

# Centrex 2000

# Administration Manual

## Centrex 2000 Service

Centrex 2000 is a complex communications service provided through an arrangement of switching equipment and facilities which are owned and maintained by the telephone company. Centrex 2000 Service Lines consist of the facilities from the central office to the customer premises and the central office switching equipment used to provide intercommunication service.

A Centrex 2000 system involves one or more group(s) of station lines (which can be configured to cover several locations). The system allows for Direct Inward Dialing, Direct Outward Dialing, 4-5 Digit Station-To-Station Dialing and many other features and capabilities.

Centrex 2000 Service Lines (which include Attendant Service Lines) can be either Basic (analog) or ISDN/Electronic (digital). ISDN/Electronic Service Lines offer the ability to connect multiple and/or shared lines to a single station set. They also offer single-button access to many Centrex features and LCD display capability (on certain station sets).

## INTRODUCTION

This manual provides descriptions of Centrex 2000 features and how to use them. For more detailed information on how to use your specific station set equipment, consult the documentation provided by the station set vendor.

Section 1 describes the features available for Analog Service Lines (both Basic and Deluxe).  
Section 2 describes the features available for the ISDN/Electronic Service Lines.  
Section 3 describes the features available for the Attendant Service Lines (both Analog and ISDN).  
Section 4 describes optional system features available for both Basic and ISDN Service Lines.

Features with instruction entries are directly user-accessible. These features can be turned on or off or modified directly from the user's station set.

(Note: Instructions provided in this manual relate to Centrex-programmed switch operations only and do not necessarily describe the operation of station set equipment. In case of discrepancies between the two, station set-specific documentation should be followed.)

Features without instruction entries are not directly user-accessible. They determine how the station-set or the Centrex group will operate and can only be changed with a service order placed through Cincinnati Bell Telephone.

For information regarding specific needs, contact your Cincinnati Bell Account Representative.

## **Definitions of Important Terms**

Terms	Description
Basic Service Line	Centrex service that uses analog technology. Centrex features are accessed via touch-tone telephone sets and dial access codes.
CA	Call Appearance. The button on a station set associated with a particular directory number.
Deluxe Service Line	Centrex service that uses analog technology. Line similar to Basic Service Line, but with more features.
Dial Access Code	A code (1 or 3 digits) that activates a particular Centrex feature.
DN	Directory Number. The 7-digit telephone number Assigned to a particular service line. Intragroup calls need only use the last 4-5 digits.
DT	Dial Tone. A constant tone indicating an idle and available line.
CT	Confirmation Tone. A series of short tones, indicating the completion of an input step and/or the activation of a feature.
Electronic Service Line	Centrex service that uses digital technology lines to provide simultaneous voice and data services over the same transmission and switching facilities.
Flash Switchhook	An action involving rapidly depressing and releasing the receiver plunger on the station set. Some station set models have a button (FLASH, LINK, RECALL) dedicated to this function. A switchhook flash will be followed by a DT.
Idle Line	A line that is not busy and is immediately available for use.
Station Set	Telephone terminal set.

## **Section 1: ANALOG - Basic and Deluxe Service Lines**

Centrex 2000 Basic Service Lines involve analog technology and touch-tone stations. Deluxe Service Lines also use analog technology, but offer an expanded package of features.

Centrex 2000 features are activated usually through a combination of Flash Switchhook and Dial access Codes, although some may be activated through the use of programmable buttons. Flash Switchhook is an action involving rapidly depressing and releasing the receiver plunger on the station set. Some stations set models have a button dedicated to this function. A switchhook flash will be followed by a dial tone. Dial Access Codes are codes (1 to 3 digits) that will activate a particular feature.

### **BASIC AND DELUXE Standard Features (\*Deluxe Only)**

- Add On Conference/Consultation Hold
- Automatic Callback (\*)
- Call Forwarding Busy Line-All Calls (\*)
- Call Forwarding Don't Answer-All Calls (\*)
- Call Forwarding Variable (\*)
- Call Hold (\*)
- Call Pickup (\*)
- Call Transfer Individual – All Calls
- Dial Call Waiting (\*)
- Direct Inward Dialing
- Direct Outward Dialing
- Directed call Pickup Non Barge-In (\*)
- Distinctive Ringing (\*)
- Identification of Outward Dialing
- Intercom Dialing
- Speed Call 6 – Individual (\*)
- Touch-Tone Service
- Trunk Answer Any Station

### **OPTIONAL FEATURES**

- Hunting Service
- Speed Call 30 Individual
- Toll Restriction
- Uniform Call Distribution
- Area Wide Centrex

## **Basic and Deluxe Standard Feature Descriptions:**

The following features are standard with Basic and Deluxe Service.  
Features marked with a (\*) are available only with Deluxe Service.

### **Add On Conference/Consultation Hold – “Three Way Conference”**

Consultation Hold allows the user to put a line on hold and originate a second call. Add on Conference allows the user to reconnect the first party, thus creating a three-way call.

To activate Consultation Hold:

Dial first party and flash switchhook.

(First party will be put on hold.)

Dial second party.

To activate Add On Conference:

Flash switchhook again and the first party will join the call in progress.

### **Automatic Callback (\*)**

Permits a station user who reaches a busy station to be called back by the busy station when both stations are idle. A triple ring pattern will be used when the calling station is called back. The called station will begin to ring when the pattern is answered.

To activate:

Flash switchhook after receiving busy signal from called station.

Dial “161”.

To deactivate:

Dial “162”

### **Call Forwarding Busy Line-Incoming Only (\*)**

Permits calls to a specific line number to be forwarded to a user-specified DN when busy. This feature is prohibited with any type of Hunting Service.

### **Call Forwarding Don't Answer-All Calls (\*)**

Permits calls to a specified line number to be forwarded to a user-specified DN if not answered after a user-specified number of rings.

