Colleague™ & *Colleague Plus*™
User's Guide

Random®
CORPORATION

FCC - WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the user's manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operating in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

This equipment complies with Part 68 of FCC Rules. On the bottom of this equipment is a label containing, among other information, the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide your telephone company with the following information: the FCC Registration Number, the Ringer Equivalence Number, the telephone number to which your Colleague unit is connected, and the Colleague unit's jack requirement of an RJ-11 telephone jack.

The REN is also useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company. Should the equipment cause harm to the telephone network, the telephone company shall, if possible, notify the customer that temporary discontinuance of service may be required; however, where prior written notice is not possible, the telephone company may temporarily discontinue service without notice, if such action is necessary under the circumstances. The telephone company may make changes in its communications facilities, equipment and operation of its business if it is consistent with the rules and regulations of the Federal Communications Commission. If such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

This equipment should not be used on party lines or coin telephone lines.

If trouble is experienced, disconnect this equipment from the telephone line to determine if it is causing the malfunction. If the equipment is determined to be malfunctioning, its use shall be discontinued until the problem has been corrected.

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For service or additional information on your Colleague, contact:
Random Corporation - 581 Northland Boulevard - Cincinnati, Ohio 45240 - (513) 825-0880

P/N: PFCLGY024-04

Canadian Certification Warning

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

IMPORTANT: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100. An alphabetical suffix is also specified in the Load Number for the appropriate ringing type (A or B), if applicable. For example, LN = 20 A, designates a Load Number of 20 and an "A" type ringer.

THIS DIGITAL APPARATUS DOES NOT EXCEED THE CLASS A LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS AS SET OUT IN THE RADIO INTERFERENCE REGULATIONS OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

AND

LE PRÉSENT APPAREIL NUMÉRIQUE N' ÉMET PAS DE BRUITS RADIOÉLECTRIQUES DÉPASSANT LES LIMITES APPLICABLES AUX APPAREILS NUMÉRIQUES DE LA CLASSE A PRESCRITES DANS LE RE'GLEMENT SUR LE BROUILLAGE RADIOÉLECTRIQUE ÉDICTÉ PAR LE MINISTE'RE DES COMMUNICATIONS DU CANADA.

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APPENDICES:

1 *Introduction*

Meet your new Colleague! Now that you have unpacked it and looked it over, let us explain how the Colleague can become a valuable tool in your business. Your new laptop computer terminal can be your business partner and traveling companion. With it, you can enter, display and print out information from virtually any location.

The Colleague emulates the DEC VT220 terminal. Like the VT220, the Colleague interacts with software applications on host systems. In fact, your Colleague has all the features you look for in the DEC VT220 and more:

- It fits into a briefcase; yet it has a full-size, 64-key keyboard and a 25-line by 80-column display screen.

- The Colleague has its own internal modem enabling you to communicate with your own system, as well as a number of database services from any location that has a standard telephone outlet.

- The terminal has the internal memory capacity to hold phone numbers and log-on information for 20 host systems plus 1200 characters for programmable function keys, allowing you to customize your Colleague to your specific business tasks.

- 9600 bps (V.32) and 2400 bps (V.22bis) modem capability are optional features available to allow faster communication with host systems.

- The Colleague supports MNP 5 (Microcom Networking Protocol), an error correcting and data compression communication protocol.

- The Colleague operates on a rechargeable battery, providing you with 10 hours of operation from an 8 hour charge.

- It also has an optional PLUS feature that provides data memory, enhanced communications, general file system functions, and a word processor.

- Back Light is an optional feature which improves display readability in a dimly lit environment.

- Carrying cases may be purchased from Random Corporation for transporting your Colleague (See Appendix E).

WHAT DOES THE COLLEAGUE DO?

With the Colleague, you can communicate with your office computer at anytime from any place. You can also:

- Access a remote host system.
- Send and receive electronic mail.
- Obtain stock quotes.
- Check inventory.
- Obtain copies of financial reports.
- Conduct banking transactions.
- Make airline reservations.
- Access a wide range of other on-line databases and services.

The Colleague is designed to run with any host system that supports DEC VT52/100/220 emulation.

HOW TO USE THIS MANUAL

This manual is designed to provide you with the instruction you need to operate your Colleague quickly and easily.

In Chapter Two, we introduce you to the main components of the terminal itself and explain the functions of the various connectors located on the rear of the Colleague unit.

In Chapter Three, we provide detailed information on the keyboard keys and their functions. This information prepares you for Chapter Four, in which you learn how to program your communications channels and other Set-Up parameters.

Chapter Five explains the procedures for establishing communications with host systems and how to end an on-line session. In Chapter Six, we describe the PLUS option and how to utilize the PLUS features.

There are nine appendices located at the end of the manual for your reference. Appendix A is a technical reference for the terminal control sequences; Appendix B provides an ASCII chart; Appendix C contains all of the unit hardware and software specifications; Appendix D provides you with a routine maintenance guide; Appendix E lists the additional equipment available for your Colleague; Appendix F is a troubleshooting guide with typical problems and corrective actions; and Appendix G presents you with a host system checklist.

Finally, we provide you with a warranty (Appendix H) and an index (Appendix I).

Now, let's get started!

2   *Getting Started*

In this chapter, the two main components of the Colleague are introduced and an explanation of the power and communication connections is provided.

MEET YOUR COLLEAGUE

When the cover is opened, you see the display and the keyboard. The cover of the unit holds the display, while the base houses the keyboard. On the right arm of the display (to the right side of the unit), you notice a clutch screw with a slot wide enough to insert a coin. This screw has already been set at the factory, but may be adjusted with a coin. When the screw is tightened, the display remains firmly in position. When you loosen the screw, the display can be adjusted to a desirable viewing position. The optimum tension setting will allow for ease in opening and closing the unit and in adjusting the angle of the display, yet will hold the display firmly in any chosen position.

TENSION ADJUSTMENT

Turn clockwise to increase tension and counterclockwise to decrease tension.
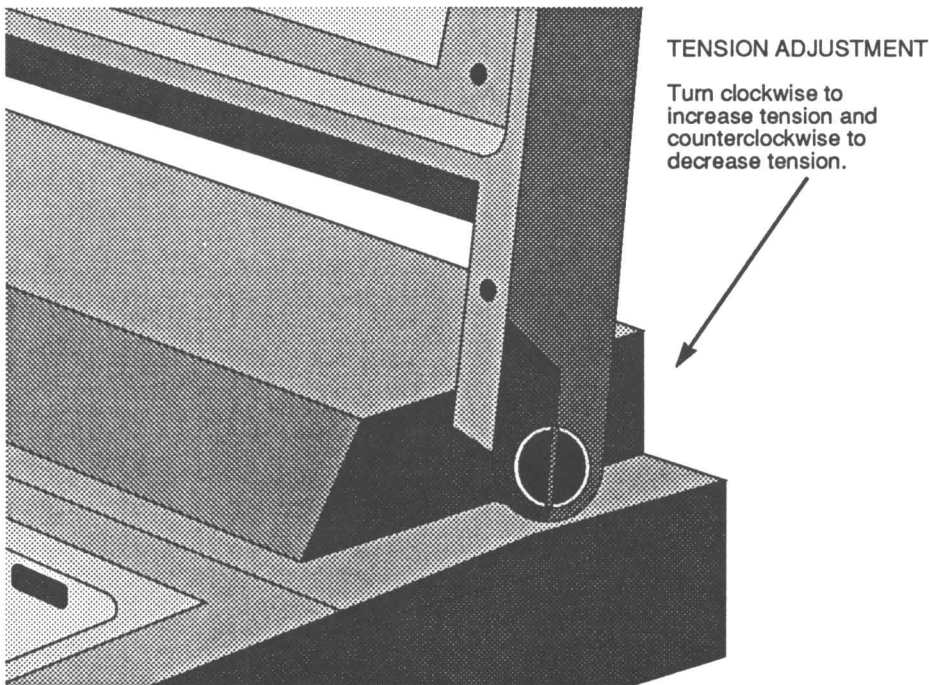
CAUTION: Be careful not to loosen the screw too much or the cover may fall open or onto the keyboard. If tightened too tightly, the plastic casing may crack or become damaged.

THE COLLEAGUE'S MAIN COMPONENTS

The Display

The Colleague's display is a film-compensated supertwist Liquid Crystal Display (LCD), 25 lines high and 80 columns, or characters, wide. In addition, the Colleague has a scrolling feature which allows you to use up to 132 columns per line. When in this mode, only the left or right 80 columns of the 132 columns are visible (See Chapter 4, p. 4-14).

