRAWING	EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CKT PER UNIT	2-IN. MTG PLT SPACES	
						19 IN.	23 IN.
SD-25940-01	J95416D	AT&TCo Std	No. 4A Announcement System — No. 5 Crossbar System — Incoming Announcement Trunk Unit	J95416D-()	1	—	1-2
SD-30895-01 SD-31518-01	J95416E	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit — Step-By-Step Systems — For Selector Multiple — Arranged for Automatic Disconnect	J95416E-()	1	—	2

CIRCUIT DRAWING	EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CKT PER UNIT	2-IN. MTG PLT SPACES	
						19 IN.	23 IN.
SD-95533-01	J95416F	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit — Panel or No. 1 Crossbar Office — For Use With Operator Class Code	J95416F-()	1	—	2
SD-95538-01	J95416C	AT&TCo Std	No. 4A, 6A, and 9A Announcement Systems — Announcement Trunk Unit — Outgoing to Subcenter	J95416C-()	1	—	2
SD-95540-01	J95416P	AT&TCo Std	Distributing and Alarm Unit for Use With a Dual-Channel Audichron Machine	J95416P-()	1	—	5
SD-95546-01	J95416Q	Mfr Disc.	No. 4A and 6A Announcement System — Distributing Relay Alarm Unit for Distributing Center	J95461Q-()	1	—	1
SD-95546-01	J95416W	AT&TCo Std	No. 4A and 6A Announcement Systems — Distributing Relay Unit for Subcenter — Capacity, 50 trunks	J95416W-()	5	—	1
SD-95547-01	J95416G	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit — From Manual Local or No. 1 Tandem Office	J95416G-()	2	—	2
SD-95548-01	J95416H	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit Equipment — from Panel, Panel Tandem, or No. 1 Crossbar Office — In Same Building or Distant Office — With or Without Final Heavy Positive Pulse	J95416H-()	1	—	2
SD-95881-01	J95416T	AT&TCo Std	No. 4A Announcement System Alarm Control Unit	J95416T-()	1	—	1
SD-95593-01	J95416J	AT&TCo Std	No. 4A Announcement System — Emergency Announcement Trunk Unit Equipment — For Termination at DSA, Toll, or Manual Switchboard Positions — Arranged for Using 52A Head Telephone Set	J95416J-()	1	—	2

CIRCUIT DRAWING	EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CKT PER UNIT	2-IN. MTG PLT SPACES	
						19 IN.	23 IN.
SD-95771-01	J95416R	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit — Incoming from No. 1 Crossbar or Panel Office — For Use With Operator Class Code — Located in No. 5 Crossbar Office	J95416R-()	1	—	1-2
SD-96473-01	J95416S	AT&TCo Std	No. 4A Announcement System — Announcement Trunk Unit — Incoming from Step-By-Step Office — Located on No. 5 Crossbar Office	J95416S-()	2	—	2-3
SD-95546-01 SD-99360-01	J95416AA	AT&TCo Std	No. 4A and 6A Announcement Systems — Distributing and Alarm Unit for Subcenter — Capacity 300 Trunks	J95416AA-()	1	—	12
SD-95595-01 SD-99360-01	J95416AB	AT&TCo Std	No. 4A Announcement System — Distributing and Alarm Unit for Single-Channel Announcement Machine	J95416AB-()	1	—	7

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
- J86565 — Mfr Disc — Emergency Power Plant
- KS-8207 — Volume Indicator Meter
- KS-8333 — Sensitrol Relay
- KS-12059 — Radio Receiver
- KS-12060 — Regulated Frequency Power Supply
- KS-12061 — Control Panel
- KS-12062 — Oscillator
- KS-12063 — Power Control Panel
- KS-12064 — Power Amplifier
- KS-19739 — Amplifier
- Floor Plan Data — Section 7.3, Sheet 9

3. DRAWINGS

- For additional drawings forming a part of this specification, see listings under Subdivisions of Equipment and Detailed Index.
- ED-80811-01 — Charging Machine Mounting Framework
- ED-91601-01 — Relay Rack Unit — Horizontal Local Cable Wiring

4. EQUIPMENT

- J95416C — AT&TCo Std — No. 4A, 6A, and 9A Announcement Systems — Announcement Trunk Unit — Outgoing to Subcenter — Two 2- by 23-Inch Mounting Plates — Surface Wired*
- Equipment — J95416C-()

List 1 — Framework, wiring, and equipment per SD-95538-01, Fig. 1 for one single-circuit announcement trunk unit.

List 2 — Wiring and equipment per SD-95538-01, Fig. A and B required in addition to list 1 for use with nonloaded cable facilities.

