DISPLAYPHONE

DIRECTORY INDEX

APR. 13 AM 07:10:48

1 HEAD OFFICE
2 SALES AND SERVICE
3 MAIN PLANT
4 NEW YORK OFFICE
5 MONTREAL SALES
6 LOS ANGELES SALES
7 PARIS OFFICE
8 DATA SERVICES
9 PERSONAL NUMBERS

User Guide

nt northern telecom

Congratulations, you are among the first to experience one of the most advanced office communications systems yet developed...DISPLAYPHONE.

DISPLAYPHONE is an integrated business telephone and data terminal that offers convenience features and capabilities far beyond anything that has ever been available before in one unit.

As a business telephone it features on-hook dialing, last number re-dial, directory memory, automatic dialing, a recall worklist and a speaker for group listening.

As a data terminal it can be used to access both remote and local data services.

DISPLAYPHONE is capable of handling both voice and data calls at the same time, so you can talk to someone while accessing a data base and viewing information on the CRT display. It also offers other services...a continuous day/date clock, a telephone call timer and a reminder service that brings messages to your attention.

DISPLAYPHONE is self-instructing through its visual prompts and changing 'soft keys' that lead the user from one operation to another.

To derive the most benefit from all of the many features offered, this guide has been prepared in three main sections which provide step-by-step instructions for each operation.

It is recommended that you begin by setting up your display clock and telephone directory, and acquainting yourself with all of the other services and features that are available. This will allow more efficient use of the equipment as you work with the telephone and data sections of the guide.

You will find a convenient index at the back to help you locate specific sections. If at any time you need help, call your DISPLAYPHONE representative. In most cases he should be able to answer your questions over the phone.

DISPLAYPHONE....an important step in establishing an effective business communication system.

NOTE: Before using DISPLAYPHONE it is necessary to set the dialing operation to the appropriate mode. Instructions for this setting can be found on page 21.

How to use your DISPLAYPHONE...

...as a Telephone

...as a Data Terminal

...for Special Services

PLACING A CALL

1. Pick up the handset. DISPLAYPHONE automatically selects line 1 for your call. If line 1 is in use, the red light for that line will be lit, and you can select line 2 for your call.
2. Dial the number using the main keypad. The number being dialed will appear in the upper left hand corner of the screen.
3. To put a call on hold depress the same line key again. To return to the call depress the key again.
4. To terminate the call replace the handset, or if you wish to make another call, depress the RELEASE key.

ON-HOOK DIALING

1. Without lifting the handset, select an available line. The built-in speaker will automatically turn on.
2. Dial the number.
3. When the party called answers, pick up the handset.

   NOTE: A number may be pre-dialed by simply dialing the number to be called. DISPLAYPHONE will automatically dial the number as soon as you depress a line key or pick up the handset. If the pre-dialed number is entered incorrectly it can be cancelled by depressing the DELETE/ENTRY key. The correct number can then be re-entered.

DIALING FROM THE DIRECTORY

To call a number that has been previously entered into your directory:

1. Depress the DIRECTORY key. An index listing of numbered categories (from 1 to 9) will appear on the screen.
2. Select the number of the category that holds the party you want to call by depressing that number on the main keypad. A display will appear on the screen showing all the names stored in that category.

In addition, a row of five white designations will appear at the bottom of the screen. These correspond to the five soft keys on the main keypad. The functions of each of these soft keys, and their corresponding designation, change according to the mode of operation being used.

In the directory mode, the designations and functions are as follows:

a) NEXT–depressing the corresponding soft key advances the display to the next page of the directory.

b) PREV–depressing this soft key returns the display to the previous directory page.

c) INDEX–depressing this soft key returns the display to the index of categories for the directory.

d) CHANGE–this soft key is used for modifying or adding entries to the directory. See page 8 for details.

e) RECALL–see feature description on page 4.

3. Select the one you want to call by depressing its number on the main keypad. The selected name will be highlighted and the actual phone number will appear in the upper left corner of the screen.

4. DISPLAYPHONE will dial the number automatically once you select a line or lift the handset.

NOTE: See page 5 for setting up directory.

