EMERGENCY ALARM SYSTEM

WITHOUT CODE SIGNALING

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 an emergency alarm system not arranged for code signaling and with automatic fire detection for use in central offices as a means of summoning assistance, in case of any emergency. The automatic fire-detection feature employing 1A fire detection wire (A&M Only) is covered in J98302. The automatic fire-detection feature employing commercial fire detection equipment is covered in EM789. The control units are covered in J28350.

1.02 This specification is reissued:

(a) To rate the application of 1A fire detecting wire A&M Only.

(b) To introduce the application of commercial fire detection equipment.

(c) To add lists 3 and 4 to J98303E for connection with No. 1 ESS offices.

(d) To add list 2 to J98303F for connection with No. 1 ESS offices.

(e) To add 4.01.

CAPACITY

1.03 The multizone system has a capacity of five zones and six sounding devices maximum. It is expected that for buildings requiring more than five zones, an emergency alarm system with code signaling should be employed to obtain the advantage of quicker response from a sounded code. See J28350 for details.

DESCRIPTION

Multizone System

1.04 ***Components:*** The multizone system consists of a number of horns and bells employed as sounding devices and distributed throughout the area served. The operation of the sounding devices is started by the opening of any one of a series of simple electric switches known as station boxes, or by the operation of the fire detection equipment. The area served by the equipment is divided into zones, each zone being assigned an arbitrary number. The shape of the building and arrangement of partitions, in general, control the size and number of zones. The alarm circuit when opened in any zone causes the sounding devices in all parts of the building to sound a continuous alarm. The circuit also lights a lamp associated with the zone in which the alarm was sent out and all multiples of the lamp appearing throughout other zones. Thus, by observing the lamp lighted and associated zone designation, the location of the trouble can be determined.

1.05 ***Zone Layout:*** In the multizone arrangement, a separate zone is generally assigned to the power room in the basement, one or more zones for the terminal equipment, and a separate zone for the operating room. If partitions or walls divide the terminal equipment, a separate zone is required for each division in order to direct aid to a definite floor area. If the room is large, it may be divided into two or three zones, as required, in order to keep the zone area to a reasonable size. Numbering of the zones is generally done from the basement up.

1.06 Central Control Equipment

(a) ***Control Unit:*** The general test and control equipment required by the system is

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designed to mount on a frame centrally located, the equipment being enclosed by metal casings mounted front and rear. See J28350 for details.

(b) ***Auxiliary Alarms:*** A subscriber set is located on a panel directly above the casing and employed as a "no battery" alarm. A bell is also mounted at this point to supervise the operation of the zone alarm, signal supervisory, and relay supervisory circuit relays.

(c) ***Manual Control Key:*** A master key is provided as a part of the central control equipment for the purpose of manually sending a signal to indicate that an emergency condition has been cleared or for other arbitrary signaling purposes. The closing of this switch causes the operation of all sounding devices in the system.

(d) ***Zone Lamps:*** In case of an alarm, the zone in trouble may be ascertained at the central control equipment unit from the strip of zone lamps provided for test purposes.

1.07 ***Zone Lamp Signal Cabinets:*** Lamp signal cabinets accommodating five 34-type lamp sockets each are mounted on the walls, columns, or end guards throughout the zones as required, for the purpose of indicating the zone in trouble when an alarm is turned in. These cabinets are generally located near doorways or in central locations, one or more per floor as specified.

Single-Zone System

1.08 A circuit consisting of a pair of relays connected to the fire detection equipment and the station box switches, as required, is available for a single-zone ultimate layout such as required by a small office. The operation of this circuit by the opening of a station box switch or the operation of the fire detection equipment will cause a pair of loud ringing subscriber sets to sound continuously until the station box switch is restored or the fire detection equipment is restored to the unoperated state.

Station Boxes

1.09 ***Type:*** The station boxes are fire alarm type, single-pole electric switches encased in metal housings as shown in Fig. 1. The station box is arranged so that a switch, when operated by pulling down a lipped lever to open the circuit, cannot be restored to its closed position without the aid of a key.

1.10 ***Location:*** Station boxes are located near doorways, at the end of a power board, near maintenance desks, and at other strategic locations, as specified, in order to be readily available for turning in an alarm.

Sounding Equipment

1.11 The opening of any zone loop in a multizone system by the operation of a station box or the fire detection equipment brings in a continuous alarm sounded by means of 24- or 48-volt vibrating horns and bells. These are silenced by restoring the station box switch used to turn in the alarm or resetting the fire detection equipment which set off the alarm. A nonlocking key is available for use in operating rooms to silence the bells.