List 3 — Wiring and equipment per SD-95538-01, Fig. J and K required in addition to list 1 for use with loaded cable facilities.

J95416D—*AT&TCo Std—No. 4A Announcement System—No. 5 Crossbar System—Incoming Announcement Trunk Unit—2- by 23-Inch Mounting Plates—Surface Wired*

Equipment — J95416D-()

List 1 — Assembly, wiring, and equipment for one single-circuit announcement trunk unit, per SD-25940-01, Fig. 1.

J95416E—*AT&TCo Std—No. 4A Announcement System—Announcement Trunk Unit—Step-By-Step Systems—For Selector Multiple—Arranged for Automatic Disconnect—Two 2- by 23-Inch Mounting Plates—Surface Wired*

Equipment — J95416E-()

List 1 — Framework, assembly, wiring, and equipment for one single-circuit trunk unit per SD-30895-01, Fig. 1.

List 2 — Equipment and surface wiring per SD-31518-01, Fig. 1 required in addition to list 1 for each ten trunks in the same aisle.

J95416F—*AT&TCo Std—No. 4A Announcement System—Announcement Trunk Unit—Panel or No. 1 Crossbar Office—For Use With Operator Class Code—Two 2- by 23-Inch Mounting Plates—Surface Wired*

Equipment — J95416F-()

List 1 — Framework, assembly, wiring, and common equipment for one single-circuit

announcement trunk unit per SD-95533-01, Fig. 1. (See Notes A and B.)

Notes

- A. Y or Z options shall be furnished as specified.
- B. Installer shall remove T, V, W, or X wiring as required to provide satisfactory values for A1 and A2 resistance.

J95416G—*AT&TCo Std—No. 4A Announcement System—Announcement Trunk Unit—From Manual Local or No. 1 Tandem Office—Two 2- by 23-Inch Mounting Plates—Surface Wired*

Equipment — J95416G-()

List 1 — Framework, assembly, wiring, and common equipment for one 2-circuit announcement trunk unit per SD-95547-01, Fig. 1. (See Notes A, B, and C.)

List 2 — Equipment and wiring for two SD-95547-01, Fig. A required in addition to list 1 for use in a manual local office.

List 3 — Equipment and wiring for two SD-95547-01, Fig. B required in addition to list 1 for announcement trunks from manual No. 1 tandem office.

Notes

- A. Peg-count register per SD-95547-01, Fig. 3, when required, shall be located in the miscellaneous register cabinet.
- B. Furnish V or T wiring as required.
- C. The W, X, Y, and Z wiring shall be removed as required by the installer to provide satisfactory values for A1 and A2 resistances.

J95416H—*AT&TCo Std—No. 4A Announcement System—Announcement Trunk Unit Equipment—From Panel, Panel Tandem, or No. 1 Crossbar Office—In Same Building or Distant Office—With or Without Final Heavy Positive Pulse—Two 2- by 23-Inch Mounting Plates—Mounting Plates—Surface Wired*

Equipment — J95416H-()

- List 1** — Framework, assembly, wiring, and common equipment for one announcement trunk unit per SD-95548-01, Fig. 1.
- List 2** — Equipment and wiring per SD-95548-01, Fig. A required in addition to list 1 for use with final heavy positive pulse.
- List 3** — Equipment and wiring per SD-95548-01, Fig. B required in addition to list 1 for use without final heavy positive pulse.

Notes

- A. The W, X, Y, and Z wiring shall be removed as required by the installer to provide satisfactory values for A1 and A2 resistances.
- B. The U and V options shall be furnished as specified.

J95416J—AT&T Co Std—No. 4A Announcement System—Emergency Announcement Trunk Unit Equipment—For Termination at DSA, Toll, or Manual Switchboard Positions—Arranged for Using No. 52A Head Telephone Set—Two 2- by 23-Inch Mounting Plates—Surface Wired (See 4.02)

Equipment — J95416J-()

- List 1** — Framework, assembly, wiring, and common equipment for one single-circuit emergency announcement trunk unit per SD-95593-01, Fig. 1. (See Note A.)
- List 2** — Wiring and equipment per SD-95593-01, Fig. A, less X option and with W wiring required in addition to list 1 for low-high sleeve supervision on No. 3C or 3CL toll switchboard.
- List 3** — Wiring and equipment per SD-95593-01, Fig. A, with X option required in addition to list 1 for low-high sleeve supervision on No. 3 toll switchboard.
- List 4** — Wiring and equipment per SD-95593-01, Fig. B, for wet-dry supervision on No. 1 toll switchboard.
- List 5** — Wiring and equipment per SD-95593-01, Fig. C, for DSA or manual switchboards.