3

...as a Data Terminal

...for Special Services

4

LAST NUMBER RE-DIAL

If for any reason you want to re-call the last number dialed:

If both lines are free:

1. Depress the '#' key on the main keypad. The last number called on line 1 will appear in the upper left corner of the screen. By depressing the '#' key again, the last number called on line 2 will appear.

2. Select a free line and DISPLAYPHONE will automatically dial the number displayed.

If only one line is free:

1. Depress the '#' key. The last number called on the free line will appear.

   NOTE: Last number re-dial can be activated in the reverse order i.e. – first select the line and then depress the '#' key. The last number called on that line will be re-dialed.

RECALL FEATURE

After a number has been dialed, it can be saved for automatic recalling at a later time, by depressing the soft key below the word KEEP which appears at the bottom of the screen everytime a number is dialed.

To access these numbers:

1. Depress DIRECTORY and the word RECALL will appear at the bottom of the screen (if no numbers have been stored RECALL will not appear).

2. Depress the soft key below RECALL and a list of all the numbers you have kept will appear on the screen.

3. Depress the index number that corresponds to the number you want recalled and that number will appear in the top left hand corner of the screen.

To dial the number automatically, select a free line.

The Recall feature can be used as a convenient work list showing all those numbers you wish to call in a given period.

TO DELETE SPECIFIC ENTRIES FROM THE RECALL LIST

1. Depress DIRECTORY.
2. Depress RECALL soft key.
3. Depress the number of the entry to the deleted. It will be highlighted.
4. Depress CHANGE soft key.
5. Depress DELETE soft key.
6. The entry is removed and the remaining recall numbers are packed.

TO CLEAR ALL NUMBERS FROM THE RECALL LIST

1. Depress DIRECTORY.
2. Depress the RECALL soft key.
3. Depress the CHANGE soft key.
4. Depress the CLEAR soft key.

SETTING UP THE DIRECTORY

When you are ready to set up your directory for the first time, your DISPLAYPHONE must be "initialized" to clear the memory of all previously stored information.

To perform initialization:

1. Depress SERVICES.

2. Depress '0' on the main key pad. The screen will clear and the prompt PASSWORD will be displayed.

3. Enter the password '78' on the main keypad.

   CAUTION: This operation will cause the directory reminder entries, recall lists and automatic log-in sequences to be removed.

4. Depress 'EXIT' soft key to return to SERVICES index.

5

...as a Data Terminal

...for Special Services

DISPLAYPHONE is capable of storing names and telephone numbers which can be dialed automatically from the directory.

Before setting up your directory in DISPLAYPHONE, it may be helpful to first organize it on a sheet of paper so you can refer to it when you are actually entering the information into memory.

First select up to 9 general categories. For example:

      1. Emergency Numbers

      2. Inter-office Numbers

      3. Personal Numbers

      4. Data Numbers

      5. Etc.

Within each of these categories select up to 9 numbers that you dial most frequently. For example, in Category 1, Emergency numbers could be:

      1. Police

      2. Fire

      3. Doctor

      4. Insurance Agent

      5. Poison Control

      6. Etc.

The same procedure would be followed for the other categories.

ENTERING THE DIRECTORY INDEX

Using the previous example, an index would be entered as follows:

1. Depress DIRECTORY.

2. Depress the CHANGE soft key.

3. Select the item to be changed (in this case category 1) by depressing the number 1 on the main keypad. The soft keys DELETE and MODIFY will appear, and the category field will be highlighted.

4. Depress the MODIFY soft key.

5. Using the typewriter keyboard, enter the category heading by typing 'Emergency Numbers'.

6. Lock this information into the memory by depressing the EXIT soft key.

7. The screen will show the index with the new entry in place.

To build the rest of the index repeat this procedure.

ENTERING NAMES AND NUMBERS INTO THE DIRECTORY

Now that you have the categories set up, names and numbers that you want in each category may be entered as follows:

1. Depress DIRECTORY to access the index.

2. Depress number '1' on the main keypad to access 'Emergency Numbers'. A new set of soft keys will appear at the bottom of the screen.