The Colleague is equipped with a contrast key on the keyboard to lighten or darken the display screen. This allows the user to adjust the light/dark contrast as desired to enhance readability (See Chapter 3, p. 3-7).
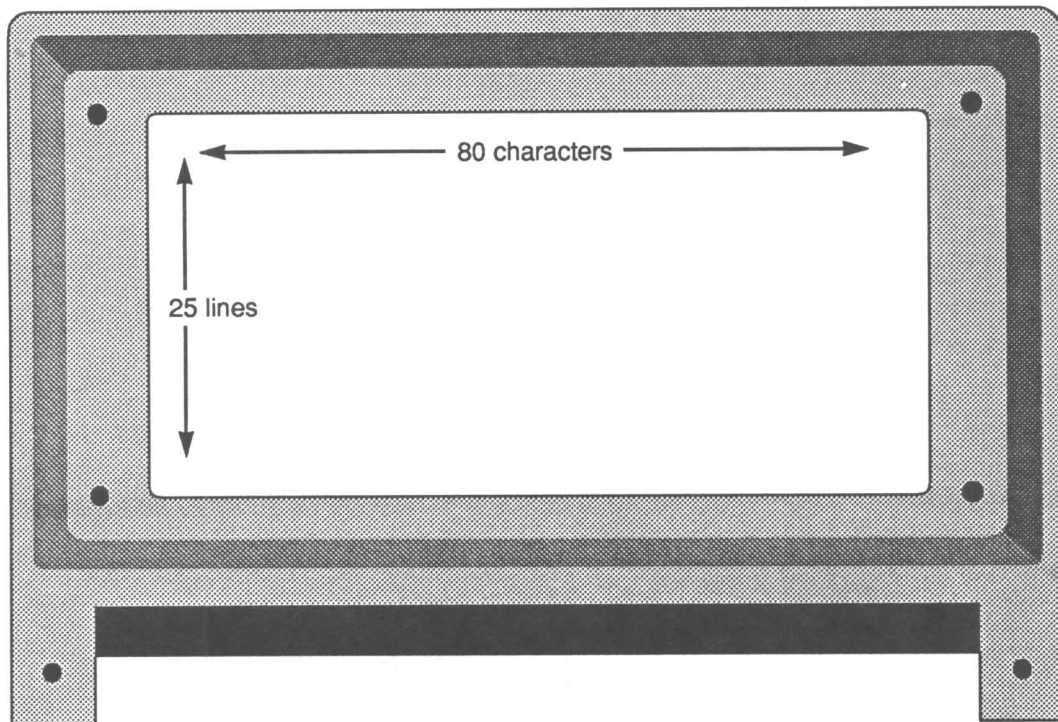
The Keyboard

As you can see from the illustration, the Colleague's keyboard is similar to a standard typewriter. In addition, it features a red ON/OFF key, 20 functions keys and 6 special purpose keys (See Chapter 3, p. 3-1). The 20 function keys (the blue keys) may be programmed for use in a variety of ways once communication with a host system has been established.
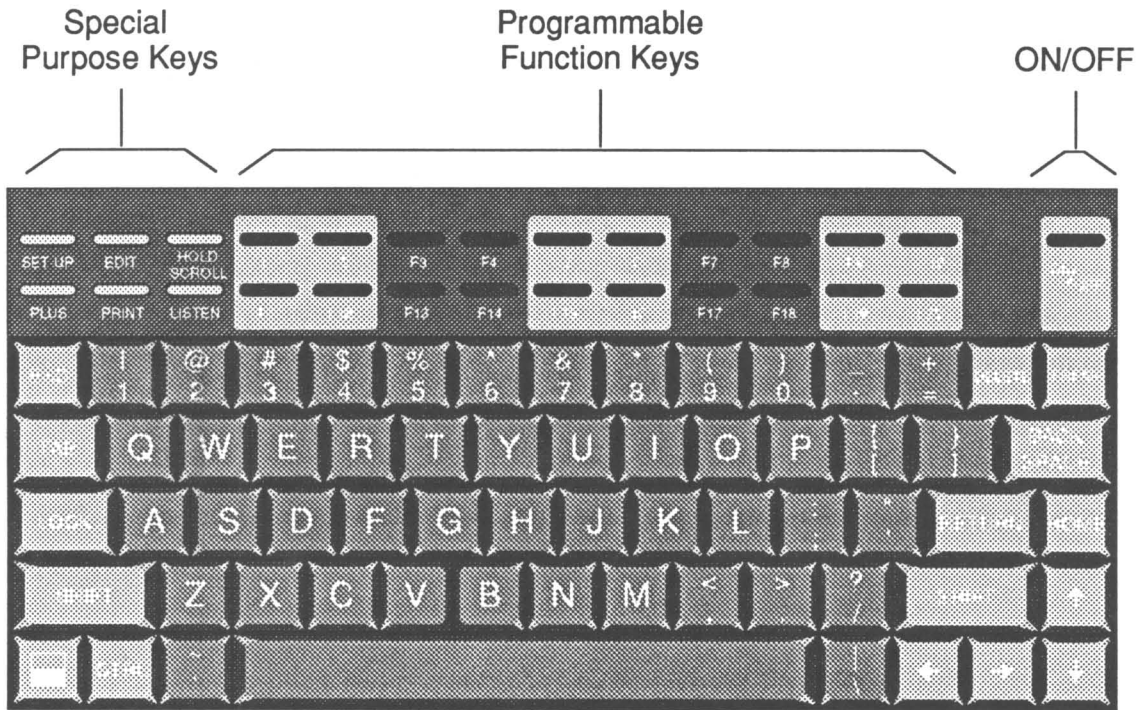
NOTE: The keyboard keys and their functions are described in detail in the next chapter.

SETTING UP YOUR COLLEAGUE FOR OPERATION

The five connectors found at the rear of the Colleague are: **POWER, PHONE, KEYPD, RS-232** and **PRINTER**. The use of each is explained, beginning with the **POWER** connector on the left.
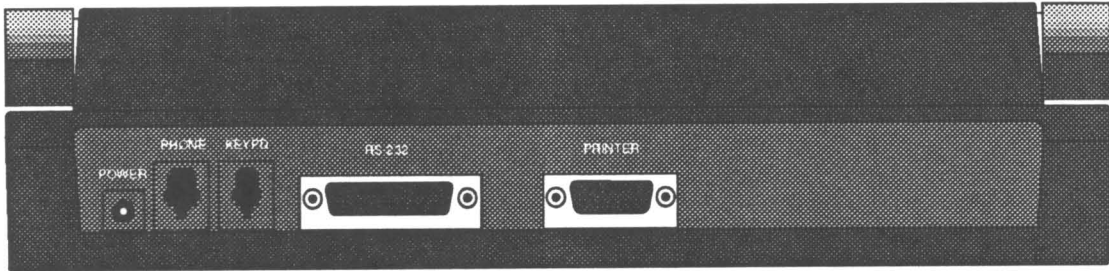
Power Cord/Battery Charger Connection

Your Colleague may be plugged into a standard electrical outlet or can operate on its own internal rechargeable battery.

If you are using an electrical outlet as your power source or to recharge the internal battery, insert the cylinder-like end of the black power cord into the **POWER** opening at the back of the Colleague. Insert the two-pronged plug of the charger into a standard 120-volt AC electrical outlet.
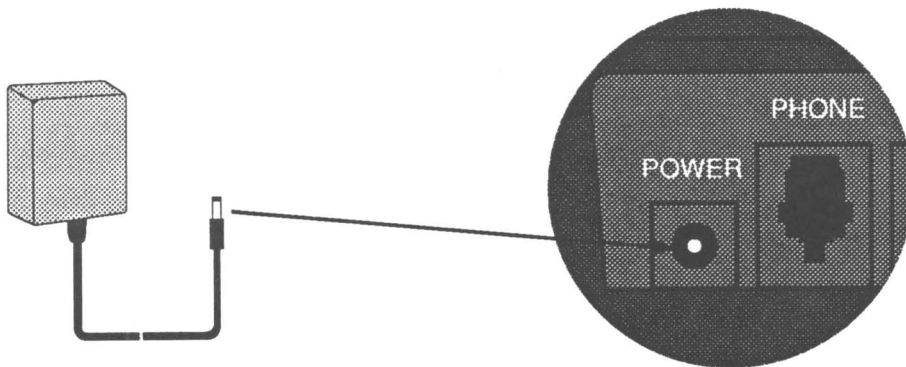
Whether the Colleague is On or Off, when the charger is plugged into a standard electrical outlet, the unit's battery is being recharged. If the battery is low and your work is not finished, you can plug the terminal into an electrical outlet and continue working while the internal battery recharges.

If you are using the Colleague's internal battery as its power source and the internal battery runs low, a flashing message appears in the lower right hand corner of the display informing you that you have 15 minutes of power remaining. The message reads:

<BATT: 15>

The clock continues to count down from 15 to zero. When the zero appears, the Colleague automatically shuts itself off to protect its own internal programming. When you try to turn it on again, another message appears on the display:

<PLEASE RECHARGE>

It will take a full eight hours to recharge the battery for ten additional hours of internal battery power.

You may need to recharge the battery in some instances when you do not use the terminal regularly. Even when the terminal is Off, the internal memory still draws small amounts of power from the battery, thus requiring periodic recharging. If not used or recharged, the Colleague's internal battery will preserve memory in excess of 6 months.

> **CAUTION:** We recommend you immediately save what you are working on and disconnect from the host system when the "BATT 15" message appears on the display.

> OR, you may connect the recharger/power cord to the terminal and the electrical outlet and either continue your work or log off the host system.

> You cannot overcharge the battery.

