

CENTRALIZED "TOUCH-TONE®" CALLING EQUIPMENT FOR PBX SERVICES

EQUIPMENT DESIGN REQUIREMENTS

PBX AND 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 engineering, manufacture, and installation of centralized equipment for TOUCH-TONE calling to dial pulse conversion for PBX services. These services include:

- (a) Tie trunks from manual and crossbar PBXs arranged for TOUCH-TONE to non-TOUCH-TONE or step-by-step PBXs.
- (b) TOUCH-TONE stations having an off-premise line to a distant non-TOUCH-TONE PBX.
- (c) TOUCH-TONE stations having direct access to a foreign central office not arranged for TOUCH-TONE calling.
- (d) A crossbar or manual PBX having foreign exchange trunks connected to a central office not arranged for TOUCH-TONE calling.

1.02 Hereafter in this specification TOUCH-TONE calling will be referred to as TTC.

Capacity

1.03 The maximum capacity of the system is 99 lines or trunks (as indicated by PBX services) in any combination thereof plus one test line. These lines appear on the banks of a step-by-step trunk finder unit having a maximum capacity of four trunk finder switches. The number of calls that may be handled simultaneously depends on the number of switches and associated conversion equipment that is provided. The minimum number is two. This number will increase depending on the total number of circuits equipped and the calling rate.

Description

1.04 The equipment provided in this specification, together with other miscellaneous equipment, is intended to be located in a central office or other centralized location through which a number of PBX tie trunks, foreign exchange (FX) lines or trunks, and off-premise station lines are routed. The loop start arrangement for FX, off-premise extensions, and manual PBX CO trunks requires precision dial tone at the distant end. A ground start arrangement for FX, off-premise extension lines, and crossbar PBX CO trunks does not require precision dial tone at the terminating end. However, precision dial tone must be provided at the local end.

1.05 Each line or trunk requires an access unit to provide access to a trunk finder and then to the conversion equipment. Three types of access units are provided. The first is a tie trunk access unit. The second and third are line and trunk access units (FX and off-premises stations) for loop start and ground start, respectively.

1.06 The trunk finder unit consists of a framework, local cable, and bank wiring for 99 access circuits. It has a capacity of four 100-point, 8-wire trunk finders. The unit also includes fuses, fuse alarms, and release magnet alarm and terminal strips for line connections and for wiring options. Switches are not provided and must be ordered separately as required.

1.07 Connections from the access units are made via a distributing frame to a line terminal strip at the top of the trunk finder unit. Each trunk finder switch is connected through its jacks to conversion equipment consisting of an interface unit, a digit class control unit, a TTC type A receiver, a TTC receiver applique unit, and a 14-digit solid state converter. The TTC receiver applique unit is also known as a translation unit because its function is to translate the output of

the TTC receiver to the input required by the converter.

1.08 In addition to the equipment listed in 1.06 and 1.07, an associated group and subgroup unit and a miscellaneous alarm unit are also required. If the central office housing the conversion equipment is not provided with a precision dial tone supply, then a precision dial tone supply unit in the 404 series is required.

TOUCH-TONE Calling

1.09 The access units provide access to the conversion equipment on originating calls and simultaneously make the circuit busy to incoming calls. Otherwise incoming calls are completed in the standard manner. Upon receiving a signal from an access circuit, the group and subgroup circuit marks the level in the trunk finder bank on which the calling circuit is located, starts an idle trunk finder hunting for this circuit, and on seizure connects it to the associated interface circuit. The digit class control circuit is interposed between the interface circuit and the TTC receiver.

1.10 The TTC receiver receives the TOUCH-TONE signals from the calling party and transmits them through the translation circuit to the converter which outpulses conventional dial pulses at the rate of 10 pulses per second.

1.11 Inasmuch as stations having either rotary dial or TTC equipment have access to the conversion equipment, it is necessary to accommodate both types of calls. It is a function of the interface circuit to recognize a rotary dial type of call and to repeat the pulses of the first digit as they are received. At the end of the first digit, this circuit signals the line access circuit to cut the calling station through to the distant end and to disconnect

the converter since it is not needed on this type of call.

1.12 Originating TOUCH-TONE calls may be tandemed through a non-TOUCH-TONE PBX to a distant PBX or central office having TOUCH-TONE capability. Under such conditions it is possible to have two TTC receivers connected on the line simultaneously. To prevent false registration of digits, the early cut feature in the conversion equipment splits the transmission path between the local and the distant end. This occurs after the local conversion equipment receives each TOUCH-TONE pulse, and before the distant receiver can respond to the sound signal. The circuit is recoupled in time for the local converter to outpulse dial pulses to the distant end.