Note

- A. Furnish Y and Z wiring as required.

J95416P—AT&T Co Std—Distributing and Alarm Unit for Use with a Dual-Channel Audichron Machine—Surface Wired—(See 4.03)

Equipment — J95416P-()

- List 1** — Framework, assembly, wiring, and common equipment for one central bureau distributing and alarm circuit per SD-95540-01, Fig. 2 with Q option. (See Notes A and B.)
- List 2** — Wiring and equipment per SD-95540-01, Fig. 2, S option only (see Notes A and B) required in addition to list 1 when emergency announcements are to be made from a switchboard position via an emergency announcement trunk.
- List 3** — Wiring and equipment required in addition to list 1 when connecting to more than 100 announcement trunks per SD-95540-01, Fig. 4 and Fig. 2, N wiring only.

Notes

- A. Furnish T wiring with list 1 when list 2 is not specified.
- B. Furnish other optional wiring as required.

J95416R—AT&T Co Std—No. 4A Announcement System—Announcement Trunk Unit—Incoming From No. 1 Crossbar or Panel Office—For Use With Operator Class Code—Located in No. 5 Crossbar Office—2- by 23-Inch Mounting Plates—Surface Wired

Equipment — J95416R-()

- List 1** — Assembly, wiring, and equipment for one announcement trunk circuit per SD-95771-01, Fig. 1.
- List 2** — Assembly, wiring, and equipment for one transmission pad with common equipment for 42 pads, per SD-95771-01, Fig. 2. (See Note A.)

List 3 — Wiring and equipment required in addition to list 2 for each additional pad per SD-95771-01, Fig. 2.

Note

A. Transmission pads per SD-95771-01, Fig. 2 (J95416R-(), Fig. 2) shall be located at the top of the relay rack containing associated announcement trunks.

J95416S — AT&T Co Std — No. 4A Announcement System — Announcement Trunk Unit — Incoming From Step-By-Step Office — Located in No. 5 Crossbar Office — 2- by 23-Inch Mounting Plates — Surface Wired

Equipment — J95416S-()

List 1 — Assembly, wiring, and common equipment for one 2-circuit trunk unit with equipment and wiring for one trunk circuit, per SD-96473-01, Fig. 1.

List 2 — Equipment and wiring required in addition to list 1 for one additional trunk circuit per SD-96473-01, Fig. 1.

Notes

- A. Furnish X or Y option as required.
- B. Resistance pads per SD-96473-01, are to be furnished per J95416S-(), Fig. 3 and located at the top of bay.

J95416T — AT&T Co Std — No. 4A Announcement System — Alarm Control Unit — One 2- by 23-Inch Mounting Plate — Surface Wired

Equipment — J95416T-()

List 1 — Assembly and common equipment for one alarm control circuit.

List 2 — Equipment and wiring per SD-95881-01, Fig. 1 required in addition to list 1 for one regulated frequency power supply alarm circuit.

List 3 — Equipment and wiring per SD-95881-01, Fig. 2 required in addition to list 1 for

one Audichron converter alarm relay circuit for step-by-step office equipment.

List 4 — Equipment and wiring per SD-95881-01, Fig. 3 required in addition to list 1 for one Audichron converter alarm relay circuit for use in No. 5 crossbar office.

List 5 — Equipment and wiring per SD-95881-01, Fig. 4 required in addition to list 4 when Audichron converter alarm relay circuit is provided in No. 5 crossbar office and the regulated frequency power supply alarm circuit is not provided.

Note:

- A. Provide optional wiring as required.
- B. For offices other than those covered in lists 3, 4, and 5, the Audichron converter alarm feature is available as optional parts of the office alarm equipment.

J95416AA — AT&T Co Std — No. 4A and 6A Announcement Systems — Distributing and Alarm Unit for Subcenter — Capacity 300 Trunks — Occupies Space of Twelve 2- by 23-Inch Mounting Plates

Equipment — J95416AA-()

List 1 — Framework, assembly, local cable, and common equipment for one single-circuit distributing and alarm unit arranged for maximum capacity of 300 announcement trunks.