### **Call Forwarding Variable (\*)**

Permits the user to forward any calls intended for the user's station to another user-selected station.

To Activate:

Dial “172” and DN of the station to which calls will be forwarded.

Announce Call Forwarding Variable. If no one answers or the line is busy, hang up and repeat.

To deactivate:

Dial “173”

## **Call Hold (\*)**

Allows user to put any call in progress on hold and frees the line to originate another call.

To activate Call Hold:

Flash switchhook and dial "177"

(Do not hang up.)

To originate second call:

Dial DN of second party after placing first party on hold.

To alternate between calls:

Repeat process to activate call hold.

Holding party will be connected.

To return to a single holding party:

Hang up phone.

Holding party will ring back.

## **Call Pickup (\*)**

Allows user to answer a call to another line in the defined call pickup group. This is accomplished by dialing a call pickup code while the called line is being rung. If more than one line in the group is being rung, the line that has been ringing the longest is picked up first.

To activate when phone is idle:

Dial "178" and answer appropriately.

To activate when using another line:

Flash switchhook.

Dial "178" and answer appropriately.

(Note: Original call is placed on hold.)

To reactivate held call:

Hang up.

Original call will ring back.

## **Call Transfer Individual – All Calls**

Allows a user to add on and /or transfer any established terminating call to any other line either within or outside the system.

To activate:

Flash switchhook and dial desired DN.

Announce call and hang up after dialed party answers.

(Note: If dialed party is busy, flash switchhook twice to stop busy signal.)

## **Dial Call Waiting (\*)**

Allows a user to give call-waiting treatment to a called line. (Note: This feature is restricted to intrasystem groups.)

To activate Dial call Waiting:

Dial "171" and desired DN.

(Note: A Call Waiting Tone is passed to the other station.)

To answer a call Waiting Tone:

Flash switchhook and dial "177".

(First line is put on hold.)

To return to holding line:

Hang up.

Holding line will ring back.

To deactivate:

Dial "176".

## **Direct Inward Dialing**

Allows an incoming toll or Direct Distance Dialing call to directly reach a specific user line. If the called line is idle and not restricted from receiving incoming calls, the user line returns audible ringing on the incoming connection. If the called line is busy, the line returns a busy signal. If the called line is restricted from receiving incoming calls, the incoming call is routed to an announcement.

## **Direct Outward Dialing**

Allows a user line to directly access the local exchange networks.

To place a local (external) call:

Dial “9” + 7-digit DN.

To place a long distance call:

Dial “9” + “1” + area code + 7-digit DN.

## **Direct Call Pickup Non Barge-In (\*)**

Permits a user to answer a call directed to a specified line from any other line within an associated pickup group. The station must permit directed pickup. If the call has been answered by the called line, the party dialing the pickup code will receive a reorder signal.

To activate:

Pick up idle station.

Dial “170” and DN of ringing station.

Answer appropriately.

## **Distinctive Ringing (\*)**

Enables user to identify the general source of incoming calls by providing a unique ringing pattern on telephone instruments. Ringing patterns are as follows:

\*Single Ring: Internal call

\*Double Ring: External (or attendant-forwarded) call

\*Triple Ring: Automatic Callback signal

## **Identification of Outward Dialing**

Provides the means for identifying the originating number in Automatic Message accounting records for calls involving times or toll charges.

## **Intercom Dialing**

Permits users to place intragroup calls by dialing only the last four-five digits of the DN.

## **Speed Call 6 – Individual (\*)**

Allows the user to store and recall 6 frequently dialed numbers under single digit codes.

To store:

Dial “174”

Dial digit (2-7), DN to be stored and “#”.

To recall:

Dial digit and “#”

(Note: Include “9” and any prefixed if necessary when storing external DNs.)

## **Trunk Answer Any Station**

Permits an individual at any user line to answer an incoming call to the listed DN when the attendant is not on duty. This feature allows any of the user lines to dial a code in order to be connected to the incoming call. To make individuals aware that an incoming call needs to be answered, this feature is used in conjunction with visual and/or audible alarms.

To pickup call when station is idle:

Dial "179"

To pickup call when station is busy:

Flash switchhook and dial "179"

First call will be put on hold.

To return to held call:

Hang up.

Held line will ring back.

To hold second call and return to first:

Follow procedure for Call Hold.

## **Optional Feature Descriptions**

The following features are optional on Basic or Deluxe Service lines.

### **Hunting Service**

1. Regular Hunting-The hunt always starts with the called line and ends with the last line in the prearranged group, completing the call to the first idle line encountered. Unless the first line in the group is called, only a portion of the group is tested. The prearranged sequence can be either consecutive (telephone numbers are in ascending numerical sequence) or nonconsecutive order.
2. Circle Hunting-An arrangement in which hunting begins with the terminal number associated with the called number, and continues sequentially through the last terminal number in the hunt group. Hunting resumes starting with terminal number 1 and continues through the terminal number preceding the called hunt terminal number.

### **Speed Call 30 – Individual**

Allows the user to store and recall 30 frequently dialed numbers under double digit codes.

To Store:

Dial "175"

Dial digits (20-49), stored and "#".

To recall:

Dial digits and "#".

(Note: Include "9" and any prefixes if necessary when storing external DNs.

### **Toll Restriction**

Restricts the specified station set from placing toll calls

### **Uniform Call Distribution**

A hunting arrangement available to lines in a hunting group. Incoming calls to the line (main hunt) number of the group will hunt throughout the lines in a fixed sequence, except that, once a call has been completed to a line, a pointer within the switching equipment will advance to the most idle line. The next incoming call will go directly to that line if it is available. If not, the call will either be directed to the most idle line in the hunt group or, if all lines in the hunt group are busy, receive a busy tone. All lines in a Uniform Call Distribution group must subscribe to Hunting service.

