System Description/Features

SBCS™

Purpose

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SBCS™ FP A-D Technical Practices

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TL-120001-1001	SBCS™ System Description/Features
TL-120101-1001	SBCS™ Installation
TL-120201-1001	SBCS™ Maintenance
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SYSTEM OVERVIEW

1.0 The Fujitsu GTE Business Systems' SBCS (Small Business Communications System) is a state-of-the-art hybrid electronic key telephone/PABX (Private Automatic Branch Exchange) system. It offers cost effective voice and data telecommunications services for small to medium size applications.

Designed for companies requiring from 20 to 240 telephone lines, the system combines key system and PABX features into one sophisticated, easy to use business communications system. It uses highly advanced digital switching technology to meet the needs of rapidly growing small to medium size businesses for both voice and data communications.

A major advantage of this hybrid key telephone system is that it offers smaller businesses a variety of user-friendly features that incorporate the high technology architecture usually found only in the more expensive PABX systems of larger businesses.

The system offers a variety of cost control features including Least Cost Routing and the ability to include or exclude various features on any individual station. Another feature that enhances cost effectiveness is Multi-Digit Toll Restriction (toll calls from any station can be restricted to specific areas).

Other features allow users to provide call coverage for each other and to route calls to an individual or to a destination they select. The system provides feature buttons which can be programmed for Call Forward, Camp-On, Call Park, and other functions.

The system offers a full range of voice communications features, enhanced business features, and support for industry standard and proprietary multi-line telephones. It offers simultaneous voice and data transmission over single-pair wiring, enhanced system features, and multi-function attendant and front desk console services.

Telephone instruments unique to the system include Direct Station Selection Consoles with Busy-Lamp Fields, CS-10s, and CS-20s which are available with Package A, CSD digital telephones which provide data communication and system programming capabilities and are available with Package B, and Attendant Consoles which are available with Package C.

The system is designed to allow users to program the system to meet their individual needs. The system can be programmed and diagnosed on-site or from a remote facility.

Software for the system is written in CHILL, a high level language developed especially for switching systems and recommended by the CCITT (Consultative Committee for International Telephony and Telegraphy).

The expandable modular configuration facilitates system upgrades. A 16-bit microprocessor and distributed 8-bit processor card architecture provide the power required for future expansion. Memory size can be increased to one megabyte.

The system is available in flexible configurations which may range from 20 to 240 stations and from 4 to 104 trunks. This is made possible through the universal card slot capability, which allows either line or trunk cards to be used in certain card slot locations, and through the expanded version, which utilizes two cabinets.

CS-10s and CS-20s as well as DSS/BLF (Direct Station Selection/Busy Lamp Field) Consoles and Attendant Consoles are connected with 8EKC (Electronic Key Telephone) cards using two-pair wiring, one pair for voice signals and the other for control signals. Standard single-line telephones can also be connected to the system with an 8SLC (Single-Line Telephone) card. There are eight station circuits per card on the 8EKC and 8SLC cards.

CSD digital voice/data telephones with capability for data transmission over single-pair wiring are connected with 8DTC (Digital Telephone) cards which support eight CSDs (voice only), six CSD telephones with DTAs (Data Terminal Adapters), or eight DIUs (Data Interface Units).

The system can communicate with the public switched telephone network over CO (Central Office) lines, WATS (Wide Area Telephone Service) lines, FX (Foreign Exchange) lines, DID (Direct Inward Dialing) lines, and Tie lines. There are 2 circuits per card on the 2TTL or 2TTE (Tie/DID Trunk) cards and 4 circuits per trunk card on the 4BWC (Bothway Trunk) card. DID trunks are supported on the Tie trunk cards. Hotel/Motel printing is added with the 4CHT (Character Trunk) card and recorded voice announcements with the RVAC (Recorded Voice Announcement) card.

System Capabilities

1.1 The system is available in four packages and has the following capabilities:

1.1.1 Package A

- Reliable and efficient communications service
- Latest design and technology for integrating key and PABX systems
  - completely digital PABX system
  - multi-line electronic instrument support
- Full voice communications
  - standard voice features

- enhanced business features
- sophisticated LCR (Least Cost Routing)

- Maintainability, upgradeability

  - on-site or remote diagnostics
  - on-site or remote data base changes

- System programmability

1.1.2 Package B

- All Package A capabilities

- Data switching capabilities

  - simultaneous voice/data transmission
  - asynchronous and synchronous 19.2 Kbps support
  - half and full duplex transmission mode
  - single-pair wiring

- System programmability

  - flexible configuration of system options
  - programmability of individual telephone by user via CSD (digital telephone) programmed as an MCT (Master Control Telephone)

- CSD with soft key operation

1.1.3 Package C

- All Package A and B capabilities
- Multi-function attendant services
- Hotel/Motel feature package
- Key telephone applications
- DID (Direct Inward Dialing)
- DISA (Direct Inward System Access)
- Expanded system architecture
- DIU (Data Interface Unit) for data transmission with or without an associated EKT (Electronic Key Telephone)

1.1.4 Package D

- All Package A, B, and C capabilities
- ACD (Automatic Call Distribution)
- RVAC (Recorded Voice Announcement) card
- DTMF sending from Attendant Console
- Silent Messages
- Enhanced Room Status Change

System Benefits

1.2 The system offers the following benefits:

- Improved productivity

- Full range of programmable voice features can be configured to suit individual user needs.
- EKT support provides additional functionality for station users.
- Multi-function Attendant Console provides greater call processing capability.
- System/station programmability provides capability to quickly perform adds/changes to meet changing user requirements.

- Efficient operation
  - Requires low power.
  - Compact, wall-mounted unit takes up little office space.
  - System software provides highly reliable and efficient call handling capabilities.
  - Digital switching technology provides more switching capacity per physical size.
  - Combined voice and data transmission over one-pair wiring eliminates need for separate data distribution.
- Cost management/control
  - LCR (Least Cost Routing) ensures most economical call route.
  - Multi-digit restriction permits customized toll restriction for greater cost control.
  - SMDR (Station Message Detail Recording) provides a record of telephone usage for budget/planning purposes.
  - Expandable modular system (universal card slots) permits flexibility and easy growth.
  - Local/remote maintenance and administration provides more economical service and support, reducing maintenance expense.

Package A Features

1.2.1 With Package A, the system offers a broad range of voice features to provide the user with efficient and reliable communications services, increased productivity, and lower operational costs.

System Features

- DSS/BLF (Direct Station Selection/Busy Lamp Field) Console
- Call Park
- Call Progress Tones
- Conferencing
- Diagnostics (Local and Remote)
- Direct Inward Dialing (Lines)
- Distinctive Ringing
- Flexible Numbering
- Group Hunt
- LCR (Least Cost Routing)
- Multiple Classes of Service
- Multi-Digit Restriction
- Music-On-Hold
- Night Service
- Off-Premises Station
- Two-Pair Wiring
- Power Failure Restart
- Processor Change (Local or Remote)
- SMDR (Station Message Detail Recording)
- Tenant Service
- Tie Trunk Access
- Toll Restriction
- Variety of Stations

Station Features

- Account Code/Client Billing
- Automatic Intercom
- Call Announce
- Call Forward
- Call Park
- Call Park Recall
- Calling Status Display
- Consultation Hold
- Data Security
- Directed Call Pickup
- Direct-in Lines
- Direct Trunk Access
- Do Not Disturb
- Do Not Disturb Override from DSS/BLF Console
- DP/DTMF (Dial Pulse/Dual Tone Multi-Frequency) Stations
- Elapsed Time
- Exclusive Hold
- Executive Override
- Flash/New Call
- Flexible Button Assignment
- Group Pickup
- Hold Recall
- Hot Line Stations
- ICM (Intercom) Hold Answer
- Key System Lines
- Message Leaving/Message Pickup

- Monitor
- Mute
- Night Service
- Off-Hook Signaling
- Paging (Internal and Station)
- Personal/Private Lines
- Pooled Incoming Trunk Group
- Pooled Outgoing Trunk Group
- Pooled Bothway Trunk Group
- Prime Station Number
- Privacy
- Save/Repeat Number
- SCC (Special Common Carrier) Access
- Single-Step Transfer with Automatic Hold
- Speakerphone
- Station Alphanumeric LCD Display
- Station Camp-On with Callback
- Station Directory Tray
- Station Speed Calling
- System Speed Calling
- Three-Party Conference
- Time and Date
- Transfer
- Transfer Release
- Trunk Group Access
- Trunk Camp-On
- Visual Indicators
- Wall/Desk Mounting

Package B Features

1.2.2 With Package B, the system adds basic data switching capabilities along with enhanced voice communications. Listed below are some of the additional features and feature enhancements:

System Features

- Basic Data Package
- Equal Access
- Paging (access to external paging equipment)

Station Features

- Automatic Intercom Access (enhanced)
- Call Splitting
- DSS External Paging
- Message Waiting (single-line telephones)
- Save/Repeat Number (enhanced)
- Program

Package C Features

1.2.3 With Package C, the system adds a complete Hotel/Motel feature package, key telephone applications, and multi-function attendant services. Listed below are the additional features and feature enhancements:

System Features

- Attendant Console
- Diagnostics (enhanced Local/Remote)
- DID (Direct Inward Dialing)
- DISA (Direct Inward System Access)
- Console operation (enhanced)
- Data communications capabilities (enhanced)
- Expanded system architecture
- Hotel/Motel features
- Key telephone applications

Package D Features

1.2.4 With Package D, the system adds ACD (Automatic Call Distribution), RVAC (Recorded Voice Announcement) card,and Silent Messages; it also adds features to the Attendant Console. Listed below are the additional features and feature enhancements:

- ACD
- Multi-Station Appearance
- Recorded Voice Announcement
- Silent Messages
- Dictation Access and Control (enhanced)
- Attendant Console DTMF Sending

System Software

1.3 The operating system incorporates an advanced software design for switching systems. It utilizes a high level programming language, CHILL, which has the following features:

- Designed specifically to meet multi-national standards

  CHILL (an acronym for CCITT High Level Language) was developed according to a recommendation of the CCITT (Consultative Committee for International Telephony and Telegraphy). This international organization defined technical standards to govern the operation of the world's telecommunications systems.

- Designed specifically for stored program control systems

  CHILL was designed primarily for programming stored program control telephone exchanges. With the increasing use of this type of system control, generic software has become very large and complex.

- Enhances system reliability

  CHILL's advanced software design provides a language processing tool which enables the switch to operate faster and the equipment to support more telephone processing than a similar switch with a different operating system.

- Provides applications flexibility

  CHILL provides powerful programming tools which make it easy to perform new applications and to exploit various kinds of hardware. Although CHILL was designed primarily for programming stored program control telephone exchanges, it supports a wide range of other applications (i.e., message switching, packet switching, etc.).

The generic software for the SBCS system utilizes the proper programming tools to achieve the maximum benefit of this telephone technology.

SYSTEM CONFIGURATION

2.0 As with all communications systems, the configuration of the system depends on the user's line and trunk requirements. The basic-version system configuration utilizes one equipment cabinet and provides up to 120 stations or 40 trunks. The system can accommodate EKTs (Electronic Key Telephones), CSD digital telephones, SLTs (Single-Line Telephones), Attendant Consoles, and DSS/BLF (Direct Station Selection/Busy Lamp Field) Consoles.

The expanded-version system configuration adds an equipment cabinet which increases the system capacity up to a maximum of 240 station lines or 104 trunks. The expanded-version system features shared common control and is available in Packages C and D.

Basic Version (Single-Cabinet Architecture)

2.1 The following is a discussion of the basic-version system configuration.

Equipment Cabinet and Power Supply

2.1.1 All of the system hardware is housed in a compact wall-mounted cabinet. The power supply is externally mounted on the cabinet backboard, making power upgrade of the system easy to accomplish. The cabinet contains 23 card slots for system operation, power failure transfer, and line/trunk assignments.

Located beneath the card slots are a memory back-up battery, a power connector receptacle, and two serial communications ports.

The equipment cabinet has easy to understand markings for simple installation in an office.

The equipment cabinet has the following features:

- Compact wall-mounted unit that occupies little office space (34"L x 14.6"W x 16"H)
- System capacity of 120 lines or 40 trunks, within which a wide range of system configurations are available
- Universal card slots for easy system expansion/upgrade
- Lightweight unit which requires no special construction to install (52 lb. empty to mount, 97 lb. fully loaded)
- Power requirements
  - 96 to 127 VAC
  - 60 +/- 5 Hz
  - 350 watts power consumption

- Convection cooled, self-ventilating, requiring no fans
- Environmental conditions
  - 0 to 40° C/32° F to 104° F
  - 10 to 90% relative humidity without condensation

Card Groups

2.1.2 The equipment cabinet contains the following card groups:

- Common Control Card Group
- System Interface Card Group
- System Back-up and Recovery

Common Control Card Group

2.1.2.1 The control and monitoring functions of the system are handled by the Common Control Card Group which occupies three dedicated card slots in the equipment cabinet. The Common Control Card Group consists of:

- CPM (Central Processing Unit) card
- MEM (Memory) card
- SWC (Switch Control) card

CPM Card

The CPM card, in dedicated slot 20, contains the system microprocessor, system data base memory, internal clock calendar, input/output communications interface, visual indicators, and system interface and control circuits. The main components and their functions are as follows:

- A 16-bit Intel 8086 compatible microprocessor acts as the central processing unit.
- RAM (Random Access Memory) is the storage address for system and ODDB (Office Dependent Data Base) information.
- EPROM (Erasable Programmable Read-Only Memory) is the storage address for system program information.
- RTS (Real-Time Source) acts as an internal system clock and displays time and data on proprietary telephones with LCD displays.
- Serial Communication Interface is two RS-232C input/output transmission ports for communications outside the system.
  - One port may be used for data interchange with the PMP (Portable Maintenance Panel) or modem that connects with the remote maintenance center.
  - One portmay be used for SMDR (Station Message Detail Recording).

  Both ports are data base programmable and support full duplex transmission.

MEM Card

The MEM card, in dedicated slot 21, and is an extension of the CPM Card. The main components and their functions are as follows:

- RAM (Random Access Memory) is the storage address for system and ODDB (Office Dependent Data Base) information.
- EPROM (Erasable Programmable Read-Only Memory) is the storage address for system program information.

SWC Card

The SWC card, in dedicated slot 19, contains the PCM (Pulse Code Modulation) switching circuitry and signal memory for communications between the main microprocessor on the CPM and the distributed 8-bit microprocessors on the line/trunk cards and within the proprietary electronic terminals. In addition, the SWC card contains the circuitry for system tones, the timing generator for synchronization of the entire system switching operation, and the conferencing and level adjustment. The main components and their functions are as follows:

- Switching Control Memory is the time-division switching circuitry which converts input from speech memory into 8-bit parallel form and rearranges it in a different order.
- MX/DMX (Multiplexer/Demultiplexer) converts 8-bit parallel data from switching control memory into serial format and rearranges data in a different order.
- Padding and Mixing Circuits condition and mix the signal from switching control memory before sending it to the MX/DMX.
- Signal Memory Sending/Receiving acts as a buffer between the central processing unit of the switching control memory and the central processing units of the line and trunk cards.
- Speech Memory is the storage address of the PCM samples of transmitted voice and data.
- Tone Generator stores samples of all the different tones required in the system (dial tone, busy tone, etc.).

System Interface Card Group

2.1.2.2 The System Interface Card Group controls the interactions of the system peripherals (terminals, telephones, etc.) with the system hardware, PABXs, and public switched telephone network. Nineteen card slots are available in the system for trunk and line connections. The cards which make up the System Interface Card Group and their functions are listed below and in Table 2.1.

- 8EKC (Electronic Key Telephone) card
  - provides interface circuitry between the CS-10 and CS-20 stations, DSS/BLF Console, and Attendant Console (Packages C and D only) and the system

- eight circuits per card
- two-pair wiring, 1 pair for data and power control transmission and 1 pair for voice transmission
- loop limit of 2000 feet with 24 AWG wire
- maximum of 15 cards per system

- 8SLC (Single-Line Telephone) card

- provides interface circuitry between standard SLTs (Single-Line Telephones) and the system
- eight circuits per card
- one-pair wiring
- performs real-time processing for interface circuits via 8-bit microprocessor (Intel 8049, 8649, or 8749 compatible microprocessor)
- loop resistance of up to 600 ohms including telephone set
- maximum of 15 cards per system

- 8DTC (Digital Telephone) card

- provides interface circuitry between the CSD digital station instrument (Packages B - D) and/or DIU (Data Interface Unit) (Packages C and D) and the system
- eight circuits per card (six of which may be used for voice and data transmission with a CSD with Data Terminal Adapter)
- one-pair wiring for voice/data transmission, control data transmission, and power feeding
- loop limit of 2000 feet with 24 AWG wire
- maximum of 10 cards per system

- 4BWC (Central Office Bothway Trunk) card

- provides interface circuitry for communications between the public switched telephone network and the system
- four circuits per card
- 8-bit microprocessor on each card
- loop and ground start signal supervision
- loop resistance of 3200 ohms including central office equipment
- maximum of 13 cards per cabinet

- 4CHT (Character Trunk) card (Packages C and D)

- transmits/receives up to 19.2 Kbps asynchronous ASCII data
- provides message output to the printer for Hotel/Motel applications

- 2TTE (E&M Tie Trunk) card

- provides interface circuitry between the common carrier signaling equipment and DID (Direct Inward Dialing) trunks, and the system

- two types of signaling interface: type 1 - up to 150 ohms, type 2 - up to 300 ohms
- maximum of six cards per cabinet (in combination with 2TTL cards)
- supports DID in Packages C and D only

- 2TTL (Loop Dial Tie Trunk) card

  - provides interface circuitry between the common carrier signaling equipment and DID trunks and the system
  - two circuits per card
  - 8-bit microprocessor on each card
  - loop resistance of 3000 ohms
  - maximum of six cards per cabinet (in combination with 2TTE cards)
  - supports DID in Packages C and D only

- 4DMR (Dual Tone Multi-Frequency Receiver) card

  - receives DTMF tones from pushbutton SLTs and converts them into dialed numbers
  - four circuits per card
  - 8-bit microprocessor control

- RVAC (Recorded Voice Announcement) card (Package D only)

  - records and provides voice message or announcement
  - one port for recording and seven ports for playing messages per card
  - 8-bit microprocessor on each card
  - maximum of two cards per system (in combination with 4CHT cards)

Table 2.1 System Configuration - Packages A and B

Type Card	Interface	Maximum Number	Available Slots
4BWC	Loop/Ground, Bothway Trunk; FX, WATS	10	06 through 18
2TTL	Loop Tie Lines	6*	06 through 18
2TTE	E&M Tie Lines	6*	06 through 18
4DMR	DTMF for Single-Line Stations	2	00 through 14
8EKC	CS-10 and CS-20 Stations, DSS/BLF	15	00 through 14
8SLC	Single-Line Stations	15	00 through 14
8DTC	CSD with Data Terminal Adapter	5	00, 03, 06, 09, 12
8DTC	CSD for Voice Only	10	00 through 14
6PFT	Power Failure Stations	1	22 Dedicated
SWC	Switch Control	1	19 Dedicated
CPM	Central Processor	1	20 Dedicated
MEM	System Memory	1	21 Dedicated
RGEN	Ring Generator	1	Designated Location

*2TTL and 2TTE in combination.

4DMR Cards

2.1.3 The system is designed to work with proprietary electronic telephones (CS-10, CS-20, CSD, Attendant Console, and DSS/BLF); however, to give the user additional flexibility in station instruments, industry standard SLTs (Single-Line Telephones) may also be used. If pushbutton SLT sets are used, the system configuration must include DTMF (Dual Tone Multi-Frequency) receivers to convert DTMF tones into dialed numbers and dialed numbers into DTMF tones. A ring generator is also required.

The number of DTMF cards required for SLTs depends on the traffic handling capabilities of the system measured by CCS (Hundred Call Seconds), a standard line usage measurement. (See Table 2.2.)

Table 2.2 DTMF Receiver Requirement

Traffic	0 to 49 DTMF Stations	Over 50 DTMF Stations	Over 60 DTMF Stations	Over 90 DTMF Stations	Over 150 DTMF Stations	Over 200 DTMF Stations
Normal (6CCS)	1	1	1	2	2	2
Heavy (9CCS)	1	1	2	2	2	3
Very Heavy (12 CCS)	1	2	2	2	3	3

For example, if the system is configured for 60 stations at greater than 9CCS; two 4DMR cards are needed. If the system is configured for 60 stations at less than 6 CCS; one 4DMR card is needed.

System Back-up and Recovery

2.1.4 Three components of the system ensure back-up and recovery of communications service in the event of commercial power failure or major system malfunction:

- 6PFT (Power Failure Transfer) card
- Memory Back-up Battery
- RVAC (Recorded Voice Announcement) card Back-up Battery

Power Failure Transfer Card

The 6PFT card occupies dedicated card slot 22. When the system is functioning normally, this card directs the termination of selected CO (central office) lines and SLTs to CO trunks and line circuits. In the event of power or system failure, the 6PFT card provides a direct connection between the selected CO trunks and SLTs to enable the user to maintain communications with the outside world. The system supports either the 6PFT card or the 6PFE card, which is used in the expanded system. The

6PFT/6PFE cards permit the transmission of alarm signals to a customer provided LED alarm display. The display indicates MAJ (Major) or MIN (Minor) alarms.

Characteristics of Each Card

- Allows transfer of 6 CO trunks to 6 predetermined SLTs
- 6 circuits

Memory Back-up Battery

A back-up battery, mounted in the equipment cabinet below the card slots, provides the user with an alternate power source to protect system and station data bases when power or system failure occurs.

When a short power failure (up to 3 seconds) occurs, the power supply holds system processing. Calls which were interrupted during dialing and/or pulse sending may be lost. If a longer power outage occurs, the system stops call processing but the ODDB (Office Dependent Data Base) and system operation data are preserved by the back-up battery. When power is restored, the system automatically initiates call processing based on the preserved ODDB.

Characteristics of the Back-up Battery

- Battery life expectancy is over 2 years.
- System activates alarm when battery is low.
- Replacement location below card slots is easily accessed.
- When fully charged, battery maintains system memory at least 200 hours.

RVAC Card Backup Battery

A nickel-cadium battery is provided on the RVAC card to protect recorded messages in the card's RAM. The battery is trickle charged when system power is on and is capable of maintaining the RAM up to 2 weeks when fully charged.

The battery's life expectancy is 5 years. The system monitors the status of the battery and lights the ALM LED on the CPM card when the RVAC card must be replaced. All messages are lost when the RVAC card is replaced. When the back-up battery becomes fully charged, the alarm goes off.

Default Data Base Station Numbering Plan

2.1.5 When the system is initialized, the standard default data base will assign station numbers to all active voice stations and data terminals in the system. Voice stations are assigned numbers 200 through 319.

Proprietary Telephone Default Feature Button Assignments

2.1.6 The basic-version system assigns lines and features to the feature buttons of the proprietary telephones based on the system configuration. If an Attendant Console is installed in the system, the default feature/line assignments are PABX arrangements. If there is no Attendant Console installed, the system assigns key telephone features to the instruments.

Ring Generator (Optional)

2.1.7 The ring generator unit occupies a dedicated card slot to the far left in the equipment cabinet. It generates the ringing tones which distinguish the types of incoming calls terminating on SLTs. By cutting a jumper option or activating the MW (Message Waiting) switch, the ring generator supplies power to activate neon lamps on SLTs for Message Waiting Service.

- Ringing frequency: 20 +/- 2 Hz voltage 80V rms (nominal)
- Message Waiting: -100 VDC; on/off interval: 1 second on, 3 seconds off

NOTE: A maximum of 6 SLTs can ring on the same cycle at the same time.

Expanded Version (Two-Cabinet Architecture)

2.2 The following is a discussion of the expanded-version system configuration which is available in Packages C and D.

Equipment Cabinets and Power Supplies

2.2.1 The expanded-version system is configured utilizing two equipment cabinets and power supplies. One cabinet is specified as the basic cabinet and the second is specified as the expansion cabinet.

The (RS-232C) input/output ports and the memory back-up battery in the expansion cabinet are not used. The system RAM and real-time source clock are located in the basic cabinet CPM card only.

Card Groups

2.2.2 The equipment files in the expanded-version system contain the following card groups:

- Common Control Card Group
- System Interface Card Group
- System Back-up and Recovery

Common Control Card Group

2.2.2.1 The control and monitoring functions are performed by the Common Control Card Group. The Common Control Card Group consists of the CPM (Central Processing Unit and Basic Memory Card), MEM (Memory) card and the Switch Control Cards (SWB-A located in the basic cabinet and SWE located in the expansion cabinet).

CPMC or CPMD Card

The functions of the CPM card are essentially the same as in the basic-version system. The CPM card does, however, control the functions of the expansion cabinet. The CPM card is located in the basic cabinet.

MEMC or MEMD Card

The MEM card contains the office dependent data base. It performs the same functions as in the basic-version system. The MEM card is located only in the basic cabinet.

Basic SWB-A Card

The SWB-A card is located in the basic cabinet and contains the PCM (Pulse Code Modulation) switching circuitry and signal memory for communications between the CPM card and the

line/trunk cards and the SWE card located in the expansion cabinet (front edge cable connection). Switching control memory has been expanded to 16 highways, 512 channels multiplexing full duplex. Eight highways are dedicated to the basic cabinet and eight are dedicated to the expansion cabinet.

Expansion SWE Card

The SWE card is located in the expansion cabinet and contains the PCM switching circuitry and signal memory for communications between the expansion cabinet and the CPM card located in the basic cabinet. Eight highways of 256 channels multiplexing full duplex are dedicated to the expansion cabinet. A front edge cable connector connects the SWE card with the front edge of the SWB-A card in the basic cabinet. Grounding cables for each card are included with the connector cable.