WIRE EQUIP NOTES

Distributing and Alarm Circuit for Subcenter, SD-95546-01:			
Alarm & Control Circuit, Fig. 1 With H, P, ZI, ZL, & ZQ App, M, K, H, ZN, & ZO Wiring, Fig. C, E, & K	1	1	A,C
Load Impedance Circuit, Fig. 3 With N, Q, R, S, T, V, W, X, Y, & Z Wiring	1	1	B

	WIRE	EQUIP	NOTES
Distributing Relay Alarm Circuit, Fig. 10 With ZX App, ZS and YF Wiring, and Fig. 13	1	1	
Trouble Release Key, Fig. 12 With ZD and ZE Wiring	1	1	D
Interrupter Circuit, Fig. 6	1	0	
Timing Circuit, Fig. 7	2	0	
Timing Circuit, Fig. 8	2	0	
Signal Multiplier Circuit, Fig. 9	1	0	
Distributing Relay Transfer Circuit, Fig. 22 with ZD and ZE Wiring	1	1	D
Transfer Relay Circuit, Fig. 23 With YD Wiring	1	1	
Fig. G, H, M, & N	1	0	
KS-19739, L1 Amplifier (SD-99360-01)	2	2	

- List 2** — Equipment per SD-95546-01, one Fig. 6 and two Fig. 8, required in addition to list 1 for interrupter and timing circuits in offices other than panel or No. 1 crossbar.
- List 3** — Equipment per SD-95546-01, two Fig. 7, required in addition to list 1 for a timing circuit in a panel or No. 1 crossbar office. (See Note E.)
- List 4** — Equipment per SD-95546-01, Fig. 9, required in addition to list 1 for a signal-multiplier circuit when more than 100 trunks are required.
- List 5** — Equipment per SD-95546-01, Fig. 22, ZD option only, required in addition to lists 1 and 5 when remote release of alarms is required.
- List 6** — Equipment per SD-95546-01, Fig. G and M with ZU option, required in addition to list 1 for an office with nonloaded cable.
- List 7** — Equipment per SD-95546-01, Fig. H and N with ZU option, required in addition to list 1 for an office with B-88, B-135, D-88, H-44, or H-88 loading.

- Notes**
- A. Connect K or M wiring as required.
 - B. The N, Q, R, S, T, U, W, X, Y, and Z wiring shall be removed by the installer, as required, to provide satisfactory values for F to N resistance.
 - C. One monitoring receiver per SD-95546-01, Fig. 4 shall be furnished with each unit.
 - D. Connect ZD or ZE wiring as required.
 - E. In a panel or No. 1 crossbar office, timing is obtained from the interrupter frames in accordance with SD-95546-01, Fig. 5.
 - F. For associated distributing relays, see the J95416W unit.

J95416W — AT&T Co Std — No. 4A and 6A Announcement Systems — Distributing Relay Unit for Subcenter — Capacity 50 Trunks — One 2- by 23-Inch Mounting Plate — Surface Wired

Equipment — J95416W-()

- List 1** — Assembly, wiring, and equipment for one distributing relay unit arranged for five distributing relay circuits and equipped with one distributing relay circuit in accordance with SD-95546-01, Fig. 2 (for ten trunks). (See Notes A and B.)
- List 2** — Wiring and equipment required in addition to list 1 for each additional distributing relay circuit in accordance with SD-95546-01, Fig. 2. (Maximum four lists 2 per list 1.)

Notes

- A. Provide optional wiring as required.
- B. A maximum of six of these units may be used with one distributing and alarm unit per J95416U.
- C. The unit shall be mounted directly above the J95416U distributing and alarm unit.
- D. The CT leads from the announcement trunks shall be wired directly to the CTB relays by the installer.

J95416AB—AT&T Co Std—No. 4A Announcement System — Distributing and Alarm Unit for Single-Channel Announcement Machine — Occupies Space of Seven 2- by 23-Inch Mounting Plates—Surface Wired

Equipment—J95416AB-()

List 1— Framework, assembly, wiring, and equipment per SD-95595-01, Fig. 2, and SD-99360-01, Fig. 1 and 2, for one distributing and alarm unit.

List 2— Wiring and equipment per SD-95595-01, Fig. 1, required in addition to list 1 for one distributing circuit (maximum ten lists 2).

List 3— Wiring and equipment per SD-95595-01, Fig. 2, Y option only, required in addition to list 1 for connection to alarm circuit in a No. 5 crossbar office.

Notes

A. Provide X wiring in addition to list 1 for connection to alarm circuit in a No. 1 crossbar office.

B. Provide W wiring in addition to list 1 for connection to alarm circuit in a panel or step-by-step office.

C. Provide Z wiring in addition to list 2 for first distributing circuit.

Miscellaneous Equipment

4.01 Operating Room Voice-Failure Alarm per SD-95540-01, Fig. 3: In order to know when time announcements should be announced manually, a lamp mounted in a 15E-3 indicator shall be provided and located as specified by the telephone company.