> **NOTE:** With the optional V.32 modem installed and in use, the message appears when only 5 minutes of power remain. The message reads:

> <BATT: 5>

> **WARNING:** USE A POTRANS INTERNATIONAL, MODEL CL-0950, CLASS II POWER SUPPLY OR GROUP WEST, MODEL 41-9-500D, CLASS II POWER SUPPLY. USE OF AN ALTERNATE CHARGER MAY DAMAGE THE COLLEAGUE AND VOID THE WARRANTY, DUE TO A DIFFERENCE IN VOLTAGE.

Internal Modem Connection

Use the telephone jack connector, labeled **PHONE**, to connect the Colleague's internal modem for communication over a telephone line. The terminal's internal modem can communicate at 300, 1200, 2400, or 9600 bps (2400 and 9600 are options). (bps or bits per second is the rate at which computers and their peripherals communicate.) Use the modular telephone cable supplied with the Colleague. Insert one end into the **PHONE** connector at the back of the Colleague and insert the other end into any single-line modular (RJ-11C) telephone jack.

Modular telephone cable
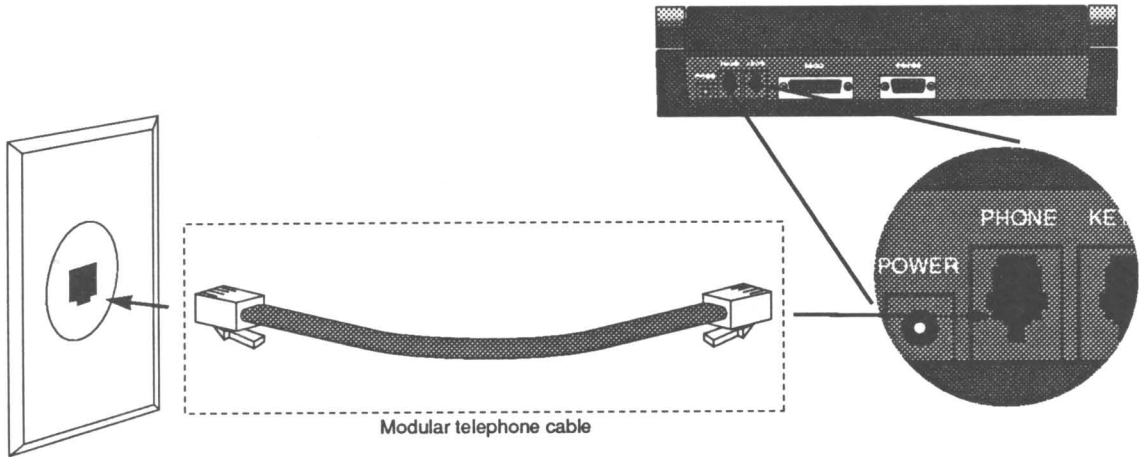
Four-Prong Outlets: If you need to use the Colleague with a telephone jack that has four prongs, you can easily obtain an adapter plug from your local phone center.

Modular to 4 prong
telephone adapter
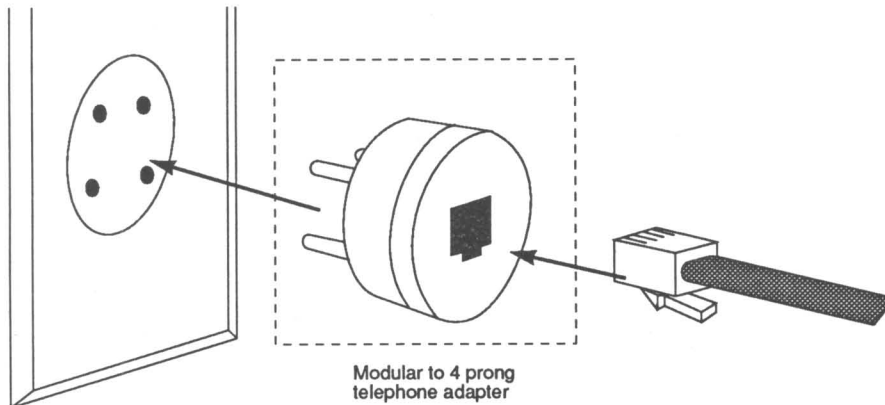
Non-Standard Telephone Systems: Consult your local phone company to obtain the data jack capability which will enable use of the Colleague with a non-standard phone system.

Your telephone company may ask for the FCC Registration Number and the Ringer Equivalence Number (REN). Both numbers are on the Colleague's underside label.

> **NOTE:** In addition to the FCC Registration Number and Ringer Equivalence Number (REN), the label on the Colleague's underside lists the unit's model, the rating, charge input, and the serial number. We recommend you note the serial number for your records.

Random CORPORATION
U.S. Patent 4,781,422 and Des. 295,519
Rating 6VDC, 1.5W Charge Input 8-14VDC 500mA
Use only CSA listed Class 2 power adapter.

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference

LR 83230

Complies with Part 68, FCC Rules
FCC Reg. #: CXV7H7-71867-DT-T
REN: .8B   DOC LN:6

Optional Keypad

The optional keypad is a calculator-style keypad that emulates the DEC VT220 terminal's application keypad (See Appendix E: Equipment List). To use this optional keypad, you must insert the keypad cable plug into the connector marked **KEYPD.** The port and plug are smaller than the connector of the **PHONE** to avoid confusion. (The Colleague's programmable function keys may be set to emulate the DEC VT220 terminal's application keypad as well.)

> **WARNING: Do not plug any other peripherals into this port!**
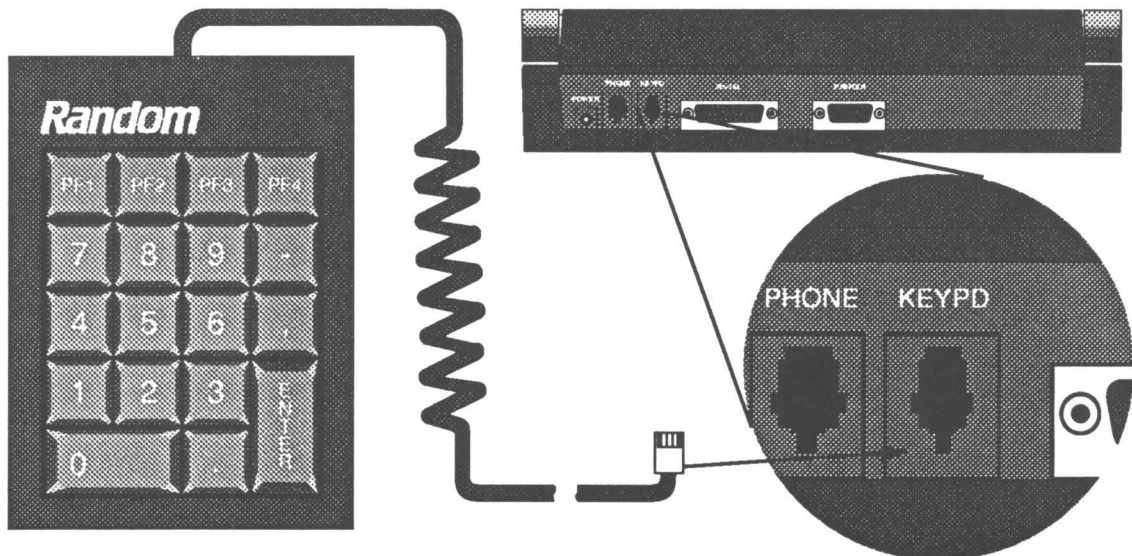
Serial Port

On the back of your Colleague, between the **PRINTER** and **KEYPD** connections, you see **RS-232**, a serial port. This connection is a 25-pin serial port, which connects the Colleague directly to a host system or to an external modem.