## **Areawide Centrex**

Allows multiple Centrex systems across the CBT service Area to utilize abbreviated dialing. Areawide Centrex extends five digit dialing plans and internal features between Centrex systems. It is available to customers served by a 5ESS switch.

## **Section 2: ISDN/ELECTRONIC Service Lines**

ISDN/Electronic service involves a technology that allows for end-to-end digital connectivity. Through the use of digital technology, voice and data services may be provided over the same transmission and switching facilities.

Centrex 2000 ISDN/Electronic Service Lines can provide two 64 KBPS “bearer” channels plus one 9.6 KBPS “delta” channel on the same line.

The two bearer channels (B channels) can each be provisioned with either a circuit-switched data or a circuit-switched voice line. Alternatively, packet-switched data service can be provided on one B channel, but only if the other channel is not used.

Circuit switching dedicates an entire channel to high-speed voice or data transmission. Packet Switching can transmit several lower-speed data signals across the same channel.

The delta channel (D channel) is used to transmit signaling information between the network and the user’s station set, but can also carry packet-switched data.

These three channels (2B+D) can be arranged to meet the customer’s needs in any of the following combinations.

- 1) One stand-alone packet-switched data B channels.
- 2) One stand-alone packet-switched data D channel.
- 3) Two B channels each provisioned with either circuit-switched voice or circuit-switched data channels.
- 4) A combination of (2) and (3).

Note: All features on ISDN/Electronic Service Lines can be activated using the appropriate Dial access Codes. On some electronic station sets, certain features can also be activated with either preset or user-programmable buttons. Features involving screen displays will only work on station sets equipped with displays.

## **ISDN / ELECTRONIC Standard Features:** **Circuit – Switched Voice/Data, B-Channel (\*Voice only)**

Add On Conference/Consultation Hold (\*)  
Automatic Callback (\*)  
Call Forwarding Busy Line-All Calls (\*)  
Call Forwarding Don't Answer-All Calls (\*)  
Call Forwarding Variable  
Call Hold (\*)  
Call Pickup (\*)  
Call Transfer Individual – All Calls (\*)  
Consultation Hold (\*)  
Dial Call Waiting (\*)  
Direct Inward Dialing (\*)  
Direct Outward Dialing (\*)  
Directed Call Pickup Non Barge-In (\*)  
Distinctive Ringing (\*)  
Electronic Key Service (\*)  
Identification of Outward Dialing  
Inspect (\*)  
Intercom Dialing  
Intrasystem Calling Line Identification  
Manual Exclusion (\*)  
Multiple Call Appearances (\*)  
Shared Call Appearances (\*)  
Speed Call 6 – Individual (\*)  
Touch-tone Service (\*)  
Trunk Answer Any Station (\*)

### **OPTIONAL FEATURES**

Call Restriction Levels  
Circuit-Switched Data Hunting  
Custom Set Configuration  
Hunting Service  
Secondary Telephone Number  
Speed Call 30 – Individual (\*)  
Toll Restriction  
Uniform Call Distribution  
Areawide Centrex (\*)

## **ISDN/ELECTRONIC Standard Feature Descriptions**

### **(Circuit Switched Voice/Data, B-Channel)**

The following features are standard with electronic voice and data lines. Those features followed by a (\*) are available on voice lines only.

#### **Add On Conference/Consultation Hold – Three Way Conference**

Consultation Hold allows the user to put a line on hold and originate a second call. Add On Conference allows the user to reconnect the first party, thus creating a three-way call.

To activate Consultation Hold:

Dial first party and flash switchhook (or press “Conference” button).

First party will be put on hold.

Dial second party.

To activate Add on Conference:

Flash switchhook (or press button) again.

The first party will join the call in progress.

To drop last party added:

Press “Drop” button.

#### **Automatic Callback (\*)**

Permits a station user who reaches a busy station to be called back by the busy station when both stations are idle. A distinctive ringing pattern will be used when the calling station is called. The called station will begin to ring when the pattern is answered.

To activate:

Flash switchhook and dial “161” (or press “Auto CB” button) after receiving busy signal from called station.

To deactivate:

Dial “162” (or press button again).

#### **Call Forwarding Busy Line-Incoming only (\*)**

Permits calls to a specified line number to be forwarded to a user specified DN when busy. This feature is prohibited with any type of Hunting Service.

#### **Call Forwarding Don’t Answer-All Calls (\*)**

Permits calls to a specified line number to be forwarded to a user specified DN if not answered after a user-specified number of rings.

#### **Call Forwarding Variable**

Permits the user to forward any calls intended for the user’s station to another user-selected station.

To program:

Dial “190” and DN of the station to which calls will be forwarded.

To activate:

Dial “172” (or press “CL FWD” button).

To deactivate:

Dial “173” (or press button again).

## **Call Hold (\*)**

Allows user to put any call in progress on hold. This frees the line to originate another call.

To activate basic Call Hold:

Flash switchhook and dial "177" (or press CA button of current call and press "Hold" button).  
(Do not hang up).

To originate or answer second call:

Dial DN or press CA button of second party.

To alternate between calls:

Flash switchhook and dial "177" (or press CA button of call on hold).  
Holding party will be connected.

To drop current call:

Hang up.  
Call on hold will ring.  
Press "Drop" button.

## **Call Pickup (\*)**

Allows user to answer a call to another line in the defined call pickup group. This is accomplished by dialing a call Pickup codes while the called line is being rung. If more than one line in the group is being rung, the line that has been ringing the longest is picked up first.

To activate when phone is idle:

Dial "178" (or press "Call Pickup" button) and answer appropriately.

To activate when using another line:

Flash Switchhook and dial "178" (or press button). Answer appropriately.  
(Note: original calls placed on hold.)

To reactivate held call:

Hang up.  
Original call will ring back.

## **Call Transfer Individual – All Calls (\*)**

Allows a user to add on and/or transfer any established terminating call to any other line either within or outside the system.