System Interface Card Group

2.2.2.2 The System Interface Card Group controls the interactions of the system peripherals (terminals, telephone, etc.) with the system. Nineteen card slots are available in both cabinets for the trunk and line connections. The cards which make up the System Interface Card Group and their functions are listed below and in Table 2.3.

- 8EKC (Electronic Key Telephone) card
  - provides interface circuitry between the CS-10, CS-20, DSS/BLF and Attendant Consoles
  - eight circuits per card
  - reside only in the basic cabinet
- 8SLC (Single-Line Telephone) card
  - provides interface circuitry between SLTs (Single-Line Telephones) and the system
  - eight circuits per card
  - supports loop resistance of 600 ohms including telephone set
- 8DTC (Digital Telephone) card
  - provides interface circuitry for CSD digital telephones and DIUs (Data Interface Units)
  - reside only in the basic cabinet
  - eight circuits per card (only six CSDs with Data Terminal Adapters plus two CSDs with voice only or 8 DIUs)
- 4BWC (Central Office Bothway Trunk) card
  - provides interface circuitry for CO/FX/WATS trunks
  - four circuits per card

- 2TTE (E&M Tie Trunk) card
  - provides interface circuitry for E&M Tie trunks and DID trunks
  - two circuits per card
  - supports both types of signaling: type 1 - up to 150 ohms, type 2 - up to 300 ohms.
- 2TTL (Loop Dial Tie Trunk) card
  - provides interface circuitry for loop Tie trunks and DID (Direct Inward Dialing) trunks
  - two circuits per card
- 4DMR (Dual Tone Multi-Frequency Receiver) card
  - receives DTMF tones from pushbutton SLTs and converts them into dialed numbers
  - four circuits per card
- 4CHT (Character Trunk) card
  - provides message output to a maximum of two Hotel/Motel printers per system
  - transmits/receives asynchronous ASCII code data up to 19.2 Kbps
  - four circuits per card
- RVAC (Recorded Voice Announcement) card
  - records and provides voice message or announcement
  - 8-bit microprocessor on each card
  - one port for recording and seven ports for playing messages per card, four 7-second blocks of messages for a total of 28 seconds

Table 2.3 System Configuration - Packages C and D

Type Card	Interface	Basic-Maximum Number	Expansion-Maximum Number	Available Slots
4BWC	Loop/Ground, Bothway Trunk; FX, WATS, CO	13	13	06 through 18
4CHT	Hotel/Motel Printers	2***	2***	00 through 14
2TTL	Loop Tie Lines, Loop DID Lines	6*	6*	06 through 18
2TTE	E&M Tie Lines, E&M DID Lines	6*	6*	06 through 18
4DMR	DTMF for Single-Line Stations	2	2	00 through 14
8EKC	CS-10 & CS-20 Stations, DSS/BLF, Attendant Consoles, Room Status Indicators	15	0	00 through 14
8SLC	Single Line-Stations	15	15	00 through 14
8DTC	CSD for Voice Only	10	0	00 through 14
8DTC	CSD with Data Terminal Adapter	5**	0	00, 03, 06, 09, 12
8DTC	Data Interface Unit	10**	0	00 through 14

* Maximum of 2TTL and 2TTE in combination.

** 8DTC card supports 6 CSDs with DTA or 8 DIUs or a combination of 6 CSDs and 2 DIUs. Maximum of 10 cards in system supporting either CSDs/DTA and /or DIUs.

*** Maximum of two 4CHT cards and RVAC cards in combination.

**** 6PFE card may be used in the basic or expansion cabinets by utilizing the toggle switch on the card

Table 2.3 System Configuration - Packages C and D (Continued)

Type Card	Interface	Basic-Maximum Number	Expansion-Maximum Number	Available Slots
6PFT	Power Failure Stations	1	0	22 Dedicated
6PFE	Power Failure Stations	1****	1	22 Dedicated
CPM	Central Processor	1	0	20 Dedicated
MEM	System Memory	1	0	21 Dedicated
SWB-A SWC-A	Switch Control	1	0	19 Dedicated
SWE	Switch Control	0	1	19 Dedicated
RGEN	Ring Generator	1	1	Dedicated Slot
RVAC	Recorded Voice Announcement	2***	2***	00 through 14

* Maximum of 2TTL and 2TTE in combination.

** 8DTC card supports 6 CSDs with DTA or 8 DIUs or a combination of 6 CSDs and 2 DIUs. Maximum of 10 cards in system supporting either CSDs/DTA and /or DIUs.

*** Maximum of two 4CHT cards and RVAC cards in combination.

**** 6PFE card may be used in the basic or expansion cabinets by utilizing the toggle switch on the card

System Back-up And Recovery

2.2.2.3 Three components ensure back-up and recovery of the system in the event of commercial power failure or major system malfunction.

These components are:

- 6PFE (Power Failure Transfer) cards
- Memory Back-up Battery
- RVAC (Recorded Voice Announcement) Back-up Battery

Power Failure Transfer Card (6PFE)

The system supports the 6PFE card in the basic cabinet and in the expansion cabinet. The 6PFE card occupies dedicated card slot 22 in the basic cabinet and provides a direct connection between six selected CO trunks and six SLTs. In the expansion cabinet, the 6PFE card occupies dedicated card slot 22 and provides six additional power failure stations, bringing the total to 12 predetermined trunks to 12 SLTs. Alarms in the system are transmitted to an external customer provided alarm device by the 6PFE card.

Memory Back-up Battery

The memory back-up battery for the entire system is located in the basic cabinet. The back-up battery in the expansion cabinet is not used since the CPM and MEM cards reside in the basic cabinet.

RVAC Back-up Battery

The back-up battery for the RVAC card is on each individual card. Two RVAC cards may reside in each cabinet.

Default Data Base Station Numbering Plan

2.2.3 When the system is initialized, the expanded default data base assigns station numbers to all active stations and data terminals in the system.

Stations located in the basic cabinet are assigned station numbers 200 through 319. Stations located in the expansion cabinet are assigned station numbers 320 through 439, assuming that all 120 stations are installed in the expansion cabinet.

Proprietary Telephone Default Feature Button Assignments

2.2.4 The system assigns lines and features to the feature buttons of proprietary telephones based on the system configuration. If an Attendant Console is installed in the system, the default feature/line assignments are PABX arrangements. If there is no Attendant Console installed, the system assigns key telephone features to the instruments.

Ring Generator (Optional)

2.2.5 The ring generator unit occupies a dedicated mounting slot in each cabinet. It supplies the ringing tones for SLTs and the power to activate the message waiting lamps on SLTs. A ring generator must be located in each cabinet that houses 8SLC (Single-Line Telephone) cards.

System Maximums

2.2.6 Tables 2.4 and 2.5 list the maximum number of trunks, stations, data stations, etc. for the basic system (Table 2.4) and the expansion system (Table 2.5)

Table 2.4 System Configuration - Basic Version

	Package A	Package B	Package C	Package D
Total Trunks	40	40	52	52
Trunk Groups	30	30	36	36
SCC Routes	6	6	6	6
Terminating Trunk Groups	31	31	63	63
Trunk Dialing Groups	3	3	3	3
Trunk Restriction Groups	3	3	3	3
Trunk Queuing/Simul -taneous	20	20	20	20
Total Stations	120	120	120	120
EKT Stations	120	120	120	120
Single-Line Stations	120	120	120	120
Master Control Telephones	0	4	4	20
Attendant Consoles	0	0	2	2
40 Button DSS/BLF	6/8	6/8	6/8	6/8
80 Button DSS/BLF	2/0	2/0	2/0	2/0
CSD w/DTA	0	30	30	30
DIU	0	0	80	80

Table 2.5 System Configuration - Expanded Version

	Package C	Package D
Total Trunks	104	104
Trunk Groups	36	36
SCC Routes	6	6
Terminating Trunk Groups	63	63
Trunk Dialing Groups	3	3
Trunk Restriction Groups	3	3
Trunk Queuing/Simultaneous	20	20
Total Stations	240	240
EKT Stations	120	120
Single-Line Stations	240	240
Master Control Telephones	4	20
Attendant Consoles	2	2
40 Button DSS/BLF	6/8	6/8
80 Button DSS/BLF	2/0	2/0
CSD w/DTA	30	30
DIU	80	80

SYSTEM TERMINALS

3.0 The system accommodates a wide selection of terminals/peripherals to provide a broad range of voice and data communications services. Figures 3.1 through 3.7 illustrate the peripheral design and show the major components of each peripheral.

To offer the user a full spectrum of voice capabilities, the system interfaces with:

- EKTs (Electronic Key Telephones)
  - CS-10 (Figure 3.1) (All Packages)
  - CS-20 (Figure 3.2) (All Packages)
  - CSD (Packages B, C, and D) (Figure 3.3)
- DTMF (Dual Tone Multi-Frequency) SLTs (All Packages)
- Standard Dial Pulse SLTs (Single-Line Telephones) (All Packages)

To provide optional communications enhancements, the system interfaces with:

- Attendant Console (Packages C and D) (Figure 3.4)
- DSS/BLF (Direct Station Selection/Busy Lamp Field) Console (Figures 3.5 and 3.6)

To utilize data switching capabilities, the system interfaces with:

- DIU (Data Interface Unit) (Packages C and D) (Figure 3.7)
- DTA (Data Terminal Adapter) mounted into CSD telephone (Packages B, C, and D)

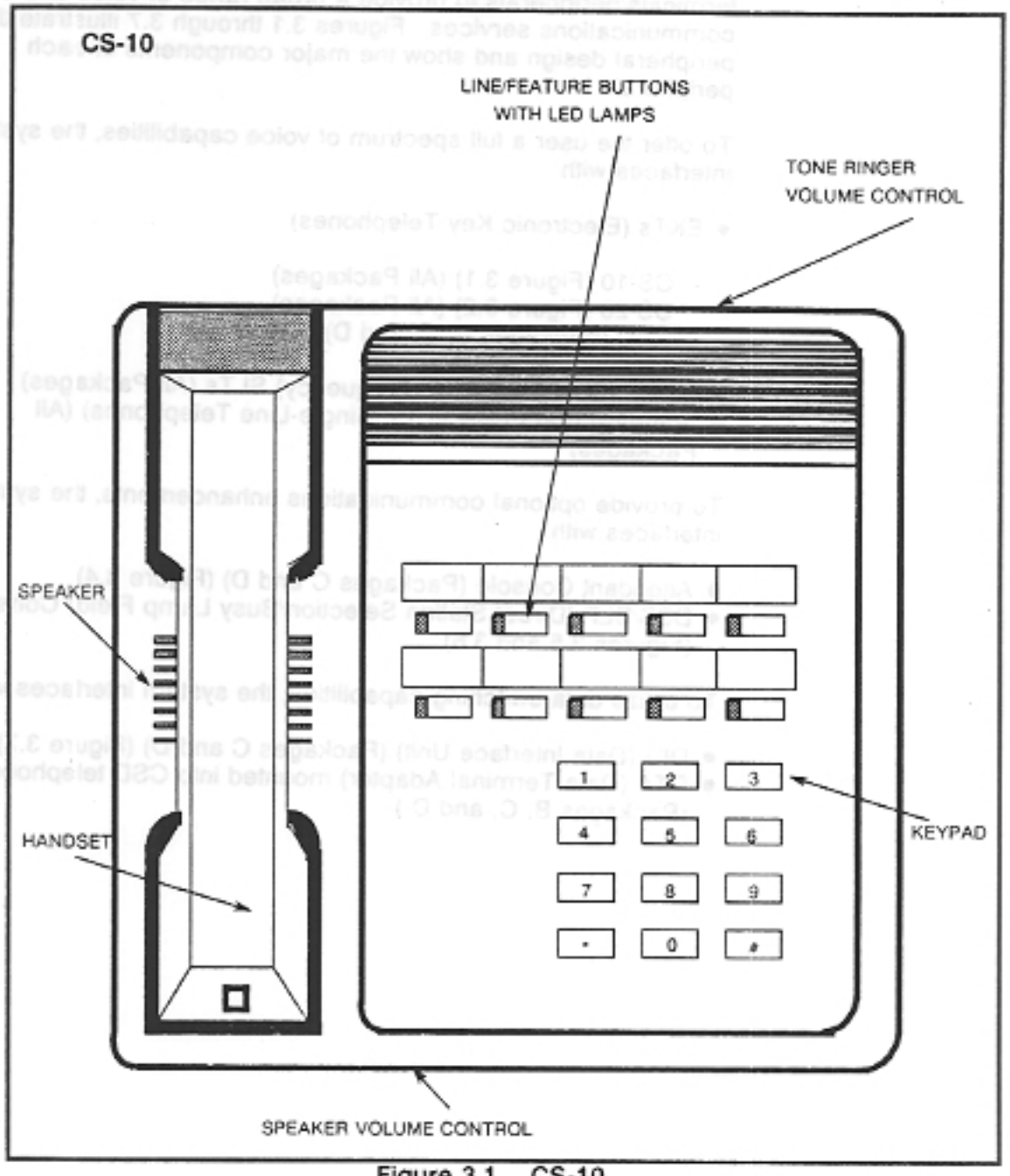

Figure 3.1 CS-10

- 10 non-locking line/feature buttons
- Associated single LED indicators
- Internal speaker (monitor only)
- Two-pair wiring
- Modular plug
- K style handset

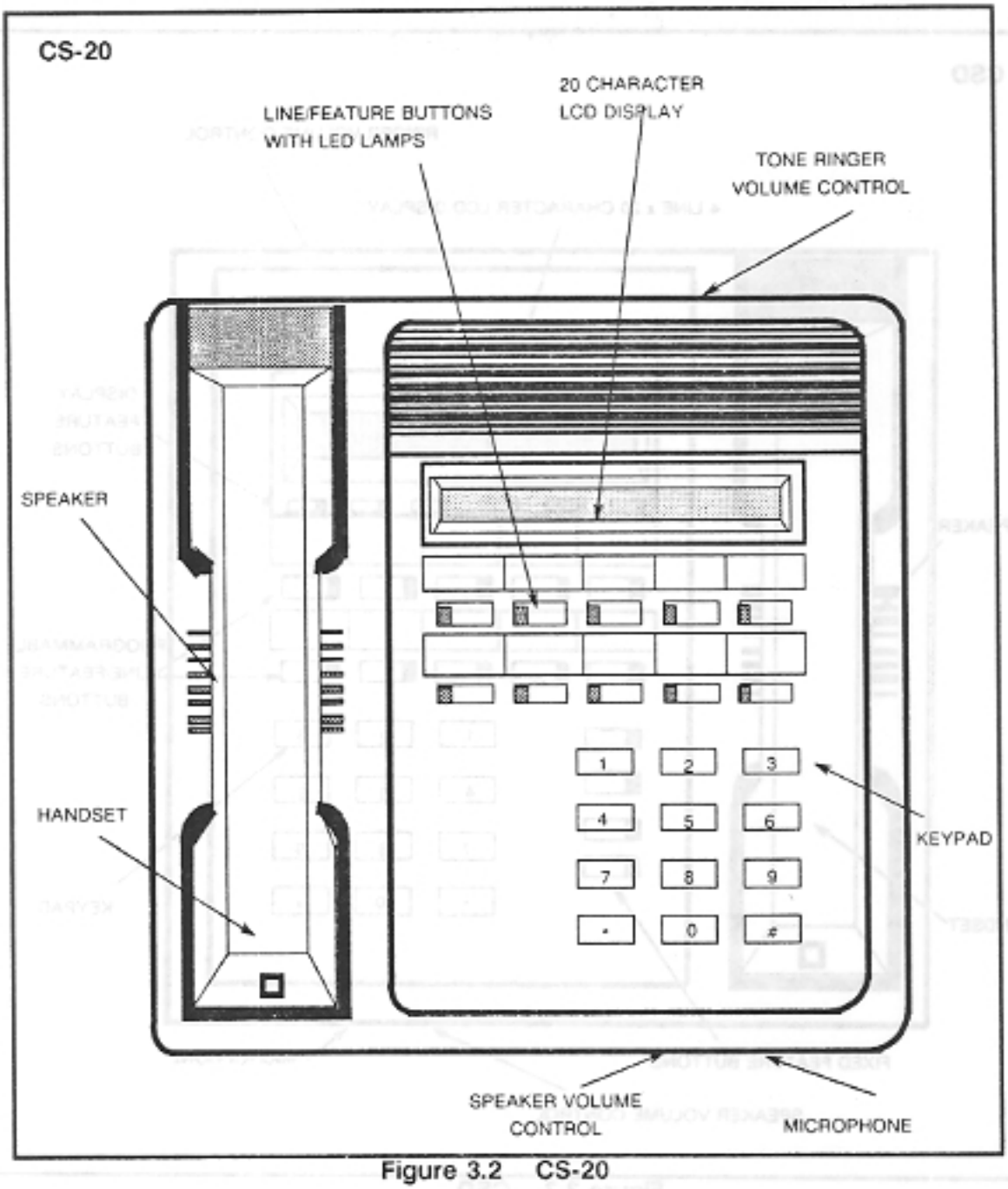

Figure 3.2 CS-20

- 10 non-locking line/feature buttons
- Associated single LED indicators
- One line x 20 character alphanumeric display
- Built-in speakerphone
- Two-pair wiring
- Modular plug
- K style handset

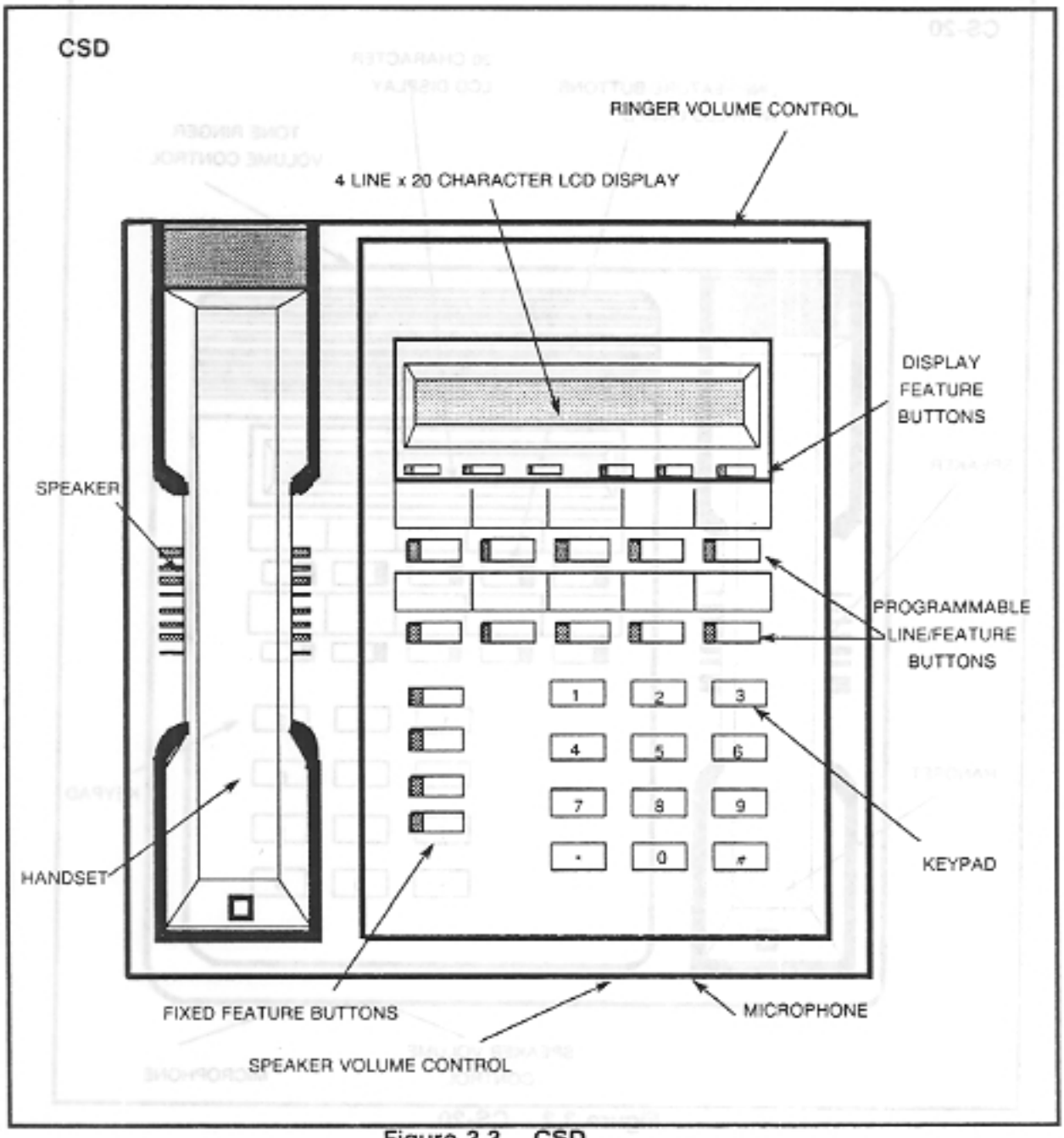

Figure 3.3 CSD

- 4 non-locking fixed buttons
- 10 non-locking line/feature buttons
- Speakerphone
- 6 display feature buttons
- 4 line x 20 character LCD
- Single pair wiring
- Modular plug
- K style handset

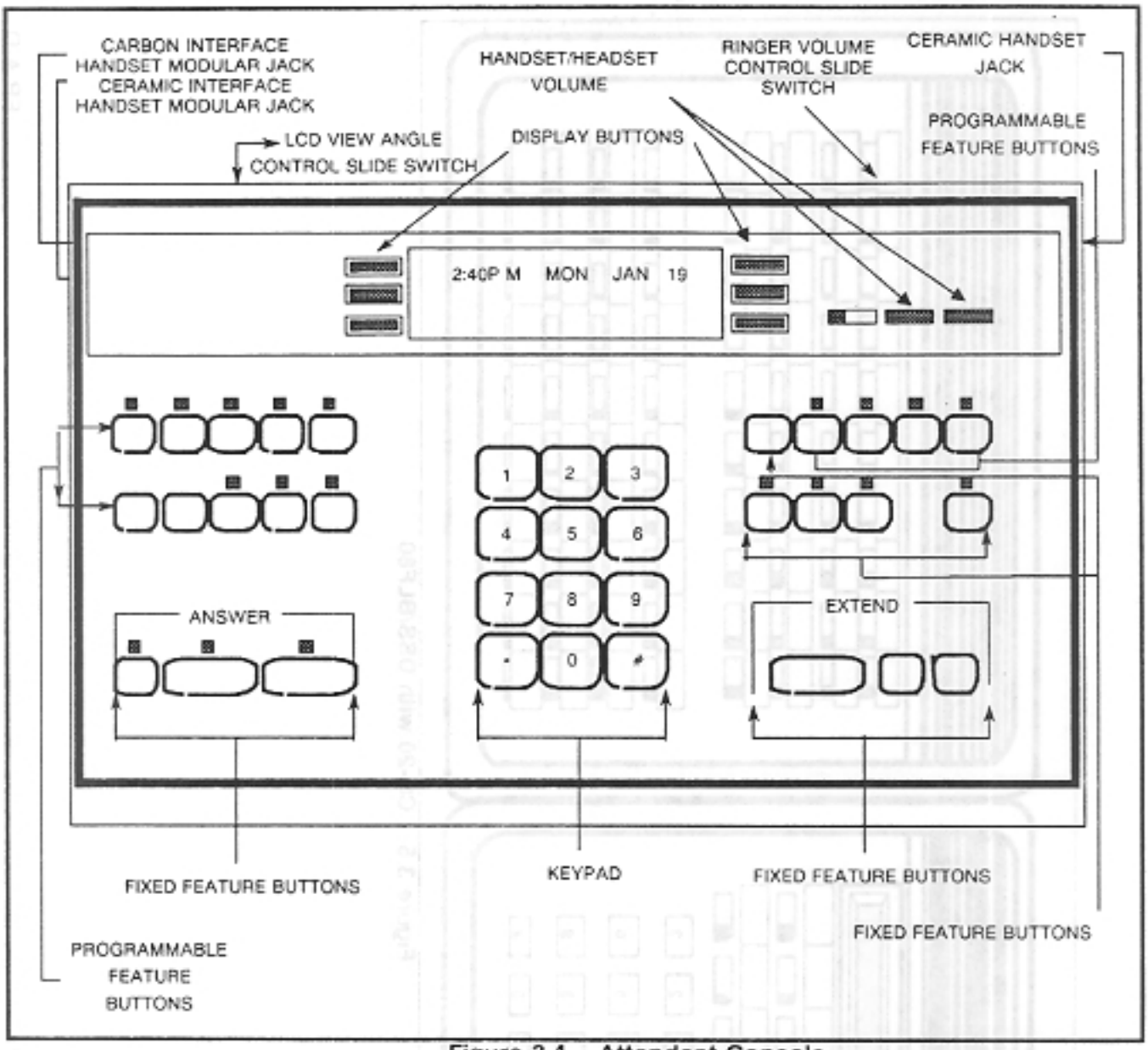

Figure 3.4 Attendant Console

- 28 non-locking line/feature buttons
- Associated single LED indicators (26 feature buttons)
- 4 line x 20 character alphanumeric display
- Two-pair wiring (up to 300 feet from cabinet) or 6 wires (up to 2000 feet from cabinet)
- Modular plug
- K style handset
- Headset jack (carbon interface)
- Handset modular jack - (1) carbon interface, (2) ceramic interface