Equipment Arrangement

1.13 The equipment is intended to be mounted on relay racks in a central office or other centralized location. (See 1.04.) Fig. 1 shows a typical arrangement. Fuse panels as required to supply the necessary power may be located on the relay rack with the equipment or in any other convenient location in the central office.

1.14 A KS-19162, L5 plug for connecting the leads to each converter should be ordered separately and wired locally.

1.15 Terminal strips connecting like classes of service are provided at the trunk finder shelf unit. Only one lead per class of service is connected to the digit class control unit associated with each trunk finder. One digit class control unit is able to handle five different classes of service. If required, this can be increased by providing additional digit class control units.

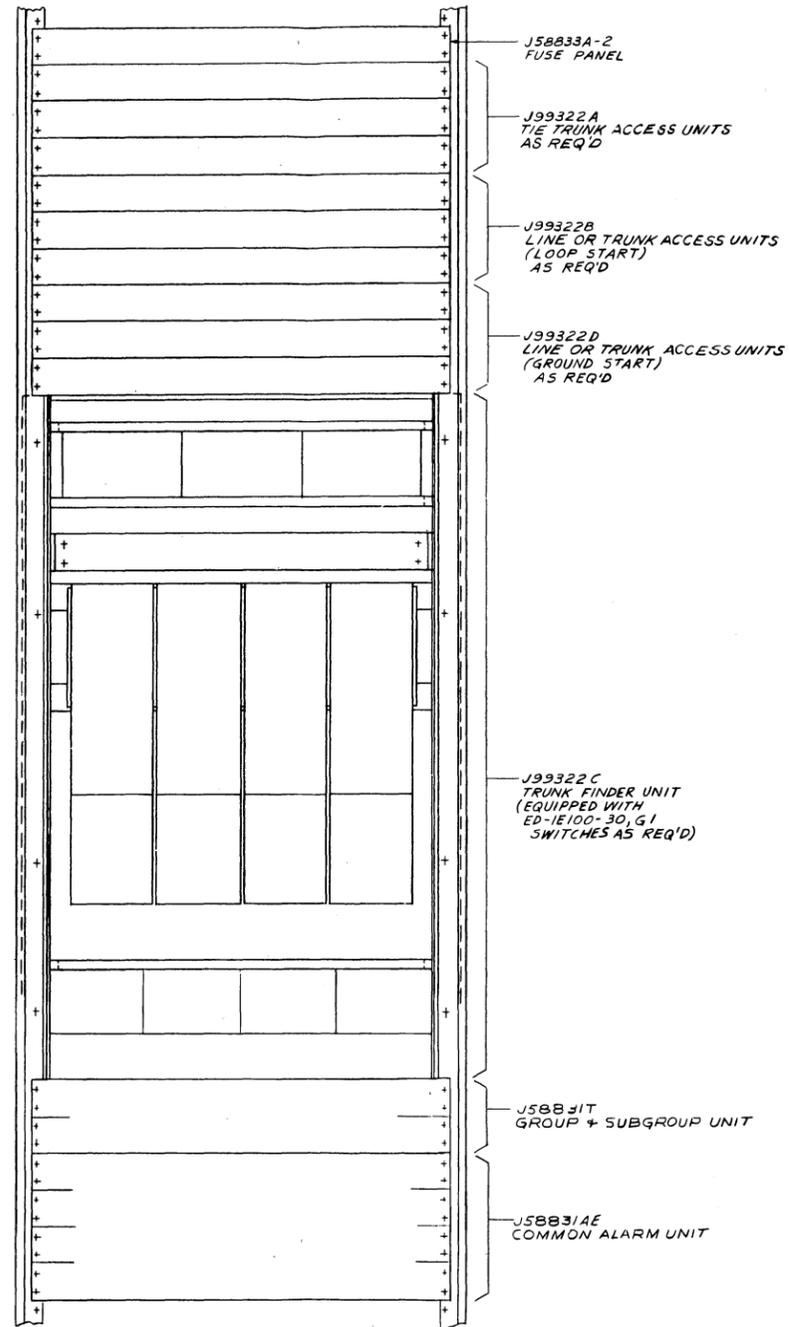


FIG. 1 (A)
ACCESS EQUIPMENT

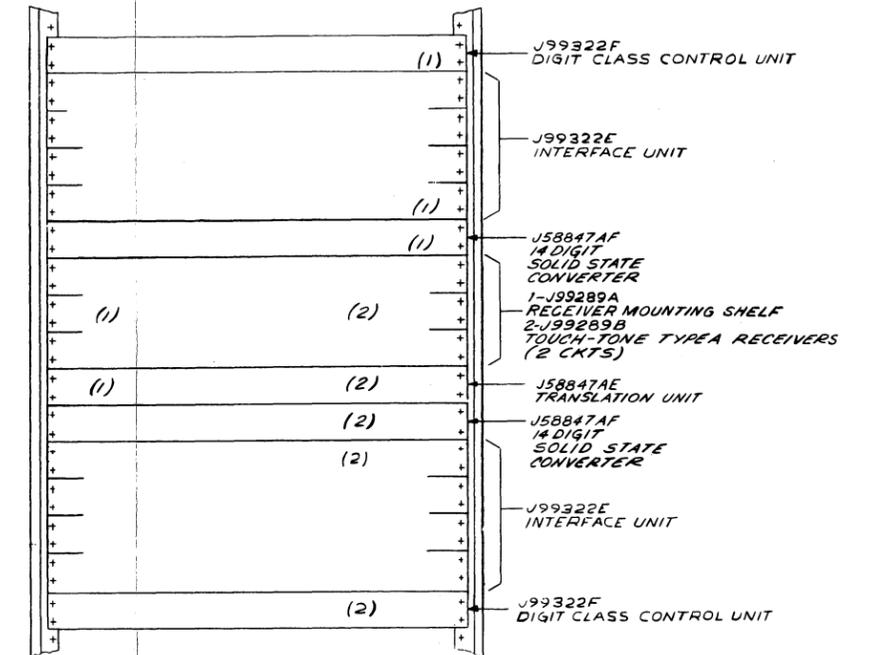


FIG. 1 (B)
CONVERSION EQUIPMENT

Fig. 1—Typical Equipment Arrangement

1.16 When desired, TOUCH-TONE to dial pulse conversion equipment may be located at the originating PBX. The required equipment in various arrangements is shown in J58847 (809-140-150).

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.

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
ED-1E100-()		100-Point, 8-Wire Trunk Finder Switch	ED-1E100-()	SD-1E100-01
J99322A	AT&TCo Std	Tie Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion Equipment	J99322A-()	SD-1E034-01
J99322B	AT&TCo Std	Line or Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion — Loop Start	J99322B-()	SD-1E043-01
J99322C	AT&TCo Std	Trunk Finder Shelf Unit — For 100-Point, 8-Wire Trunk Finders — 4 Capacity — Arranged to Mount on Relay Rack	J99322C-()	SD-65761-02 SD-1E100-01