To activate:

Flash switchhook ((or press "Transfer" button).  
Dial DN and flash switchhook (or press button) again or hang up.  
(Note: If dialed party is busy, flash switchhook twice or press "Drop" to return to call on hold.)

## **Dial Call Waiting (\*)**

Allows a user to give Call Waiting treatment to a called line. (Note: This feature is restricted to intrasystem groups.)

To Activate Dial Call Waiting:

Dial "171" and desired DN.  
(Note: A Call Waiting Tone is passed to the other station.)

To answer a call Waiting tone:

Place current call on hold and press CA of waiting call.

To return to holding:

Press "Drop", then press CA of call on hold.

To deactivate:

Dial "176"

## **Direct Inward Dialing**

Allows an incoming toll or Direct Distance Dialing call to directly reach a specific user line. If the called line is idle and not restricted from receiving incoming calls, the user line returns audible ringing on the incoming connection. If the called line is busy, the line returns a busy signal. If the called line is restricted from receiving incoming calls, the incoming call is routed to an announcement.

## **Direct Outward Dialing**

Allows a user line to directly access the local exchange network.

To Activate:

Dial “9” before dialing 7 or 10 digit DN.

## **Directed Call Pickup Non Barge-In (\*)**

Permits a user to answer a call directed to a specified line from any other line within an associated pickup group. The station must permit directed pickup. If the call has been answered by the called line, the party dialing the pickup code will receive a reorder signal.

To activate:

Pick up idle station.

Dial “170” and DN of ringing station. Answer appropriately.

## **Distinctive Ringing (\*)**

Enables user to identify the general source of incoming calls by providing a unique ringing pattern on telephone instruments. Ringing patterns are as follows:

- Single: Internal Call
- Double Ring: External (or attendant-forwarded) call
- Triple Ring: Automatic Callback

## **Electronic Key Service (\*)**

Allows single button access to features otherwise accessible only through dialed codes.

## **Identification of Outward Dialing**

Identifies the originating number in Automatic Message Accounting records for calls involving timed or toll charges.

## **Inspect (\*)**

Works with Intrasystem Calling Line Identification to display calling party DN for any Call Appearance in use. This could be the active call; a call on hold or an alerting call.

To activate:

Dial “194” (or press “Inspect” button)

Press button of desired Call Appearance.

Information will be displayed on screen.

## **Intercom Dialing**

Permits users to place intragroup calls on a 4-5-digit basis.

## **Intrasystem calling Line Identification**

Provides calling party DN on calls originated from Basic, Deluxe and Electronic lines in the same Centrex system. The called party receives the directory number of the calling station along with the time and the date of the call.

Information can be retrieve using the Inspect feature on voice lines.

### **Manual Exclusion (\*)**

Allows a Multibutton Key System set user to inhibit other stations from picking up a call on hold or bridging onto a call that is active at that station.

To activate:

Dial "195" (or press "Privacy" button) and dial desired DN.

To deactivate:

Hang up (or press button again)

### **Multiple Call Appearances (\*)**

Allows a station to originate or terminate more than one call on the same line number. If the first Call Appearance button is busy, an incoming call will be completed to the first idle Call Appearance for that line number. A call can be originated from any idle Call Appearance while a call or another Call Appearance is on hold. This feature is not available on lines equipped with Hunting Service.

### **Shared Call Appearances (\*)**

Allows several stations to share one or more line numbers. Originating and terminating calls affect all stations sharing that line number. The shared line numbers can have multiple Call Appearances, multiple calls can exist on one line number and more than one station sharing a line number can have a call active on that shared line number. This feature is not available on lines equipped with Hunting Service.

### **Speed Call 6 – Individual (\*)**

Allows the user to store and recall 6 frequently dialed numbers under single digit codes.

To store:

Dial "174"

Dial digit (2-7), DN to be stored and "#"

To recall:

Dial digit and "#"

(Note: Include "9" and any prefixes if necessary when storing external DNs.)

### **Trunk Answer Any Station (\*)**

Permits an individual at any user line to answer an incoming call to the listed directory number when the attendant is not on duty. This feature allows any of the user lines to dial a code in order to be connected to the incoming call. In order to make individuals aware that incoming calls need to be answered, this feature is used in conjunction with visual and/or audible alarms.

To pickup call when station is idle:

Dial "179"

To pickup call when station is busy:

Flash switchhook and dial "179"

First call will be put on hold.

To return to held call:

Hang up.

Held line will ring back.

To hold second call and return to first:

Follow procedure for Call Hold.

## **OPTIONAL FEATURES**

The following features are optional on circuit-switched voice and data lines.

### **Call Restriction Levels**

Prevents an Electronic Service Line user from calling certain data terminals based upon the restriction placed upon the specific calling terminal. If the calling terminal is restricted, the call is directed to a recorded announcement.

Restriction levels available are:

- Unrestricted
- Incoming restricted
- Outgoing restricted
- Fully restricted
- Fully restricted – denied dial tone

### **Circuit-Switch Data Hunting**

Allows a grouping of circuit-switched data channels to host so that calls to the host will be completed if there is an available channel anywhere in the group.

### **Custom Set Configuration**

Allows a nonstandard configuration of feature buttons on an Electronic service Line.

### **Hunting Service**

- 1) Regular Hunting-The hunt always starts with the called line and ends with the last line in the prearranged group, completing the call to the first idle line encountered. Unless the first line in the group is called, only a portion of the group is tested. The prearranged sequence can be either consecutive (telephone numbers are in ascending numerical sequence) or nonconsecutive order.
- 2) Circle Hunting-An arrangement in which hunting begins with the terminal number associated with the called number, and continues sequentially through the last terminal number in the hunt group. Hunting resumes starting with terminal number 1 and continues through the terminal number preceding the called hunt terminal number.