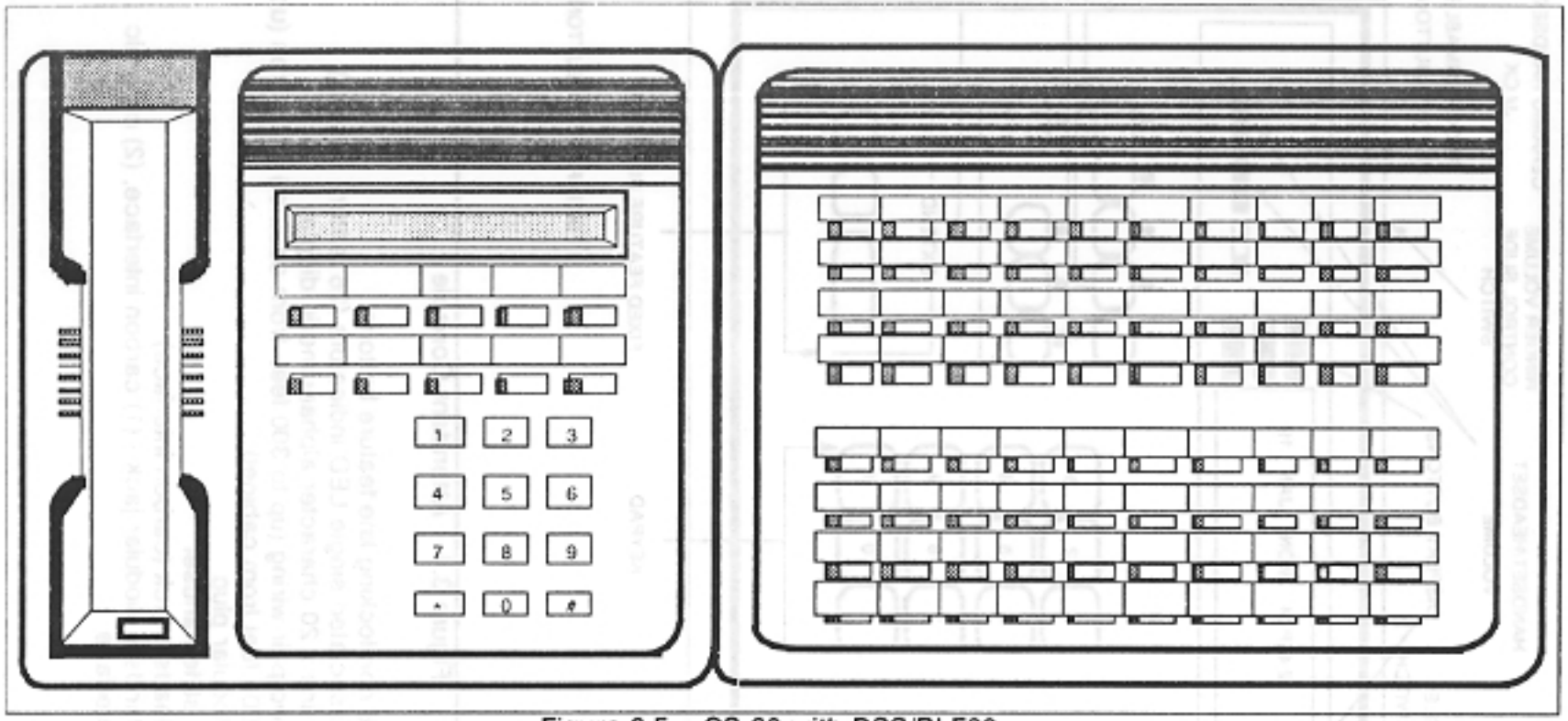

Figure 3.5 CS-20 with DSS/BLF80

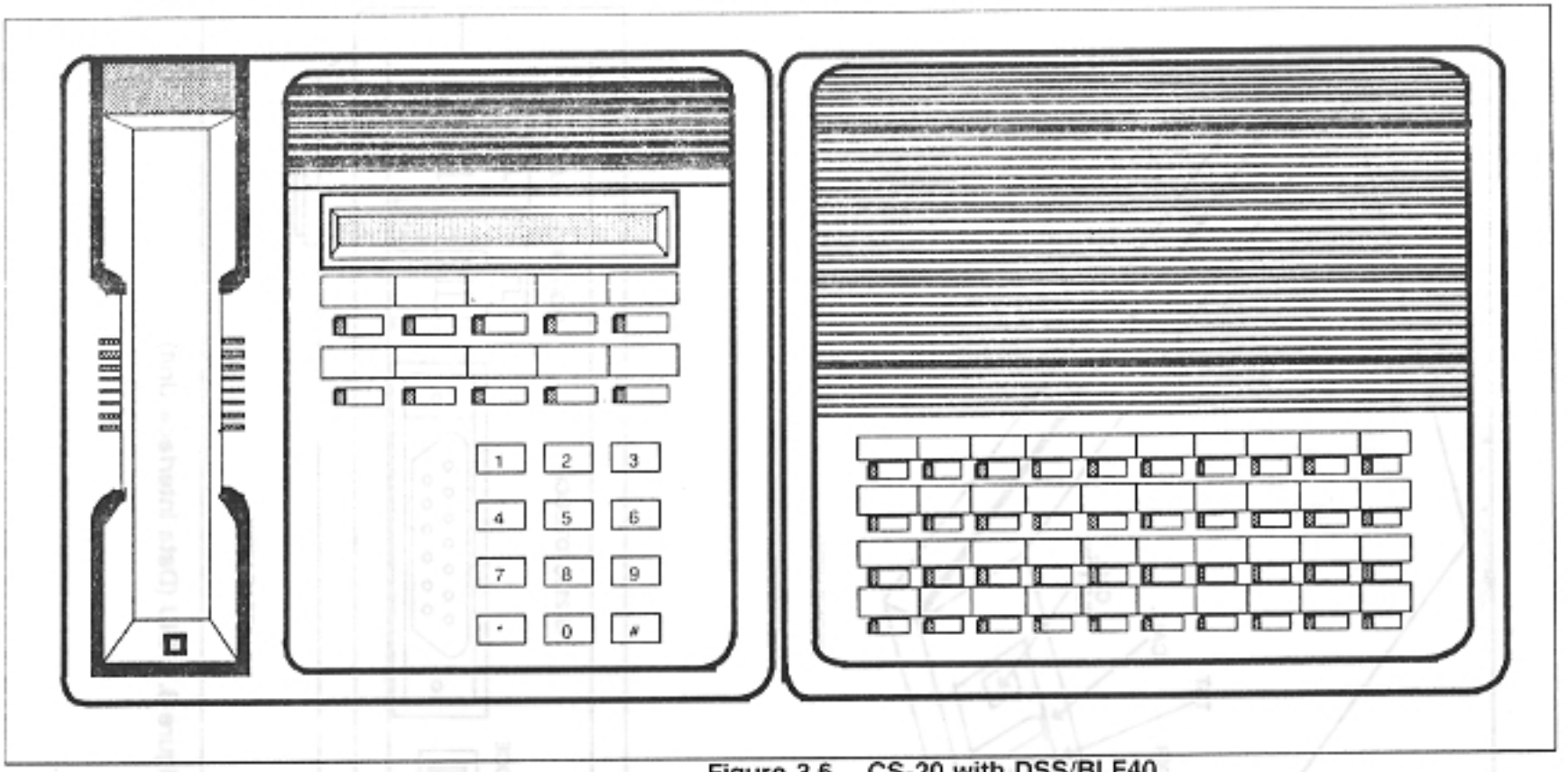

Figure 3.6 CS-20 with DSS/BLF40

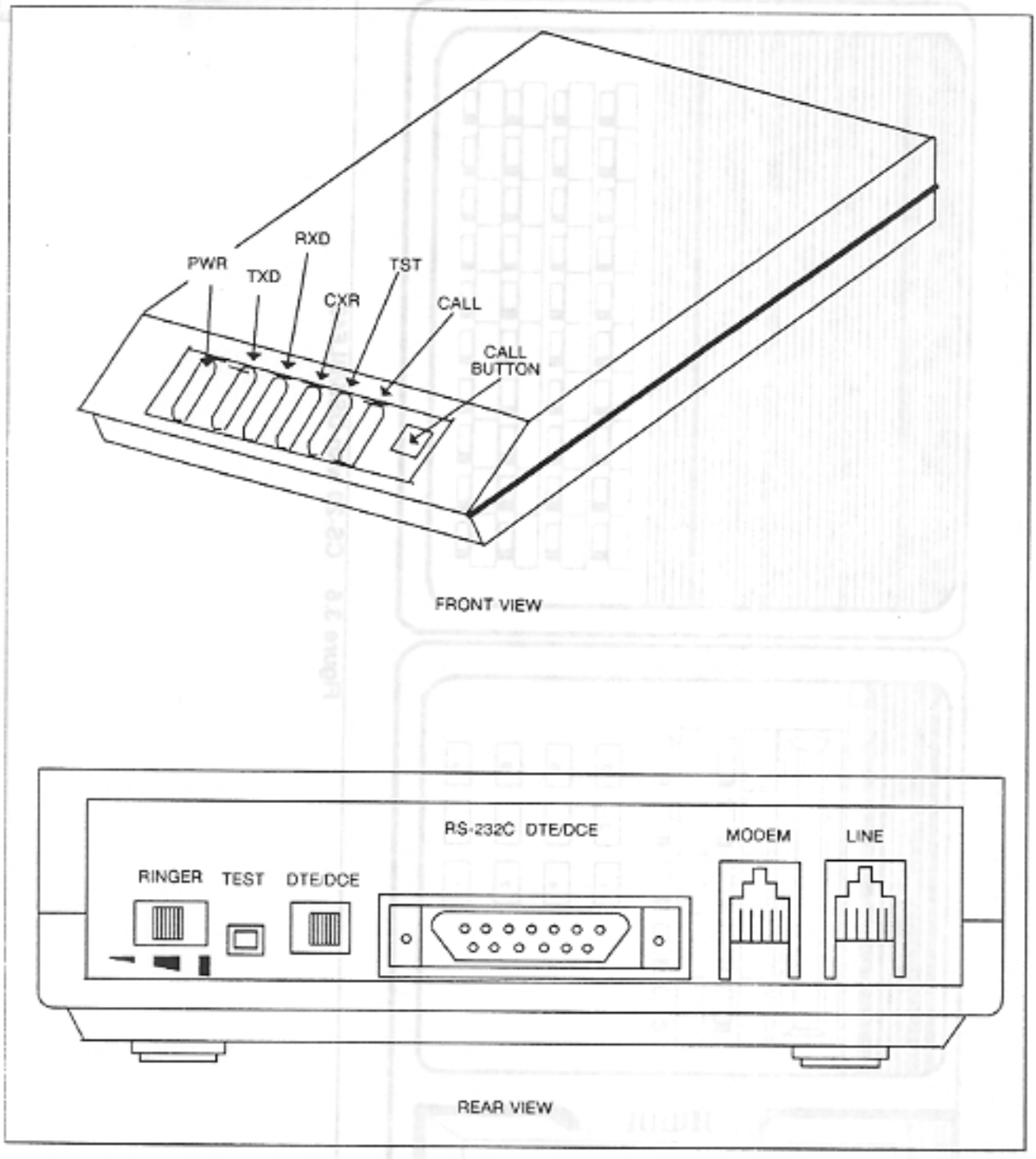

Figure 3.7 DIU (Data Interface Unit)

Administration/ Maintenance

3.1 The system provides four options for reliable and easy administration and maintenance:

- CSD as an MCT (Master Control Telephone)
- PMP (Portable Maintenance Panel)
- Attendant Console as an MCT
- PcMP (Personal Computer Maintenance Device) (when available)

The testing of system functions and the programming of changes to the office dependent data base can be accomplished on-site or at remote locations by entering CMC (Change and Maintenance Command) codes. Only one programming device can be in operation at a time.

MCT (Master Control Telephone)

3.1.1 In addition to functioning as a station device, the CSD telephone also acts as an MCT for the entry of CMC commands. The CSD as MCT is assigned in the data base to access the system programming mode when an access code is entered at the instrument. No back-up tape or floppy diskette can be used with this terminal.

The system can support a maximum of four MCTs in Packages A, B, and C and a maximum of 20 MCTs in Package D. Only one device at a time can function as a MCT.

PMP (Portable Maintenance Panel)

3.1.2 The PMP (Figures 3.8, 3.9, 3.10) is a microcomputer which provides the ability to save the customized data base on leaderless micro-cassette tape or floppy diskette. The PMP serves as a maintenance center through dial-up over ordinary CO, DID, or Tie lines. This method of system maintenance requires an automatic answer modem for interface with a remote maintenance center.

Attendant Console

3.1.3 In addition to functioning as the primary answering position, the Attendant Console can function as an MCT programming and maintenance device. The Attendant Console performs system programming by first activating the position busy mode, which removes the attendant from active status. The required security code is then entered to access the system programming mode. The customized data base on micro-cassette tape or floppy diskette cannot be used with this terminal.

In the expanded-version system, only the input/output ports in the basic cabinet can be utilized for system programming access. The CPM card resides in the basic cabinet and provides the RS-232C port interface required.

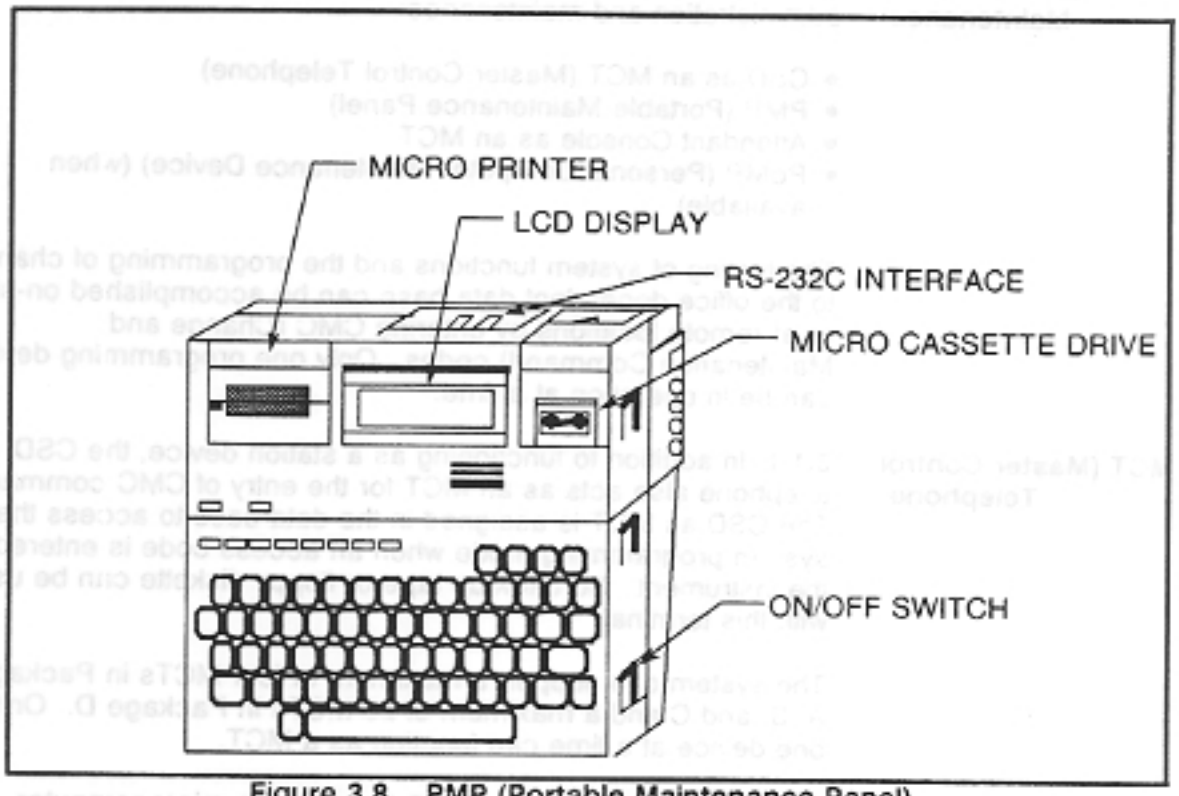

Figure 3.8 PMP (Portable Maintenance Panel)

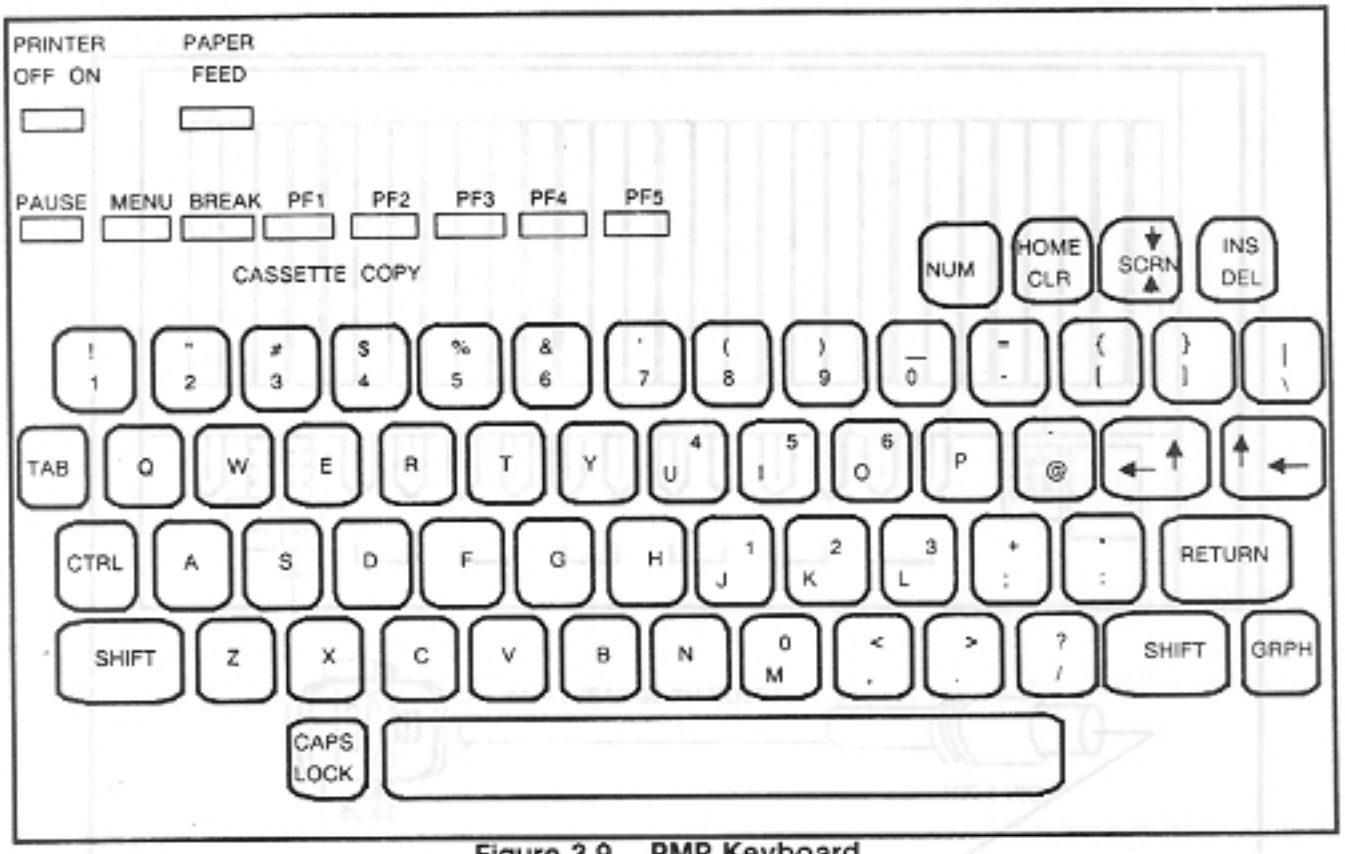

Figure 3.9 PMP Keyboard

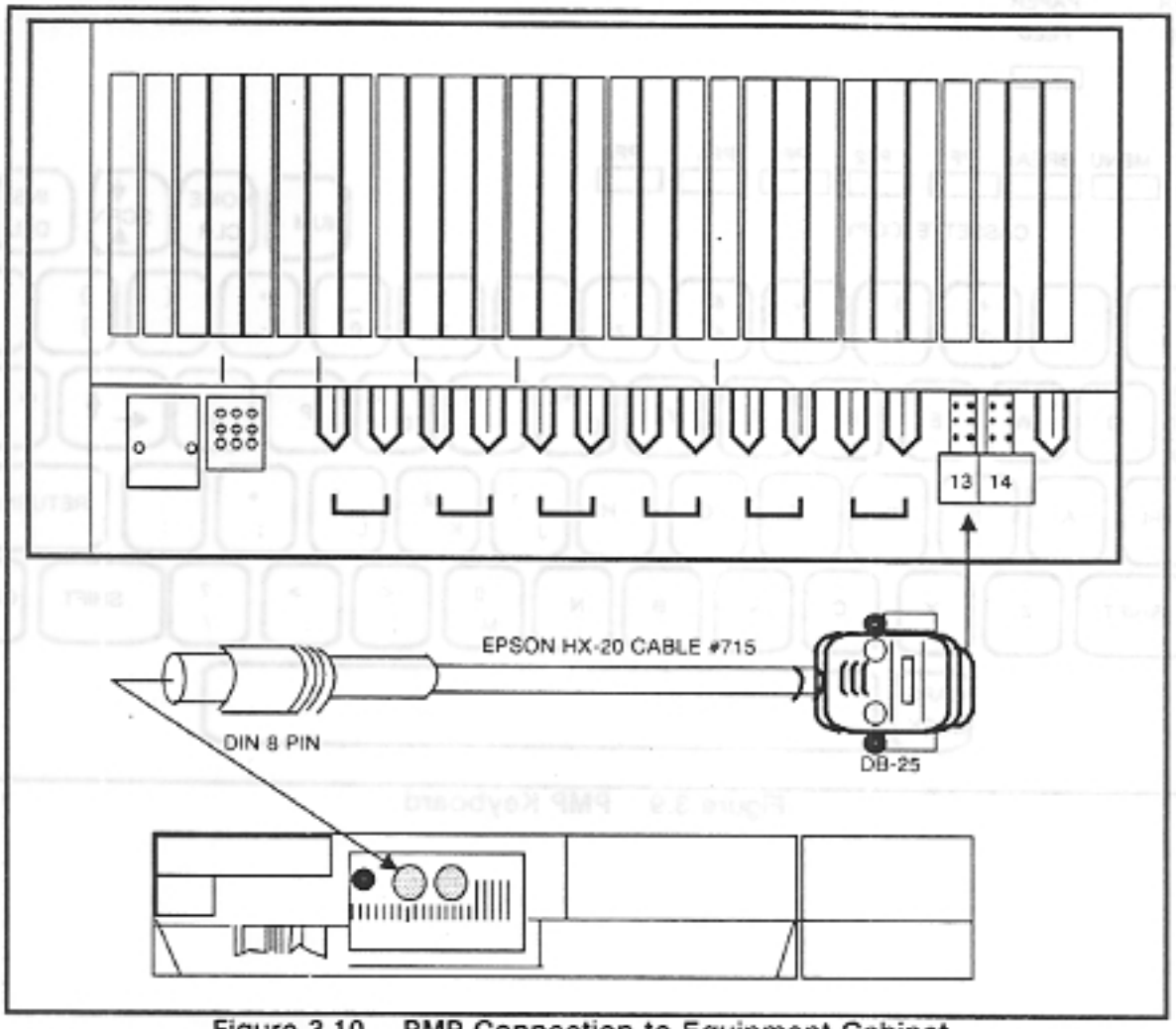

Figure 3.10 PMP Connection to Equipment Cabinet

SYSTEM FEATURES

4.0 This section describes the major system features and their functions and also lists benefits and market applications.

Alarms

4.1 Alarms are located on the CPM card in the equipment cabinet. Alarms can also appear as a feature on any EKT (Electronic Key Telephone), Attendant Console, or DSS/BLF Console. Some alarms are turned off by maintenance personnel; some occur only momentarily and are turned off by the system (e.g., recovered data error); others reset when the condition clears (e.g., unplugged telephone).

Benefits

- o Reduces/eliminates downtime
- o Speeds troubleshooting and warns of fault conditions before major problems occur

Application

- o Organizations that cannot tolerate downtime; health care, telemarketing, service bureaus, travel agencies

Packages: All

ACD (Automatic Call Distribution)

4.2 ACD (Automatic Call Distribution) provides automatic distribution of incoming trunk and internal calls to idle agent stations in the ACD group. If all stations in the ACD group are busy, the call is placed in the ACD call queue to await the next available station.

The ACD feature also maintains an idle agent station queue. An incoming call is connected to the idle agent station that has been in the idle station mode the longest. Monitoring or timing of each idle agent station begins at the termination of the last call handled by that station.

ACD treatment is activated for calls to the pilot station for CO and DID trunks, calls forwarded to the pilot station e.g., CFB (Call Forward Busy/No Answer), CFN (Call Forward-No Answer), and CFA (Call Forward-All Calls), and calls forwarded from the Attendant Console.

The ACD service is activated for the following types of calls terminating at the pilot station:

- ICM (Intercom) call
- Transferred call
- Forwarded call
- Tie line call
- DID line call
- Direct-in Line termination call
- Personal Line termination call
- Pooled Incoming Trunk (one appearance)
- Pooled Bothway Trunk (one appearance)

- Key System Line (one appearance)

When the system is equipped with a RVAC (Recorded Voice Announcement) card and a call is placed in the ACD calling queue on a CO or DID line, a recorded voice announcement is heard by the caller. The caller then hears a hold tone or music until the call can be answered. If the hold condition exceeds a predetermined time, a second voice message is issued (the second recorded voice announcement may be different from the first recorded voice announcement). The caller again hears a hold tone or music. The second recorded announcement is heard again if the call remains on hold long enough.

If the initial predetermined time period expires but the voice message is busy, the caller continues to hear the hold tone or music until the voice message is idle.

Connect supervision is returned when the caller is connected to the recorded announcement or an ACD agent.