4.02 Call Bell per SD-95593-01, Fig. 2: The call bell (a subset) shall be provided and located as specified by the telephone company, preferably on the switchboard position roof similar to the location of the night alarm subset.

4.03 Distributing Relays per SD-95540-01, Fig. 1 or SD-95546-01, Fig. 2: One pair of relays are required for each ten announcement

trunks connected. Relays per SD-95540-01 shall be mounted per J95416P-(), Fig. 2 and relays per SD-95546-01 shall be mounted per J95416W-(), Fig. 1 and located directly above the distributing and alarm unit. The CP or CT leads from the announcement trunks shall be wired by the installer directly to either the RA or the RB relay for SD-95540-01 or to either the CTA or the CTB relay for SD-95546-01, and shall be multipled as required.

4.04 The KS-12059 radio receiver is furnished with one set of coils, crystal, and crystal oven for whatever operating frequency is specified by the customer. An alternate operating frequency requires an individual set of coils, crystal, and crystal oven which should be ordered separately if desired. Each set should be ordered as tuned for the particular frequency desired.

4.05 The following tables may be used as a basis for selecting the principal channel frequency for reception in various parts of the country. They apply for latitudes of 20 to 50 degrees North. The column Local Time is the time at Washington, D.C.

TABLE 1 — SUMMER

LOCAL TIME	FREQUENCY KS/S	STONE RECEPTION MILES
Midnight	2500	Up to 1100
Midnight	5000	300 to 2500
Midnight	10,000	1200 to 10,000
Midnight	15,000	2000 to 10,000
Noon	5000	Up to 350
Noon	10,000	450 to 1300
Noon	15,000	800 to 3500

TABLE 2 — WINTER

LOCAL TIME	FREQUENCY KC/S	STONE RECEPTION MILES
Midnight	2500	Up to 2000
Midnight	5000	400 to 8000
Midnight	10,000	900 to 9500
Midnight	15,000	Sporadic Reception
Noon	5000	Up to 900
Noon	10,000	Up to 2600
Noon	15,000	200 to 4300

4.06 For the normal reception of WWV in the east coast area, the 5-megacycle channel is recommended as the principal frequency and

the 10-megacycle channel as the alternate frequency. For the Middle West and the West Coast, the 10-megacycle channel is recommended as the principal and the 15-megacycle as the alternate channel. The exception to this recommendation as regards the West Coast is that interference may be encountered between WWV and WWVH (in Hawaii) as noted in National Bureau of Standards No. 1324 Technical Report. In this exceptional case, field experience with the radio receiver should be used in selecting the principal and alternate channel frequencies.

4.07 Subcentering Via Carrier Facilities

- J95419F — Distributing Relay Unit — For Dual-Channel Distributing Circuit
- J95419W — Cut-Through Pulse Repeater Unit — E & M Signaling
- J95419Y — Trunk Distributing and Alarm Unit — Incoming to Subscriber — Dual Carrier Facilities
- J95419AB — Announcement Trunk Unit — With Cut-Through Pulsing — Outgoing to Subcenter — E & M Signaling

5. GENERAL NOTES

- 5.01** If the Andichron machine is not located in the operating room, it is desirable from a maintenance viewpoint, to locate the machine near the regulated frequency power supply bay in the switch room if the latter is furnished.
- 5.02** If the rear aisle widths in the office cannot accommodate the equipment and guard-rail extension of the regulated frequency power supply bay, this bay should be located separately, in which case a ladder should be available for maintenance.

Bell Telephone Laboratories, Incorporated

Dept 2321

Interrupter Frames

- 5.03** When announcement equipment is located in panel or crossbar dial offices, duplicate interrupter frames shall be provided where space is not available on existing frames.
- 5.04** Odd-numbered announcement trunks shall be connected to the interrupters on one frame and the even-numbered trunks to those on the other frame.
- 5.05** In the case of the distributing and alarm circuit, it shall be connected to one interrupter on the odd frame and one on the even frame.
- 5.06** In offices other than panel or crossbar, timing shall be obtained as specified on the circuits.

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J95416A	Mfr Disc.	1	J95416K
J95416B	Mfr Disc.	2	J95416N
J95416K	Mfr Disc.	2	J95416P
J95416L	Mfr Disc.	2	J95416Y
J95416M	Mfr Disc.	3	—
J95416N	Mfr Disc.	2	J95416U & J95416W
J95416Q	Mfr Disc.	3	J95416U
J95416U	Mfr Disc.	3	J95416AA
J95416Y	Mfr Disc.	3	J95416AB

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.