If you wish to communicate directly with a host system through the RS-232 port, you need to know the rate in bps (bits per second) at which that system transmits and receives data. This rate refers to the speed at which computers and their peripherals (terminals, printers, etc.) communicate. The Colleague's RS-232 port can communicate at 150, 300, 600, 1200, 2400, 4800, 9600 or 19200 bps (See Chapter 4; p. 4-12).
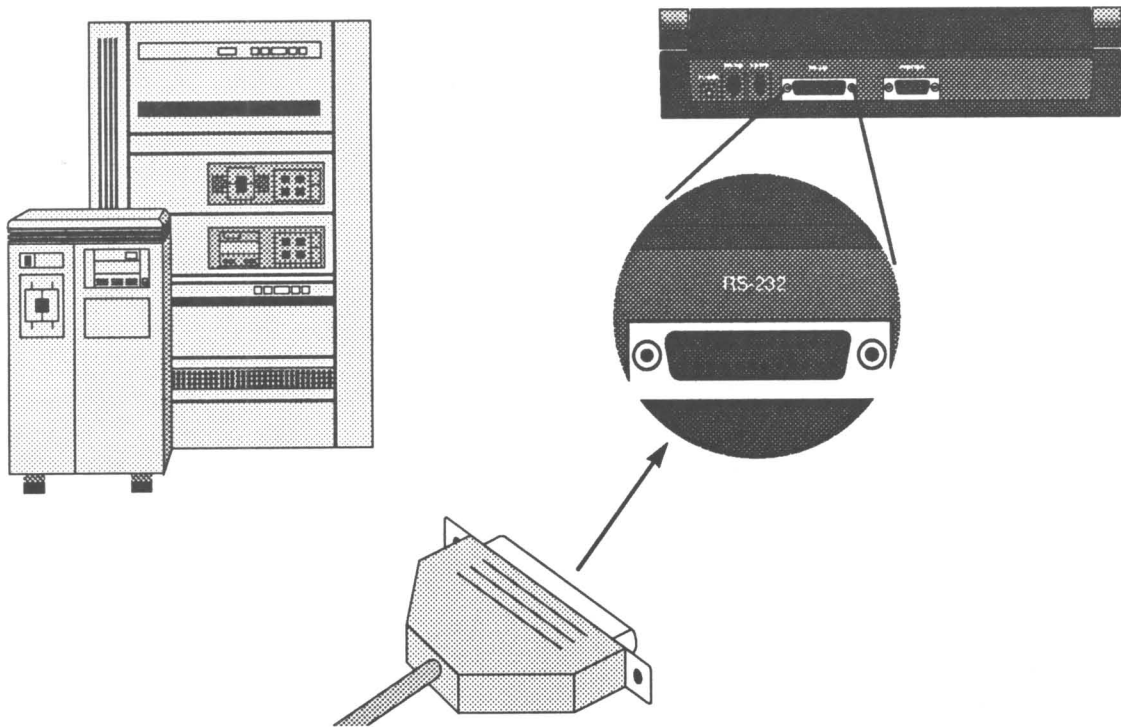
Direct Connection to Host Computer (RS-232)
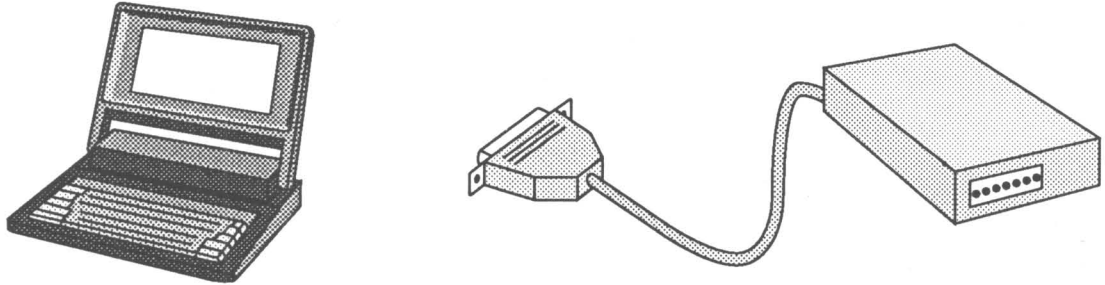
External Modem Connection (RS-232)

NOTE: The Colleague is an ungrounded system. For adequate RS-232 connection, one of the ground contacts (pins 1 or 7) must be used (See Appendix C: Specifications).

Printer Port

The far right and last connection on the back of the Colleague is labeled **PRINTER**. This is a 15-pin connector which connects to most popular parallel printers. You can obtain the printer cable required from Random Corporation, (See Appendix E: Equipment List), or from an authorized Colleague dealer.
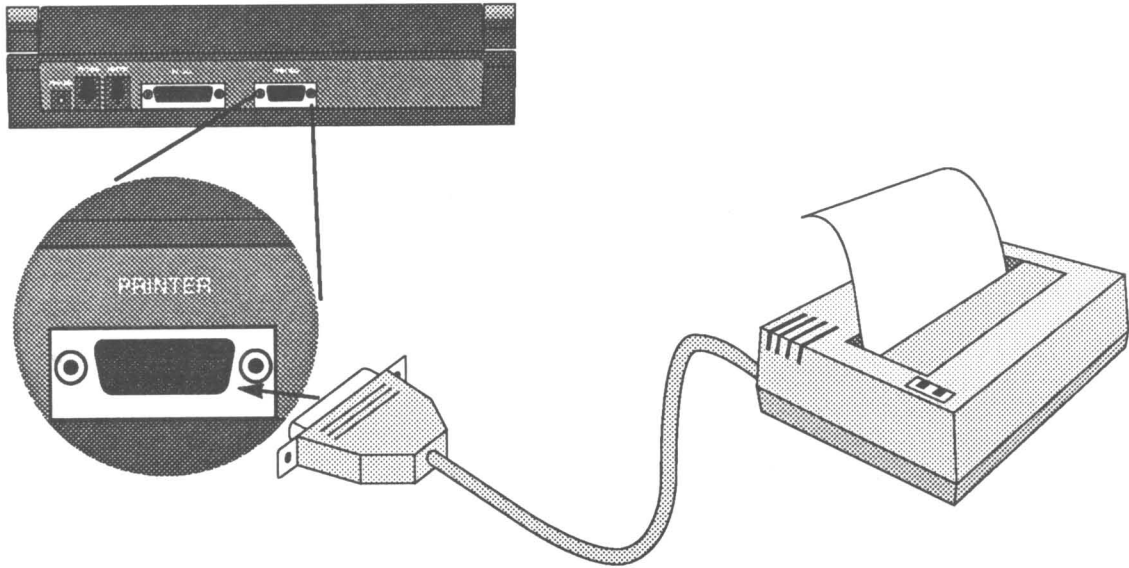
> **WARNING:** Both the Colleague unit and the Printer must be turned Off before plugging the Printer into the Colleague.

In the next chapter, the Colleague's keyboard keys and their functions are described for you in detail.

3   *The Keyboard*

In addition to the ON/OFF KEY, the main Colleague keyboard is comprised of two main parts, the FUNCTION/SPECIAL PURPOSE KEYS (six gray and 20 blue keys) and the MAIN KEYBOARD (typewriter-style with alphanumeric keys). There is also an external OPTIONAL KEYPAD available with four function keys and calculator-style keys for numeric entry (See Chapter 2, p. 2-7).
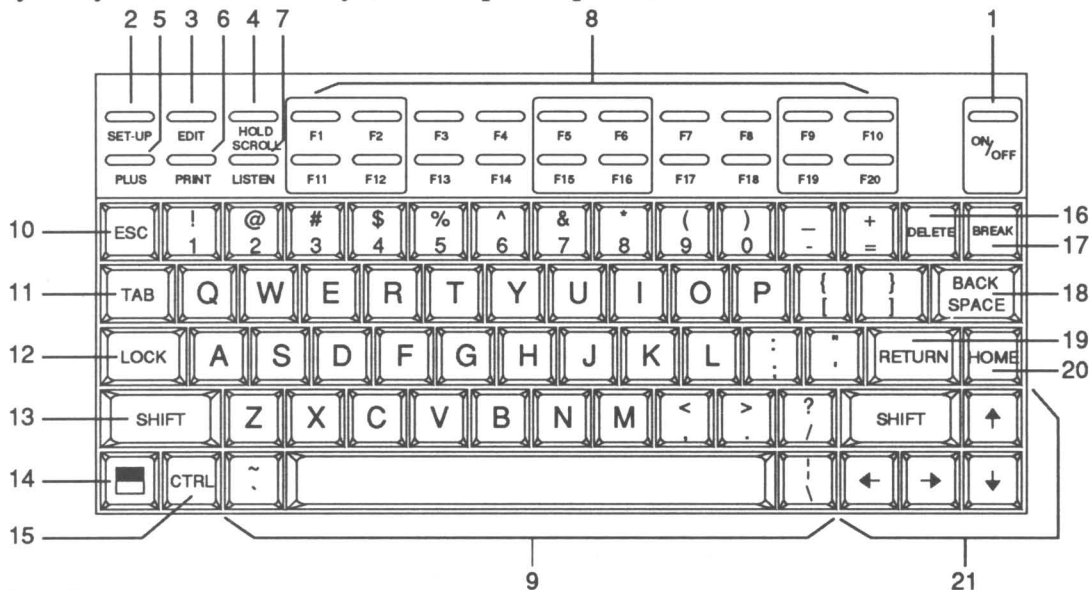
Red Key

1. On/Off Key

Gray Special Purpose Keys

2. Set-Up Key
3. Edit Key
4. Hold Scroll Key
5. Plus Key
6. Print Key
7. Listen Key

Blue Function Keys

8. 20 Programmable Keys (F1 - F20)

Main Keyboard Keys

9. Alphanumeric, Punctuation and Symbol Keys with Space Bar
10. Escape Key
11. Tab Key
12. Lock Key
13. Shift Keys
14. Contrast Key
15. Control Key
16. Delete Key
17. Break Key
18. Backspace Key
19. Return Key
20. Home Key
21. Arrow Keys

Optional Keypad

22.   Functions Keys
23.   Numeric Symbol Keys
24.   Enter Key

Each of the keys (or sets of keys) is explained on the
following pages.
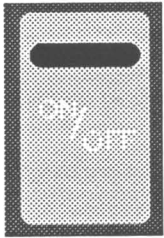
1   ON/OFF KEY

Use the red ON/OFF key to turn your Colleague On and Off. Press it to turn the
terminal On, and press it again to turn the terminal Off.