Any ACD call transferred by the Attendant Console to a pilot station is returned to the Attendant Console if it is not answered within a predetermined time. The transferred call is removed from the ACD calling queue when it is returned to the Attendant Console.

The overflow feature is activated when calls in the primary ACD calling queue have not been answered within a predetermined time. The overflow feature handles only CO, Tie, and DID lines and transferred calls. The calls are sent over to a predetermined station, attendant, or pilot in a secondary ACD group. If the secondary ACD group is also busy, the calls are sent a recorded voice message when the system is equipped with the RVAC card and placed in the secondary ACD calling queue. When a call overflows from the primary ACD group, the call is removed from the primary ACD calling queue.

When CFA (Call Forward-All Calls), ALT service, or Night Service (with CFA) is activated, all calls are forwarded to a predetermined destination, if a trunk group is assigned. No calls are routed to the pilot of the group.

Benefits

- o Incoming customer calls are routed directly to individual departments, improved professional image
- o Cost effective in eliminating or reducing the need for extensive switchboard or Attendant Console equipment, reduced network costs
- o Speeds communications in high-traffic operations, improved customer service, improved employee productivity

NOTE: The ACD supervisor position must be a CSD telephone.

Applications

- o Mail order houses and businesses handling diversified product lines
- o Travel related industries with a high volume of customer communications, newspaper advertising departments, government agencies, service bureaus

Capacity

- o 20 ACD groups, 120 agents per group - basic
- o 20 ACD groups, 240 agents per group - expanded

Package: D

ACD Agent

4.3 The ACD agent position operates specialized station features to handle ACD calls effectively. The agent position function is programmed into one of the ACD groups in the data base using CMC (Change and Maintenance Code) commands. The following ACD features are available at the ACD agent position:

- Agent Consultation - This feature permits private consultation with an internal or external party while the initial calling party is on hold.
- Agent Transfer - This feature allows transfer of an ACD call to another station or ACD group.
- Agent Instrument - Proprietary telephones and SLTs (Single-Line Telephones) can be agent instruments to receive ACD calls. Each agent instrument is assigned a station directory number. If an SLT is used as an agent instrument, the following ACD features are not available:
  - Agent Hands-Free Operation
  - Incoming Call Identification
  - Call Splitting
  - Silent Messages
  - Emergency Call
- Agent Received Non-ACD Incoming Calls - This feature allows the agent instrument to receive calls other than ACD calls.
- Agent Three-Party Conference Call - This feature permits the addition of a third party to a two-party call.
- Call Hold - This feature places an incoming call on exclusive hold. No other station can access the call.

- Direct Outward Dialing - This feature allows an agent instrument to originate an external call using the PABX facility. This feature is regulated by the agent instrument's COS (Class of Service) and COR (Class of Restriction).

- Incoming Call Identification - This feature provides visual indication in the LCD display of the calling party, station directory number, or trunk number. The calling party is displayed to indicate an ACD call. The pilot number of the ACD group called is displayed in the center of the LCD.

- Intercom Dialing - This feature provides the same intercom service as for an EKT station.

- Agent Supervisor Assistance Requested Calls - This feature, used with the Silent Messages feature, allows the agent to alert the supervisor of assistance needed.

- Message Display - This feature allows the reception of a message from the supervisor, Silent Messages on CS-20s/CSDs; Message Waiting lamp on CS-10s/SLTs.

- Position Unstaffed - By registering DND (Do Not Disturb), an agent can temporarily not answer any incoming calls.

Benefits

o Allows handling of calls in a timely manner
o User friendly

Application

o Reservation desks, catalog sales, ticket agents, customer service

Capacity

o 20 ACD groups, 120 agents per group - basic
o 20 ACD groups, 240 agents per group - expanded

Package: D

ACD Supervisor

4.4 To assist agent stations, a supervisor station is assigned to operate not only the agent station features but also the dedicated features . The supervisor station is programmed with the following features:

- Silent Monitor - This feature allows a supervisor to silently monitor an agent station at any time. No override tone is heard when the monitor feature is activated. The override tone is available as an optional systemwide feature.

- Supervisory Assistance - This feature allows an agent who requires assistance with a call to send a silent message to the supervisor.

- System Administration Function - This feature is used by the supervisor to administrate the ACD group. The supervisor station must be a CSD configured as an MCT (Master Control Telephone). The supervisor can reassign or remove agent stations from the ACD group using CMC commands. This facilitates effective handling of incoming ACD calls.

- Call to an Agent Station - With this feature, the supervisor can call any agent station by dialing the station directory number.

- Three-Party Conference - This feature is identical to the three-party conference feature for the agent station position.

- Message to an Agent Station - With this feature, the supervisor can send a silent message to an agent station that has an LCD display.

- ACD Status - With this feature, the supervisor station can receive the following information programmed on feature buttons on the CSD telephone:

  - number of idle agents in the group
  - number of busy agents in the group
  - number of unstaffed agents in the group
  - number of CO calls in the queue
  - number of Tie line calls in queue
  - number of station calls in queue

Benefits

o Allows supervisor monitoring of more than one group
o Reduces number of lost calls
o Allows more than one supervisor for each group
o Assists in training agents
o Improves employee productivity
o Allows the monitoring of agents to meet staffing needs
o Allows the reconfiguration of ACD group or trunk lines to facilitate call handling

Application

o Reservation desks, ticket offices, customer service, telemarketing, dispatchers, newspaper advertising departments

Capacity

o Maximum of 20 MCTs per system

Package: D

DSS/BLF Console

4.5 The Busy Lamp Field feature on the DSS/BLF (Direct Station Selection/Busy Lamp Field) Console provides an updated status display of associated stations. LED indicators display IDLE, DO NOT DISTURB, RINGING, BUSY, or RECALL state of associated DSS station buttons.

The DSS/BLF Console contains individual programmable buttons for accessing all or some internal stations. This enables the user to place or complete incoming calls by depressing the DSS button associated with the desired station. Unassigned buttons on the DSS/BLF Console can be programmed for specific features. The console will accommodate a maximum of five PARK buttons, five CAMP-ON buttons, and one button each for ALARM, NIGHT ANSWER, and ALTERNATE. Up to 40 speed call buttons (Packages C and D) or 40 trunk buttons (Packages C and D) can be programmed on a DSS/BLF Console.

Two types of consoles, DSS/BLF40 and DSS/BLF80, are available with 40 lamp (LED) buttons and 80 lamp (LED) buttons, respectively. The Attendant Console and EKTs can be used with either DSS/BLF console. See Section 6.0 Key Telephone System.

Benefits

- o Provides constantly updated visual display of station status
- o Efficient call processing reduces network costs
- o Improved professional image
- o Reduced hardware costs
- o Provides single-button access (instead of dialing) to desired station
- o Allows telephone coverage at an alternate EKT station via ALTERNATE feature button
- o Provides easy activation of call handling feature via DSS PARK and DSS CAMP-ON feature buttons

Applications

- o Offices where receptionist uses the intercom frequently
- o Offices with a need for centralized answering capability
- o Offices that use DID and do not need a full console
- o Offices with a need for more than one answer point to cover absences, vacations, etc.

Capacity

- o Eight DSS/BLF40 Consoles

- Eight DSS/BLF Consoles: two DSS/BLF80 Consoles with independent button assignments and six DSS/BLF40 Consoles with independent button assignments

Packages

- One per instrument - Packages A and B
- Two per instrument - Packages C and D

Call Progress Tones

4.6 Call Progress Tones are provided by the system to indicate call status as follows:

• Dial Tone	Proceed to dial.
• Ringback Tone	Called party is being rung.
• Busy Tone	Called party is busy.
• Error Tone	Service is not obtainable or misdialed (vacant number or resource block).
• Key Tone	Proceed to dial additional digits.
• Success Tone	Request is acknowledged.
• Distinctive Busy Tone	Called party is busy. Camp-on and/or override service are available.
• Call Waiting Tone	Indicates call waiting or camp-on.
• Hold Tone	Call is in the hold condition.
• Recording Tone	You may now record voice announcement.

Benefits

- Provides automatic audible indication of calling status
- Prompts station user for feature activation

Packages: All

COS/COR (Class of Service/Class of Restriction)

4.7 This feature provides multiple classes of service to restrict stations from accessing certain features. A COS is assigned to each station/trunk and the station/trunk has access to all the features allowed for that class. Default COS and customized COS are available through the data base.

COR is used to deny access to certain features or portions of features. Default COR and customized COR are available through the data base.

Benefit

- o Provides customization of features to meet unique needs of the user by allowing 16 classes of service and 16 classes of restriction

Applications

- o Business operations in a tenant service environment
- o Organizations with a need for more control over feature assignment than is normally offered in COS designations

Capacity

- o 16 classes of service
- o 16 classes of restriction

Packages: All

Diagnostics (Local/Remote)

4.8 Using on-line diagnostic routines, the system provides detailed information on system operation and fault locations. Visual display of type of fault, location of defective card or instrument, time of fault, etc. is obtained by the entry of CMC (Change and Maintenance Code) commands on a PMP (Portable Maintenance Panel) or Master Control Telephone (CSD or Attendant Console). These devices can be used on-site for troubleshooting activities. However, the PMP can also be used from a remote maintenance center via dial up over the public telephone network.

Benefits

- o Reduces costly on-site service calls by providing diagnostic capability at user site or from remote maintenance center
- o Reduces time spent in troubleshooting activities by providing a visual display of diagnostic data
- o Enhances maintenance function by providing a periodic check of system status during system restart or call processing routines
- o Saves time and money by allowing on-line testing of EKTs

Applications

- o Businesses that require 24-hour telephone service
- o Emergency type service; e.g., fire, rescue, etc.
- o Remote sites requiring part-time service support

Packages: All

Dial Outgoing Restriction

4.9 Trunk calls can be restricted by COS and COR as well as multi-digit restriction.

Benefits

- o Allows the user to limit access to outside lines
- o Provides savings on outside call costs
- o Prevents unauthorized outside calls

Application

- o Offices with a need to regulate and control outside calling

Capacity

- o Three restriction groups per system
- o 16 classes of restriction
- o Multi-digit toll restriction

Packages: All

Dictation Access

4.10 This feature provides a station user with dial access to a user-provided dictation machine.

Benefits

- o Cost effective by allowing the use of existing dictation equipment
- o Retraining of personnel on use of "new" dictation equipment is not necessary
- o Shared usage of dictation equipment

Applications

- o Organizations with telephone dictation requirements
- o Offices requiring off-site access to dictation equipment

Packages: Available in Packages A, B, and C. Enhanced version available in Package D.

DID (Direct Inward Dialing)

4.11 DID trunks allow calls to ring directly to a station, bypassing the attendant position. DID trunks are for one-way incoming calls only.

The last one to four digits of the listed directory number for DID must correspond to a specific station number. A maximum of five listed directory numbers are assigned per DID trunk group. Listed directory numbers ring directly to the Attendant Console.

DID trunks terminate on 2TTE or 2TTL interface cards in the system. The system can accommodate a maximum of 6 Tie line cards in the basic version (combination of E&M and Loop Tie lines) and 12 Tie line cards in the expanded version.

Calls to busy stations receive a busy tone; however, if the busy station is in a hunt group, the call receives hunting treatment. Calls to stations in the do not disturb mode receive an error tone, are directed to the attendant, or receive a recording if the RVAC card is installed. Calls directed to vacant station numbers are directed to the attendant or receive an error tone or a recorded voice announcement. DID calls can also be answered with the Group/Directed Pickup features.

Benefits

- o Reduces call load to attendant
- o Allows station users to have direct/individual incoming lines

Applications

- o Large volume of incoming calls to station users
- o Sales departments requiring direct access
- o Service departments requiring direct access

Capacity

- o 12 DID trunks per cabinet
- o 6 DID trunk groups

Packages: C and D

DISA (Direct Inward System Access)

4.12 DISA provides access to stations, features, and trunks from remote locations. The remote caller must be using a DTMF telephone.

DID or bothway trunks (ground start only) are designated as dedicated remote access trunks. If a bothway trunk is utilized, it must be arranged for ground start.

Authorization codes are one to four digits in length for DID trunks or one to eight digits for bothway trunks.

Features accessible with DISA trunks include:

- Stations
- Attendant
- Dictation
- Outgoing trunks
- SCC (Specialized Common Carrier) routes
- System speed call list
- EKT paging access
- External paging access
- LCR (Least Cost Routing)

The remote caller dials the listed directory number which terminates on a DISA trunk in the system. The caller hears a distinctive tone and inputs the appropriate authorization code. In

Package D, the RVAC card provides a prompting message to input the authorization code. System dial tone is then sent to the remote caller and system facilities are accessible. The internal station user can transfer the call to any other station in the system. Calls directed to a vacant station number or to an invalid feature code are sent an error tone. In Package D, the RVAC card provides an invalid authorization code input message.

Benefits

- o Access to system and station features for field personnel
- o Centralization of network facilities
- o Access to system features after hours

Applications

- o Sales personnel in the field
- o Access to features (i.e., dictation and SCC trunk groups) from remote location or after business hours

Capacity

- o 18 trunk groups for DISA-basic
- o 6 DID/DISA

Packages: C and D

Distinctive Ringing

4.13 The Distinctive Ringing feature allows station users to audibly identify the source of incoming calls that are characterized by distinctive ringing signals. Distinctive ringing tones can be used to identify the following types of calls:

- Station call from within the system
- Incoming call from outside the system
- Call that has been forwarded to the station from another station or is a callback (recall) from the system.

NOTE: Not applicable to off-premises stations.

Benefits

- o Provides single line stations with key telephone station features
- o Identifies type of call for stations without a visual display

Packages: All

DP/DTMF Stations

4.14 Both rotary dial and DTMF telephones can be used as SLTs. Dial pulses and DTMF tones from these telephones are received and transmitted to trunks.

Benefits

- o Allows the use of existing SLTs (rotary dial or DTMF) by providing DP/DTMF conversion
- o Allows the use of station instruments most appropriate to user needs and working environment
- o Dial access to features available to all SLTs

Applications

- o Offices with working environments in which SLTs are more practical and functional than EKTs; e.g., warehouse, stockroom, etc.
- o Organizations with a need access to electronic banking services, SCC, etc.

Capacity

- o 120 stations, 2 DTMF cards - basic
- o 240 stations, 3 DTMF cards - expanded

Packages: All

Equal Access

4.15 The system can accommodate users in areas where Equal Access is available. Regardless of the primary (and alternate) access carrier selected by the user, the system data base can easily be programmed to use the carrier access codes for feature operation; i.e., LCR (Least Cost Routing), Multi-Digit Toll Restriction, and SMDR (Station Message Detail Recording). Carrier access codes can also be incorporated in speed call lists.

Benefits

- o Enhances system operations by allowing the user to easily incorporate carrier access codes into the data base for cost management and control
- o User friendly, user dials single access code no matter which route selected by LCR

Application

- o Businesses in areas where Equal Access is available

Capacity

- o 10 SCC Equal Access Codes

Packages: B, C, and D

Flexible Numbering Plan

4.16 Flexible Numbering allows the user to assign station numbers in accordance with a specified numbering plan. Number assignments are made through the software and can be easily reassigned using CMC (Change and Maintenance Code) commands. Station numbers consisting of one to four digits can be integrated in the station numbering plan.

Benefits

- o Room number correlation for Hotel/Motel and Health Care
- o Enhances system operations by allowing the user to quickly and easily assign or change station numbers to suit individual requirements

Applications

- o Organizations that need to reassign station numbers because of personnel relocations or installation of new systems
- o Hotel/Motel applications, e.g., room number correlation and single-digit service

Capacity

- o One to four digit numbering plan

Packages: All. Hotel/Motel features are available in Packages C and D only.

Group Hunt

4.17 When a call encounters a busy station, this feature allows the caller to hunt the first idle station in a defined Hunt Group. Each group is defined as circular, terminating, or pilot type.

- Circular Hunt Group - The hunting sequence for a non-busy station starts with the called station and then searches in a prearranged order through all stations in the hunt group to find an available station. The hunt continues in a full circle back to the original station and will try that station again before returning a busy tone.

- Terminating Hunt Group - The hunting sequence for a non-busy station starts with the called station and then proceeds through the hunt group stations to find an available station. The hunting sequence ends at the last station in the hunt group; therefore, a call placed to any hunt group station except the first one will not make a complete search of all available stations.

- Pilot Hunt Group - The hunting sequence for a non-busy station begins only when the pilot number is dialed. The pilot number is assigned as the first number in the hunt group. The hunting sequence ends at the last station in the hunt group. The pilot station is not rung a second time.

Benefits

- o Improved productivity
- o Reduced attendant intervention in locating an idle station
- o Improved customer service

Application

- o Sales departments, catalog sales operations, parts departments

Capacity

- o 10 hunt groups per system, 16 members per group - Packages A and B
- o 20 hunt groups per system, 16 members per group - Packages C and D

Packages: All

LCR (Least Cost Routing)

4.18 With LCR, the system chooses the most cost effective outgoing trunk based on the outside number dialed. After the outgoing destination number is dialed, the LCR stores and examines the number on the basis of the area and/or office code used. The LCR then chooses the proper trunk from a programmed route table which can contain up to 10 trunk group choices. The system contains two route tables. One table containing 15 routes is for office codes. The other table containing 15 routes is for either area codes or office codes within an area code (area/office codes).

The LCR class of service levels determine the caller's ability to advance immediately through the trunk groups listed in the route table.

- A feature number allows access only to the first trunk group in the route table.
- A feature number allows access to all trunk groups except the last trunk group in the table.
- A feature number allows access to all trunk groups in the table.

Multi-Digit Toll Restriction and Toll Restriction are applied to outgoing calls through this feature.

NOTE: With LCR, trunk queuing cannot be activated.

Benefits

- o Provides management control of communications service by allowing the user to define routing of outgoing calls

- Improves management of telephone expenses by providing automatic routing of outgoing calls over most economical facility available
- Provides greater security since employees no longer need to know SCC access codes
- User friendly - dial single access code regardless of route selected

Applications

- Organizations which need to ensure employees use the most economical route for outgoing calls
- Offices with more than one type of trunk access, (e.g., WATS, Tie lines, FX, etc.)

Capacity

- Two tables per system; 15 routes per table

Packages: All

Maintenance Trunk Busy

4.19 When a problem occurs with a trunk, this feature allows maintenance personnel to take the trunk out of service and busy out the trunk with the MCT or PMP. Any station user trying to access the trunk will receive a busy signal.

Benefits

- Saves time in eliminating repeated calls to a bad trunk
- Allows maintenance personnel to place a trunk out of service until it can be repaired

Packages: All

Modular Common Equipment Expansion

4.20 The system can be upgraded by adding Station and Trunk Modules (cards). An expansion cabinet can be added with Packages C and D.

Benefits

- Necessary system upgrades can be made without extensive and costly investment in new equipment
- System upgrades can be made rapidly without significant downtime
- No need to replace existing peripheral equipment to upgrade system

Application

o Businesses that are growth oriented

Packages: All (expansion cabinet available in Packages C and D)

Multi-Digit Toll Restriction

4.21 The Multi-Digit Toll Restriction feature allows the system to control area and office code calling on outside trunk groups. The system provides the option of setting various levels of restriction which can be assigned to each station in the system.

These COR (Class of Restriction) levels are defined by constructing area code, office code, and area/office code tables when the system data base is generated. These tables are assigned to a certain COR on an allowed or denied basis. The system provides for 16 COR levels.

When a station user initiates an outgoing call, the Multi-Digit Toll Restriction feature examines the first three or six digits (except for the operator toll prefix, customer toll prefix, and carrier access code) of the dialed number and compares them with the COR registered for that station. Calls placed to restricted area or office codes are blocked and the station user is provided with an error tone.

Benefits

o Controls toll calling expenses by allowing the user to define an individual station COS, preventing use of outside trunk groups

o Prevents toll abuse by providing automatic blocking of calls placed to restricted area and/or office codes

Application

o Cost conscious organizations with a need to control telephone expenses

Capacity

o 1000 maximum entries of area, office, and area/office codes
o 3 restriction groups
o 16 COR

Packages: All

Multi-Station Appearance

4.22 With this feature, extension numbers of proprietary telephones appear on more than one telephone. Each telephone has one PSL (Primary Station Line) and may have OSLs (Other Station Lines) assigned to it. When a call comes in, the call may be answered by another telephone using the OSL. A call can be originated through either a PSL or OSL line.

The ICM (Intercom) Group feature is used only for making two-way calls to an extension within the same ICM group. See Section 7 Key Telephone System for application of this feature.

Benefits

- o Provides efficient call coverage capabilities
- o Allows other stations to pick up incoming calls, increasing efficiency and productivity

Applications

- o Secretary responsible for answering other's lines
- o Telemarketing departments

Capacity

- o 16 same station line appearances
- o 10 ICM groups
- o 16 stations per group

Package: D

Music-On-Hold

4.23 This feature allows the connection of an external music source to the 4BWC card. The calling party hears music when placed on hold. Package D provides RVAC (Recorded Voice Announcement) card for a music source.

Benefits

- o Customer service for incoming calls
- o Improved professional image
- o Reduced abandon rate

Application

- o Any business
- o Offices preferring to use radio stations for an MOH (Music-On-Hold) source

Capacity

- o One MOH source or recorded music source

Packages: All

Night Service

4.24 While the system is in night mode, incoming outside calls are directed to specific stations and/or bells. PNA (Predetermined Night Answer) or UNA (Universal Night Answer) are available for all tenants or are split for each tenant group. Any station may answer an incoming call by dialing an access code (if allowed by COS). Night Service is activated at the Attendant Console, DSS/BLF Console, or at any station so allowed by COS.

Benefits

- o Users without DID lines can receive after hours calls
- o Night bell alerts staff to incoming calls when central answering position is unstaffed

Applications

- o Businesses without DID service
- o Offices with employees on site when central answering position is unstaffed

Capacity

- o 16 night answer groups and 8 night answer destinations - Packages A and B.
- o 32 night answer groups and 8 night answer destinations - Packages C and D

Package: All

Non-Blocking Voice Path

4.25 The system utilizes time-division multiplexing techniques with pulse code modulation for transmission of voice communications. This digital switching technology uses a single-speech highway to transmit all voice traffic. Various voice channels are separated from each other by time, with each channel alternately being connected to a transmission line. The microprocessor samples line and trunk circuits at very high rates of speed. When an incoming port and an outgoing port are to be connected, time slot information associated with these ports is exchanged momentarily.

This method of system operation makes efficient use of a communications channel and provides capability for non-blocking voice communications.

Benefit

- o Allows all system users full access to line or trunk circuits by providing 136 (basic version) or 272 (expanded version) full duplex time slots for voice and data communications

Application

- o Marketing and other high traffic occupations

Capacity

- o 136 full duplex time slots - basic
- o 272 full duplex time slots - expanded

Packages: B, C, and D

Off-Premises Stations

4.26 This feature enables industry-standard SLTs (Single-Line Telephones) at off-premises locations to be connected to the system. Loop extenders, available in the commercial marketplace, are needed to extend station lines. CO conditioned leased lines of 600 ohms limit, including telephone, may also be used. This equipment is mounted and powered externally to the equipment cabinet. The distinctive ringing pattern cannot be used on an off-premises station.

Benefits

- o Provides easy access to dial-up features of a company's communications system for employees who are working at off-site locations
- o Reduces need for duplicate systems, i.e., centralized network or centralized control of facilities; reduces equipment cost and space requirements

Applications

- o Businesses with branch offices using SLTs
- o Bank branches

Packages: All

Pound (#) Code Dialing

4.27 Pound (#) code dialing is available for CO or Tie trunks as one of the address signals if the system is so arranged. This arrangement is useful when the system works behind a PABX.

Benefit

- o Increases the number of features available to a user by accessing PABX features

Applications

- o Any organization with a system operating behind a PABX
- o Tie line applications

Packages: All

Power Failure Restart

4.28 The Power Failure Restart feature provides for automatic reinitialization of the system and the office dependent data base after a power failure. Because all updates to the system memory via the Processor Change facility are stored in the battery backed up memory, the system is able to return to the same call processing configuration that existed before power loss. Features which have been temporarily activated by the user, e.g., Station Camp-On, must be reinitiated after power is restored.

Three types of automatic system restarts are provided:

- Short Power Restart (Reset Restart) - When commercial power is restored within one to three seconds after power failure, call processing is resumed at point of interruption

- Power Failure Restart (Hot Restart) (battery backed RAM) - When commercial power is restored after a power failure of more than three seconds, the system restarts call processing by using the customer data base stored in the battery backed up RAM. This restart puts all stations and trunks in an idle state and cancels certain activated features, e.g., Station Camp-On, Trunk Camp-On, and Call Park.

- Power Failure Restart (Cold Restart) (ROM) - When commercial power is restored after a power failure that has depleted the RAM back-up battery (back-up battery can hold RAM memory for up to two weeks), the system restarts by using the default office dependent data base stored in ROM.

Benefit

o Provides automatic regeneration of system and office dependent data base information after power outage

Application

o All businesses and telecommunications operations

Packages: All

Processor Change (Local/Remote)

4.29 The Processor Change (Local/Remote) feature allows changes to be made in the office dependent data base. This is done either locally (on-site) or remotely via the public telephone network. The Processor Change function is implemented by entering CMC (Change and Maintenance Code) commands via a PMP (Portable Maintenance Panel) or a CSD or Attendant Console as MCT (Master Control Telephone). The MCT or the PMP can be used on-site to enter commands The PMP can be used to enter CMC commands from a remote maintenance center using CO lines to the customer's system.