J99322D	AT&TCo Std	Line or Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion — Ground Start	J99322D-()	SD-1E045-01
J99322E	AT&TCo Std	Interface Unit	J99322E-()	SD-66891-01
J99322F	AT&TCo Std	Centralized Digit Class Control Unit	J99322F-()	SD-1E033-01

Circuit Schematic Index

CIRCUIT DRAWING	J99322 EQUIPMENT CODE
SD-65761-02	C
SD-66891-01	E
SD-1E033-01	F
SD-1E034-01	A
SD-1E043-01	B
SD-1E045-01	D
SD-1E100-01	ED-1E100-(), C

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
- 809-000-000—PBX Systems Index
- 802-001-180—Protective Grounding
- J53120—809-201-151—Trunks and Miscellaneous Relay Units—Manual PBXs
- J53132—809-755-157—No. 608D PBX Switchboard—Equipment Design Requirements
- J53133—809-755-158—No. 608D PBX Switchboard—Summarizing Specification
- J58815—809-201-152—Relay Rack Mounted Units for Trunk and Miscellaneous Circuits—No. 606A, 606B and 702A PBXs

- J58824—809-201-153—Trunk and Miscellaneous Units—Dial PBXs
- J58829—809-820-150—756A PBX
- J58831—809-803-151—No. 701B and 711B PBXs
- J58833—809-120-150—Miscellaneous Equipment Units Common to Various PBXs
- J58838—809-821-150—757A PBX
- J58847—809-140-150—TOUCH-TONE Calling Equipment
- J58849—809-850-150—800A PBX
- J59018—809-719-150—556A PBX Switchboard
- J98613—801-642-150—E-Type AC Signaling system—Common Systems
- J98618—801-642-151—E-Type Auxiliary Trunk Signaling Systems—Common Systems
- J99234—801-025-150—Long Line and Long Trunk Equipment for Subscriber Lines to a Central Office or PBX and for Trunks Between a PBX and a Central Office
- J99236—801-025-167—Relay Rack Mounted Equipment—Located in Central Office or in Either a PBX or Central Office Associated with PBXs
- J99289—801-621-151—TOUCH-TONE Calling Receiver

3. DRAWINGS

For additional drawings forming a part of this specification, see listings under Subdivisions of Equipment and Detailed Index.