### **Secondary Telephone Number**

Allows a service or attendant line to have a secondary line number with separate Call Appearances in addition to its primary line number.

### **Speed Call 30 – Individual (\*)**

Allows the user to store and recall 30 frequently dialed numbers under double digit codes.

To store:

Dial “175”.

Dial digits (20-49), DN to be stored and “#”

To recall:

Dial digits and “#”

(Note: Include “9” and any prefixes if necessary when storing external DNs.)

### **Toll Restrictions**

Restricts the specified station set from placing toll calls.

## **Uniform Call Distribution**

A hunting arrangement available to lines in a hunting group. Incoming calls to the line (main hunt) number of the group will hunt throughout the lines in a fixed sequence, except that, once a call has been completed to a line, a pointer within the switching equipment will advance to the idlest line. The next incoming call will go directly to that line if it is available. If not, the call will either be directed to the most idle line in the hunt group or, if all lines in the hunt group are busy, receive a busy tone. All lines in a Uniform Call Distribution group must subscribe to Hunting service.

## **ISDN/ELECTRONIC Standard Features: (Packet-Switched Data, B or D-Channel)**

Fast Select Limitation/Acceptance Flow Central  
Parameter Negotiation  
Throughput Class Negotiation  
Incoming Calls Barred  
Outgoing Calls Barred

### **OPTIONAL FEATURES**

Additional Logical Channels  
Closed User Group  
Permanent Virtual Circuit  
X.25 Hunt Group

## **ISDN/ELECTRONIC Standard Feature Descriptions: (Packet-Switched Data, B or D-Channel)**

The following features are standard on ISDN/Electronic data lines.

### **Fast Select Limitation/Acceptance**

Provides a terminal with the ability to allow the switch to forward up to 128 bytes of data along with call setup and clearing packets. Call requires only one packet each way.

### **Flow Central Parameter Negotiation**

Permits negotiation of flow control parameters on a per-call basis. This entails automatically negotiating the maximum packet and window size for each direction of data transmission.

### **Throughput Class Negotiation**

Allows the calling data terminal to request specific throughput classes in the call request packet for both directions of data transmission.

### **Incoming Calls Barred**

Prohibits a data terminal from terminating an incoming call.

## **Outgoing Calls Barred**

Prohibits a data terminal from originating outgoing virtual channels.

## **OPTIONAL FEATURES**

The following features are optional on Electronic data lines.

### **Additional Logical Channels**

Provides the ability to maintain multiple packet calls simultaneously over service line. The combined throughput of all the logical channels on a single service line is subject to the 9.6 kbps ((D-Channel) or 64 kbps (B-channel) limits of the service line. Up to 10 logical channels can be carried on B-channel packet service.

### **Closed User Group**

Allows packet subscribers to establish subnetworks within which members can communicate. Communication with users outside these subnetworks is then prohibited. A user can belong to multiple closed user groups.

### **Permanent Virtual Circuit**

Established a dedicated logical channel (between two stations), removing the need for call set up and clearing.

### **X.25 Hunt Group**

Allows a grouping of access lines such that an incoming packet-switched data call to the hunt group is completed if there is an available logical channel on any of the access lines within the hunt group.

## **Section 3: ATTENDANT Service Lines (Analog and ISDN)**

This section contains information on Attendant lines on both Electronic and Basic systems.

Attendant Service Lines are equipped with features that enable the attendant(s) to monitor and manage the Centrex 2000 group.

Some features are activated on both Basic and Electronic systems through processes involving Flash Switchhook and Dial Access codes. Dial Access codes are given for almost all features. On Electronic Station Sets, however, many features can be activated with feature buttons. For specific explanations of these buttons, consult Attendant set documentation.

## **ATTENDANT Standard Features (\*Electronic Only)**

Add on Conference/Consultation Hold  
Attendant Call Transfer (\*)  
Attendant Camp-On  
Attendant Direct Station Selection/Busy Lamp (\*)  
Attendant Interposition Transfer (\*)  
Attendant Night Service  
Attendant Position Busy (\*)  
Attendant Timed Reminder (\*)  
Call forwarding Variable  
Call Hold  
Call Pickup  
Call Transfer Individuals-All Calls  
Dial Call Waiting  
Direct Inward Dialing  
Direct Outward Dialing  
Directed Call Pickup Non Barge-In  
Distinctive Ringing  
Identification of Outward Dialing  
Inspect (\*)  
Intercom Dialing (\*)  
Intrasystem Calling Line Identification (\*)  
Manual Exclusion (\*)  
Multiple Call Appearance (\*)  
Shared call Appearance (\*)  
Speed Call 6 – Individual  
Time/Date Display (\*)  
Touch-Tone Service  
Trunk Answer Any Station

## **OPTIONAL FEATURES (\*ISDN/Electronic only) (\*\*Basic only)**

Attendant Busy Verification of Lines/Trunks (\*)  
Attendant Call Through Tests  
Attendant Control of Facilities (\*\*)  
Attendant Direct Trunk Group Selection (\*)  
Attendant Emergency Override (\*)  
Attendant Information about Calls in Queue (\*)  
Attendant Power Failure Transfer  
Attendant Traffic (\*)  
Attendant Trunk Group Indicator (\*)  
Custom Set configuration (\*)  
Hunting Service  
Speed Call 30 – Individual  
Uniform Call Distribution

## **ATTENDANT SERVICE LINES**

### **Standard Feature Descriptions:**

The following features are standard on Attendant lines. Those features followed by a (\*) are only available with Electronic service.

#### **Add On Conference/Consultation Hold**

Consultation Hold allows the user to put a line on hold and originate a second call. Add On Conference allows the user to reconnect the first party, thus creating a three-way call.

To activate Consultation Hold:

Dial first party and flash switchhook (press “Conference” button)

Dial second party.

To activate Add On Conference:

Flash switchhook (or press button) again.