Benefits

o Saves time and money by providing an in-house capability to make data base additions/changes and perform troubleshooting

o Eliminates costly on-site service calls by allowing data base changes via a remote maintenance facility

Applications

- o Businesses with switches at multiple sites
- o Organizations in which operations involve many moves and changes

Capacity

- o Four CSDs as MCTs in Packages B and C, 20 in Package D, or
- o Two Attendant Consoles as MCTs, or
- o One PMP, or
- o One PcMP

Packages

- o PcMP and PMP - All
- o CSD - Packages B, C, and D
- o Attendant Console - Packages C and D

RVA (Recorded Voice Announcement)

4.30 This feature enables the system to send recorded messages to a caller. The RVAC (Recorded Voice Announcement) card controls this feature. One RVAC card can support seven 4-second messages. Each RVAC card has eight ports, seven for transmitting recorded messages and one for recording messages. Voice messages may be of any length up to 28 seconds. They may not, however, extend over more than one RVAC card. The System Administrator can call and change the recorded message. Messages provided by the system are as follows:

- 20 ACD answering messages
- 20 ACD waiting messages
- 1 DID vacant number message
- 1 DISA authorization code entry message
- 1 DISA invalid authorization code message
- 1 Hotel/Motel wake-up message
- 1 time reminder message
- 10 announcement messages
- Hold message
- ACD music
- Waiting message for Hotel/Motel wake-up/time reminder message

Benefits

- o Provides advertising while customers wait on hold
- o With ACD, reduces call abandon rates
- o Increases sales
- o Provides wake-up services and time reminders for Hotel/Motel applications

Application

- o Hotel/Motel operations, customer service, airline reservations, or reservation desks

Capacity

- o Two RVAC cards and 4CHT cards in combination per equipment cabinet
- o Recorded message range from one 28-second message to seven 4-second messages

Package: D

Simultaneous Voice/ Data Transmission

4.31 Simultaneous voice and data can be transmitted over one pair of wires. Both asynchronous and synchronous data terminals can be connected with the system. See Simultaneous Voice/Data Communications in Section 9 for further information.

SMDR (Station Message Detail Recording)

4.32 The SMDR (Station Message Detail Recording) feature provides a printed copy of the following information for every outgoing call:

- Time of call origination
- Duration of call (hours, minutes, seconds)
- Originating station number
- Trunk access code
- Trunk identification
- Trunk number
- Identification of calling party, e.g., station/attendant
- Directory number dialed
- Account code
- Tenant number
- Metering group number

SMDR has the additional capacity to screen outgoing calls and limit a printout to:

- Outgoing calls through CO lines only
- Outgoing calls through Tie lines only
- Account code calls only
- Toll calls only
- Overtime calls only
- Trunk group selection
- COR selection
- Tenant selection

If an outgoing call satisfies all the screening items, detailed information on the call is automatically sent to a printer connected to the RS-232C port on the equipment cabinet. The service applies to all calls originated through the following features:

- Personal/Private lines
- Key System lines
- Pooled Outgoing lines
- Pooled Bothway lines
- Tie trunk access
- System Speed Calling/Station Speed Calling
- LCR access
- SCC access
- Save/Repeat number
- Trunk individual access

This feature provides a programmable threshold for call duration; therefore, incomplete calls (busy tone, reorder tone or no answer) are not recorded unless they exceed the threshold.

Benefits

o Provides record of telephone expenses for billback to departments or tenants

o Provides accounting management tool for allocation of telephone expenses

o Identifies areas for system or feature upgrade

o Provides record of telephone call duration which can be used in making budgetary and planning forecasts

o Prevents telephone abuse and misuse by identifying unauthorized outgoing calls

o Provides an evaluation tool to measure amount of employee's time spent on the telephone

Application

o Individuals whose operation requires call tracking capabilities, e.g., lawyers, consultants, etc.

Packages: All

Station Alternate Position (Console)

4.33 This feature allows a station associated with a DSS/BLF Console to direct all calls to a preassigned station. The station must be an EKT with an appearance of the same trunks. The button appearance is on the DSS/BLF Console.

Benefits

o Allows calls to be automatically routed to one alternate position
o Prevents a back-up of calls at the DSS/BLF console

Capacity

o One alternate EKT station per DSS/BLF

Packages: All

System Call Park

4.34 The System Call Park feature allows a station user to park an unlimited number of incoming calls by assigning each call to a different parking number (one to four digits). After parking the call under a specified number, the station user can hang up and then place and receive other calls. Calls parked longer than a predetermined time are automatically returned to the station user.

Benefits

- o Increases ease of operation and reduces number of callbacks by allowing station user to park more than one call at a time
- o Provides more efficient call handling capability by allowing parked calls to be retrieved at any station

Packages: All

Tenant Service

4.35 The Tenant Service feature allows the same communications system to be shared by as many as four tenants plus one unassigned. Each tenant shares the common control logic, power supply, and Attendant Console(s), but retains control of individual stations and trunks. There are three system options available in the Tenant Service feature:

- Outgoing/Incoming tenant
- Outgoing only tenant
- Incoming only tenant

Benefits

- o Resale of services - increased profit, reduced expenses
- o Reduces telephone expenses by allowing small businesses in close geographical proximity to each other to use same communications system

Applications

- o Shopping centers
- o Professional office buildings (doctors, lawyers, accountants, etc.)

Capacity

- o Four tenants per system, plus one unassigned

Packages: All

Tie Trunk Access

4.36 This feature allows a station user or attendant to access a Tie trunk by directly dialing:

- Tie trunk group access code (with or without a call on hold)
- System/station speed dialing access code
- Tie trunk group access code or system/station speed dialing access code by Tie trunk (Dial Tandem Trunking)

Benefits

o Saves money by allowing users to create an internal communications network, reducing use of costly outside facilities

Application

o Offices that frequently call one or more specific cities
o Businesses that have multiple locations (inter- or intra- city installations)

Capacity

o Six Tie trunk groups

Packages: All

Toll Restriction

4.37 Station users are restricted from placing toll calls by their COR (Class of Restriction).

Benefits

o Provides a means to restrict use of certain stations
o Prevents unauthorized toll calls charged to business telephones

Capacity

o Three restriction groups per system

Packages: All

Traffic Measurement

4.38 This feature provides a measurement of traffic density according to TGN (Trunk Group Number). Measured traffic density is stored in the system memory and displayed by CMC (Change and Maintenance Code) command.

Benefit

o Provides a method of measuring the amount of traffic on specific trunk lines

Application

- Offices with a need to control the use of telephone services by their employees

Capacity

- 10 groups per system

Packages: All

STATION FEATURES

5.0 This section describes the major station features and lists the benefits and market applications of each feature.

Account Code/ Client Billing

5.1 Associated with SMDR (Station Message Detail Recording) discussed in Section 4, this feature allows a station user to enter a cost accounting code or a client billing code (up to 15 digits) by depressing a feature button or dialing an access code and the account/client billing code. The dialed account code appears on the station alphanumeric LCD display (when provided) and a record of the call is included in the SMDR call record. If an access code is entered before entering the account code, a confirmation tone is heard and "DONE" is displayed on the LCD of the CS-20 or CSD telephone.

The account code can be re-entered or canceled at any time up to the termination of the call. The last account code entered is the one which appears in the SMDR call record.

Benefits

- o Improves cash flow
- o Provides cost accounting tool to allocate telephone expenses (outgoing calls) to specific clients/departments
- o Provides verification of correct entry by displaying account code on station alphanumeric display
- o Provides record keeping without interruption to ongoing conversation

Application

- o Individuals who want to track outgoing calls for billback to clients or expense allocation purposes, e.g., lawyers, accountants

Capacity

- o Available to all stations

Packages: All

Alarms

5.2 An alarm can be programmed to appear at a station button on an EKT (Electronic Key Telephone) instrument, Attendant Console, or DSS/BLF Console. When an error occurs, the alarm button lights. The alarm button turns off when the fault condition is corrected.

Benefits

- o Automatically alerts the user of problems with the system
- o Reduces downtime

Packages: All

Automatic Intercom

5.3 This feature allows a station user to program individual feature buttons to have one-step dial access to station numbers or system/station speed dialing codes. The quantity of programmable station numbers is limited only by the available buttons on the proprietary telephone.

Benefit

- o Saves time by allowing station user one-step access to frequently called station numbers

Application

- o Individuals who desire traditional boss-secretary direct communication

Packages: All

Call Announce

5.4 The Call Announce feature provides the calling station with a choice of signaling options on internal calls. The call signaling option (tone ringing or voice announcing) is programmed on a system-wide basis; however, an individual station user may elect to change the system option using the CALL ANNOUNCE feature button.

If the system calling method is programmed for tone ring signaling, the station user at the calling station can change the calling method to voice announcing by depressing the CALL ANNOUNCE feature button. (This feature operation requires that both stations be programmed for voice calling.)

If the system calling method is programmed for voice announcing and the called station is programmed for call announce, the station user at the calling station can change the calling method to tone ringing by depressing the CALL ANNOUNCE button. With the CS-20, if a speakerphone feature button is programmed, talk-back from the called station is available without any actions during the call announce mode.

Benefits

- o Allows flexibility in placing internal calls by providing station user with a choice of calling methods
- o Allows internal stations to be given advance notice of waiting calls

o Feature is available on CS-10, CS-20, and CSD proprietary telephones

Application

o Individuals who want station-to-station message communication where no verbal response is required

Packages: All

Call Forward

5.5 This user programmable feature automatically reroutes incoming calls to predetermined destinations (internal stations only). There are three types or conditions of Call Forward: ALL CALLS, BUSY/NO ANSWER, and NO ANSWER. Each condition is programmed via a separate access code or, in the case of ALL CALLS, can be accessed using a feature button. On the CSD, the PROGRAM button also can be used to implement Call Forwarding. Different destinations are allowed for the different call forward conditions.

Although CALL FORWARD - ALL CALLS can be invoked simultaneously with one of the other call conditions, it will override the other two conditions. CALL FORWARD BUSY/NO ANSWER and NO ANSWER cannot be assigned at the same time. A call may be forwarded a maximum of two times within the system.

If a station equipped with an alphanumeric display activates a call forward condition, the display shows the type of forwarding condition and the station number which receives the forwarded call. If a station equipped with an alphanumeric display receives a forwarded call, the display shows the called number, the calling party's number, and an indication of a forwarded call condition - CFA, CFB, or CFN. Key tone is provided when going off-hook for CFA condition.

Benefits

o Allows calls to be automatically routed to the appropriate destination by providing three types of call forward conditions:

-CFA (CALL FORWARD - ALL CALLS)
-CFB (CALL FORWARD - BUSY/NO ANSWER)
-CFN (CALL FORWARD - NO ANSWER)

o Provides user friendly operation by visual display of forwarded destination (and key tone upon activation of CALL FORWARD - ALL CALLS)

o Allows calls to be answered in a personal manner by providing visual display (on "forwarded to" station) of calling station/trunk number called station number, and forwarded condition - CFA, CFB, CFN

Application

- Businesses that require call coverage for busy or unattended stations

Packages

- EKT telephones - Packages A-D
- SLTs (using access codes)- Packages A-D
- CSDs - Packages B, C, and D

Call Park

5.6 This feature permits the station user to place a call on hold and associate the call with any station within the system or an non-equipped number. A call is parked and retrieved by either entering an access code or depressing the PARK feature button. The parking orbit number (one to four digits) is then entered. If the parked call is not answered within a predetermined time interval, it automatically returns to the parking station.

If the call is parked by the DSS/BLF Console operator, it can be retrieved by any station user by dialing the required access code, the DSS/BLF number (1 - 8), and the button number on the DSS/BLF Console (01 - 80).

Benefits

- Increases call handling capability by allowing station user to place calls in a holding status under a parking number and originate or receive other calls
- Improves call processing by allowing any station user within the system to retrieve a parked call
- Reduces the number of callbacks and assures that callers are not kept waiting for extended periods of time by automatically returning the parked call to the parking station after a predetermined time interval

Application

- Offices where personnel frequently must go to other locations to obtain information

Capacity

- Limited only to combination of parking numbers. Five buttons per DSS/BLF Console.

Packages: All

Call Splitting

5.7 This feature allows a station user to alternately converse privately with two parties simultaneously. Call Splitting is accessed through the TRANSFER feature button plus soft buttons on the CSD (one of the menu options displayed on the LCD along

with Conference and Individual Transfer) or can be assigned to a feature button on the CS-10 and CS-20 telephones.

Benefit

- o Enhances call handling capability by giving the station user flexibility to talk with either of two parties

Applications

- o Realtors, lawyers, doctors, etc. who need to converse with two individuals but do not want either party to hear the other conversation
- o Office operations that involve ordering and order status situations, e.g., catalog sales, service order processing, etc.

Packages: B, C, and D

Call Status Display

5.8 This feature provides incoming call identification on the station alphanumeric display. On internal calls, the display shows the calling party station number, type of call, and call status information. On external calls, the display gives the trunk types (CO, FX, etc.) and identification number (0110, 1111, etc.).

The CS-20 LCD is a one line, 20 character display. The CSD alphanumeric LCD displays 20 characters per line and has four lines per display.

Benefits

- o Increases call handling capability by providing visual display of the following:

  -station or trunk number of caller on incoming /outgoing calls
  -call progress information
  -programming prompts and verification
  -dial input verification
  -recall features
  -additional incoming call information
  -time and date
  -elapsed time
  -call forwarding information (ACD, station, originating station, initial terminating station)

- o Improves call answering capability by providing an advance identification of calling party
- o Integral display on CS-20 and CSD telephones

Capacity

o One per CS-20, CSD, or Attendant Console

Packages: All

Camp-On, Station

5.9 If a station user encounters a busy signal when dialing an internal station, the user can dial an access code or depress a feature button or, on a CSD, a display feature button, and then be placed in a waiting queue for the busy station, and then return to the on-hook position. When the busy station becomes idle, the system automatically rings the camp-on originator. When the camp-on originator answers, the system automatically rings the camped-on station.

Benefits

o Reduces telephone tag
o Saves time by allowing users to access busy stations without constant redialing

Applications

o Organizations with a high volume of internal and external call traffic

o Businesses with a high volume of internal call traffic between departments; e.g., sales department and shipping department

Capacity

o 30 calls can be camped on the system simultaneously

Packages: All

Camp-On, Trunk

5.10 This feature allows stations to go into queues for an available trunk (camp-on) when a particular trunk group is busy. Trunk Camp-on is on a first in, first out basis and is accomplished either on-hook or off-hook. In on-hook queuing, the station alphanumeric display shows CALL BACK when the station is rung to indicate trunk availability.

NOTE: Not applicable to Least Cost Routing.

Benefits

o Reduces employee frustration
o Reduces network requirement
o Saves time and improves productivity by eliminating the need for a station to make repeated attempts to gain access to trunk facilities

Applications

- o Organizations with peak calling periods
- o Businesses that have many stations vying for a limited number of circuits, e.g., FX, WATS, Tie Trunk circuits

Capacity

- o 20 calls camped onto system trunk groups simultaneously

Packages: All

Conferencing (Three-Party)

5.11 This feature allows a connection between two trunks and one station, two stations and one trunk, or three stations. Three-party conferences cannot be initiated by a trunk party.

If the trunks (in any trunk connection) are ground start, the system receives disconnect supervision from the central office, so the system is able to automatically disconnect a trunk-to-trunk connection.

Benefit

- o Increases flexibility in conferencing connections and system operation

Application

- o Sales, customer service, field offices, lawyers, and accountants

Capacity

- o 5 three-party conferences - basic
- o 10 three-party conferences - expanded

Packages: All

Consultation

5.12 This feature allows the station user to place incoming calls on hold by flashing the hookswitch (SLT) or depressing the TRANSFER button (EKT) and automatically receive dial tone. The station user can then call another internal or external number and effect a three-party conference or perform an individual transfer by flashing the hookswitch, by depressing the TRANSFER button a second time, or by hanging up. When using a CSD, the station user can transfer a three-party conference call using the display feature button.

Benefits

- o Improves call management by allowing station user to place an internal or external call on hold and place another call to consult or obtain additional information

- o Allows person transferring call to inform called party to whom they will be speaking
- o Allows person transferring call to confirm called party is available before transferring call

Application

- o Doctors, lawyers, stock brokers, securities dealers, etc.

Packages: All

Data Security

5.13 Stations assigned this feature through their COS (Class of Service) level are protected from call interruption by warning tones such as call waiting tone. Camp-on to a protected station can still take place although the camp-on indication tone is not sent to the station.

Benefits

- o Saves time and money by preventing inadvertent interruption of costly data calls
- o Ensures accurate transmission of information from facsimile devices, data terminals, and remote maintenance stations because other calls cannot gain access to the line or send tones
- o Improves BER (Bit Error Rate)

Applications

- o Organizations that transmit/receive data
- o Individuals who do not want their conversations interrupted by camp-on or other warning tones

Packages: All

Directed Pickup (Station Pickup)

5.14 This feature allows a station user and the attendant to answer the calls ringing on any other station by dialing a feature access code or depressing the STATION PICKUP feature button followed by the directory number of the station to be answered. This feature is allowed or denied access by COS (Class of Service).

Benefits

- o Allows greater flexibility in the operation of the system
- o Provides enhanced call coverage capabilities
- o Allows users to answer calls to their stations from any station in the system

Application

- o Sales floors, insurance offices, auto dealerships, furniture outlets, showrooms

Packages: All

DIL (Direct-In Line)

5.15 This feature provides for the direct termination of separate CO (Central Office) trunks to SLTs (Single-Line Telephones) or EKTs (Electronic Key Telephones), bypassing the Attendant Console. Calls on these trunks can be transferred to or conferenced with other trunks or stations. These trunk calls can also be call forwarded, can receive hunting treatment, or can be included in group/directed pickup.

A DIL can be directed to only one station, but the station can have multiple DILs. A DIL cannot be assigned to a feature button. Calls to a busy station not in a hunt group camp on to the station. ACD calls are directly routed to appropriate stations.

Benefits

- o Reduces the amount of call traffic to the Attendant Console
- o Improves professional image
- o Provides efficient call processing
- o Increases productivity by increasing the number of direct-in trunk calls

Application

- o Organizations with a requirement to direct incoming calls to specialized groups or stations such as purchasing departments, catalog sales, customer service, sales departments

Packages: All

DSS External Paging

5.16 This feature provides direct access to customer provided loudspeaker paging equipment by activating (depressing) a feature button on the DSS/BLF Console, EKTs, SLTs, and Attendant Console. This feature may also be dial accessed.

Benefits

- o Assists attendant in locating individuals who receive urgent calls

- o Provides access to paging systems external to the telephone system

Application

- o Warehouses, remote sites, parts departments, areas with SLTs

Capacity

o 10 per DSS/BLF Console

Packages: B, C, and D

Direct Trunk Access

5.17 Direct Trunk Access allows a user to select a specific trunk (CO, FX, or WATS) by dialing an access code and the desired trunk directory or equipment number (1 to 4 digits). For troubleshooting and other maintenance operations, this feature provides the capability to determine the operational status of a specific trunk within a trunk group. This feature is restricted by COS (Class of Service) assignment.

Benefit

o Provides on-site maintenance capability by allowing user to verify operational interface between 4BWC (Bothway Trunk) card and the central office

Application

o Maintenance purposes

Packages: All

Do Not Disturb

5.18 This feature allows the station user to make the station appear busy to incoming callers. Although callers receive a busy tone, the user may still originate calls. A station is assigned the Do Not Disturb feature through its COS (Class of Service) level.

Benefit

o User may busy out station and not be distracted by telephone calls when quiet worktime is needed

Applications

o Conference meetings
o Business executives

Packages: All

Do Not Disturb Override

5.19 In Packages A and B, this feature allows the DSS/BLF Console operator to override a Do Not Disturb condition and gain access to an internal station by depressing the associated station button. The station returns to Do Not Disturb condition after the conversation is completed. In Packages C and D, a feature button on any EKT may be assigned the override capability.

The DSS/BLF Console that has the override capability must be assigned as a specific secretarial position. The overridden

station must designate the specific DSS/BLF Console which can override its calls . This is done by entering an access code.

Benefit

- Allows access to a busy station to announce important calls or handle emergency situations

Application

- Business executives who want their secretaries to advise them of important telephone calls or messages

Capacity

- One per station

Packages

- All Packages for DSS/BLF Console
- Packages C and D for EKTs

DSS Camp-On

5.20 This feature allows the DSS/BLF Console operator with a held call to queue calls (camp on) to a busy station by depressing a feature button. On DSS camp-on registration, a burst of tone alerts the busy station of a waiting call. The waiting call is extended to that station. A camp-on recall condition is indicated to the DSS/BLF by flashing of the DSS CAMP-ON button and station button lamp and audible recall tone ringing. If the DSS/BLF is paired with a CS-20 or CSD station instrument or Attendant Console, the LCD shows the calling station/trunk number and the camped-on station number.

Benefits

- Saves time and improves productivity by eliminating repeated dialing to gain access to busy stations
- Reduces number of callbacks and assures that callers are not left waiting for extended periods of time by providing automatic return of a camped-on call to the DSS answering position after a predetermined time interval
- Improves call handling by providing visual and audible indications of camp-on recall
- Recall time programmable up to 255 seconds

Application

- o Sales departments, stock brokers, parts departments

Packages: All

Elapsed Time

5.21 This feature (available on CS-20s and CSDs) shows the amount of time which has elapsed in outgoing or incoming trunk calls. The display indicates call duration in minutes and seconds. The time returns to zero after the conversation has exceeded one hour. Any call-held condition does not affect the elapsed time clock.

Benefits

- o Provides useful cost accounting tool for professionals by displaying duration of incoming or outgoing calls in minutes and seconds
- o Improves time management since users are visually reminded of time spent in telephone conversations

Application

- o Individuals who need to bill their clients on an hourly basis, e.g., lawyers, accountants, consultants

Packages: All

Executive Override

5.22 This feature allows a user to gain access to a busy station by dialing an access code or depressing a feature button or, on a CSD, depressing a display feature button. A warning tone is provided to the existing conversation before access is permitted. The warning tone can be omitted in the data base. This feature is restricted by COS (Class of Service) assignment.

Benefit

- o Provides communication with busy stations in emergency situations by allowing station user to interrupt an existing conversation

Application

- o Business executives who wish to be notified of important calls while engaged in telephone conversations

Packages: All

Flash/New Call

5.23 When the system is operating behind a PABX, depression of the FLASH/NEW CALL feature button while on an external call sends a flash indication to the PABX, which allows the user to access its flash-driven features. A single depression of the

feature button activates Flash, two depressions activate New Call.

If the system is not operating behind a PABX, depression of the FLASH/NEW CALL button disconnects the call in progress. If the call was external, that trunk is automatically reseized; if the call was internal, internal dial tone is returned to the user. This feature may be implemented during the dialing, no answer, or busy states and during a two-way conversation, with or without a held call. Timing to allow access to Flash and/or New Call is determined in data base programming. The new external call cannot access LCR (Least Cost Routing) or SCC (Specialized Common Carrier) services.

Benefits

- o Increases operations capability by providing access to full complement of PABX features
- o Reduces need for multiple operations by the station user when placing successive calls

Applications

- o Individuals who want access to features provided by the PABX or CENTREX system
- o Station users originating successive calls (telemarketing groups)

Packages

- o Flash is available in all Packages
- o New Call is available in Packages B, C and D

Flexible Button Assignment

5.24 With this feature, the buttons on a proprietary telephones can be programmed either for termination of any type of line circuit or for feature operation. Alterations and rearrangements of button assignments can be accomplished via a PMP (Portable Maintenance Processor), PcMP (Personal Computer Maintenance Processor), CSD as MCT (Master Control Telephone), or Attendant Console as MCT.

Benefit

- o Increases operating efficiency by allowing each station instrument to be programmed to suit the particular needs of the user

Application

- Businesses that need flexibility in assigning features and line circuits to station instruments

Packages: All

Group Pickup

5.25 Group Pickup allows a station user to answer calls for other stations in the same pickup group by activating a feature button or dialing an access code. A station alphanumeric display (when provided) indicates originating station or trunk number and station number originally called. Each station can only belong to one pickup group.

Benefits

- Provides improved call coverage by allowing station users to answer the ringing stations of pickup group members without leaving individual work area
- Allows personal and accurate call answering capability by visual display of calling and called number

Applications

- Offices that need call coverage for unattended stations
- Organizations with departmentalized structure
- Businesses that presently have a key system (10A2) operating behind a PABX to provide group pickup capability

Capability

- 10 pickup groups, 32 members to a group - Packages A and B
- 20 pickup groups, 32 members to a group - Packages C and D

Packages: All

Hold, Exclusive

5.26 This feature permits a station user to maintain private and exclusive access to a trunk even while the trunk party is on hold. Only the station placing the call on hold can access the held trunk again.

When a call is placed on exclusive hold by depressing the HOLD button, it automatically returns (recalls) after a predetermined period of time. The station receives a recall tone, LED indication of recall, and visual display of type of recall on the station alphanumeric display. The recall may be answered by depressing the ringing and rapidly flashing line button. For key system lines, Exclusive Hold is activated by depressing the

HOLD button twice. In Package D, Exclusive Hold is available for PSL/OSL (Primary Station Lines/Other Station Lines).

Internal calls can also be placed on Exclusive Hold with the same procedure; however, held internal calls are retrieved by depressing an ICM HOLD ANSWER feature button.

Benefits

- o Allows privacy on trunk calls by providing station user with sole access to the trunk facility
- o Prevents inadvertent interruption by other stations by providing busy indication on other stations which have the same line appearance

Application

- o Organizations that require confidentiality in telephone conversations, e.g., financial institutions

Packages: All

Hot Line Station

5.27 A Hot Line Station is assigned to a specific internal station in the data base. When the Hot Line Station goes off-hook, its terminating station is automatically rung.