If your Colleague will not turn Off, you may hold down the ON/OFF key for 5 seconds
to force a terminal reset.

> **NOTE:** Closing the display over the keyboard does not turn the unit Off;
> therefore, you must press the ON/OFF key to do so. Set the Auto-Off Timer
> function (See Chapter 4, p. 4-24) to automatically turn the unit Off after a set
> period of inactivity.

GRAY SPECIAL PURPOSE KEYS

There are six gray function keys located in the upper
left-hand corner of the Colleague base. They are
labeled on your terminal as follows:

2.   SET-UP
3.   EDIT
4.   HOLD SCROLL
5.   PLUS
6.   PRINT
7.   LISTEN
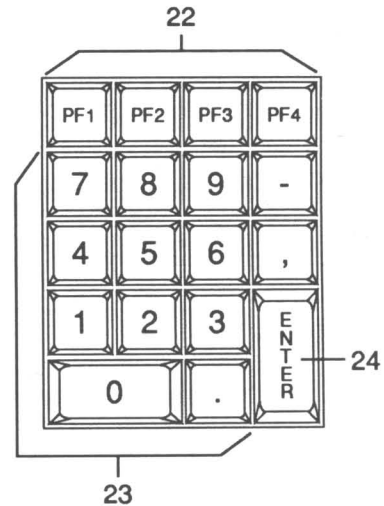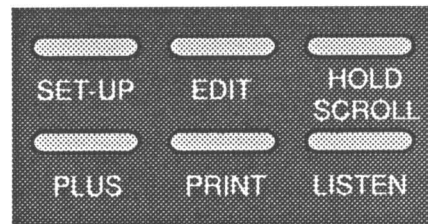
2   Set-Up Key

The SET-UP key accesses a series of menus used to program the Colleague's 20 Auto-Connect channels, the 20 programmable function keys and various other set-up parameters of the terminal (See Chapter 4, p. 4-3).

3   Edit Key

The EDIT key has two functions:

1) While on-line to a host system, use the EDIT key with the eight blue function keys (F1 through F8) to duplicate the functions of the editing keys on the DEC VT220 keyboard. Use this key to toggle (switch back and forth) between the function keys and the editing keys. Once on-line to a host system, press the EDIT key to see the keys pictured below displayed at the bottom of your screen.

| Help | Do | Find | Insert | Remove | Select | Previous | Next |

2) The EDIT key also allows you to enter or change information in the Menu fields. For example, before typing in a channel name or telephone number, you must press this key before you can enter characters. After the correct information has been input, press the EDIT key again to exit the edit mode and move on to the next selection, screen or menu.

> **NOTE:** Each time you enter information, you must press the EDIT key.

4   Hold Scroll Key

When data is transmitted to your terminal, use this key to stop the scrolling of data and to freeze the contents of your display. Press the HOLD SCROLL key again and scrolling will resume, starting from the point at which data was last frozen on your display. You can engage and disengage this function as often as is necessary for you to receive information at a reasonable rate.

> **NOTE:** The Hold Scroll feature only operates while the XOFF Enabled option is selected in the Set-Up Menu (See Chapter 4, p. 4-13).

5   Plus Key

The PLUS key is only available with the Colleague PLUS version of the terminal. The PLUS key enables you to access the following features and menus: enhanced communications, word processing, and general file system functions. If you do not have the PLUS version, this key is deactivated (See Chapter 6).

6   Print Key

The PRINT key allows you to print what appears on the screen, with the exception of the status line (if present). Use this key to send text on the display to a parallel printer via the **PRINTER** port (See Chapter 4, p. 4-18).

Pressing the CONTROL and PRINT keys simultaneously allows you to toggle the unit between Normal Print and Auto-Print modes (See Chapter 4, p. 4-18).

7   Listen Key

The LISTEN key controls the Colleague's internal speaker. Press the key once to hear what is being transmitted while using the internal modem. Press it again to disengage the speaker.

8   BLUE FUNCTION KEYS (FKeys)

The 20 programmable keys (F1 through F20) emulate the function keys of the DEC VT220 keyboard.

The VT220 function keys are accessed by pressing the corresponding Colleague function keys. You may access the programmable function keys by simultaneously pressing the SHIFT key down with the appropriate function key. To access the numeric/application keys, hold the CONTROL (CTRL) key down while pressing the appropriate function key. Their values are listed below for your reference. (The Colleague supports the application mode sequences of the VT220 numeric/application keypad only.)

Although the unmodified (no SHIFT or CTRL) function keys normally operate as described in the previous paragraph, they may be set-up to act as VT220 function keys, programmable function keys, or numeric/application keys by making selections in the Auto-Connect Set-Up Menu (See Chapter 4, p. 4-15). This option can be programmed differently for each Auto-Connect channel.

In the DEC VT100 mode, both the function key and the control function key transmit the application sequences. The control sequences of these keys are listed in Appendix A: Control Sequences.

Colleague Function Key	Numeric Keypad (VT220 Keys)
1	PF1
2	PF2
3	PF3
4	PF4
5	ENTER
6	-
7	,
8	.
9	
10	
11	1
12	2
13	3
14	4
15	5
16	6
17	7
18	8
19	9
20	0

MAIN KEYBOARD KEYS

The main keyboard of the Colleague resembles a standard typewriter.

9   Alphanumeric, Punctuation and Symbol Keys with Space Bar

These keys operate in the same manner as standard typewriter keys. Letters are either lowercase or uppercase; numbers, punctuation and symbols are all entered as characters.

10   Escape Key

The ESCAPE (ESC) key is described in your operating system or application program manual. It serves as a control key to perform different functions for different programs. To understand the function it performs in the application you are using, check your program manual or check with your host system's technical support.

When you program the function keys or edit the Log-On or Answer Back sequences (See Chapter 4, p. 4-27), pressing the ESC key displays the letters "E" and "C" (^E_C) in the field being edited. The ESCAPE key performs whatever function is appropriate in your application program.

11   Tab Key

Use the TAB key to move your cursor to the next tab stop. When you first use the key, the tab positions have default settings for every eight spaces. To change these tab positions, see Chapter 4, p. 4-23.

You can reset the tab stops to any column width or remove any or all of them. Even if you deactivate the TAB key by clearing all of the tabs, any program you use that includes tab functions will still insert tab stops when you press the TAB key.

12   Lock Key

Pressing the LOCK key enables you to change all of the lowercase letters to uppercase letters. To disengage the LOCK key, press it again to return to lowercase letters.

While on-line, you can either set the LOCK key to act as a "Shift-Lock" or "Caps-Lock" key (See Chapter 4, p. 4-21).

1) The "Shift-Lock" key capitalizes all of the lowercase letters and changes the values of the numeric, punctuation, and symbol keys.

2) If you use the "Caps-Lock" key, it only affects the alphanumeric keys and changes lowercase letters to uppercase letters, without altering the values of the other keys.

13   Shift Keys

Press either of the two SHIFT keys to temporarily change lowercase letters to uppercase letters and to change the values of the numeric, punctuation and symbol keys.

For instance, enter the numeral 5 by pressing the key with the number 5 on it. To change the value of the key to the percent sign, press the 5 or % key while holding down the SHIFT key. When you release the SHIFT key, all keys revert to their lowercase values.

If the "Cap-Lock" is enabled, pressing the SHIFT key will temporarily return uppercase letters to the lowercase form. Pressing the SHIFT key when the "Shift-Lock" has been enabled will also alter the values of the numeric, punctuation, and symbol keys. In effect, pressing the SHIFT key when the LOCK key has been selected will temporarily disengage the operation of the LOCK key.

14   Contrast Key

The CONTRAST key is positioned in the bottom left-hand corner of the keyboard. It controls the light/dark contrast on the display screen.

Press the CONTRAST key to darken the display. To lighten the display, press the CONTRAST and SHIFT key simultaneously. The CONTRAST key adjusts the display screen as long as you hold it down. You can lighten and darken the screen by degrees by tapping the key, instead of holding it down.

15   Control (CTRL) Key

The CONTROL (CTRL) key works with other keys to send control codes. You must hold the CTRL key down and press another key to send a code.

For example, you may press the A key while holding down the CTRL key to send a control-A (01H) to the host system.

16   Delete Key

Pressing the DELETE key sends the delete character to the host system. Normally, this erases the character in the current cursor position and moves all characters to the right of it one space left, filling in the space. The function of this key may change while on-line, depending upon the host system's program.

17   Break Key

The BREAK key puts a 250 milliseconds pause (or longer if the key is held down) in whatever host system communication you are performing. Some host systems require this break during communications, but only in special cases. To find out whether or not you need this function, consult your host system's technical support. The BREAK key can be disabled from the Set-Up Menus (See Chapter 4, p. 4-13).

By pressing the CONTROL and BREAK keys simultaneously, you can send the Answer Back Sequence to the host system.

Hitting the SHIFT and BREAK keys at the same time disconnects you from the host system and returns you to the Auto-Connect Menu.

18   Backspace Key

Locally, pressing the BACKSPACE key causes the cursor to move one position to the left on the display, erasing the character in the new cursor position. All characters to the right of the cursor are moved one space left, filling in the space.