First party will join the call in progress.

To drop last party added:

Press “Release” button.

#### **Attendant Call Transfer (\*)**

Allows the attendant to transfer a call (from inside or outside the group) to another DN (from inside or outside the group). Also allows the attendant to announce the waiting party and establish a three-way conference if necessary.

This feature is activated through the use of buttons defined by the station set vendor. For information regarding feature operation, consult the documentation provided by the vendor.

#### **Attendant Camp-On**

Allows incoming calls that the attendant attempts to complete to a busy station to be held waiting until the busy station becomes idle. In Electronic systems, the camped-on party can be connected to silence, audible ringing or an announcement.

To activate (Electronic):

Press “Start” button

Dial DN or press “DSS” button

Attendant Times Reminder is activated with Camp-On feature

To override:

Press “Start” and “Privacy” buttons

Dial DN or press “DSS”

To Activate (Basic)

On Basic Attendant Service Lines, Camp-On is activated either automatically with every call on a per-call basis through the Dial call Waiting feature.

#### **Attendant Direct Station Selection/Busy Lamp (\*)**

Allows the attendant to display the status of DNs in 100 groups of 100 contiguous DNs starting at 00. Within a group of 100, the attendant can select a station via a single keystroke. The attendant can place a call to any station in the group by pressing a single CA button. A separate busy lamp option provides the attendant with a visual indication of the condition (busy or idle) of each station.

### **Attendant Interposition Transfer (\*)**

Allows the attendant to transfer or place a call to another attendant in the attendant group by dialing the DN assigned to that position. When a call is made to this DN, no hunting or queuing will occur if the attendant is busy on that DN.

To activate:

- Press “Transfer” button.
- Dial DN of desired attendant position.

### **Attendant Night Service**

Provides arrangements to route call that are normally directed to the attendant positions to a night DN, when the regular consoles are not attended.

To activate:

- Press the “Night Service” button
- Unplug the handset (removes power from console).

To deactivate:

- Plug in the handset
- Press button again

### **Attendant Position Busy (\*)**

Allows the attendant to make the position appear busy. In single position arrangement, new calls receive busy treatment. In a multiple position arrangement, new calls are directed to another attendant position. If a position is placed in a position-busy state, the attendant can serve calls on hold, answer calls, complete calls on Timed Reminder and originate calls.

To activate:

- Press “Position Busy” button.

To deactivate:

- Press “Position Busy” button again.

### **Attendant Timed Reminder (\*)**

Provides a timer that starts when a call is camped-on or put on hold. When the time expires, the attendant is alerted and can pick up the call to talk to the calling party. Feature is automatically activated with call Hold.

### **Call Forwarding variable**

Permits the user to forward any calls intended for the user’s station to another user-selected station.

To program (Electronic)

- Dial “190” and DN of the station to which calls will be forwarded.

To activate:

- Dial “172” (or press “CL FWD” button)

To deactivate:

- Dial “173” (or press button again)

To program and activate (Basic)

- Dial “172” and DN of the station which calls will be forwarded.

To deactivate:

- Dial “173”

## **Call Hold**

Allows user to put any call in progress on hold. This frees the line to originate another call.

To activate basic Call Hold:

Flash switchhook and dial "177" (or press CA button current call and press "Hold" button).

Lay phone down. (Do not hang up)

To originate or answer second call:

Dial DN or press CA button second party.

To alternate between calls:

Flash switchhook and dial "177" (or press ca button call on hold). Holding party will be connected.

To drop current call:

Hang up.

Call on hold will ring back (or press "Release" button).

(Note: Times Reminder will be automatically activated on Electronic Attendant sets when a call in on hold.)

## **Call Pickup**

Allows user to answer a call to another line in the defined call pickup group. This is accomplished by dialing a call pickup code while the called line is being rung. If more than one line in the group is being rung, the line that has been ringing the longest is picked up first.

To activate when phone is idle:

Dial "178" and answer appropriately.

To activate when using another line:

Flash switchhook, dial "178" and answer appropriately.

(Note: Original call is placed on hold.)

To reactivate held call:

Hang up.

Original call will ring back.

## **Call Transfer Individual – All Calls**

Allows a user to add on and/or transfer any established terminating call to any other line either within or outside the system.

To activate: Flash switchhook (or press "Transfer" button) and dial dn.

Flash switchhook (or press "Transfer") again or hang up.

(Note: If dialed party is busy, flash switchhook twice or press "Release" to return to call on hold.)

## **Dial Call Waiting**

Allows a user to give call-waiting treatment to a called line.

(Note: This feature is restricted to intrasystem groups.)

To Activate Dial Call Waiting:

Dial "171" and desired DN.

(Note: A call waiting tone is passed to the other station.)

To answer a Call Waiting Tone:

Flash switchhook and dial "177"

(First line is put on hold.)

To return to holding:

Hang up.

Holding line will ring back.

To deactivate:

Dial "176"

## **Direct Inward Dialing**

Allows an incoming toll or Direct Distance Dialing call to directly reach a specific user line. If the called line is idle and not restricted from receiving incoming calls, the user line returns audible ringing on the incoming connection. If the called line is busy, the line returns a busy signal. If the called line is restricted from receiving incoming calls, the incoming call is routed to an announcement.

## **Direct Outward Dialing**

Allows a user line to directly access the local exchange network.

To place a local (external) call:

Dial “9” + 7-digit DN.

To place a long distance call:

Dial “9” + “1” \_ area code + 7-digit DN.

## **Directed Call Pickup Non Barge-In**

Permits a user to answer a call directed to a specified line from any other line within an associated pickup group. The station must permit directed pickup. If the call has been answered by the called line, the party dialing the pickup code will receive a reorder signal.

To activate:

Pick up idle station.

Dial “170” and DN of ringing station.

Answer appropriately.