3. Depress the CHANGE soft key.

4. Depress the ADD soft key. Two highlighted fields will appear on the screen.

5. Using the typewriter keyboard enter the name. Depress the TAB soft key and enter the telephone number using either the main key pad or the typewriter keyboard. (A maximum of 16 digits can be entered into the number field).

6. Lock the entry into the memory by depressing the EXIT soft key. The new entry will appear on the screen.

7

...as a Data Terminal
...for Special Services

Repeat the procedure in each category until all required numbers are entered.

> NOTE: For operation with tie-line numbers, or when accessing an outside line from a PBX or CENTREX system, pauses can be entered by depressing the '*' (asterisk) key on the main keypad (example 9*239...). For entering data service numbers see page 13.

Each pause = 1.5 seconds.

MODIFYING THE DIRECTORY

Once the names and numbers have been stored in the directory, they can be modified as follows:

TO CHANGE AN ENTRY

1. Access the directory page with the entry to be modified.
2. Depress the number key corresponding to the entry to be modified. The selected entry will be highlighted.
3. Depress the CHANGE soft key and a new series of soft keys will appear, EXIT, DELETE, INSERT, and MODIFY.
4. Depress the MODIFY soft key, and entry input fields will appear.
5. Type in the new entry name and number.
6. Depress the EXIT soft key, and the display will return to the directory page with the changes stored in memory.

> NOTE: Depressing the EXIT soft key without making any changes will return the display to the selected page of the directory. This provides an alternate mode of verifying a DIRECTORY entry.

TO ADD AN ENTRY

See page 7 for 'Entering names and numbers into the directory'. These steps will add entries in the order they are input.

Alternatively, entries can be input and assigned specific positions in the list. For example, if a particular directory page has six entries, and you wish to assign an additional entry to the first position on the list, proceed as follows:

1. Access the directory page to be modified.
2. Depress number '1'. The entry already assigned the number '1' position will be highlighted.
3. Depress the CHANGE key.
4. Depress the INSERT key. Entry input fields will appear.
5. Type in the new entry name and number.
6. Upon completion, depress the EXIT key. The new entry will be automatically inserted in the selected position of the list, and the original entries wll be shifted accordingly.

TO DELETE AN ENTRY

1. Access the directory page with the entry to be modified.
2. Depress the number key corresponding to the entry to be modified. The selected entry will be highlighted.
3. Depress the CHANGE soft key and a new series of soft keys will appear, EXIT, DELETE, INSERT and MODIFY.
4. Depress the DELETE soft key. The name and number will be removed from the directory memory and the other entries will be repacked accordingly.

   NOTE: If a category entry on the directory index is deleted, all numbers in that category will also be deleted.

For category change or deletion; lock in the index page by depressing the CHANGE soft key and then select the entry to be modified.

9

...as a Data Terminal

...for Special Services

10

How to use your DISPLAYPHONE...

...as a Data Terminal

...for Special Services

USING DISPLAYPHONE AS A REMOTE DATA TERMINAL

DISPLAYPHONE can be used as a fully operational data terminal to communicate with any remote data base service that uses the dial-up telephone network and supports asynchronous 300 Baud terminals. Data calls can only be made on line 2. A Data call can be made through the main key pad or automatically dialed from the Displayphone directory. The identification codes for access to individual data services can be input manually or automatically through Displayphone's Semi-Automatic Log-in feature.

MAKING A REMOTE DATA CALL MANUALLY

Before a data call can be made, the DISPLAYPHONE terminal profile must be set to correspond with the protocols of the host computer. To set the terminal profile:

1. Depress SERVICES.

2. Depress number '4' on the main keypad to access DISPLAYPHONE Utilities.

3. Depress number '2' to access the Terminal Profile mode.

4. Using the typewriter keyboard set the terminal profile for:

   40 or 80 character display – enter either '4' or '8'.
   scroll or paging display mode – enter either 'S' or 'P'.
   full or half duplex – enter either 'F' or 'H'.
   odd, even or mark parity – enter either 'O', 'E' or 'M'.