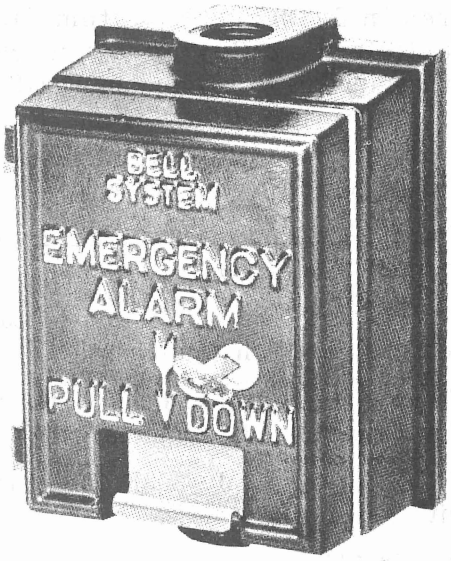

Fig. 1 — Station Box

1.12 The sounding devices are furnished and located, as required, in the various zones. The horns are used in terminal and power rooms and have a double shutter arrangement in the projectors for controlling the volume of the sound. Vibrating type 24- or 48-volt bells of 6-inch diameter are employed as sounding devices in such locations as operating rooms in order to cause a minimum disturbance. Bells are also

used in other locations where horns would be objectionable such as rest rooms or building superintendent's quarters.

1.13 The sounding devices are, in general, located away from windows to avoid disturbance to adjacent properties. The horns are provided with their projectors properly faced so that the sound may penetrate all desired parts of the building without interference from walls, partitions, ventilating ducts, etc.

1.14 For the single-zone arrangement, a pair of loud ringing subscribed sets is used to sound the alarm.

Operating an Alarm in a Distant Office

1.15 Provision is made for sounding an alarm in a distant office in order to bring a response to an alarm originated in an office protected by fire detection equipment but not attended at all times. The circuits are arranged to provide a separate audible alarm in the distant office or to connect to a code or noncode emergency alarm system at that point. The separate audible alarm operates a pair of loud ringers. When connected into another emergency alarm system, the alarm at the distant point will indicate the office in which the alarm originates but not individual zones within the originating office.

2. SUPPLEMENTARY INFORMATION

800-600-000 — List of General Equipment Requirement Sections
800-614-151 — Installing Emergency Alarm Systems Including Automatic Fire Detection Feature
801-000-000 — Equipment Design and General Equipment Requirements and Engineering Information — Common Systems
J98302 — 801-601-154 — Emergency Alarm Systems Including Automatic Fire Detection Feature
J28350 — AA247.801 — Emergency Alarm Systems With or Without Code Signaling Including Automatic Fire Detection Feature

3. DRAWINGS

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

Circuits

SD-21203-01 — Floor Alarm Board and Miscellaneous Alarm Circuit — Panel System
SD-21257-01 — Floor Alarm Board and Miscellaneous Alarm Circuit — Panel Tandem System
SD-31548-01 — Pilot Lamp Circuit — Step-by-Step System
SD-31551-01 — Audible Alarm Circuit — Step-by-Step System
SD-90202-01 — Annunciator Circuit
SD-90560-01 — Emergency Alarm Circuit — 24 Volt — Multizone Arrangement
SD-90641-01 — Emergency Alarm Circuit — 24 Volt — Single Zone Arrangement
SD-90642-01 — Emergency Alarm Circuit — Incoming From Distant Office and Having Separate Audible Alarm
SD-96049-01 — Emergency Alarm Circuit — 48 Volt — Multizone Arrangement
SD-96052-01 — Emergency Alarm Circuit — 48 Volt Single Zone Arrangement
SD-96188-01 — Audible and Visual Alarm Circuit

Assembly

ED-90283-70 — Shield
ED-90470-70 — Lamp Signal Cabinet
ED-92166-01 — Casing for Zone, Audible or Outgoing Alarm Relay Units

Equipment

J98303B-( ) — Emergency Alarm Zone Alarm Equipment Unit — 24-Volt Single-Zone System
J98303C-( ) — Emergency Alarm Audible Alarm Equipment Unit
J98303D-( ) — Emergency Alarm System — Outgoing Alarm Equipment Unit 24-Volt Single-Zone System
J98303E-( ) — Emergency Alarm Zone Alarm Equipment Unit — 48-Volt Single-Zone System
J98303F-( ) — Emergency Alarm System Outgoing Alarm Equipment Unit — 48-Volt Single-Zone System

Cabling and Miscellaneous

ED-90702-30 — Designation Cards and Card Holders for Lamp Signal Cabinet
ED-90729-01 — Zone Apparatus — Mounting and Designating
ED-90957-01 — Zone Lamp Equipment — Location and Wiring
ED-91128-01 — Zone Apparatus Support Details

4. EQUIPMENT

J98303B — AT&TCo Std — Emergency Alarm Zone Alarm Equipment Unit — 24-Volt Single-Zone System

Equipment — J98303B-( )

List 1 — Assembly, wiring, and equipment per SD-90641-01, Fig. 17, required for a 24-volt, single-zone emergency alarm system. (See 5.11 and 5.20.)
List 2 — Equipment and wiring per SD-90641-01, Fig. 11, always required with list 1 for silencing of audible alarms.