Benefits

- o Eliminates abuse by restricting access to system features/lines
- o Speeds clearance of visitors
- o Facilitates exchange of information when time is a major factor
- o Eliminates the need for visitors to look up building directory numbers

Application

- o Information telephones on retail floors
- o Hospital/Health Care facilities and Hotel/Motel
- o Elevator phones
- o Businesses that require clearance of visitors
- o Offices that receive deliveries on a regular basis

Capability

- o 10 Hot Line Stations - Packages A and B
- o 20 Hot Line Stations - Packages C and D

Packages: All

Intercom Hold Answer

5.28 This feature allows the station user to retrieve station-to-station or transferred calls placed on hold. To place a call on hold, the station user depresses the HOLD button. To retrieve station-to-station or transferred calls placed on hold, the user

depresses the ICM HOLD ANSWER button. Only one internal call can be placed on hold at a time for each ICM HOLD ANSWER button.

Benefit

- Enhances call handling capabilities by allowing station users to retrieve held internal calls

Application

- Sales departments, parts departments, service departments, airline reservation operations

Packages: All

Intercom Line Button Termination

5.29 This feature allows station users to originate or terminate intercom calls on the primary station line of an EKT by depressing the ICM button.

Benefit

- Simultaneous call handling for internal and external calls

Application

- Catalog sales, parts departments, key system emulation

Capacity

- One button per station (primary station line only)

Packages: C and D

LED Illumination

5.30 LED Illumination is provided to give visual line status for each line button. It also provides visual feature registration status for most feature buttons. LEDs are available on CS-10s, CS-20s, CSDs, DSS/BLFs, and Attendant Consoles.

Benefit

- Provides the user with visual verification of line selected or feature activated

Application

- Offices using proprietary telephones

Packages: All

Message Cancellation

5.31 On proprietary telephones equipped with an alphanumeric display, the user can screen and cancel waiting messages without returning the calls. When the station user depresses the MESSAGE PICKUP button in an on-hook condition, the station

display shows the directory number of calling stations. The user may cancel a particular message by dialing a number (1, 2, 3, 4) that corresponds to the message display position. Station users may cancel a message left at another station by dialing an access code and the station number. With Package D, the user can scroll through messages.

Benefits

- o Station user can see quantity and source of messages
- o Allows the station user to cancel waiting messages that may have already been handled

Application

- o Operations where personnel are frequently away from their desks

Packages: All

Message Leaving

5.32 This feature allows a user at a calling station to activate a message pickup lamp on other stations. A message is left by dialing an access code, followed by dialing the desired station number. This operation turns on the message waiting lamp on SLTs or the MESSAGE PICKUP LED on proprietary telephones. A maximum of 4 messages can wait at an individual station. Messages can also be left by simply depressing the MESSAGE PICKUP button upon encountering a busy or no answer condition.

Benefits

- o Reduces amount of time spent in telephone tag situations by providing message leaving capability
- o Minimizes the need for attendant to take messages for internal calls
- o Provides method for attendant to inform station users that they have a message from an external caller

Applications

- o Businesses where personnel are regularly away from their desks
- o Hotel/Motel
- o Stockbrokers, lawyers, or doctors who have large volumes of telephone traffic

Capacity

o Four messages per station

Packages: All; service to SLTs available in Packages B, C, and D

Message Pickup

5.33 On proprietary telephones, the station user can easily return a message by depressing the MESSAGE PICKUP feature button and going off-hook. This action automatically dials the first station which left a message. Messages are picked up on a circular basis, whether the call is completed or not; e.g., when the user depresses the MESSAGE PICKUP button to return the first call and that station number is busy, the next depression of the MESSAGE PICKUP button dials the second station number which left a message. The first message goes to the end of the message queue. This feature also provides selective message cancellation for CS-20 and CSD stations. The user can display and selectively delete a message without returning the call.

Benefits

o Provides convenient method of returning messages by simply depressing a feature button

o With Package D, the station user can scroll through messages, rearrange them, and select the messages to be returned

Capacity

o Four messages per station

Packages: All

Message Waiting (Single-Line Telephones)

5.34 This feature allows the message waiting lamp to be activated (turned on) on SLTs.

Benefit

o Provides Hotel/Motel guest with an indication that a message is waiting at the front desk

Applications

o Hotel/Motel operation
o Businesses using SLTs rather than EKTs for cost savings

Capacity

o Four messages per station - Packages B, C, and D

Packages: B, C, and D

Monitor

5.35 This feature allows proprietary station (CS-10) users to place calls utilizing the built-in speaker without taking the handset off-hook. Call progress tones can be heard from the speaker so that the status of the call can be monitored during dialing and at completion. This feature can be manually activated or canceled by depressing the MONITOR feature button. It is automatically canceled by going off-hook to begin conversation.

Benefit

- Improves productivity by allowing station user to place a call and be free to perform other activities while waiting for call to be answered (monitor on hold)

Application

- Individuals who require on-hook dialing and monitoring of call progress tones while placing telephone calls, but do not require full speakerphone

Capacity

- 48 in simultaneous usage per system

Packages: All

Mute

5.36 This feature provides privacy during a hands-free conversation by disabling the transmitter portion of the speakerphone operation for a CS-20 or CSD. The microphone is turned on and off with the MUTE feature button.

Benefit

- Provides privacy during hands-free conversation by allowing station user to temporarily turn off microphone to confer with another party

Application

- Organizations that require privacy in group conference situations, e.g., lending institutions, real estate

Capacity

- One per CS-20
- One per CSD

Packages: All

Night Answer

5.37 The Night Answer feature provides two options for answering incoming calls after normal working hours. PNA (Predetermined Night Answer) allows certain stations to be programmed to receive night ringing. UNA (Universal Night

Answer) allows dial access answering of night calls to any station allowed by COS assignment. Night mode of operations is activated by dialing the night service code from any phone or by depressing the appropriate feature button on a DSS/BLF Console or Attendant Console.

Benefits

- o Provides flexible night answering service by allowing PNA, UNA or a combination of both to suit working environment and user needs
- o Enhances management control of communications by providing different COS and COR options for night operations

Applications

- o Offices with extended hours of operation
- o Businesses with shift operations, e.g., factory operation after administrative offices close

Capacity

- o 16 night answer groups, 8 stations per group - Packages A and B
- o 32 night answer groups, 8 stations per group - Packages C and D

Packages: All

Night Mode Button

5.38 Night mode indiction can be given by the night mode button (NIGHT) on DSS/BLF Console and Attendant Console. This button also activates/deactivates day and night mode.

Benefits

- o No training of personnel in day/night conversion required
- o Permits easy one-button conversion from day to night modes of operation

Application

- o Any business utilizing a DSS/BLF Console or Attendant Console

Capacity

- o One per DSS/BLF Console
- o One per Attendant Console

Packages: All

Off-Hook Incoming Call Signaling

5.39 This feature alerts off-hook stations of an incoming call by a flashing LED lamp on a line button and low level tone ringing. Station users may cancel and reactivate this feature (i.e., only receive a flashing LED and no ringing tone) by dialing an access code. Off-Hook Signaling can be provided on the following trunks:

- Pooled incoming trunk lines
- Pooled bothway trunk lines
- PSL, OSL, ICM group feature buttons
- Key system trunk lines
- Personal private trunk lines

Benefit

o Increases operations capability by providing busy stations with visual and audible indication of incoming external calls

Packages: All

Station Page Access

5.40 This feature allows station users to page proprietary telephones through their built-in speakers. The proprietary telephones may be combined into nine different paging zones plus all zones with a special code assigned to each zone. A maximum of 4 proprietary telephones are allowed per zone. Paging access is activated by dialing an access code or depressing a paging feature button plus dialing the special zone code. The page is then broadcast over the stations programmed for that zone. Paging zones are assigned in the data base.

Benefits

o Improves operating efficiency by providing dial access to designated paging zones

o Improves customer service by providing faster response time to calling parties

o Assists attendant in locating individuals who receive urgent calls

Application

o Office operations

Capacity

o Nine zones plus all zone
o Four EKTs per zone

Packages: All

Paging Answer

5.41 This feature allows a station to answer a paging announcement. Dialing the feature access code, one for station

paging answer or one for external paging answer, followed by the zone number, enables the station to answer the built-in speaker page from any telephone and answer back to the paging party.

Benefits

- o Prevents continuous paging announcements
- o Permits the paged party to respond rapidly to the paging from any station

Applications

- o Businesses where personnel are regularly away from their desks
- o Operations where sales personnel are working in a showroom and are also receiving telephone calls

Capacity

- o Nine zones plus all zone
- o Four EKTs per zone

Packages: B, C, and D

Primary Station Number

5.42 Each station is assigned a Primary Station Number for intercom or internal calls.

Benefits

- o Improved productivity by providing user with easy access for station-to-station calling
- o Increases operating efficiency since Primary Stations Numbers do not have to be assigned an individual button for this capability

Capacity

- o One per station

Packages: All

Program

5.43 This feature allows a CSD station user to use a single feature button to implement Call Forward and Do Not Disturb features. These features are accessed by depressing the PROGRAM feature button to display a menu and using the display buttons to select menu features.

Benefit

- o Multiple feature activation via single feature button

Application

- o Businessmen whose operations require the capability of making easy and frequent program changes to Call Forwarding and Do Not Disturb features

Capacity

- o One button per CSD

Packages: B, C, and D.

Ringing Line Preference

5.44 This feature automatically selects a ringing line or PSL/OSL/ICM group, including a recalling line when the EKT goes off-hook. Either an ICM and/or trunk line is selected as the line preference. When multiple lines are ringing, the line having the highest priority is selected.

Benefits

- o Saves time, single button activation not necessary
- o User programmability through access codes provides more efficient handling of calls

Application

- o Airlines, telemarketing, customer service

Packages: C and D

Save/Repeat Last Number

5.45 This feature allows the station user to store a dialed number (up to 15 digits with Package A, 20 digits with Packages B, C, and D) by depressing a feature button during a call. The number stored is later accessed by depressing the button. This feature automatically stores the last number dialed if it is not being used to save a number.

By implementing an access code, a station user at any SLT or EKT can repeat the last number.If the feature button is being utilized for the save function, it cannot be used for the repeat function. Package B feature enhancement allows the station user to store internal dialed numbers as well as external numbers.

NOTE: Save/Repeat Last Number Dialed feature button is not available for Tie line calls (using Trunk Group Access) for all releases of Package A. The feature is available for all releases of Packages B, C, and D.

Benefit

- o Improves productivity by allowing users to quickly access telephone numbers without redialing

Packages

- o All. Save/Repeat feature for internal and Tie line calls is available in Packages B, C, and D only.

Silent Messages

5.46 The Silent Messages feature allows CS-20 and CSD stations to receive a silent message while active in a conversation. The silent message can be originated at any type of station by dialing the feature access code or depressing the feature button and entering the appropriate two-digit message identification code. Fifty-one messages, each containing up to fifteen alphanumeric characters, can be programmed into the system. Ten silent messages are provided in the default data base.

Silent Messages can be sent and received via the Message Leaving and Message Pickup features. A silent message sent to a CS-20 or CSD that is engaged in a call will override the display of the call in progress and display the silent message. In addition, a station that is on a call can send a silent message without disrupting the ongoing conversation. An option in the data base provides a warning tone that is sent through the speaker of the message-receiving station. A maximum of four messages may be left at one time at a CS-20 or CSD instrument.

The Silent Message feature also allows a station user to implement the Do Not Disturb feature and leave a message on the display of the registering telephone. When another station attempts to call that station, the silent message will appear on the calling station's display when busy tone is received. To activate this feature, the station user depresses the DND SILENT MSG feature button or dials the feature access code and inputs the appropriate two-digit message identification code (00 to 50). This feature may be implemented from a CSD by using the PROGRAM button and following the displayed prompts. An option in data base programming allows the silent message associated with Do Not Disturb to be displayed through COS check.

NOTE: The PMP must be used to add or change silent messages in the system data base; the alphanumeric character keyboard is required.

Benefits

- o Busy stations are easily notified of important messages
- o Reduces number of callbacks
- o Improves employee productivity

o Enhances professional image - calls are handled appropriately

Applications

o Marketing departments
o Health Care
o Telemarketing applications
o ACD - supervisory assistance and messages from supervisor to agents

Capacity

o 51 silent messages with a maximum of 15 characters
o Four messages per station at a time

Package: D

SCC (Specialized Common Carrier) Access

5.47 This feature allows station users to access SCC networks (e.g., US Sprint, MCI) by dialing a special access code and destination number. The system automatically dials the local access number and authorization code. SCC access is subject to COR (Class of Restriction). The feature can also be in LCR (Least Cost Routing) and system and station speed dialing. If programmed in the data base, a 2- or 3- digit personal authorization code will also be input.

Benefits

o User friendly
o Saves money by reducing number of DDD (Direct Distance Dialing) calls
o Saves time by enabling user to dial abbreviated code for simple and easy access to SCC network

Application

o Businesses that use US Sprint, MCI, or other common carriers

Packages: All

Speakerphone

5.48 This feature provides a built-in speakerphone on CS-20s and CSDs for hands-free conversations. The speakerphone is activated via the SPEAKERPHONE feature button and is automatically disabled by taking the handset off-hook. Associated with this feature is the Mute feature which provides a "listen only" mode for privacy.

Benefit

o Improves productivity by allowing user to perform other activities while engaging in telephone conversations

Capacity

o One speakerphone per EKT station

Packages: All

Station Directory Tray

5.49 Each proprietary telephone is provided with a station directory tray which is used to store operating instructions, frequently called numbers, access code lists, etc. It is mounted underneath the telephone set and is retractable.

Benefit

o Provides a convenient reminder of proprietary telephone functions and a place to put frequently called numbers

Application

o Any organization using proprietary telephones

Capacity

o One per proprietary station set

Packages: All

Station Speed Calling

5.50 This feature permits a station user to program and speed dial frequently called numbers for outgoing calls. Each station may assign an entry dial code for 10 numbers of 15 digits each in Package A (20 digits in Packages B,C, and D). To access a station speed call number, the user dials a feature access code plus the 1-digit entry code. COS and COR apply for this feature assignment. One code may also be assigned to a feature button on an EKT and Attendant Console.

Benefit

o Saves time and improves productivity by allowing station user to use abbreviated dialing sequence to access frequently called numbers

Applications

o Telemarketing businesses
o Sales organizations

Capacity

10 speed call numbers per station

Packages: All

Station-to-Station Calls

5.51 Station users are allowed to call other stations by dialing their directory numbers, depressing the AUTOMATIC INTERCOM button, or depressing the DSS (Direct Station Selection) button on the DSS/BLF Console. This feature can be denied in the data base.

Benefits

- o Permits easier internal call access
- o Saves time and increases user efficiency

Packages: All

System Speed Calling

5.52 A system speed call list can contain dial code entries for up to 100 numbers of 15 digits each in Package A (20 digits in Packages B, C, and D). These numbers are accessible to class-marked stations by dialing a feature access code plus the designated entry code or by depressing an assigned feature button. Only one speed calling code may be assigned to each feature button.

Benefit

- o Saves time and increases productivity by allowing station user to dial an abbreviated number sequence to access frequently called numbers

Applications

- o Telemarketing businesses
- o Sales organizations
- o Purchasing departments

Capacity

- o 100 system speed call numbers

Packages: All

Time and Date

5.53 The station alphanumeric display provides the time of day (hour:minute) and date (day of week, month/day) when the station is idle. This feature applies to CS-20s, CSDs, and Attendant Consoles only.

Benefits

- o Provides user with convenient reminder of time and date when station is idle
- o Synchronization is done on system-wide basis so user does not have to make any adjustment at individual station

Application

o Lawyers, accountants, etc., who charge for their time

Packages: All (display phones only)

Time Reminder

5.54 This feature allows a station to register time reminder service, which provides automatic ringing at a designated time. When a station answers a time reminder call, a distinctive tone is heard. If a time reminder call is not answered, it is repeated once after about 2.5 minutes. The ringing tone lasts for 20 seconds and, if not answered, is canceled. If the system is equipped with a RVAC card (Package D), a time reminder message plays. Only one time reminder may be registered from a station at a time. The registered time reminder must be within 24 hours of the registration.

Benefit

o Provides time reminders of meetings/appointments

Application

o Administrative telephones in Hotel/Motel and general business

Capacity

o 40 SLTs or 80 EKTs in a 5-minute time period
o 8 SLTs and 16 EKTs in simultaneous calling terminals

Packages: C and D

Touch Tone Controls (Key)

5.55 This feature allows a station user to enable or disable the key touch tone. When enabled, the key touch tone is provided whenever number keys or function buttons are pressed. When disabled, the key touch tone is not provided.

Benefit

o Provides flexibility for businesses to customize service

Capacity

o One per station

Packages: All

Transfer

5.56 This feature allows station users to transfer their outside trunk calls or internal station calls without attendant intervention. The transfer operation is activated by a hookswitch flash SLTs or by depressing a feature button followed by dialing the desired number. Calls may be transferred to other internal stations, to the attendant/DSS position, or to external numbers.

NOTE: On trunk-to-trunk transfers, the incoming trunk must be a ground start trunk. This is also true for DISA trunks, i.e., the incoming trunk must be a ground start trunk.

Benefits

- o Provides efficient call processing since individual station users may transfer their own calls via hookswitch flash (SLTs) or TRANSFER feature button (proprietary telephones)
- o Provides user friendly operation since lamp associated with the transfer button is lit during the feature operation

Application

- o Offices with high volumes of traffic passing through the Attendant Console

Packages: All

Transfer Release

5.57 When the station user depresses the TRANSFER RELEASE button, the existing call is dropped without having to replace the handset. The Transfer Release feature is effective in the following situations:

- Two-way conversation with a held call
- Station calling with a held call (including voice call)
- Three-party conference (only for initiating station)
- Getting a CFT (Confirmation Tone) after service registration or cancellation or success tone.

When a DSS/BLF Console is used to transfer a call, the Transfer Release feature releases the station from the call.

Benefit

- o Enhances call handling capabilities by allowing user to disconnect call without replacing handset

Application

- o Telemarketing businesses, lawyers, accountants, stock brokers

Capacity

- o One per station

Packages: All

Trunks

5.58 The system offers a combination of directly terminating trunk lines and pooled access trunk groups to meet the varied trunking needs of the small to medium size business. These trunk lines are listed below. Figure 5.1 and Table 5.1 illustrate the connections and capacities of these trunks.

- Direct-In lines
- Key System lines
- Personal lines
- Pooled Incoming lines
- Pooled Outgoing lines
- Pooled Bothway lines

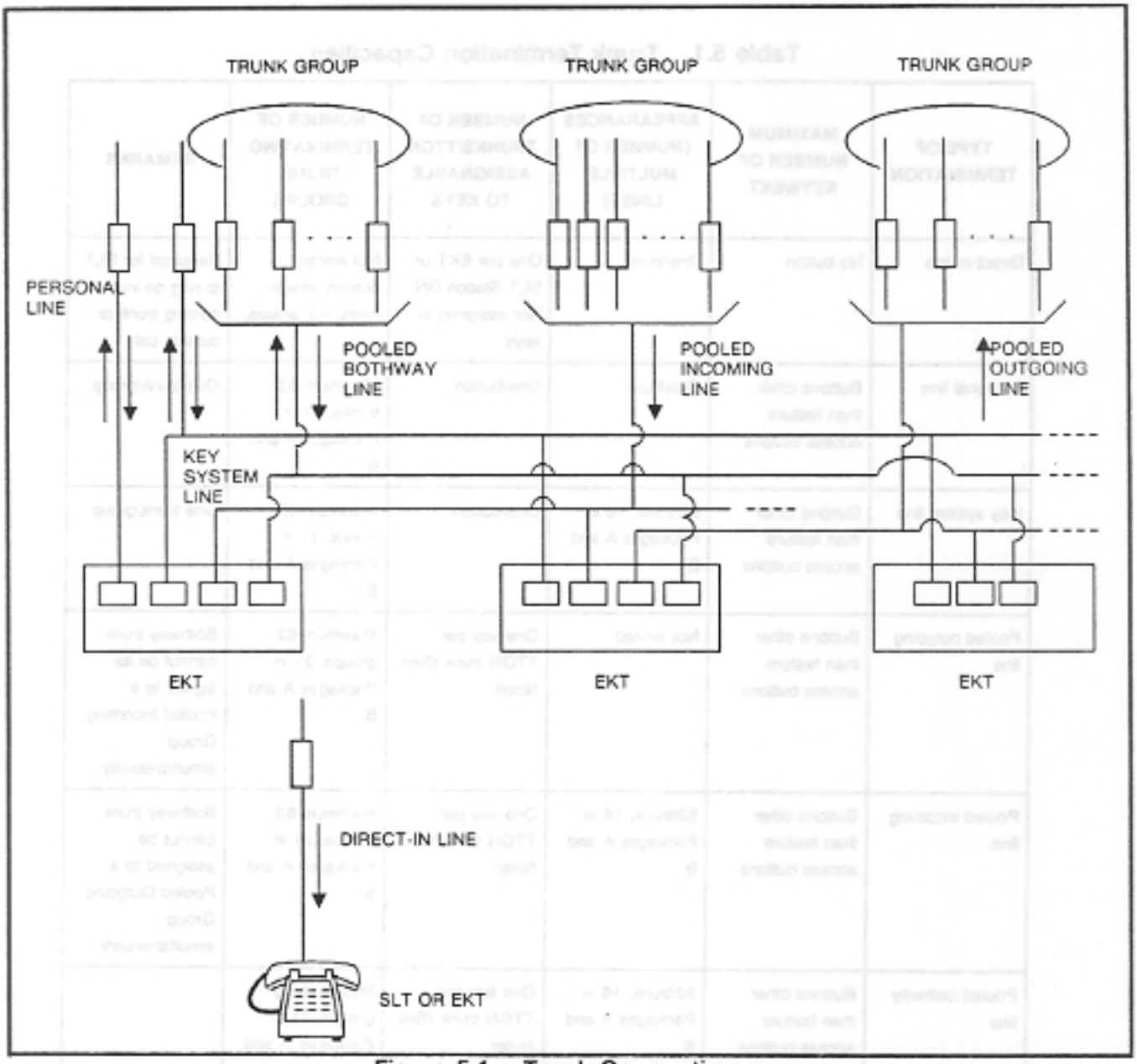

Figure 5.1 Trunk Connections

Table 5.1 Trunk Termination Capacities

TYPE OF TERMINATION	MAXIMUM NUMBER OF KEYS/EKT	APPEARANCES (NUMBER OF MULTIPLE LINES)	NUMBER OF TRUNKS/TTGN ASSIGNABLE TO KEYS	NUMBER OF TERMINATING TRUNK GROUPS	REMARKS
Direct-in line	No button	One/trunk	One per EKT or SLT Station DN. Not assigned to keys.	Not limited. Station assignment, not groups.	Required for SLT to ring on incoming trunk or outside call.
Personal line	Buttons other than feature access buttons	One/trunk	One/button	Maximum 63 trunks, 31 in Packages A and B	One trunk/group
Key system line	Buttons other than feature access buttons	52/trunk, 16 in Packages A and B	One/button	Maximum 63 trunks, 31 in Packages A and B	One trunk/group
Pooled outgoing line	Buttons other than feature access buttons	Not limited	One key per TTGN trunk (See Note)	Maximum 63 groups, 31 in Packages A and B	Bothway trunk cannot be assigned to a Pooled Incoming Group simultaneously.
Pooled incoming line	Buttons other than feature access buttons	52/trunk, 16 in Packages A and B	One key per TTGN trunk (See Note)	Maximum 63 groups, 31 in Packages A and B	Bothway trunk cannot be assigned to a Pooled Outgoing Group simultaneously.
Pooled bothway line	Buttons other than feature access buttons	52/trunk, 16 in Packages A and B	One key per TTGN trunk (See Note)	Maximum 63 groups, 31 in Packages A and B	

NOTE: This is not a system limitation. Any ratio is permitted. Assigning more trunks than buttons causes RBT (Ring Back Tone) to be sent to incoming caller even when all buttons are busy. To avoid this situation, it is recommended that at least one button assignment be made for every trunk in the terminating trunk group. Button assignments can be to any number of stations.

Key System Line

5.59 This feature allows one or more buttons on a station instrument to provide separate access to a specific trunk line (CO, WATS, or FX), thereby emulating the operation of a traditional key telephone system. The same button can appear on up to 16 proprietary electronic telephones in Packages A and B and up to 52 in Packages C and D. When a station uses a key system line, that line appears busy at all other stations. Calls on key system lines are not subject to LCR and SCC features, but toll restrictions apply.

The following conditions apply to key system trunk lines:

- Incoming and outgoing calls.
- Same direct trunk line can appear on up to 16 buttons in Packages A and B and up to 52 in Packages C and D.
- One-to-one correspondence between line button and trunk line.
- Two or more line buttons corresponding to different trunk lines can be assigned to the same proprietary station.

Benefits

o Enhances operations by emulating traditional key system operation which is familiar to most users

o Allows traditional boss/secretary set-up, i.e., boss's trunk line appears on secretary's station

o Saves time by allowing direct access to outgoing trunks by simply depressing a line button

Applications

o Executive lines
o Sales and customer service organizations

Capacity

o 31 groups, 16 appearances /group - Packages A and B
o 63 groups, 52 appearances/group - Packages C and D

Packages

o Packages A and B - no common hold
o Packages C and D - common hold

Personal Line

5.60 This feature reserves a specific trunk for incoming and outgoing calls by a specific proprietary station. Personal Line calls can be transferred, conferenced, or forwarded to other trunks and/or stations. A Personal Line is not subject to LCR and SCC service features, but toll restrictions apply.

The following conditions apply to personal/private trunk lines:

- Incoming/outgoing calls.
- Each personal/private line can appear on only one button.
- More than one personal/private line can be assigned to an individual electronic telephone.

Benefit

o Provides user with exclusive access to trunk line (CO, FX, or WATS) for incoming or outgoing calls

Applications

o Professionals (doctors, lawyers)
o Business executives, VIPs

Capacity

o 31 groups - Packages A and B
o 63 groups - Packages C and D

Packages: All

Pooled Bothway Trunk Group

5.61 This feature allows individual buttons on proprietary electronic telephones to be utilized for direct or dial access of incoming and outgoing trunk lines. Bothway trunk groups contain a pool of trunk lines which have up to 16 different button appearances on EKTs in Packages A and B, (52 in Packages C and D).