5. Lock in the Terminal Profile by depressing the EXIT soft key.

6. Depress SERVICES.

Now that the Terminal Profile has been set, a manually dialed data call can be made in the following manner:

1. Dial the telephone number of the data service using the telephone keypad.

2. Depress the DATA soft key.

3. Select LINE 2, and wait until connection to data base has been established.

4. Enter the appropriate access information using the typewriter keyboard.

5. To terminate a data call, re-depress LINE 2, then release.

NOTE: It is possible to make both voice and data calls simultaneously on DISPLAYPHONE. If you are on a data call and you want to make a voice call, depress line 1 and make your call. The screen will revert to normal telephone display. To regain display of the data call, depress the SCREEN key.

You will note that under normal conditions, it is impossible to drop either the voice or data calls without first re-depressing the active line and then depressing the RELEASE key. Furthermore, during a voice and/or data call, it is possible to access the directory or any of the special services without affecting the calls in progress.

When in a data mode, the designations on the main key pad are re-assigned as follows:

> '*' becomes '.' (period)
> '#' becomes ',' (comma)
> ENTER becomes CARRIAGE RETURN

ENTERING A REMOTE DATA CALL INTO THE DIRECTORY

Data service numbers and voice call numbers are entered into the DISPLAYPHONE directory in a similar way.

1. Depress DIRECTORY.
2. Select the page in which data services are to be stored.
3. Depress the CHANGE soft key.
4. Depress the ADD soft key. The highlighted fields will appear on the screen.
5. Enter the name of the data service. Depress the TAB soft key and enter the telephone number required to access the service.
6. With the cursor still in the Number field, depress the letter 'D' on the keyboard. Note that VOICE under the telephone number now reads DATA.
7. Depress the EXIT soft key to lock in the information, and the terminal profile field will appear.

Important: If the EXIT soft key is not depressed, the previously input information will be lost and no entry will have been stored.

13

...for Special Services

8. Enter the Terminal Profile information as indicated on page 12 for 'Making a remote data call manually', step 4.

9. Depress the EXIT soft key again to store the information, and the name of the new entry will appear with the others.

MAKING A REMOTE DATA CALL USING THE DIRECTORY

1. Depress directory.

2. Depress the index number that will access your data services.

3. Depress the number for the data service you want to reach. The number will appear in the upper left corner of the screen, and the name of the service will be highlighted.

4. Select LINE 2. The number will be dialed automatically.

5. When call is connected, enter your access information as provided by the data service. (e.g. access codes, passwords, etc.)

6. Terminate call by depressing LINE 2, then RELEASE.

SETTING THE SEMI-AUTOMATIC LOG-IN DATA FEATURE

To expedite access to remote data base services you may want to store some or all of the necessary access and identification information required, by entering it into the DISPLAYPHONE memory. To set the memory follow the first 4 steps of the previous instruction on 'Making a remote data call from the directory', then:

5. When the call is connected, depress the LEARN soft key.

6. Enter the access information as you would normally. All the information will be stored automatically.

7. Leave the learn mode by depressing the EXIT soft key.

> NOTE: In the event an input error is made on the log-in sequence, the last entry can be deleted by depressing the CANCEL soft key.
>
> Some log-in sequences will require pauses between inputs (eg. autospeed modems often require a pause between the initial autospeed character and the carriage return). Depressing the PAUSE soft key will store a one second pause. Repeated depressions will store a correspondingly longer pause.

MAKING A DATA CALL USING THE SEMI-AUTOMATIC LOG-IN

Once the Semi-Automatic Log-in information has been set in the DISPLAYPHONE memory, a remote data call can be made much more quickly and conveniently. Follow the first 4 steps as outlined in 'Making a remote data call from DISPLAYPHONE's directory', then:

5. When call is connected, depress AUTOTX soft key.

6. Depress SEND soft key.

7. Complete the log-in sequence by simply depressing the SEND soft key everytime it appears.

> NOTE: If during the course of the semi-automatic log-in sequence you wish to exit from the sequence, depress the EXIT soft key.