Keysheets

SD-5E048-01—TOUCH-TONE Dial Pulse Conversion

Framework

ED-99537-()—Trunk Finder Shelf

Wiring and Cabling

ED-99538-()—Trunk Finder Shelf—Local Cable Plan

4. EQUIPMENT

ED-1E100-()—100-Point, 8-Wire Trunk Finder Switch

J99322A—AT&TCo Std—Tie Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion Equipment

Equipment—J99322A-()

List 1—Assembly, wiring, and equipment for one tie trunk access unit to TOUCH-TONE to dial pulse conversion equipment per SD-1E034-01, Fig. 1. (One circuit on one 2-inch by 23-inch mtg plt)

J99322B—AT&TCo Std—Line or Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion—Loop Start

Equipment—J99322B-()

List 1—Assembly, wiring, and equipment for one line or trunk unit, loop start, to TOUCH-TONE to dial pulse conversion equipment per SD-1E043-01. (One circuit on one 2-inch by 23-inch mtg plt)

J99322C—AT&TCo Std—Trunk Finder Shelf Unit—For 100-Point, 8-Wire Trunk Finders—4 Capacity—Arranged to Mount on Relay Rack

Equipment—J99322C-()

Local Cable—ED-99538-()

List 1—Framework, assembly, wiring, and equipment for four 100-point, 8-wire trunk finders, including four sets of 8-wire multiple banks and 9B commutators, but not including the trunk finder switches.

	WIRE	EQUIP	NOTES
Framework, ED-99537-(), G2		1	A
Bank Multiple Assembly, Four Sets of Banks and Commutators per J99322C-() and SD-1E100-01, Fig. 2	1	1	
Trunk Fdr Ckt, SD-1E100-01, Jack Wiring Only (Including Start Leads), Fig. 1	4	4	
Alarm Ckt SD-65761-02, Release Mag Alm Ckt, Fig. 2, B	1	1	
Fuse Alarm, Fig. 6 (Four ckts — Twenty-one 2-inch by 23-inch mtg plts)	1	1	

Note

A. This unit is shipped equipped with switches per ED-1E100-(), G1 in positions as specified in order of 1, 2, 3, and 4. Bank multiple supports are provided for unequipped switch positions, if any.

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J99322D,L1 and L2	Mfr Disc.	2	J99322D,L3
J99322E,L1	Mfr Disc.	2	J99322E,L2
J99322F,L1	Mfr Disc.	2	J99322F,L2

J99322D—AT&TCo Std—Line or Trunk Access Unit to TOUCH-TONE to Dial Pulse Conversion—Ground Start

Equipment—J99322D-()

List 3—Assembly, wiring, and equipment for line or trunk access unit per SD-1E045-01, Fig. 1 and 3, and options Q and N (No. of Mtg Plts, 1; No. of Ckts, 1).

J99322E—AT&TCo Std—Interface Unit

Equipment—J99322E-()

List 2—Assembly, wiring, and equipment for one interface unit per SD-66891-01, Fig. 1 and 2 (No. of Mtg Plts, 4; No. of Ckts, 1).

J99322E—AT&TCo Std—Centralized Digit Class Control Unit

Equipment—J99322E-()

List 2—Assembly, wiring, and equipment for one digit class control unit per SD-1E033-01, Fig. 3 (No. of Mtg Plts, 1; No. of Ckts, 1).

Miscellaneous Equipment

J58831AE—Miscellaneous Alarm Unit—Relay Rack Mounted

J58831T—Common Group and Subgroup Unit for Line or Trunk Finders

J58833A—Miscellaneous Fuse Panel Units with Ground Terminals and Alarm—Arranged for 70-Type Fuses—Relay Rack Mounted

J58847AE—TOUCH-TONE Calling Receiver Applique Unit

J58847AF—14-Digit Solid State Converter Unit

J99289A—TOUCH-TONE Calling Receiver Mounting Shelf

J99289B—TOUCH-TONE Calling Receiver Unit

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

6. REASONS FOR REISSUE

6.01 To rate J99322 AT&TCo Standard.

6.02 To rate J99322D, L1 and L2, Mfr Disc., replaced by J99322D, L3.

6.03 To rate J99322E, L1 Mfr Disc., replaced by J99322E, L2.

6.04 To rate J99322F, L1 Mfr Disc., replaced by J99322, L2.

6.05 To make minor corrections.

6.06 To replace Fig. 1 through 4 with new Fig. 1A and 1B.

5. GENERAL NOTES

List of A&M Only and Mfr Disc. Equipment