## **Distinctive Ringing**

Enables user to identify the general source of incoming calls by providing a unique ringing pattern on telephone instruments. Ringing patterns are as follows:

- Single Ring: Internal Call
- Double Ring: External (or attendant-forwarded) call
- Triple Ring: Automatic Callback signal

## **Inspect (\*)**

Works with the Intrasystem Calling Line Identification to display calling party DN for any Call Appearance in use. This could be the active call; a call on hold or an alerting call.

To activate:

Dial “194” (or press “Inspect” button)

Press button of desired Call Appearance.

Information will be displayed on screen.

## **Intercom Dialing (\*)**

Permits users to place intragroup calls on a 4- 5 digit basis.

## **Intrasystem calling Line Identification (\*)**

Provides calling party DN on calls originated from Basic, Deluxe and Electronic lines in the same Centrex system. The called party receives the directory number of the calling station along with the time and the date of the call. Information can be retrieved using the Inspect feature.

## **Manual Exclusion (\*)**

Allows a Multibutton Key System set user to inhibit other stations from picking up a call on hold or bridging onto a call that is active at that station.

To activate:

Dial “195” (or press the “Privacy” button) and dial desired DN.

To deactivate:

Hang up (or press “Privacy” button again).

## **Multiple Call Appearances (\*)**

Allows a station to originate or terminate more than one call on the same line number. If the first Call appearance button is busy, an incoming call will be completed to the first idle Call Appearance for that line number. A call can be originated from any idle Call Appearance while a call or another Call Appearance is on hold. This feature is not available on lines equipped with Hunting Service.

## **Shared Call Appearances (\*)**

Allows several stations to share one or more line numbers. Originating and terminating calls affect all stations sharing that line number. The shared line numbers can have multiple Call Appearances, multiple calls can exist on one line number and more than one station sharing a line number can have a call active on that shared line number. This feature is not available on lines equipped with Hunting Service.

## **Speed Call 6 – Individual**

Allows the user to store and recall 6 frequently dialed numbers under single digit codes.

To store:

Dial “174”

Dial digit (2-7), DN to be stored and “#”

To recall:

Dial digit and “#”

(Note: Include “9” and any necessary prefixes when storing external DNs.)

## **Time/Date Display (\*)**

Provides time and date information to the attendant station set. Information is updated once per minute from the central office.

## **Trunk Answer Any Station**

Permits an individual at any user line to answer an incoming call to the listed DN when the attendant is not on duty. This feature allows any of the user lines to dial a code in order to be connected to the incoming call. In order to make individuals aware that an incoming call needs to be answered, this feature is used in conjunction with visual and/or audible alarms.

To pickup call when station is idle:

Dial “179”

To pickup call when station is busy:

Flash switchhook and dial “179”

First call will be put on hold

To return to held call:

Hang up.

Held line will ring back.

To hold second call and return to first:

Follow procedure for Call Hold.

(Note: This feature can only be activated by other station sets in the group when the attendant is not on duty.)

## **OPTIONAL FEATURES**

The following features are optional on Attendant lines. Those features followed by a (\*) are only available with Electronic service. Those features followed by a (\*\*) are only available with Basic or Deluxe service.

### **Attendant Busy Verification of Lines/Trunks (\*)**

Allows an attendant to determine whether a line or trunk indicated as busy is truly busy or appears so because of some trouble condition.

To activate:

Press "Busy/Verify" button.

### **Attendant Call Through Tests**

Allows the attendant to set up a test call over a selected trunk to determine if the trunk is operating correctly.

To activate:

Press "Test" button.

### **Attendant Control of facilities (\*)**

Allows the attendant to restrict dial access of stations to certain lines and trunks. Calls to the restricted facilities can be routed to the attendant, to a recorded announcement or to a customer –specified intercept treatment.

To activate:

Dial "110"

To deactivate:

Dial "110" again

### **Attendant Direct Group Selection (\*)**

Allows an attendant to select an idle trunk for an outgoing call by pressing a single console button.

### **Attendant Emergency Override (\*)**

Allows the attendant to ring a station even if:

- It is busy from setting the Make Busy key.
- It has Series Completion or Multiline Hunt arrangement.
- It has Call Forwarding activated.
- It is equipped with terminating restrictions.

To Activate:

Select an idle call appearance.

Dial "192" (or press Emergency Override button).

Dial the DN of the station to be overridden.

If the station will be Barged-In, the attendant will be alerted with a Call Waiting tone.

### **Attendant Information about Calls in Queue (\*)**

Provides the following information about calls in queue:

- Average time in queue for served calls.
- Average time in queue for abandoned calls.
- Longest time an abandoned call has been in queue.
- Total number of calls abandoned in queue.
- Total number of served calls.

Information is available only to the master attendant position for display at the console and via Traffic Data to Customer (CTRAF) reporting mechanisms.

To activate:

Press “# Calls in Queue” button

### **Attendant Power Failure Transfer**

Reroute calls to the attendant to a pre-assigned DN during a power failure at the customer’s location.

### **Attendant Traffic (\*)**

Provides the following information about calls for each electronic attendant console position:

- Aggregate work time for the position.
- Minutes the position has been active.
- Number of calls handled by the position.

Information is available on the master attendant position for display at the console and via Traffic Data to Customer (CTRAF) reporting mechanisms. The CTRAF reports these counts every 30 minutes. The master attendant position can obtain this information for each attendant group. The counts are zeroed by the switch when an attendant activates a position. The counts apply only to calls offered to the position, not including time waiting in a central office queue, or calls abandoned before connection to an attendant call appearance. These counts are not part of the standard traffic reporting mechanism of the switch.