SECURITY

For security reasons you may want to enter only part of your identification information on the Semi-Automatic Log-in. To accomplish this, enter information on the 'learn' mode up to the point where you want to omit information. Then depress the 'manual' soft key. The information you input manually will not be stored as part of the log-in sequence. To reactivate the 'learning' sequence, push the carriage return and continue.

On future calls, the SEND soft key will automatically input your log-in information until it comes to the part you have input manually. Upon depressing the SEND soft key, the screen will prompt with the words 'input manual information'. DISPLAYPHONE will not allow further access until the missing information has been input and followed by a carriage return.

USING DISPLAYPHONE AS A LOCAL COMPUTER TERMINAL

1. Depress SERVICE.

2. Depress number '3' to access local data port.

3. Set Baud Rates to match computer by depressing the BAUD soft key.

4. Turn the local data port on by depressing the OFF/ON soft key.

5. Depress EXIT soft key to return to 'services'.

...for Special Services

6. Depress number '4' to enter DISPLAYPHONE Utilities to set terminal profile.

7. Depress number '2' for Terminal Profile.

8. Set width, mode, duplex and parity to match your on-site computer (see page 12 for details).

9. Depress EXIT to lock in information.

10. Depress SCREEN key and proceed to use DISPLAYPHONE as an on-site computer terminal.

> NOTE: On DISPLAYPHONE, remote data calls have priority over on-site data calls. If you are working in the local data port and you make a remote data call, the information that was on the screen during your local data call will be lost, and the data port will be automatically disabled.

How to use your DISPLAYPHONE...

...for Special Services

REMINDER SERVICE

The DISPLAYPHONE Reminder Service may be programmed to retain messages in its memory for up to a year in advance. The time that the message should come to your attention is entered in the DISPLAYPHONE in advance. When the pre-set time arrives, you will be alerted that the reminder is active by a flashing red light beside the SERVICES key. In addition to the flashing light, you may also have an audible alert signal if you wish.

TO ENTER A MESSAGE

1. Depress SERVICES.
2. Depress number '1' on the main key pad to access the Reminder Service.
3. Depress the CHANGE soft key.
4. Depress the ADD soft key.
5. Type in the reminder message using the typewriter keyboard. (Maximum of 20 characters)
6. Tab to extreme left under TYPE to designate the kind of reminder signal you prefer:
   – 'D' (displayed reminder) for flashing light only
   – 'T' (tone reminder) for both flashing light and an audible alert signal.
7. Depress the EXIT soft key. A day, month display will appear on the screen.
8. Set the time you want the reminder to become active using either the main key pad or the typewriter keyboard.
9. Depress the EXIT soft key to see message on screen with the correct time.
10. Depress EXIT to return to SERVICES display.
    NOTE: The loudness of the audible signal can be adjusted by the ALERT VOLUME control.

TO READ A MESSAGE

1. Depress SERVICES.
2. Depress number '1' on the main key pad to access Reminder Services.
3. The message that activated the alert light and/or tone will appear flashing on the screen.

**TO CLEAR AN EXPIRED
MESSAGE**

After a message has been noted, the following steps are required to remove it from the reminder memory:

1. Access the reminder service. The expired message or messages will be flashing.

2. Depress the CHANGE soft key.

3. Depress the CLEAN soft key. Only the expired messages will be removed.

**TO DELETE A REMINDER
MESSAGE**

1. Depress SERVICES.

2. Depress number '1' to access Reminder Service.

3. Depress CHANGE soft key.

4. Depress number of message to be cleared. It will be highlighted on the screen.

5. Depress the DELETE soft key.

6. Depress EXIT to return to Services.

> NOTE: A Reminder Message may be modified after it has been entered using the same procedure. Depress the MODIFY soft key when it appears and then make the necessary change. The change can be locked in by depressing the EXIT soft key.

DOODLE PAD

The Doodle Pad provides a visual display of whatever is typed on the typewriter keyboard. It can be used to familiarize yourself with keyboard functions or for testing the keyboards.

> NOTE: The additional characters labeled above the first row of keys can be accessed by simultaneous depressions of the AUXILIARY shift key.