To access a line in a bothway trunk group, the station user depresses a line button or dials an access code and then dials the external number. The LED lamp associated with the line button lights, but the LED lamps at all other stations with the appearance of that same line button remain idle if all other trunks are idle. Incoming trunk calls ring at a specific line button.

The following conditions apply to bothway trunk groups:

- Incoming and outgoing calls
- Pooled trunk calls transfer or conference with other trunks and/or stations

Benefits

o Improves productivity by allowing station users direct access to outside trunk lines by depressing a line button (or dialing 9) or other access codes)

o Increases operating efficiency by allowing a number of stations to share a pool of trunk lines to place or receive calls

Applications

- o Executive lines
- o Dedicated lines for facsimile machines
- o Sales and customer service organizations

Capacity

- o 31 groups - Packages A and B
- o 63 groups - Packages C and D

Packages: All

Pooled Incoming Trunk Group

5.62 This feature allows incoming only trunk calls to be connected to an Attendant Console or a proprietary station or group of stations. An incoming call rings at all of the proprietary stations which have the line appearance of the incoming trunk. Once the call has been answered at one station, the line appearance at the other stations indicates idle. Calls may be transferred or held.

The following condition applies to incoming trunk groups:

- Incoming calls only

Benefit

- o Improves operating efficiency by allowing a number of stations to share the same trunk facilities

Capacity

- o 16 button appearances per trunk group - Packages A and B
- o 52 button appearances per trunk group - Packages C and D

Packages: All

Pooled Outgoing Trunk Group

5.63 This feature allows proprietary electronic telephones to be utilized for direct access to outgoing CO, WATS, or FX trunk calls. SLTs may access this feature by dial access code.

To access a line in the Outgoing Trunk Group, the station user depresses a line button or dial an access code and then dials the external number. The LED lamp associated with the line button lights, but the LED lamps at all other stations with the appearance of that same line button remain idle.

The following conditions apply to outgoing trunk groups:

- Outgoing calls only
- Pooled trunk calls transferred or conferenced with other trunks and/or stations

Benefits

- o Improves productivity by allowing users direct access to outside lines by depressing a line button (instead of dialing 9)
- o Increases operations efficiency by allowing a group of stations to share a pool of trunk lines for outgoing calls

Application

- o Telemarketing operations

Capacity

- o 31 groups - Packages A and B
- o 63 groups - Packages C and D

Packages: All

Trunk Blocking

5.64 The Trunk Blocking feature allows a user to enter a CMC command via the PMP or the MCT to assign busy status to a faulty trunk.

Benefit

- o Improves communications control by denying access to faulty or inoperative trunks

Application

- o Maintenance operations

Packages: All

Trunk Line Direct In

5.65 This feature provides for the direct termination of separate CO trunks to SLTs or EKTs, bypassing an operator station or the Attendant Console. The following conditions apply to direct-in trunk lines:

- Incoming calls only.
- One station per direct-in line; however, more than one direct-in line may terminate to a station.
- No line button assignment allowed. If intercom button is assigned to the set, the DIL will ring at the intercom button.
- Supports call forward feature.
- Supports group/directed pickup.

- Calls to a busy station will camp on and send a tone.
- Supports group hunt feature.

Benefits

o Improves customer service by allowing outside calls to directly terminate on single-line or electronic key telephones

o Improves call answering capability by allowing a station user to answer incoming calls in appropriate manner

Applications

o Remote teller or credit card machines
o Catalog sales
o Stockbrokers
o Customer service numbers
o Emergency dispatcher, e.g., police, fire, rescue

Packages: All

Trunk Queuing

5.66 This feature allows a station user receiving a distinctive busy tone on an outgoing call attempt to camp on to the trunk group and wait in an on-hook or off-hook condition for the trunk group to become free. Automatic ring-back is provided so the station user may wait for the callback on-hook (similar to Station Camp-On with Automatic Callback Feature). The Camp-On feature is activated or canceled by pressing a feature button or dialing an access code. This feature is not available for LCR.

Benefit

o Increases productivity by allowing the user to pursue other business while waiting for the trunk to clear

Applications

o Sales departments, lawyers, or other high traffic customers
o Business executives, VIPs

Capacity

o 20 simultaneous trunk queuing per system

Packages: All

Wall/Desk Mounting (For Proprietary Sets)

5.67 Proprietary stations can be adapted for wall mounting by adding a wall-mount assembly. A bracket is provided for attaching the telephone to the wall. No modification of the internal telephone assembly is required.

Benefit

- Allows flexibility in location of proprietary telephone sets by providing desk or wall-mount assembly

Application

- Offices where space is important or where desk facilities are not available, e.g., loading docks, warehouses, manufacturing facilities, or security telephones at building entrances

Capacity

- 120 stations

Packages: All

ATTENDANT CONSOLE

6.0 The Attendant Console is provided for PABX oriented application of the system. It provides a means of handling a large volume of incoming calls. The calls can be handled solely by Attendant Console operators or by the Attendant Console and answering positions (proprietary telephones with attached DSS/BLF Console) depending on the incoming trunk routes. In addition, overflow and/or night answer stations can be arranged to optimize call handling by Attendant Consoles.

Alphanumeric characters are displayed on a 4 line X 20 character LCD display on the Attendant Console. The type of displays are the calling subscriber, trunk number, dialed number, COS/COR (Class of Service/Class of Restriction) of station, recall information, and call type. The current time and date are also displayed.

The Attendant Console can be used as an MCT (Master Control Telephone) data base programming device when it is in the position busy mode. When the system is in the Hotel/Motel mode of operation, the Attendant Console can also be used as an FDC (Front Desk Console).

The following features of the Attendant Console operate in basically the same manner as the corresponding station features and are not repeated in this section. See the Attendant Console User's Guide for instructions.

- Account Code/Client Billing on feature operation
- Station Speed Calling
- System Speed Calling
- Auto Intercom
- Call Announce
- Call Park
- Save/Repeat Last Number
- Directed call pickup
- Trunk Queuing

Alarm Indication

6.1 An alarm lamp informs the attendant that the system is experiencing a fault. The alarm lamp will light regardless of attendant call processing.

Benefits

o Warns of fault conditions in the system
o Speeds troubleshooting and fault isolation

Capacity

o One alarm lamp per console

Packages: C and D

Answering Incoming Calls

6.2 With this feature, the attendant can answer incoming calls and extend them to other stations. Three types of incoming calls may be answered from the Attendant Console:

- Station calls (Tie-line calls and internal calls)
- Incoming trunk calls
- Recalls (transfers and recalls)

The Attendant Console disconnects from a call when the DROP/CANCEL button is depressed.

Benefits

o Allows centralized control of incoming calls
o Increases flexibility in call routing

Packages: C and D

Break-In

6.3 With this feature, the attendant, if allowed, can access a busy station and break into the conversation to establish a three-party conference call.

Benefit

o Allows attendant to break into a call with emergency information

Application

o Doctors, lawyers

Capacity

o One button per Attendant Console

Packages: C and D

Call Waiting Indicator

6.4 With this feature, the Attendant Console LCD display shows the number of terminating calls that are waiting to be answered by the attendant.

Benefit

o Improves attendant efficiency by indicating the number of calls waiting to be answered.

Application

o Organizations with high volumes of call traffic

Capacity

o Up to 99 calls can be waiting simultaneously

Packages: C and D

Camp-On/Camp-On Recall

6.5 With this feature, the attendant can place a trunk call in a station camp-on when the desired station is busy. The calling party is now in a hold position for that specific station. If the called station does not answer within a predetermined period of time, the call is returned to the attendant. The CAMP-ON button flashes when the recall returns to the attendant.

Benefits

o Saves time and improves productivity by eliminating repeated attempts to connect a busy station

o Reduces the number of callbacks and ensures that callers are not left waiting for extended periods of time

Application

o Sales departments, catalog sales, parts departments and service departments

Capacity

o 30 calls in camp-on

Packages: C and D

COS/COR (Class Of Service/ Class of Restriction)

6.6 During a conversation with a station user, the attendant can depress a feature button and display the station's COS and COR on the Attendant Console.

Benefits

o Provides the attendant with single button access to a station's COS and COR

o Saves time, the attendant does not have to access the data base

Packages: C and D

Conference Call

6.7 The attendant can initiate or set up a Three-Party Conference. The attendant is one of the parties in the conference.

Benefits

o Improves call processing

o Provides a quick easy method of distributing messages to outside sales representatives

Application

o Sales personnel calling into central offices to set up meetings

Packages: C and D

Do Not Disturb Override

6.8 With this feature, the attendant can override and ring a station which has registered DND (Do Not Disturb).

Benefit

o Allows access to stations registering DND in emergency or important call situations

Capacity

o One DND Override button per Attendant Console

Packages: C and D

DTMF Sending

6.9 This feature allows an attendant to convert dialed digits into DTMF (Dual Tone Multi-frequency) signaling external calls via CO (Central Office) or Tie line trunks.

Benefit

o Enhances system operation by extending DTMF communications to SLTs (Single-Line Telephones)

Application

o Offices with SCC (Special Common Carrier) access

Package: D

Extending Calls to ACD

6.10 This feature allows an attendant to extend an incoming call to an ACD (Automatic Call Distribution) group. The call returns to the Attendant Console after a predetermined period of time. With an RVAC card, the first ACD message is not heard when the call is extended .

Benefits

o Attendant directory number can access ACD group
o Saves time for the caller, redialing to access the ACD group is eliminated

Application

- o Any business with ACD groups in its telephone system, e.g., catalog sales departments within a retail business

Package: D

Flash Button

6.11 While communicating with an external party, the attendant can press the Flash Button and be connected with a CO (Central Office) or Tie trunk and dial. The calling party is automatically put on hold.

Benefits

- o Saves time
- o Provides automatic access to outside lines

Application

- o Organizations that handle successive outside calls, e.g., Hotel/Motel

Packages: C and D

Incoming Call Overflow

6.12 If the attendant experiences heavy traffic and incoming calls are kept waiting longer than a specified time or when the Attendant Console is in the position busy state, the calls are automatically routed to a designated station.

Benefits

- o Allows faster, more effective call management
- o Provides for handling external calls when the attendant is away from the Attendant Console

Packages: C and D

Incoming Call Priority

6.13 This feature sets incoming trunk call priority so that the attendant can answer higher priority trunk calls first. The calls to be answered by the attendant are queued on the basis of first in, first out according to a priority of 1 to 3.

Benefit

- o Allows for more efficient call management by answering the highest priority calls first

Applications

- o Sales, service organizations
- o Doctors

- o Emergency rooms
- o Police departments
- o Fire departments

Packages: C and D

Message Leaving

6.14 With this feature, the attendant can activate the Message Pickup LED on an EKT (Electronic Key Telephone) or the Message Waiting light on an SLT. The attendant can use this feature to only leave a message, or to leave a message after unsuccessfully attempting to call the station. With Package D, the attendant can leave a silent message.

Benefit

- o Reduces amount of time spent in "telephone tag" situations by providing an indication of a waiting message with the attendant

Application

- o Hotel/Motel
- o Stockbrokers, lawyers, or doctors who have large volumes of telephone traffic

Capacity

- o One per Attendant Console

Packages: C and D

Night Answer

6.15 With this feature, the attendant is able to activate night answer arrangements for trunks and activate NCOS (Night Class or Service) and NCOR (Night Class or Restriction) for all tenants or for self tenant.

Benefit

- o Enhances management control of communications by providing different COS and COR options for night operations

Application

- o Organizations with night shift operations

Packages: C and D

Paging (Internal), Paging (External)

6.16 With these features, the attendant is able, in a zone unit, to access a customer-provided external paging device. Internal paging through EKT speakers can also be accomplished to page one of nine zones or all zones. The attendant can page from the idle state or while connected to a call. Paging features can be accessed by dialing access codes, or depressing feature buttons on the Attendant Console or DSS/BLF Console.

Benefit

- Improves service by providing faster response time to calling parties

Application

- Businesses in which operations include the following facilities:

  -warehouses
  -showrooms
  -stockrooms

Capacity

- One Internal (EKT) page button per Attendant Console
- One External page button per Attendant Console

Packages: C and D

Position Busy

6.17 With this feature, the Attendant Console can be put into an off-line (position busy) mode where it no longer functions as an answering position. This allows the attendant to leave the station or use the Attendant Console as an MCT. Trunk calls still go to the overflow position, if assigned in data base.

Benefits

- Permits system programming from an existing station
- Allows the transfer of call processing without having employees leave their desks

Application

- Offices with heavy call traffic
- Offices that occasionally need to reprogram the system

Capacity

- One Position Busy button per Attendant Console
- Two Attendant Consoles per system

Packages: C and D

Position Release

6.18 The POS. RLSE (Position Release) button releases the Attendant Console from a call which is still connected to another station in the system. This allows the attendant to remove the Attendant Console from a call without hanging up on the caller. The DROP/CNCL (Drop/Cancel) button disconnects the caller.

Benefit

- Allows faster more efficient call handling

o Allows attendant to extend internal and external calls

Application

o Organizations that need central call processing

Capacity

o One Position Release button per Attendant Console
o Two Attendant Consoles per system

Packages: C and D

Serial Call

6.19 This feature is used when an incoming call has more than one internal destination. The attendant depresses the SER/LOCK button to release from the call and the call is extended to its destination. This returns the caller to the attendant when the called station goes on-hook.

Benefit

o Improves call management and efficiency, the caller does not have to redial or have the called party attempt to transfer the call

Application

o Businesses with sales departments, shipping and receiving departments, and credit departments operating in the same location

Capacity

o One button per Attendant Console

Packages: C and D

Source/Destination Conference/Join

6.20 With this feature, the attendant can select the conference party on a completed trunk and/or station call by using the SRCE/DEST button. A lamp indicates that the attendant is connected to either the source or destination party. Additionally, the attendant can control a Three-Party Conference call by using the CONF/JOIN button.

Benefit

o Enhances call handling capability by giving the attendant flexibility to talk with either party in a three-way conference

Application

o Realtors, lawyers, doctors etc., who need to converse with two parties but do not want either party to hear the other party's conversation

Capacity

- o One Source/Destination button per Attendant Console
- o One Conference/Join button per Attendant Console

Packages: C and D

Station Forced Lockout

6.21 With this feature, the attendant is allowed to lock out a station when time-out routing occurs. For example, when time-out routing to the attendant is executed due to a station remaining off-hook after receiving error tone, the attendant is able to lock out the station.

Benefit

- o Allows the attendant to lock out stations that are experiencing problems or have been left in a non-operational state

Applications

- o Any business
- o Hotel/Motel and Health Care

Packages: C and D

Supervised Hold

6.22 After responding to an incoming trunk call with the INCOMING button or RECALL button and processing it, the attendant can release and monitor the call using the SUP HOLD button. The call can be retrieved by pressing the soft keys (adjacent to the display) indicated in the call display. Call supervision is extended to:

- Camp-on calls
- Parked calls
- Held calls
- Calls extended to the station

NOTE: Activating the loop button will retrieve the call to the attendant.

Benefits

- o Monitors calls so they are not lost in the system
- o Provides monitoring of trunk status
- o Increases call handling capabilities

Application

- o Organizations handling a large number of calls through an Attendant Console

Capacity

- o Six calls at a time

Packages: C and D

Trunk Busy/ Trunk Access

6.23 By depressing the trunk busy/trunk access button, the attendant can seize an idle trunk in the same trunk group. This button lights when a trunk/trunk group is busy.

Benefits

- o Improves the speed and efficiency of call management
- o Informs the attendant of trunk status and allows the seizure of idle trunks for call processing

Packages: C and D

Volume Control

6.24 An attendant is allowed to adjust voice volume at any time with two VOL buttons. One button increases the voice volume; the other decreases the voice volume. Ringer volume is adjusted with the slide volume control located at the right rear of the Attendant Console.

Benefit

- o Meets the needs of attendants to adjust voice and ringer volumes at any time

Application

- o All applications where the Attendant Console is utilized

Capacity

- o Two voice volume controls
- o One ringer volume control

Packages: C and D

KEY TELEPHONE SYSTEM

7.0 The system can be configured to function as a complete or partial key telephone system. Trunks can be terminated directly to station buttons and stations can be configured to have the same trunk appearances. This provides such features as Common Hold to the system.

The DSS/BLF (Direct Station Selection/Busy Lamp Field) Console is an add-on module for an EKT (Electronic Key Telephone). It receives all trunk incoming calls except those terminated to EKT buttons or direct-in lines (see Trunk Termination, Section 5.0 Station Features). The DSS/BLF Console can be programmed in the data base to have all installed stations appear as button assignments when it is connected and paired with an EKT (depending on 8EKC card slot location). These buttons can be used to transfer a call to any station. The system maximums for the DSS/BLF Console are:

- DSS/BLF80s - Two per system
- DSS/BLF40s - Eight per system
- Total DSS/BLF Consoles - Eight per system

The following features of the key telephone system and DSS/BLF Console operate in basically the same manner as the corresponding station features and are not described in this section. (See Key Telephone User's Guide and appropriate user's guides for operation of the features.)

- Night Answer
- DSS External Page
- Alarm
- Direct Station Selection

Alternate DSS

7.1 If the DSS/BLF Console has a button programmed for alternate, an alternate position is assigned in the data base. Calls are transferred to the alternate position when the operator depresses the alternate button.

Benefits

o Prevents unanswered calls
o Allows calls to be automatically routed to an alternate position
o Prevents a back-up of calls at the DSS/BLF Console

Application

o Offices that require coverage for vacant stations
o Businesses with a high volume of calls

Capacity

o One button on each DSS/BLF Console

Packages: All

Common Hold with I-Use Indication

7.2 The Common Hold feature allows all station users sharing a line appearance (trunk, PSL, OSL, ICM) to retrieve a call on hold utilizing the appropriate line button on their telephones. Station users may put a call on hold, and the LED associated with that line on all other stations will flash to indicate Common Hold status. The station user who put the call on Hold receives an I-Hold flash on the LED associated with that line. Exclusive Hold is also available and is activated by depressing the HOLD button twice. This prevents any other station from accessing the call.

Benefits

- o Provides consoleless operation for small businesses
- o Emulates 10A2 key operation behind PABX
- o Addresses special needs of small businesses for common line appearances

Applications

- o Organizations that require consoleless operation (hardware stores)
- o Departmental needs for common line appearances (sales departments, reservation departments, service departments)

Packages: C and D

Delayed Ringing

7.3 Trunks, ICM (Intercom) lines, PSL (Primary Station Lines), or OSLs (Other Station Lines) appearing at more than one station or on the DSS/BLF Console can be programmed to ring only after a predetermined period of time. The LED associated with the line appearance will flash, but ringing is initiated only after the call is unanswered at the primary station. Ringing can be delayed up to 255 seconds after initial ringing at the primary station. Ringing can also be stopped after a predetermined period of time.

Benefits

- o Stations designated as alternate answering positions can receive delayed ringing
- o DSS/BLF Console users are not distracted by incoming calls ringing for other users
- o Primary answering stations can be immediately notified of incoming calls

Applications

- o Offices that direct back-up call coverage to groups
- o Businesses that require alternate answering positions
- o Organizations with a need to eliminate lost calls due to unstructured answering responsibilities

Packages: C and D

DSS Park

7.4 This feature allows the operator to activate or retrieve calls parked at the DSS/BLF Console. Each PARK button holds one call. DSS parked calls can be retrieved from a station by using the parking number assigned at the DSS/BLF Console.

Benefit

- o Increases call handling capability by allowing the DSS/BLF Console operator to place calls in a hold status

Application

- o Offices with a high volume of calls

Capacity

- o Five park buttons per DSS/BLF Console

Packages: All

DSS Camp-On

7.5 The DSS Camp-on feature camps an incoming trunk call onto a busy station. If the camp-on times out, the CAMP-ON button flashes and recalls to the DSS/BLF Console. Only one call can be camped on with each CAMP-ON button.

Benefit

- o Saves time and improves productivity by eliminating repeated attempts to connect calls to busy stations

Application

- o Offices with a high volume of calls

Capacity

- o Five CAMP-ON buttons per DSS/BLF Console

Packages: All

DSS Speed Calling

7.6 Forty buttons on the DSS/BLF Console can be assigned for Station Speed Calling. A maximum of 20 digits can be registered for each Station Speed Call button. Only trunk calls can be assigned as station speed call numbers.

Benefits

- o Reduces the need to record and look up numbers
- o Vacant DSS/BLF buttons may be used for Station Speed Calling
- o Addresses the needs of station users requiring a large number of Station Speed Call buttons
- o Single-button access to frequently dialed numbers

Applications

- o Executives requiring more than 10 Station Speed Call numbers
- o Telemarketing groups who frequently call the same customers
- o Secretaries responsible for establishing calls for executives
- o Station users who frequently dial multi-digit numbers: e.g., long distance, SCC (Special Common Carrier) and personal authorization codes, etc

Capacity

- o 20 digits per number
- o 40 numbers per DSS/BLF Console; if two DSS/BLFs are paired with a station, the first DSS/BLF only

Packages: C and D

DSS Line Terminations

7.7 This feature allows trunks to be terminated on buttons on the DSS/BLF Console. Call origination and answering functions are identical to those of lines appearing on the button of a station. A maximum of 40 lines may be terminated on a DSS/BLF Console. The LED associated with each button provides line status ringing, hold, and busy. Any line may have a combined total of 52 appearances in the system on station or DSS buttons. This parameter applies to any kind of trunk termination group, e.g., key system, but is not applicable to pooled facilities for hold/busy indication.

Benefits

- o Utilization of vacant buttons on DSS/BLF Console
- o Expanded line appearances to accommodate medium size businesses and departments

Applications

- o Businesses requiring multiple answering positions
- o Sales and service departments requiring multiple trunk appearances

Capacity

o 40 lines per DSS/BLF Console, first DSS/BLF only

Packages: C and D

Flash/New Call

7.8 When the system is operating behind a PABX, depression of the Flash/New Call button sends a flash indication to the host PABX. Depressing the Flash/New Call button twice disconnects a trunk call in progress and reseizes the trunk.

Benefits

o Reduces the chance of accidentally disconnecting a call when operating behind a PABX.

o Reduces need for multiple operations by the DSS/BLF Console user when placing successive calls

Applications

o System operating behind a host PABX or CENTREX system
o DSS/BLF Console users originating successive calls (telemarketing groups)

Packages: Flash available in all Packages; New Call is available in Packages C and D

Headset

7.9 A feature button on the station can be programmed to simulate the hookswitch flash operation. This allows the DS/BLF user to utilize a headset.

The following headsets can be used without headset adapters:

- Plantronics Starmate E Plus
- Danavox Stetomike HMT808 Model 3560 Electret Transmitter

Benefit

o Provides hands-free operation

Applications

o Telemarketing groups
o Catalog departments
o Sales departments
o Service departments
o Reservation departments

Packages: C and D

Idle Line/Ringing Line Preference

7.10 A station user can designate the idle and ringing line preference for a station if allowed by COS (Class of Service). Ringing Line Preference eliminates the need for the user to

manually depress the line, ICM, PSL, or OSL button to answer an incoming call. Going off-hook automatically connects the user to the ringing line. Idle Line Preference can be established to automatically seize an idle trunk, ICM, PSL, or OSL button upon going off-hook. This eliminates the need for the user to select a button to originate a call. Idle line selection is based on the appearance of the trunks on the station buttons from lowest to highest button number for trunks.

Benefits

- o Simplifies operation, saves time
- o User-programmable to meet changing needs

Applications

- o Executives who need immediate line access
- o Station users who have dedicated lines
- o Station users with multiple line appearance and ICM button

Packages: C and D

Intercom Line Origination/Termination

7.11 This feature allows a station user to originate and terminate station-to-station calls by depressing the ICM or SL (Single-Line) button on proprietary EKTs.

Capacity

- o One ICM button per EKT
- o Sixteen appearances per SL

Packages: C and D

One-Touch Selection

7.12 This feature allows a station user to originate or answer a trunk/internal call by depressing one button. The station user presses the LINE/ICM/SL/D-ICM button when the station is in the idle condition to automatically seize the speakerphone or monitor on a CS-10. This is a user-programmable feature.

Benefits

- o Allows one-touch internal station calls
- o Permits one-touch access to station features
- o Increases line capability of individual stations

Application

- o Any organization requiring internal station-to-station calls

Packages: C and D

Post-Pre-Selection

7.13 The station user manually selects the intercom or line button to be accessed by depressing a button. Post-Selection allows the user to select the appropriate facility after going off-

hook. Pre-Selection allows the user to select the appropriate facility before going on-hook.

Benefits

- o User may selectively decide which facility to use for each incoming or outgoing call
- o Appropriate facility may be selected on- hook or off-hook
- o User friendly - does not matter when the user makes the line selection
- o User programmable to meet changing needs

Application

- o Individuals who want to select the appropriate facility based on the type of outgoing call being generated or incoming call being answered

Packages: C and D

Prime Line Preference

7.14 This feature automatically selects the line or intercom button designated as the prime line when the station user goes off-hook. Both ringing line and idle line preference must be assigned in order to have the prime line preference designated.

Benefit

- o Simplifies operation for originating calls - like using an SLT (Single-Line Telephone)

Application

- o Individuals who initiate a large volume of outside or intercom calls
- o Individuals who have a dedicated line

Packages: C and D

Privacy/Privacy Release

7.15 Privacy is an inherent factor in any conversation on any key system line, PSL, or OSL call. While in a two-party conversation on a line, the station user can activate the PRIVACY RELEASE button. Other stations with an appearance of that line receive common hold indication. One station user only can then enter the two-way conversation by depressing the appropriate line button.