During terminal emulation, this key sends a backspace (BS) character to the host. The function of of the backspace key during terminal emulation depends on the requirements of the host system program

19   Return Key

When on-line, pressing the RETURN key transmits a carriage return or a carriage return and a line feed, depending on the Set-Up Menu selection, to the host system. If you press SHIFT and RETURN at the same time, you send a line feed. (See Chapter 4, p. 4-14, for the other functions of the RETURN key.)

20   Home Key

Pressing the HOME key normally returns the cursor to the top left-hand position of the display screen. This function depends upon the host system program and varies accordingly.

Press the SHIFT and HOME keys simultaneously to locally erase your screen and return the cursor to home position. This action does not affect the host system.

21   Arrow Keys

The ARROW keys normally move the cursor one space in the direction the arrows point: up, down, right, left. This function depends on the host system program and varies accordingly.

OPTIONAL KEYPAD

This optional keypad allows you to enter numeric data as you would on a standard calculator.

As explained in the section entitled, "Blue Function Keys," on p. 3-5, the keys on the keypad also emulate the numeric/application keypad mode of the VT220 keyboard. The control sequences of these keys are listed in Appendix A: Control Sequences.

22   Function Keys

The function keys (PF1 through PF4) have functions that are dictated by the application software running on the host system.

23   Numeric, Punctuation and Symbol Keys

These keys function as keys for quick numeric data entry. The values of the keys are just as you see them on the keypad.

24   Enter Key

Press the ENTER key to input a Carriage Return or a Carriage Return and Line Feed. Your choice is dependent upon the Set-Up screen you select. You can also use the ENTER key during Set-Up procedures to select and activate features.

This completes the discussion of the keyboard keys and their functions. In the next chapter, you learn how to program your Auto-Connect channels and the other functions of the Colleague terminal.
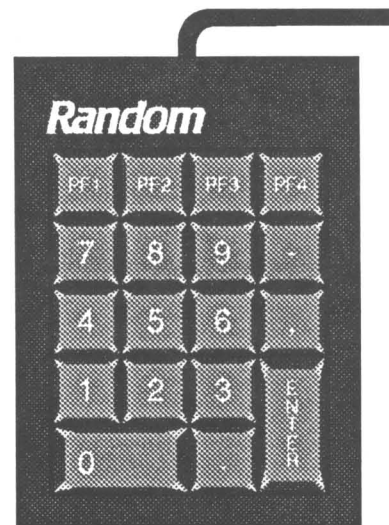
4 _Programming_

In this chapter, you learn how to program your Auto-Connect channels and other parameters in the Set-Up Menu. The Colleague has default settings that have already been programmed. In some cases, this allows you to turn on your Colleague, type in the telephone number, and establish communications with a host system (See Chapter 5, p. 5-1).

If the default settings are not appropriate, program your Auto-Connect channels, passwords, printer controls, phone number and log-on, and keyboard and display parameters before logging on to a host system. Some of the important default settings for the 20 channels (to be explained later in this chapter) are listed below.

Parameter	Default Setting
name:	blank
connection type:	212A Internal Modem (1200 bps)*
data bits and parity check:	8 data bits, no parity
phone number:	manual
log-on:	blank

* With the 2400 bps modem option, the default is V.22bis. With the 9600 bps modem option, the default is V.32.

AUTO-CONNECT MENU

When you first turn on your Colleague by pressing the red ON/OFF key, an Auto-Connect Menu appears on the display screen.

```
                          Auto-Connect Menu

        1)                              11)
        2)                              12)
        3)                              13)
        4)                              14)
        5)                              15)
        6)                              16)
        7)                              17)
        8)                              18)
        9)                              19)
       10)                              20)




     Please enter your selection :
     For Word Processor press the PLUS key
```
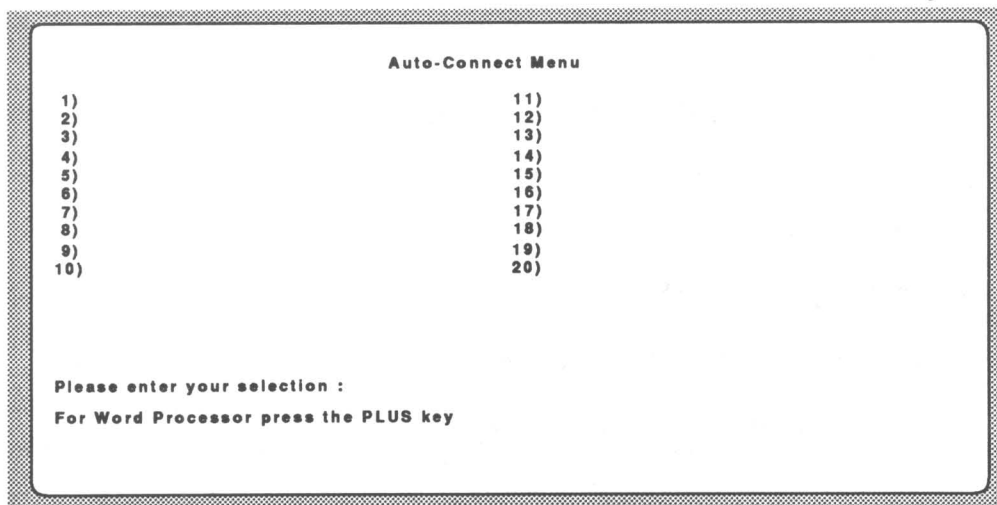
You see two columns of numbers (1 to 20). This menu allows storage of up to 20 Auto-Connect channels at one time. An Auto-Connect channel contains all the information necessary for your Colleague to automatically call and/or log on to a host system.

REQUIRED HOST INFORMATION FOR PROGRAMMING

In order to set different parameters or to determine whether the default settings are appropriate for each host system, you need to contact the host system's technical support and obtain the following information (See Appendix G: Host Checklist):

1.   **Serial Port or Internal Modem Connection:** If connecting directly to your host system or to an external modem, use the RS-232 connection. If using the internal modem, use the PHONE connection.

> **NOTE:** When using RS-232, there are two classifications of equipment, Data Terminal Equipment (DTE) and Data Communication Equipment (DCE). The Colleague is a DTE, which usually includes terminals and printers. DCE usually includes host systems and modems. DTE equipment can be connected directly to DCE equipment, but not directly to DTE equipment. A null modem is required to connect DTE to DTE equipment or DCE to DCE equipment.

2.   **Telephone Number:** This is the telephone number needed to access the host system either by internal or external modem. If using an external modem, enter the external modem's required attention sequences (see your external modem's user's manual).

3.   **Log-On Sequence and Passwords:** These are the specific codes used when logging on to the host system directly.

4.   **Data Bits (7 or 8)**

5.   **Parity (Even, Odd, Mark, Space or None)**

6.   **Parity Check (yes or no)**

7.   **Stop Bits (1 or 2)**

8.   **XOFF Flow Control (On or Off)**

9.   **Communications Rate (bits per second)**

10.   **Terminal Emulation (VT52, VT100, VT220/7-bit, VT220/8-bit):** This is the type of terminal your Colleague emulates during communications with a host system. Find out which one is best by consulting the host system's technical support.

PROGRAMMING THE AUTO-CONNECT CHANNELS

Once you have all of the previously listed information regarding the requirements for communicating with a host system, you can program your communication channels. The guidelines outlined below will assist you throughout this chapter as you activate the Set-Up Menus and program your different channels.

To begin, press the SET-UP key (after you have turned on your unit and the Auto-Connect Menu appears on your display) to enter the Set-Up mode. This Main Menu appears at the bottom of the screen:

```
Auto-Connect          Printer                 Display
Keyboard              General                 Security
Save Set-Up           Back-Up Set-Up To Host  Default Selections
Recall Set-Up         Restore Set-Up From Host
                                              CR-Select Menu
```

To select any sub-menu from this Main Menu, maneuver the reverse video bar to your selection with the left, right, up, or down ARROW keys and then press the RETURN key. The letters "CR" symbolize the RETURN key and are displayed in the lower right hand corner of the screen, followed by the RETURN key's function. The RETURN key serves different functions on each screen. In this case, it allows you to select a sub-menu.

On lines that require you to type in information (e.g. "Phone #"), you will see the <EDIT - Edit Line> prompt on the lower right hand side of the screen.

You must press either the EDIT or RETURN key to enter this data. After the data is typed in, exit the edit line mode by pressing the EDIT key again or the UP or DOWN ARROW keys.

If you make a mistake entering any information while programming, you can make corrections in the field by using the following keys:

Edit Line Keys

Key	Function
Left Arrow:	Moves the cursor left; does not erase.
Right Arrow:	Moves the cursor right; does not erase.
Delete:	Erases the character at the cursor and shifts the rest of the line one space to the left.
Shift and Delete:	Erases the whole line.
Backspace:	Moves the cursor left; does not erase.
Home:	Moves the cursor to beginning of line; does not erase.
F4:	Insert/Replace. Pressing this key toggles your selection between the Insert and Replace modes. (The cursor becomes an underline character in Insert mode.)