Notes

A. The 24-volt signal battery and ground supply leads required for a single-zone system shall be taken through an alarmed 5-ampere fuse from the most convenient source of supply.

B. Mounting and miscellaneous information per ED-92166-01.

J98303C — AT&TCo Std — Emergency Alarm Audible Alarm Equipment Unit

Equipment — J98303C-( )

List 1 — Assembly, wiring, and equipment per SD-90642-01, Fig. 2, for one audible alarm equipment unit required where an incoming alarm circuit employs a separate audible alarm. (See 5.06 and 5.07.)

Note

A. Mounting and miscellaneous details per ED-92166-01.

J98303D — AT&TCo Std — Emergency Alarm System — Outgoing Alarm Equipment Unit — 24-Volt Single-Zone System

Equipment — J98303D-( )

List 1 — Assembly, wiring, and equipment per SD-90641-01, Fig. 6, for one outgoing alarm equipment unit required for connecting a 24-volt, single-zone emergency alarm system to a distant office. (See 5.09 and 5.10.)

Note

A. Mounting and miscellaneous details per ED-92166-01.

J98303E — AT&TCo Std — Emergency Alarm Zone Alarm Equipment Unit — 48-Volt Single-Zone System

Equipment — J98303E-( )

List 1 — Assembly, wiring, and equipment per SD-96052-01, Fig. 14, for one zone alarm equipment unit required for a 48-volt single-zone emergency alarm system. (See 5.11 and 5.20.)
List 2 — Equipment and wiring per SD-96052-01, Fig. 12, always required with list 1 for silencing of audible alarms.
List 3 — Equipment and wiring per SD-96052-01, Fig. 14, E option only required in addition to list 1 when connected with No. 1 ESS offices.
List 4 — Equipment and wiring per SD-96052-01, Fig. 12, E option only required in addition to list 2 when connected with No. 1 ESS offices.

Notes

A. The 48-volt signal battery and ground supply leads shall be taken through an alarmed 5-ampere fuse from the most convenient source of supply.

B. Mounting and miscellaneous details per ED-92166-01.

J98303F — AT&TCo Std — Emergency Alarm System Outgoing Alarm Equipment Unit — 48-Volt Single-Zone System

Equipment — J98303F-( )

List 1 — Assembly, wiring, and equipment per SD-96052-1, Fig. 4, for one outgoing alarm equipment unit required for connecting a 48-volt, single-zone emergency alarm system to a distant office. (See 5.09 and 5.10.)

List 2 — Equipment and wiring per SD-96052-01, Fig. 4, E option only required in addition to list 1 when connected with No. 1 ESS offices.

Note

A. EA resistance lamp in F option is located at the fuse panel.

Miscellaneous Equipment

J28350C — Emergency Alarm Central Control Equipment Unit — 24-Volt System — 5 Zone 6 Sounding Device Capacity

J28350D — Emergency Alarm Central Control Equipment Unit — 48-Volt System — 5 Zone 6 Sounding Device Capacity

KS-7228 — 6-Inch Vibrating Soft Tone Bell, 24V

KS-7752 — 6-Inch Vibrating Soft Tone Bell, 48V

KS-12037 — Vibrating Signal Horn (L1 — 24 Volts, L2 — 48 Volts)

KS-19299, L1 & L2 — Station Box, Surface Mounted Type

KS-19229, L1 — Station Box — Flush Mounted Type

4.01 Equipment per SD-96052-01, Fig. 6, 10, 11, and C is to be mounted on a miscellaneous basis. Equipment per SD-96052-01, Fig. 6 and C shall be mounted on the same mounting plate.

5. GENERAL NOTES

Station Boxes

5.01 Station boxes shall be furnished and located in each zone as specified by the Telephone Company. The boxes will mount on frame-end guards, on the surface of walls or columns, or mounted flush in walls or columns, as required. They shall be located at a height of approximately 5 feet from the floor, measured to the center of the box.

Sounding Devices

5.02 Horns, gongs, and bells shall be located as specified by the Telephone Company. They shall, in general, be mounted approximately 2 feet from the ceiling and kept out in the open, away from ventilating ducts, etc., which might obstruct the sound. They are usually kept towards the interior of the building, away from windows so as to minimize disturbance to adjacent properties. The horns shall point in the direction specified by the customer.