To activate:

Press appropriate button (“Work Time”, “Minutes Active” or “#Calls Handled”)

### **Attendant Trunk Group Indicator (\*)**

Allows an attendant to monitor the level of traffic on customer selected trunk groups. A maximum of 16 trunk groups per attendant position and 64 trunk groups per attendant group can be monitored. Each attendant position is capable of monitoring a different set of trunk groups. Two trunk indicators, busy and warning, are provided per trunk group. These indicators are based on traffic thresholds. The attendant is notified if the thresholds are exceeded, or if the traffic levels recede below the thresholds.

To activate:

Press “Trunk Group ID” button.

### **Custom Set Configuration**

A nonstandard configuration of feature buttons on an ISDN (electronic) Attendant Line.

## **Hunting Service**

1. Regular Hunting-The hunt always starts with the called line and ends with the last line in the prearranged group, completing the call to the first idle line encountered. Unless the first line in the group is called, only a portion of the group is tested. The prearranged sequence can be either consecutive (telephone numbers are in ascending numerical sequence) or nonconsecutive order.
2. Circle Hunting-An arrangement in which hunting begins with the terminal number associated with the called number, and continues sequentially through the last terminal number in the hunt group. Hunting resumes starting with terminal number 1 and continues through the terminal number preceding the called hunt terminal number.

## **Speed Call 30 – Individual**

Allows the user to store and recall 30 frequently dialed numbers under double digit codes.

To Store:

Dial “175”

Dial digits (20-49), stored and “#”.

To recall:

Dial digits and “#”.

(Note: Include “9” and any prefixes if necessary when storing external DNs.

## **Uniform Call Distribution**

A hunting arrangement available to lines in a hunting group. Incoming calls to the line (main hunt) number of the group will hunt throughout the lines in a fixed sequence, except that, once a call has been completed to a line, a pointer within the switching equipment will advance to the most idle line. The next incoming call will go directly to that line if it is available. If not, the call will either be directed to the most idle line in the hunt group or, if all lines in the hunt group are busy, receive a busy tone. All lines in a Uniform Call Distribution group must subscribe to Hunting service.

## **Section 4 – System Service Features**

System features apply to all lines in the Centrex 2000 group. They deal with call routing and determine how calls are brought into and out of the group.

### **System Optional Features**

Conference Calling 6 – way

Dial Dictation Access

Loud speaker Paging

Queuing with Delay Announcement

Radio Paging Access

Trunk Dial Transfer

Uniform Call Distribution

### **System Optional Feature Descriptions**

#### **Radio Paging Access**

Permits attendant and Centrex station user to access radio paging equipment and page individuals carrying pocket radio receivers. Upon receiving the page, the paged party can establish a talking connection with the paging party by dialing a unique answering code.

## **Conference Calling 6 – way**

Allows a station to establish a conference call involving up to five other parties without attendant assistance.

To Activate (ISDN/Electronic):

- Dial “199”.
- Dial first party DN.
- Press “Conference” button.
- Dial second party DN.
- Press “conference” button.
- Repeat process until all parties (up to 5) are joined.

To activate (Basic):

- Dial “198”.
- Dial first party DN.
- Flash switchhook.
- Dial second party DN.
- Flash switchhook.
- Repeat process until all parties (up to 5) are joined.

## **Dial Dictation Access**

Permits access to, and control of, customer-owned dictating equipment.

To activate:

- Dial “114”.

## **Loudspeaker Paging**

Allows users to dial access loudspeaker paging equipment. Capabilities are provided to allow multizone paging where a separate access code or directory number is provided for each zone within a customer’s location.

Optional arrangements may be provided to allow the paged party to be connected to the calling party by dialing an answering code from any line within the customer service.

To activate:

- Dial “112”.

To respond:

- Dial “113” from any station.

## **Queuing with Delay Announcement**

Allows calls to a Hunt group or Uniform Call Distribution group to be placed in a queue to be answered by the next available attendant or station in the group. Calls in queue receive a customer-generated automatic announcement.

## **Trunk Dial Transfer**

Provides Centrex trunks with the Call Transfer – Individual feature.

## **Uniform Call Distribution**

A hunting arrangement available to lines in a hunting group. Incoming calls to the line (main hunt) number of the group will hunt throughout the lines in a fixed sequence, except that, once a call has been completed to a line, a pointer within the switching equipment will advance to the most idle line. The next incoming call will go directly to that line if it is still available. If not, the call will either be directed to the most idle line in the hunt group or, if all lines in the hunt group are busy, receive a busy tone. All lines in a Uniform Call Distribution group must subscribe to hunting Service.

<b>FEATURE ACCESS CODE</b>		
<b>QUICK REFERENCE</b>		
<u><b>FEATURE</b></u>	<u><b>ACTION</b></u>	<u><b>STANDARD CODE</b></u>
Dial Attendant Position		0
Direct Outward Dial		9
Automatic Callback	Activate	161
	Cancel	162
Call Pickup	Activate	178
Directed Call Pickup - Non Barge In	Activate	170
Dial Call Waiting	Activate	171
	Cancel	176
Call Forward Variable	Activate	172
	Cancel	173
Call Forward Variable Program (Electronic)	Program	190
Speed Call 6	Program	174
Call Hold	Activate	177
Trunk Answer Any Station		179
Inspect	Activate	194
Manual Exclusion	Activate	195

<b><u>OPTIONAL FEATURES</u></b>	<b><u>ACTION</u></b>	<b><u>STANDARD CODE</u></b>
Attendant Control of Facilities	Activate	110
Loudspeaker Paging	Activate	112
Answer Loudspeaker Paging	Respond	113
Dial Dictation		114
Tie Line Access		115
FX Access		116
Speed Call 30	Program	175
WATS Access OH/KY		180
WATS Access Band 1		181
WATS Access Band 2		182
WATS Access Band 3		183
WATS Access Band 4		184
WATS Access Band 5		185
WATS Access Unbanded		187
Attendant Emergency Override	Activate	192
Conference Call - 6 way (Basic)	Activate	198
Conference Call - 6 way (Electronic)	Activate	199