In some menus, you are not required to type information into the fields. Instead, view your selections for the different fields by pressing the RETURN key to choose the Next Option. Once your selection is made, move to the next field by using any of the four ARROW keys.

If you wish to change any of the information you have entered, simply use your cursor keys to move back to the appropriate field. Next, press either the EDIT or RETURN key to change your selections (refer to previous paragraphs about the Set-Up Menu).

To move to other screens in each menu, utilize the following function keys:

F1 - Previous Menu
F2 - Next Menu
F3 - Main Menu

AUTO-CONNECT SET-UP MENU

In this menu, enter data such as a channel number, channel name, channel type, channel telephone number, log-on information, and other communication parameters. After programming data into this menu, you are automatically able to connect to a host system and establish communications (See Chapter 5, p. 5-1). Other features included in this menu are explained later in this chapter.

After selecting this menu, you are prompted to select the number of the Auto-Connect channel you wish to program.

<Enter Auto-Connect Channel number:>

Channel Number

Select a channel number from 1 to 20 in the Auto-Connect Menu you wish to program or modify. Type in the channel number you select and press RETURN.

> **NOTE:** If you select a number that has already been programmed previously, then your entries will overwrite the old ones.

Once you have selected the number of the Auto-Connect channel that you wish to program, the first screen of the Auto-Connect Set-Up menu will be displayed.

```
Name:                          Channel Type: 212A      Copy From Channel
Phone #:                                               MNP Off
Log-On:

F1-Prev Menu   F2-Next Menu   F3-Main Menu                       EDIT-Edit line
```

Channel Name

To select a channel name, press the EDIT or RETURN key and type in the name you have chosen for your channel. (If you try to enter a key without pressing the EDIT or RETURN key, your terminal will sound a "beep" to let you know that the edit line mode is not engaged.) The Auto-Connect channel name you use is for your reference only. The name can be comprised of up to 18 numbers, letters, symbols and/or spaces.

Press the EDIT key again to exit the edit line mode.

Channel Telephone Number

The Colleague automatically dials the telephone number you program into this field when attempting to connect to a host system. The phone number field accepts a maximum of 45 characters.

When using the internal modem, enter the number without parentheses, hyphens, spaces or modem attention sequences (even though they are ignored if you enter them).

When using an external modem, enter the number with the external modem's required attention sequences. Consult your external modem's user's manual regarding the required attention sequences and the placement of parentheses, hyphens and spaces in the phone number field.

If the phone number field is left blank, the channel will default to manual dial (See Chapter 4, p. 4-7).

Before typing in the telephone number, there are several items you may need to take into consideration:

1.   Do you have to dial a 9 (or some other number) in order to get an outside line?

2.   Is the telephone number a long-distance number requiring the dialing of a (1) and an area code?

3.   If using an external modem, are any "Attention" sequences required? If so, consult your modem manual and enter these into the field before you type the telephone number.

Press the EDIT or RETURN key to enter the telephone number. If you have to dial a 9 to get an outside line, enter a 9, then press the F17 key (Wait for Dial Tone, internal modem only). This feature permits the number being dialed to wait for a required outside dial tone before continuing the dial-up procedure. (A flashing "S" appears in the field when you press the F17 key.)

If you are dialing a long-distance number, enter a 1 and then the area code.

The function keys which may be utilized during the programming of the telephone number are described as follows (Some of these functions will appear highlighted at the bottom of your screen):

Function	Key
Manual Dialing	F14
Wait for Dial Tone	F17
Two-Second Delay	F11
Wait for Callback (Answer Mode)	F12
Wait for Callback (Originate Mode)	F15

Switch Modem To Answer Mode	F18
Switch to Tone Dial	F16
Break	F13

NOTE: When the RS-232 channel type has been selected in the Set-Up Menu, the channel telephone number will be sent through the serial port.

Manual Dialing (Internal Modem Only): This feature allows you to dial a phone number manually using the numeric keys on the keyboard when connecting to a host system. It is also possible to have part of your phone number programmed to dial automatically and then switch to the Manual Dial feature to finish your connection.

Press F14 to select Manual Dial. (See Chapter 5, p. 5-2.) (A flashing "M" appears in this field.) During Manual Dial, you must press the number keys on the keyboard to dial the telephone number.

You might choose to dial a number manually if you are going to use the channel to communicate with more than one host system, or if you will need to use different dialing procedures for calling this host system from different locations.

> **NOTE:** When you select this option, you must physically type in the telephone number digit by digit each time you connect to a host system instead of having the number programmed to dial automatically.

Wait for Dial Tone (Internal Modem Only): This feature permits the number being dialed to wait for a dial tone before continuing the dial-up procedure.

Press F17 to select the Wait for Dial Tone feature and a flashing "S" will appear in the field.

If a dial tone is not detected within 6 seconds, the dialing sequence will continue with the next item in the phone number field.

Two-Second Delay: The Colleague may not recognize dial tones from some phone/telecommunication systems. Therefore, the Wait for Dial Tone feature will not work. In such cases, press the F11 key. This instructs the Colleague to wait two seconds before continuing to dial.

Also, use the F11 key between numbers if you want the terminal to dial more slowly, or if delays are needed between sets or series of characters or numbers. If you want more than a two-second delay, press this key as many times as needed to direct the Colleague to wait the appropriate amount of time. (Pressing the F11 key displays a flashing "D" in the field.)

Keys pressed during this delay will be sent immediately to the host.

Wait for Callback (Answer Mode): With this function, your Colleague hangs up the telephone line and switches the modem to the Auto-Answer mode so that the host system can call back.

If the host system's communications require you to wait for a callback for security purposes, press the F12 key to direct the Colleague to hang up the telephone line and switch the internal modem to an Auto-Answer mode. (The host system calls back automatically.) A flashing "A" appears in the field when the F12 key is pressed.

Wait for Callback (Originate Mode): Press the F15 key if your Colleague needs to answer a callback in the Originate mode. This is a useful feature if the host system has dial back security and calls the terminal back automatically in Answer mode. (A flashing "H" appears in the field when the F15 key is pressed.)

Switch Modem to Answer Mode (Internal Modem Only): Press the F18 key if the modem, after originating a call, needs to be in Answer mode to communicate with the host system. This means that the modem uses answer tones when it originates a call. (A flashing "R" appears in the field when the F18 key is pressed.)

> **NOTE:** Advanced host security dictates that the modem that originates a call must be called back. Modems use different kinds of tones for originating calls than they do for answering them. In this case, the modem must be switched from an Originating modem to an Answering modem. At other times, the host security may demand that the modem either answer in an Originating mode or originate in an Answering mode. Consult the host system's technical support to find out which of these is the case for the host system you are contacting.

Switch to Tone Dial (Internal Modem Only): You must select the right type of dial signal (tone or pulse). Although most phone companies are now using Tone Dial, some local phone companies still require Pulse Dialing. If your local phone system requires Pulse Dialing, set the Tone or Pulse Option in the General Set-Up Menu to Pulse Dial (See Chapter 4, p. 4-24). However, most long-distance services only recognize Tone Dial signals. If you have Pulse Dial programmed in the General Set-Up Menu, press F16 prior to entering a long-distance number in the Channel Telephone Number Field. This command will switch the signal to a Tone Dial when dialing the programmed long-distance number. (A flashing "T" appears in the field when the F16 key is pressed.)

Break (RS-232 port only): Press the F13 key where breaks are required. In special cases, some host systems require a break during communications to get the attention of the host system. The Break displays a flashing "B" in the field. To find out whether you need this function and where in the sequence you should enter it, ask the host system's technical support.

> **NOTE:** The Break transmits 250 milliseconds of 0 level over the communications line.

Log-On Information

You can program the Colleague to automatically enter log-on sequences for you. A maximum of 45 characters can be programmed into the Log-On field. Contact your host system's technical support for required log-on sequences.

Press the EDIT key to enter your log-on codes. You can use the previously described function keys as required to enter your log-on codes:

Two-Second Delay	F11 key
Break	F13 key
Wait for Callback (Originate Mode)	F15 key
Wait for Callback (Answer Mode)	F12 key

NOTE: Refer to the descriptions provided for these keys in the previous Channel Telephone Number Section (See Chapter 4, p. 4-6).

Other function keys which can be used during log-on procedures:

Conceal Function: The Conceal Function (F18 key) can be used to prevent all or part of your log-on sequence from being displayed on the Colleague's screen during log-on with a host.

Press the F18 key prior to inputing log-on characters which you wish to conceal. A flashing "C" appears in the log-on field when the F18 key is pressed.

Pressing the F18 key again will deactivate the Conceal Function. Otherwise, the Conceal Function will remain active until the end of the log-on sequence.

Wait for Character: If you wish to pause the automatic log-on sequence until a specific character is received from the host system, press the F14 key to select the "Wait for Character" feature. This feature tells the Colleague to wait to receive the specified character from the host system before proceeding with the automatic log-on sequence.

A flashing "W" appears in the log-on field when the F14 key is pressed. The specific character expected from the host system should be entered directly following the flashing "W". This command is case sensitive so you should be sure to enter the character in whichever case (upper or lower) it will be sent from the host.