Benefits

- o Complete user privacy on all calls (Automatic Privacy)
- o User may selectively allow a third station to enter the conversation when necessary (Privacy Release)

Applications

- o Businesses where telephone security is a concern
- o Individuals who require three-party conferences, e.g., sales representatives, sales manager, and customer

Capacity

- o One per station

Packages: C and D

Programming from Station

7.16 This feature allows the station user to program station features to the buttons on the telephone. Features other than trunk, intercom, PSL, OSL, or ICM group appearances may be programmed by the user. The station user dials an access code and depresses the feature button to be changed and enters the necessary information. This feature can be COS restricted.

Benefits

- o Allows utilization of vacant buttons for station features
- o Provides user with control of the features assigned to the telephone
- o Reduces the responsibility of the System Administrator for programming station feature buttons
- o Allows Telecom Manager to reprogram feature buttons without an MCT on premises
- o Provides flexibility to meet changing user needs

Applications

- o Station users whose responsibilities and duties frequently change

Packages: C and D

Square Configuration

7.17 Each key system line can appear on 52 buttons in the system. Lines can be assigned to feature buttons on the EKT or vacant buttons on the DSS/BLF Console. The system accommodates a maximum of 52 lines with the basic system configuration. Forty lines can be assigned to any one DSS/BLF Console. A maximum of eight DSS/BLF Consoles can be installed in the system.

Benefits

- o Provides common access to multiple key system lines
- o Provides multiple answering positions
- o Addresses small business needs and departmental needs to access common lines

Application

- o Organizations with multiple lines and several coverage positions (car dealers, service bureaus, reservation centers)

Capacity

- o 40 lines per DSS/BLF Console
- o 8 DSS/BLF Consoles per system
- o 52 appearances per trunk

Packages: C and D

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HOTEL/MOTEL FEATURE PACKAGE

8.0 The Hotel/Motel feature package is designed to meet the unique requirements of the Hotel/Motel industry. The feature package assigns an Attendant Console, a CSD, a CS-20 or CS-10 paired with a DSS/BLF (Direct Station Selection/Busy Lamp Field) Console to function as an FDC (Front Desk Console). A printer is an optional feature that can operate with the FDC. The flexibility of configuration makes the system an economic reality for any Hotel/Motel operation regardless of size. The following features are unique to the Hotel/Motel feature package.

Front Desk Program

8.1 A Front Desk Program button can be assigned to a CSD or Attendant Console. This makes the CSD or Attendant Console an FDC (Front Desk Console).

The front desk function is accomplished by using the Front Desk Program button and soft keys in combination.

NOTE: The CS-10 or CS-20 can be used for front desk functions, but individual feature buttons must be assigned for each function.

Benefits

- o Single-button access to Hotel/Motel features
- o User-friendly operation of guest room stations
- o Both CSD and Attendant Console can serve as FDC simply by assigning a feature button

Applications

- o CS-20 with RSI (Room Status Indicator) for small Hotel/Motel operations
- o Guest room services may be handled by an alternate position for medium/large Hotel /Motel operations

Packages: C and D

Automatic Wake-Up

8.2 This feature enables registration of wake-up service from a guest room station or the FDC (Front Desk Console). Automatic Wake-Up provides for automatic ringing of a guest room station at a predetermined time. When the guest answers the wake-up call, a distinctive tone/music is heard. With the RVAC card in Package D, a recorded announcement is sent. Evidence of definite call completion is needed. If no answer is received on the first attempt, a second call is rung in 2.5 minutes. If the second call is not answered, the wake-up call is automatically canceled. If the station being called for wake-up is busy, the system checks the station status every 25 seconds up to 2.5 minutes; then if the station is still busy, the system cancels the wake-up call. Time input is in the 24-hour format with time units of 5 minutes.

Benefits

- o Eliminates employee time required to manually place wake-up calls
- o Assures guests they will receive a wake-up call (no human error)
- o Printed documentation of wake-up service (e.g., answer, no answer)
- o User-friendly operation from FDC, guest room telephone

Application

- o Hotels/Motels that want to provide full service features

Capacity

- o Number of terminals in one 5-minute time frame - maximum of 40 SLTs and 80 EKTs
- o Number of simultaneous ringing terminals - maximum of 8 SLTs (Single-Line Telephones) and 16 EKTs (Electronic Key Telephones)

Packages: C and D

Call Charge

8.3 This is an accounting feature that totals the charges for local calls originated by the guest room stations. The charge for each station can be displayed on the FDC. The charging date, guest room station number, and message registration (charge) can be obtained as a hard-copy printout if the system is equipped with a Hotel/Motel printer.

Benefits

- o Increased profits through resale of facilities
- o Flexibility to establish rate tables for multiple facilities

Applications

- o Hotel/Motel resale of telephone services
- o Health Care and hospitals

Packages: C and D

Controlled Restriction

8.4 This feature allows the FDC to control the restriction for outgoing trunk calls and/or station-to-station calls for specific classes of service. This feature can be activated with a feature button or an access code. The types of call restriction are:

- Incoming station to station calls
- All incoming calls
- All outgoing calls
- All incoming and outgoing calls

Benefits

o Flexibility to accommodate station calling requirements as business needs change

o Public areas and vacant rooms can be restricted to internal calls only

Applications

o Hotels/Motels that offer conference room services
o Hotel/Motel convention floors
o Hotel/Motel meeting rooms

Capacity

o One restriction may be registered per station

Packages: C and D

Do Not Disturb/ Do Not Disturb Override

8.5 With this feature, the FDC operator can register or cancel DND (Do Not Disturb) for each guest room station. All incoming calls are restricted by the Do Not Disturb state. Wake-up, Silent Messages (Package D only), and Message Waiting services are operational when Do Not Disturb is registered.

Benefits

o Assures guests of privacy when desired
o Eliminates wrong number calls

Applications

o Conference or meeting rooms
o Guests who sleep during daytime hours
o Private meetings held in guest rooms or suites

Capacity

o One DND may be registered per station

Packages

o Package A and B - DSS/BLF Console
o Package C and D - Station and FDC

Hotel/Motel Printers

8.6 Up to two printers for printing out Hotel/Motel related information can be installed in the system. The printer is

connected to a DIU (Data Interface Unit) or CSD with DTA (Data Terminal Adapter), and system messages are sent through the 4CHT card.

Benefits

- o Saves time in check-in/check-out processing
- o Provides a printed copy of guests' charges

Applications

- o All Hotel/Motel or lodging industry operations
- o Health Care facilities and hospitals

Capacity

- o Two printers per system

Packages: C and D

Hot Line to Attendant

8.7 This feature enables special stations designed as hot lines to be directly connected to the attendant when taken off-hook by a station user. This feature is generally provided for stations located in hotel lobbies or other similar places.

Benefits

- o Added security by providing guests or visitors with direct access to the attendant for transfer to a guest room station, no need to give out guest room numbers
- o Eliminates long distance abuse on telephones accessible to visitors and guests

Applications

- o Telephones located in the lobby area
- o Telephones located in meeting rooms
- o Telephones located in conference rooms
- o Telephones located in elevators

Packages: C and D

Message Waiting

8.8 This feature enables the attendant at the FDC to register and check the waiting messages for each guest room.

Benefits

- o Saves time in the message leaving and check-out processes
- o Easy to activate via FDC
- o Increases guest satisfaction by providing more personalized service

Applications

- o Hotel/Motel telephones in guest rooms
- o Hotels/Motels that want to provide full service features

Packages: C and D

Room Number Correlation

8.9 The system can be programmed to match station numbers and room numbers. It then becomes unnecessary to check the station number so long as the room number is known. This feature accommodates:

- One to four digit numbering plan
- Room number to station number correlation
- Station numbers prefixed with floor number

Benefits

- o Simplified room to room calling
- o Simplified telephone usage for guests - easy to remember telephone number

Applications

- o Health Care/hospitals
- o Hotels/Motels where rooms are located on different floors or buildings

Packages: C and D

Room Status

8.10 This feature allows the attendant at the FDC to change or verify the room status for each guest room. The following room statuses can be read or displayed from the FDC:

- Vacant
- Occupied
- Need clean-up
  -vacant status (option in data base)
  -occupied status (option in data base Package D only)
- Do Not Disturb registration (option in data base)
- Wake-up no answer (option in data base)
- Line lockout (option in data base)

These status types are read on the Room Status Indicator corresponding to the guest room number. Each of the room status types can also be displayed on the LCD display of the FDC. All the status types, except line lockout, can be changed by the FDC.

The NEEDS CLEAN-UP O (occupied status base) in Package D and the Do Not Disturb registration can be activated from the guest room station.

Benefits

- o Increased room occupancy rate resulting from immediate indication of available rooms
- o Eliminates call abuse from vacant rooms (option in data base)
- o Reduces need for a separate property management system
- o Reduces time required to register guest
- o Allows housekeeping to change clean-up status directly from the room
- o Reduces time required to identify vacant rooms which require immediate clean-up

Application

- o Hotels/Motels

Packages: C and D

Room Status Indicator

8.11 This feature provides for room status to be visually identified by means of a Room Status Indicator. The lamps on the DSS/BLF Console when assigned as an FDC can be used as the Room Status Indicators (data base option).

Benefits

- o Provides information on room status
- o Provides visual indication of guest rooms that did not respond to wake-up calls and rooms that need employee attention

Application

- o Hotels/Motels

Capacity

- o Two per system

Packages: C and D

Room-To-Room Blocking

8.12 The system can be programmed to prevent system-wide room-to-room calling. Guests can originate and receive outside calls but cannot place calls to other guest rooms without going through the FDC.

Benefits

- o Ensures guest privacy from wrong number
- o Reduces nuisance calls within the Hotel/Motel, e.g., conventions, students on field trips, etc.

Applications

- o Hotels/Motels that desire to control all room-to-room calling
- o Hotels/Motels that offer full service privacy to guests
- o Hotels/Motels that are required by local ordinances to restrict/prohibit room-to-room calling

Packages: C and D

Service Call Routing

8.13 This feature is an enhanced version of the Special Service Code feature. For example, dialing a one- or two-digit service code to receive maid service causes automatic connection to the station of the maid in charge of the caller's floor.

Benefits

- o Calls for guest services are routed directly to the station assigned to the caller's floor; reduces response time
- o Improved employee productivity as calls are routed to appropriate personnel

Applications

- o Health Care/hospitals
- o Hotels with executive floors
- o Medium/large Hotels/Motels with departmental responsibility allocated to specific areas

Packages: C and D

Special Service Codes

8.14 With this feature, dialing a one- or two-digit Special Service Code enables the guest room station to access special services such as room service, cocktail lounge, or housekeeping. Up to ten special service codes can be assigned.

Benefit

- o Simplified operation for guest access to Hotel/Motel services

Application

- o Hotels/Motels offering a variety of guest services

Packages: C and D

Time-Out Routing to Attendant

8.15 If a guest room station user goes off-hook and does not go on-hook after receiving an error tone, the system automatically routes the call to the Attendant Console after a predetermined time (programmable in data base). This feature is controlled by station COS (Class of Service).

Benefit

- Guests can obtain assistance during an emergency by simply going off-hook

Applications

- Hotels/Motels
- Hospitals and nursing homes

Packages: C and D

Vacant Room Restriction

8.16 When this feature is activated and vacant room status is registered, the system automatically restricts CO (Central Office) trunk and station incoming and outgoing calls. This feature is implemented from the FDC and is an option in the data base.

Benefits

- Eliminates long distance abuse from vacant rooms
- Reduces possibility of incoming calls being directed to vacant rooms
- Increases productivity of maids by restricting personal calls made from guest rooms during work hours

Applications

- Hotels/Motels using room status
- Hospitals and nursing homes

Packages: C and D

DATA SWITCHING OPTION

9.0 With the Data Switching Option, the system can transmit simultaneous voice and data communications. The data option requires:

- CS-10/20 coupled with a DIU (Data Interface Unit)
- DIU as a stand-alone unit
- CSD coupled with a DIU
- Terminal connected to a CSD telephone with a DTA (Data Terminal Adapter) installed

Within the system, a high speed end-to-end digital non-blocking communication path is provided.

Each CSD with a DTA is programmed for data and connected to a data terminal. Each CSD has a data terminal number assigned to it that is paired with its voice extension in the system.

The data option can accommodate asynchronous or synchronous data in half or full duplex operation at speeds up to 19.2 Kbps.

The system's data communications network uses a Star type approach to network design. The system acts as the central point for interconnecting different users for the processing of data information. For each data station, the following parameters can be assigned through the data base software:

- Data transmission modes
  - data terminal speed - up to 19.2 Kbps
  - synchronous or asynchronous
  - half or full duplex
- Character dialing mode
  - stop bit
  - word Length
  - parity
- Call control mode
  - originate mode (automatic or manual)
  - answer mode (automatic or manual)
  - disconnect mode (automatic or manual)
- RS-232C signal mode
  - DTR (Data Terminal Ready)
  - RTS (Ready to Send)
  - RI (Ringer Indicator)
  - DSR (Data Set Ready)
- Data terminal speed and answer mode can be changed from the proprietary telephone associated with the DTA/DIU.

The following features of the data system operate in basically the same manner as the corresponding system or station features and are not described in this section.

- Least Cost Routing
- Station Message Detail Recording
- Traffic Measurement

Simultaneous Voice/ Data Communications

9.1 This feature provides simultaneous voice/data communications to the user at the following stations: the CSD with DTA or CS-10/20 with DIU. Voice call operations are unchanged. There is no interruption of either voice or data transmission during simultaneous voice/data calls.

Benefits

o Improves productivity by allowing the station user to implement two methods of communication at the same time

o Saves time setting up data calls by allowing voice communications to coordinate data connection procedures

Applications

o Telemarketing groups, e.g., telephone sales, etc.
o May be used any time both voice and data communications are required from the same work station

Capacity

o Maximum of 30 CSDs with DTAs - Packages B, C, and D
o Maximum of 80 DIUs or CSDs with DTAs and DIUs in combination - Packages C and D

Packages

o B, C, and D with DTAs
o C and D with DIUs

Add Data Call

9.2 This feature provides the station user with the capability to add a data call to an existing voice conversation. To set up a data call with a voice conversation, the station user depresses the ADD DATA button or depresses the DATA CALL button and dials an access code. Depressing the ADD DATA feature changes the LCD display (CS-20, CSD) to display data information without interrupting the voice transmission during data call set-up.

Benefits

o Saves time by allowing a station user to add a data call to a voice call by simply depressing a button

- Increases communications capability by providing the station user with the flexibility to add a data call to a voice conversation

Application

- Customer service information entry. Information entry may be initiated only when required

Packages

- B, C, and D with DTA
- C and D with DIU

Call Control Mode

9.3 The system provides three different call control modes in either automatic or manual operation. The three calling modes are originate, answer, and disconnect.

- Originate - Data calls can be set up on the system data stations in either Auto Originate or Manual Originate mode. The Auto Originate or Manual Originate option is set in the data base for each data station. The DIU must be set up for data hot line to originate a call. Auto Originate provides one-button access to only one data station. Auto Originate operates just like one-button dedicated speed dialing. However, only one data station may be accessed. Calls can be released using Manual Disconnect only. Manual Originate requires the input of the receiving station number. See paragraph 9.4 Data Call Set Up.

- Answer - When an incoming call is placed to a CSD with a DTA, a CS-10/20 with a DIU, or a stand-alone DIU in the Auto Answer mode, the data set can automatically answer the call. This option is set in the data base and can be changed from Auto Answer to Manual Answer by using the Data Change feature. Manual Answer requires the user to depress the DATA CALL feature button to answer a data call.

- Disconnect - Auto Disconnect is a data base selected option. When the remote party disconnects a data call, the data station automatically disconnects from the call. In the manual mode, both stations must disconnect from the call independently.

Benefits

- User-friendly operation reduces need for extensive user training (non-productive employee time, user frustration, short "turn-up" time)
- With Auto Answer and Disconnect, remote locations can automatically download information when phone rates are lowest

Applications

- Electronic mail (Auto Answer and Auto Disconnect)
- Organizations that receive inventory, sales, or other reports from remote locations (Auto Answer and Auto Disconnect)

Capacity

- 30 terminals in Package B, 1 per terminal
- 80 terminals in Packages C and D, 1 per terminal

Packages

- B, C, and D with DTAs
- C and D with DIUs

Data Call Set Up

9.4 Data speeds up to 19.2 Kbps, synchronous or asynchronous, can be switched internally between CSD proprietary telephones equipped with a DTA (Data Terminal Adapter), a CS-10/20 coupled with a DIU (Data Interface Unit), or a stand-alone DIU unit. An RS-232C cable and connector and/or a DIU with cable and connector are used for interface between the DTA/DIU and the data terminal. The DATA CALL and VOICE/DATA MODE feature buttons are used to initiate and display a data call. The DATA CALL feature button initiates the data call. The VOICE/DATA MODE feature button changes the instrument LCD display (for CS-20s and CSDs) from voice call information to data call information or data to voice call information.

Benefits

- Reduced calling costs
- Shared/pooled resources; e.g., printers and modems
- Ease of change/rearrangements
- Enhances communication capability by allowing voice and data transfer using the same station instrument
- Stand-alone DIU reduces cost to connect modems and printers to the system
- Reduces need of extensive user training, user friendly operation
- Saves cabling between data entry ports and host computers or between personal computers

Applications

- Off hour/unattended file transfer
- Interactive applications with computer or centralized data base

- o Data call set-up by non-technical personnel
- o Connection of printers where no telephone instrument is required and data calls are automatically established

Capacity

- o Maximum of 30 CSDs with DTAs - Packages B, C, and D
- o Maximum of 80 DIUs or CSDs with DTAs and DIUs in combination - Packages C and D

Packages: B, C, and D

Data Change Button

9.5 The Data Change Button feature allows the user to change the data speed between the local and remote data stations. This feature is activated by depressing the DATA CALL feature button, then pressing the DATA CHANGE feature button or dialing an access code followed by the new data speed (maximum of five digits). The data station can also be changed from Auto Answer to Manual Answer using the DATA CHANGE button or an access code.

Benefits

- o Allows user to change data speeds without accessing the data base
- o Provides greater flexibility by allowing user to determine auto or manual answering modes

Application

- o Offices with a number of independent data station users, e.g., stock brokerage firms

Capacity

- o One feature button on each CSD with DTA in Packages B,C and D
- o One feature button on each CS-10/20 with DIUs in Packages C and D

Packages: B, C, and D

Data Class of Service

9.6 DCOS (Data Class of Service) allows or denies data stations access to station features. DCOS is available in both Day Class of Service and Night Class of Service. Data and Voice Classes of Service are identical for a given station number.

Benefit

- Provides customization of data communications capabilities by allowing the assignment of data features to suit individual needs

Applications

- Used to customize communication modes within a group
- Used to assign different transmission modes to separate groups of terminals within the system

Capacity

- 16 Day Classes of Service
- 16 Night Classes of Service

Packages

- B, C, and D with DTAs
- C and D with DIUs

Data Hot Line

9.7 This feature allows the user at a data station to automatically place a data call to a predetermined data station without dialing. The originating Data Hot Line station can receive calls from another data station, but is prohibited from placing calls to any data station other than the predetermined station. The predetermined data station must be an internal station. A DIU cannot initiate a call unless it is programmed as a hot line and also programmed for Auto Originate. Auto Originate may be used when the maximum number of data hot lines is exceeded.

Benefits

- Saves time by allowing a station user to access a frequently called station without having to dial

- Restricts data terminals to calling one predetermined data station

Applications

- Terminals which connect only to a single point (companies that use a central facility; e.g., warehouse to serve branch locations - auto parts, electronics, hardware, etc.)

- Interactive applications requiring minimal response time (e.g., service department checking inventory while online with a customer, sales department checking order status while on line with a customer)

Capacity

- o 40 Data Hot Lines per system

Packages

- o B, C, and D with DTAs
- o C and D with DIUs

Data Station Flexible Numbering Plan

9.8 The data station numbers are assigned in the same manner as voice station numbers. An individual number is assigned to a voice or data station under the flexible numbering plan. The default data base assigns station numbers to each data terminal. These can be changed to accommodate individual user needs. One to four digit numbering is used in the system.

Benefits

- o Enhances system operation by allowing quick assignment or change of data station numbers to suit individual requirements
- o Specific data applications can be assigned using easily remembered numbers

Application

- o Offices whose personnel are frequently moved or reassigned

Capacity

- o One number per terminal
- o 1 to 4 digit numbering plan

Packages

- o B, C, and D with DTAs
- o C and D with DIUs

Data Terminal Group Hunting

9.9 This feature allows data stations to be assigned to hunt groups for internal data calls. When a call is placed to a busy data station in a hunt group, the system automatically initiates a search among the hunt group members to find and establish a connection with the first available station. The following types of hunt groups can be established:

- Circular Hunt Group - The hunting sequence for a non-busy station starts with the called data station and then searches in a prearranged order through all data stations in the hunt group to find an available station. The hunt continues in a full circle back to the original station and will try that station again before returning a busy tone.
- Terminating Hunt Group - The hunting sequence for a non-busy station starts with the called data station and then

proceeds through the hunt group data stations to find an available station. The hunting sequence ends at the last station in the hunt group; therefore, a call placed to any hunt group station except the first one will not make a complete search of all available data stations.

- Pilot Hunt Group - The hunting sequence for a non-busy station begins only when the pilot number is dialed. The pilot number is assigned as the first number in the hunt group. The hunting sequence ends at the last station in the hunt group. The pilot station is not rung a second time.

Benefits

- o Increases data transfer capability by providing a number of data call answering options
- o Facilitates sharing of modems, high speed printers, and storage devices

Applications

- o Printer pools
- o Multiple terminals must have access to a limited number of ports

Capacity

- o 10 hunt groups
- o 16 data stations per group

Packages

- o B, C, and D with DTAs
- o C and D with DIUs

Voice Port Number

9.10 This feature allows a station user to set up a data call by dialing the station directory number of the instrument paired with the data terminal (CSD with DTA or CS-10/20 with DIU), instead of dialing the desired data terminal directory number. When a data call is initiated by dialing the station number, the display on the CSD or CS-20 shows the station number and then changes to display an asterisk and the receiving data terminal number.

Benefits

- o Increases operation flexibility by allowing the station user to set up a data call by dialing either the station or data terminal directory number
- o Simplifies operation by non-technical personnel
- o Reduces cost of printing extensive internal directories which include data terminal numbers

Application

- o Offices with data facilities that are used infrequently and/or are used by non-technical personnel

Packages

- o B, C, and D with DTAs
- o C and D with DIUs

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APPENDIX I

ACRONYM LIST

ACD	Automatic Call Distribution
ALT	Alternate
ASCII	American Standard Code for Information Interchange
AWG	American Wire Gauge
BER	Bit Error Rate
4BWC	Central Office Bothway Trunk card
C	Centigrade
CCITT	International Telegraph and Telephone Consultative Committee
CCS	Hundred Call Seconds
CFA	Call Forward-All Calls
CFB	Call Forward-Busy/No Answer
CFN	Call Forward-No Answer
CFT	Confirmation Tone
CHILL	CCITT High Level Language
4CHT	Character Trunk card
CMC	Change and Maintenance Command code
CO	Central Office
COR	Class of Restriction
COS	Class of Service
CPM	Central P:rocessing Unit and Memory card
CS-10	(No translation)
CS-20	(No translation)
CSD	(No translation)
DCOS	Data Class of Service
DDD	Direct Distance Dialing
DID	Direct Inward Dialing
DIL	Direct-In Line
DISA	Direct Inward System Access
DIU	Data Interface Unit
4DMR	Dual Tone Multi-Frequency Receiver card
DND	Do Not Disturb
DSS	Direct Station Selection
DSS/BLF	Direct Station Selection/Busy Lamp Field Console
DSR	Data Set Ready
DTA	Data Terminal Adapter
8DTC	Digital Telephone card
DP	Dial Pulse
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
8EKC	Electronic Key Telephone card
EKT	Electronic Key Telephone
EPROM	Erasable Programmable Read-Only Memory
EXT	Extension
F	Fahrenheit
FGBS	Fujitsu GTE Business Systems
FDC	Front Desk Console
FX	Foreign Exchange
Hz	Hertz

ICG	Interface Card Group
ICM	Intercom
Kbps	Kilobits per second
LCD	Liquid Crystal Diode
LCD Display	Liquid Crystal Diode Display
LCR	Least Cost Routing
LED	Light-Emitting Diode
MCT	Master Control Telephone
MEM	Memory card
MEMC	Memory card Package C
MEMD	Memory card Package D
MW	Message Waiting
MX/DMX	Multiplexer/Demultiplexer
NCOR	Night Class of Restriction
NCOS	Night Class of Service
OSL	Other Station Line
PABX	Private Automatic Branch Exchange
PcMP	Personal Computer Maintenance Processor
PCM	Pulse Code Modulation
6PFE	Power Failure Transfer Extended card
6PFT	Power Failure Transfer Card
PMP	Portable Maintenance Processor
PNA	Predetermined Night Answer
PSL	Primary Station Line
RAM	Random Access Memory
RBT	Ring-Back Tone
RI	Ring Indication
RMS (rms)	Root Mean Square
RSI	Room Status Indicator
RTS	Ready to Send (data applications)
RTS	Real Time Source
RVAC	Recorded Voice Announcement Card
SBCS	Small Business Communications System
SCC	Specialized Common Carrier
8SLC	Single-Line Telephone card
SLT	Single-Line Telephone
SWC	Switch Control card
SWB-A	Switch Control card (basic cabinet card in two-cabinet system)
SWE	Switch Control card (expanded cabinet card in two-cabinet system)

TGN	Trunk Group Number
TTGN	Terminating Trunk Group Number
2TTE	E&M Tie Trunk card
2TTL	Loop Dial Tie Trunk card
UNA	Universal Night Answer
WATS	Wide Area Telephone Service

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