TO USE THE DOODLE PAD

1. Depress SERVICES.

2. Depress number '2' on the main key pad to access the Doodle Pad mode.

3. Use the typewriter keyboard to doodle.

4. To leave the Doodle Pad mode depress any of the other function keys or depress the EXIT soft key.

> NOTE: The Doodle Pad does not retain information. All entries are erased when you leave the mode so the Doodle Pad slate is clean for next time.

19

LOCAL DATA PORT   See description on 'Using DISPLAYPHONE as a local computer terminal' on page 15.

DISPLAYPHONE UTILITIES: The DISPLAYPHONE Utilities are accessed via the SERVICES key and are as follows:

DATE AND TIME   The day, date and time is displayed in the top right corner of the screen whenever the DISPLAYPHONE is on.

SETTING OR CHANGING THE DISPLAYPHONE CLOCK

1. Depress SERVICES.
2. Depress number '4' on the main key pad to access DISPLAYPHONE Utilities.
3. Depress number '1' for Date and Time Change.
4. Using the main key pad for numbers and the typewriter keyboard for AM or PM, enter the correct date and time information.
5. Depress the EXIT soft key to lock in the information.

TERMINAL PROFILE   When DISPLAYPHONE is used to make a remote data call manually, the terminal profile of DISPLAYPHONE must be set each time to match the data protocols of the host computer being accessed. See page 12 for details on Terminal Profile Options.

DATA SCREEN FORMAT   During an active data call, it is possible to override and change the display format without losing the call. A change from 40 to 80, or 80 to 40 characters per line can be made regardless of the display format previously established in the directory or terminal profile.

> NOTE: Reformating from 40 to 80 characters per line will effect no data loss on the screen. However, going from 80 to 40 characters per line will cause a clearing of the screen.

To activate the change:

1. Access DISPLAYPHONE Utilities.
2. Depress number '3' for data screen format. The current display format will be flashing.
3. Depress the CHANGE soft key to toggle between 40 and 80. Select the required format.
4. Depress EXIT soft key.
5. Depress the SCREEN key to return to the active call.

KEYSET DESIGNATION

The current DISPLAYPHONE prototype operates in two general types of telephone systems. It can operate with either a standard telephone key system (1A2 type), or with two independent telephone lines (from a PBX or directly from a central office). The Keyset designation alters the operation of the terminal and should be set by your DISPLAYPHONE representative.

During installation:

1. Access DISPLAYPHONE Utilities.
2. Depress number '4' for Keyset designation. The current designation will be flashing on the screen (either Keyset or Standalone).
3. Depress the MODE soft key, to toggle to the alternative modes of operation.
4. Once the required mode is selected, depress the EXIT soft key.

DIALING MODE

The Dialing mode for DISPLAYPHONE can be set for either Digitone* (touch-tone) or dial pulse (rotary dial type) operation depending upon the type of service used. This feature should be set by your DISPLAYPHONE representative during installation.

1. Access DISPLAYPHONE Utilities.
2. Depress number '5' for Dialing Mode. The current mode will be indicated on the screen.
3. Depress the CHANGE soft key to toggle between dial pulse or Digitone modes.
4. Once the required mode is selected, depress the EXIT soft key.

*Trademark of Northern Telecom Limited.

OTHER SERVICES:

CALL TIMER

The Call Timer is automatically activated whenever a telephone call is made. The timer starts eight seconds after the last digit has been dialed. The elapsed time appears in the top right corner of the screen below the time and date display. The Call Timer works on both lines. When a call is completed, the call time is retained and displayed for 30 seconds.
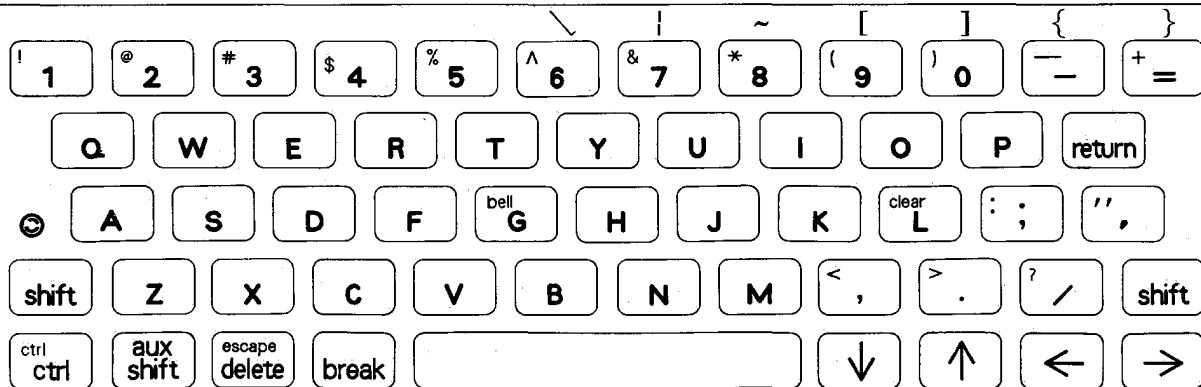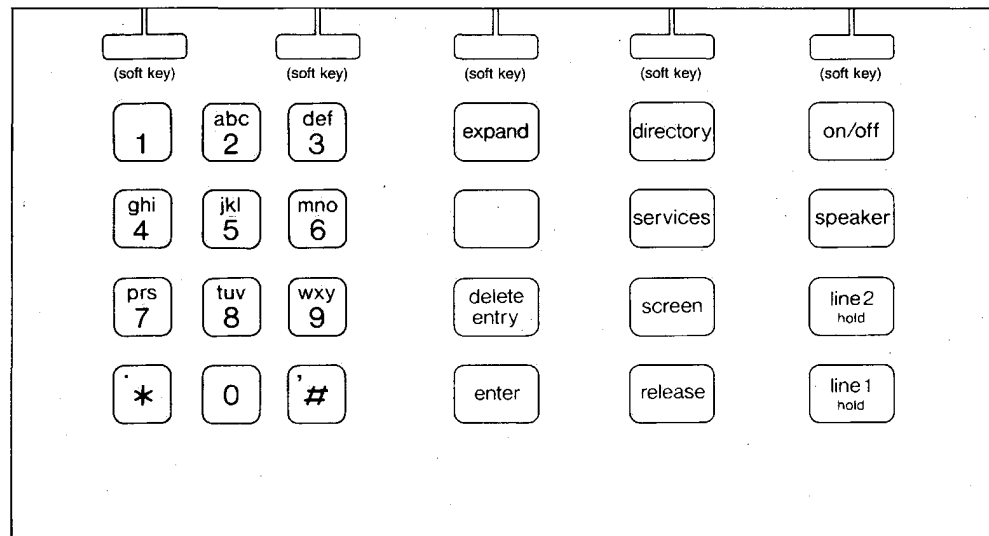
GROUP LISTENING

In the event that Group Listening is required during a voice call, depression of the 'speaker' key will activate the built-in speaker and the conversation can be heard. The speaker volume can be adjusted by the 'SPEAKER VOLUME' dial.

A further application of the speaker is its use as a monitoring device. If for example, you are asked to hold on a conventional voice call, you can continue to work and still monitor the call. While depressing the SPEAKER key, replace the handset. When the party returns to the call, you will hear his voice through the speaker.

INDEX

| (soft key) | (soft key) | (soft key) | (soft key) | (soft key) |

	abc	def	expand	directory	on/off
1	2	3			
ghi	jkl	mno		services	speaker
4	5	6			
prs	tuv	wxy	delete entry	screen	line 2 hold
7	8	9			
*	0	'#	enter	release	line 1 hold

Keyboard:

\ ! ~ [ ] { }

| ! 1 | @ 2 | # 3 | $ 4 | % 5 | ^ 6 | & 7 | * 8 | (9 |) 0 | — | + = |

| Q | W | E | R | T | Y | U | I | O | P | return |

☺ | A | S | D | F | bell G | H | J | K | clear L | : ; | " , |

| shift | Z | X | C | V | B | N | M | < , | > . | ? / | shift |

| ctrl | aux shift | escape delete | break | | ↓ | ↑ | ← | → |

DISPLAYPHONE...
the latest concept in Business Communications

northern telecom