5.03 The pair of ringers provided in SD-90642-01, that are used as a separate audible alarm for emergency alarms incoming from a distant office that are not to be connected to the office emergency alarm system, shall be located together unless otherwise specified. The location will be assigned by the Telephone Company. They shall, in general, be mounted approximately 7 feet from the floor measured to the bottom of the ringer.

Zone Lamp Signals

5.04 Lamp signal cabinets shall be provided and located as specified by the Telephone Company. They shall be mounted so that the bottom of the cabinet is approximately 6 feet 6 inches from the floor, whether mounted on a wall, column, or end guard.

5.05 The lamp signal cabinets shall be equipped with No. 53A lamp sockets or 40B apparatus blanks as required by the number of zones in the system.

Incoming Emergency Alarm From a Distant Office and Associated Audible Alarm Circuit

5.06 The incoming alarm circuit relays of an emergency alarm circuit incoming from a distant office shall be located on the miscellaneous relay rack. The audible alarm circuit relays, employed when the incoming circuit is not to be connected to the zone alarm, are mounted in a small casing which shall be located as specified by the Telephone Company at a height of ap-

proximately 6 feet 2 inches from the floor, measured to the bottom of the casing.

5.07 The fuses for the audible alarm and incoming alarm circuits shall be located on the miscellaneous fuseboard.

5.08 The lamp associated with each incoming alarm circuit from a distant office shall be furnished, when required, and located in the alarm board, a lamp signal cabinet, or where specified by the Telephone Company. Where a separate lamp signal cabinet per ED-90470-70 is required, it shall be located where specified by the Telephone Company at a height of approximately 6 feet 6 inches from the floor, measured to the bottom of the cabinet.

Outgoing Emergency Alarm to a Distant Office

5.09 The outgoing alarm circuit relays in a multizone office are located in the central control casing. In a single-zone office these relays are mounted in a small casing which shall be located, where specified by the Telephone Company, at a height of approximately 6 feet 2 inches from the floor, measured to the bottom of the casing.

5.10 The associated fuse and signal lamp are located in the central casing of a multizone system. For a single-zone system the fuse is located on the miscellaneous fuseboard.

Zone Alarm Circuit — Single-Zone System

5.11 The zone alarm circuit relays of a single-zone, emergency alarm system are mounted in a small casing which shall be located, where specified by the Telephone Company, at a height of approximately 6 feet 2 inches when mounted alone, and 7 feet when mounted above an outgoing alarm relay casing, measured to the bottom of the zone alarm relay casing. The associated fuse shall be located on the miscellaneous fuseboard.

Zone Wiring

5.12 Wiring between the zone lamp signal cabinets, incoming alarm circuit lamps, the bay of central control equipment, miscellaneous relay rack, distributing frame, and miscellaneous fuseboard shall be run with No. 20 gauge, type AM wire in switchboard cable, as required.

5.13 Wiring between station boxes, horns, 6-inch bells, and the central control equipment shall be run with No. 14 gauge, flame retarding wire per KS-5482 sewed to the underside of cable racks.

5.14 In order to terminate the two No. 14 gauge leads of the station box loop on the DP relay in the incoming alarm circuit from a distant office, splice short pieces of red No. 20 gauge, type AM or BH wire onto the ends, the splices to be made in the skinners.

Bay Local Cable

5.15 The bay of central control equipment shall have its local cable made up of No. 20 gauge, type AM or BH wire.

Ringing

5.16 The ringing power supply for the no battery alarm circuit on the bay of central control equipment, the ringing supply for the ringers in the audible alarm circuit when specified for receiving an alarm incoming from a distant office, and the ringing supply for a single-zone system zone alarm circuit shall be run in No. 20 gauge, type AM wire in separate switchboard cables from the nearest continuous ringing supply. The wiring from the ringers to the zone alarm or to the audible alarm relay casings shall be similarly run.

Rigid Conduit

5.17 ***Quality:*** All conduit shall conform to the requirements covered in KS-5351, Engineering Requirements for Rigid Conduit.

5.18 ***Fittings:*** All conduit fittings used to connect rigid conduit shall be of the threadless type unless otherwise specified and shall be galvanized so as to be adaptable to the application of aluminum finish.

Grounding Central Control Bay — Multizone System

5.19 The central control bay of a multizone system shall be treated the same as a relay

rack bay or frame for mounting casing-enclosed equipment and grounded in the manner set up in the framework specification employed.

Annunciator Control Circuit — Single-Zone Systems

5.20 The relay and the resistance (for 48 volts) of the annunciator control circuit, shown on the single-zone emergency alarm circuits, shall be located on the miscellaneous relay rack.

Bell Telephone Laboratories, Incorporated

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List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J98303A	Mfr Disc.	2	J28350C
J98303G	Mfr Disc.	2	J28350D

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.