If multiple characters such as a word, phrase or code number are to be received from the host system before the log-on sequence can continue, use the "Wait for String" feature.

Keys pressed during this delay will be sent immediately to the host.

Wait for String: If you wish to pause the automatic log-on sequence until a specific string (such as a word, phrase or code number) is received from the host system, press the F17 key to select the "Wait for String" feature. This feature tells the Colleague to wait to receive the specified prompt string from the host system before proceeding with the automatic log-on sequence.

A flashing ' " ' appears when the F17 key is pressed. The specific character string expected from the host system should be entered directly following the flashing ' " '. Pressing the F17 key again or activating any other log-on command will terminate the string. This command is case sensitive so you should be sure to enter the characters of the string in whichever case (upper or lower) they will be sent from the host.

The prompt string immediately follows the flashing ' " ' and will only be recognized by the Colleague if received in the sequential order you entered.

Keys pressed during this delay will be sent immediately to the host.

Go To Channel: This command allows you to program log-on sequences longer than the default length of 45 characters. When the Go To Channel command is encountered in the sequence, the log-on sequence of that particular channel number will be transmitted after the Go To command.

To use this command, press the F16 key while entering a log-on sequence. This will display a flashing "G". After the Go To Channel command, enter the channel number of the log-on sequence you wish to transmit. The set-up parameters of the original channel will be maintained.

> **NOTE:** If an invalid channel number is entered, an error will occur and the log-on sequence will stop transmitting at that point.

> **NOTE:** Any data entered after the Go To Channel Number will be ignored.

Channel Type

There are <u>eight selections</u> available in this field -- Serial, 224*, 212A, 103, V.22bis*, V.22, V.21, and V.32**.

Select either the 224 (2400 bps)*, 212A (1200 bps) or the 103 (300 bps) modem if you wish to communicate through the phone line with Bell standards. Select V.32 (9600 bps)**, V.22bis (2400 bps)*, V.22 (1200 bps), or V.21(300 bps) modems if you wish to communicate through the phone line, using CCITT standards. Choose Serial if you wish to connect directly to a host system or to an external modem.

If you are unsure about which option to use, consult your host system's technical support to find out which option is appropriate for your particular host system. An explanation of the channel types follows:

Serial: The RS-232 port connects your Colleague either directly to a host system or to an external modem. If using this port, select Serial from the Channel Type field.

224*, 212A or 103 Modem: These selections set the internal modem to operate at 2400 bps*, 1200 bps and 300 bps, respectively, using Bell standards.

V.32**, V.22bis*, V.22, or V.21 Modem: These selections set the internal modem to operate at 9600 bps, 2400 bps*, 1200 bps, and 300 bps, respectively, using CCITT standards.

> ***NOTE:** 2400 bps (V.22bis) modem is an optional feature that is factory installed. It may be added to your Colleague unit for faster communication with host systems.

> ****NOTE:** 9600 bps (V.32) modem is an optional feature that is factory installed. It may be added to your Colleague unit for faster communication with host systems.

Copy from Channel

Use this feature to copy parameters from a different Auto-Connect channel into the one you are currently programming. To create a new channel, return to the Main Menu and press RETURN to get the following prompt in the Auto-Connect Set-Up Menu:

\<Enter Auto-Connect Channel number\>

Enter the number of your new channel. Move the reverse video bar to "Copy From Channel", then press the RETURN key. You now see the following prompt:

\<Enter Auto-Connect Channel number to copy from:\>

Enter the number of the Auto-Connect channel from which you want to copy the previously programmed parameters.

If you press the F1 key again to return to the Auto-Connect Menu, you will note that your new channel appears on the display.

You should change the name of your new channel, since it will have the same name as the channel you copied from (See Chapter 4, p. 4-5).

MNP

When this field is set to On, your terminal will support MNP (Microcom Networking Protocol) error correction. In order for the error correcting protocol to operate, the host system connection must also support MNP.

The Colleague supports MNP classes 1, 2, 3 (9600 bps only), 4 and 5.

Press the F2 key to proceed to the second screen of the Auto-Connect Set-Up Menu.

```
 8 Data Bits, No Parity                              Serial Port Data Leads Only
 1 Stop Bit                    XOFF Enabled          Normal Output
 Serial Port:  9600 bps        Break Enabled         Disconnect Delay:  60 ms

 F1-Prev Menu   F2-Next Menu   F3-Main Menu                    CR-Next Option
```

Data Bits, Parity and Parity Check

The information in this field varies from system to system, so you need to contact the host system's technical support to get the correct settings.

Choose one of the following options:

- 8 Data Bits, Even Parity, No Check
- 8 Data Bits, Odd Parity, No Check
- 7 Data Bits, Even Parity
- 7 Data Bits, Odd Parity
- 7 Data Bits, Mark Parity
- 7 Data Bits, Space Parity
- 7 Data Bits, No Parity
- 8 Data Bits, Even Parity
- 8 Data Bits, Odd Parity
- 8 Data Bits, No Parity
- 7 Data Bits, Even Parity, No Check
- 7 Data Bits, Odd Parity, No Check

Some host systems will have no parity check (error detection), but most will. You can switch checking off for the Colleague in the Even and Odd parity modes.

Stop Bits

As before, press the RETURN key to select one of the following: "1 Stop Bit" or "2 Stop Bits".

Serial Port Bits Per Second

This field permits you to select the rate for your serial port communications. It controls the communication speed of the RS-232 port only. Ignore this field if the channel is already selected to use the internal modem.

When you use the RS-232 port for direct connect or with an external modem, you need to set the serial port bits per second rate to the same bits per second rate used by the computer or modem (refer to the modem's user manual).

Select one of the following bits per second options:

- 150
- 300
- 600
- 1200
- 2400
- 4800
- 9600
- 19,200

XOFF Enable

Select one of two options: "XOFF Enabled" or "XOFF Disabled". With this option Enabled, the Colleague will perform software control to safeguard against losing data when the host system is sending information faster than the terminal can receive it, and vice versa.

If this function is Disabled, then data can be lost. Some systems, however, do not support this function. Check with the host system's technical support before setting this field.

Break Enable

Choose either the "Enabled" or "Disabled" selection in this field. Enable this function key only if the host system will recognize a break. If the host system does not recognize a break, select "Disabled" or you may lose, scramble or generate unreadable data when you press the BREAK key.

Modem Controls

The selections in this field determine whether or not modem controls on the RS-232 port are used. Choose: "Serial Port Data Leads Only" or "Serial Port Modem Controls".

If using the RS-232 port with an external modem, select the "Serial Port Modem Controls" option. The Colleague will auto-dial the Channel Telephone Number field and will then wait until the RS-232 port's Data Set Ready (DSR) signal is active before proceeding to the Log-On field. If you are directly connected to the host system and not using these signals, then select "Serial Port Data Leads Only".

Rate of Output

The Rate of Output option has two selections: "Normal Output" or "Slow Output". When this field is set to "Slow Output", the speed of the RS-232 port is limited to 100 characters per second, regardless of the "Serial Port Bits Per Second" rate setting

You should generally keep this setting at "Normal Output", unless the host system is missing some of the characters the Colleague is transmitting.

Disconnect Delay

If you lose the host modem's carrier signal for a specific length of time, you get a remote disconnect, meaning that the host system has disconnected from your Colleague. The length of time from the loss of the carrier signal to the remote disconnect is called a disconnect delay. This field allows you to set the length of the disconnect delay to 60 ms., 2 sec., 6 sec. or 25 sec. The longer delays are beneficial when using a cellular phone.

NOTE: These delays are disregarded for V.32 connections.

Press the F2 key to proceed to the third screen of the Auto-Connect Set-Up Menu.

```
    No New Line            VT220 Mode, 7 Bit    Local Echo Off
    80 Columns             VT220 ID             Auto-Redial Off
    Indicator Status Line  FKeys: VT220 FKeys   Modem Retrain Off

  F1-Prev Menu            F3-Main Menu                    CR-Next Option
```

New Line Mode

This field controls the codes that are transmitted when the RETURN key is pressed. It also affects the manner in which your Colleague terminal interprets a Line Feed, Form Feed or Vertical Tab received from the host.

Selecting "New Line" transmits both a Carriage Return and a Line Feed to the host system when the RETURN key is pressed. A Carriage Return and Line Feed function is performed when a Line Feed, Form Feed or a Vertical Tab is received by the terminal.

If this field is set to "No New Line", only a Carriage Return will be sent to the host when the RETURN key is pressed. A Line Feed function is performed when a Line Feed, Form Feed or Vertical Tab is received by the terminal.

Columns

You may select either 80 or 132 column mode for the Colleague. In 132 column mode, however, only the left or right 80 columns of the 132 column screen will be visible at any given time.

You can switch from the left or right sections of the screen by pressing the SHIFT-LEFT ARROW keys and SHIFT-RIGHT ARROW keys, respectively.

Status Line Mode

This field controls the operation of the 25th line. The 25th line can operate in one of four modes. Selecting "Indicator Status Line" allows the 25th line to operate as a status line (See Chapter 5, p. 5-3). Selecting "Host Writable Status Line" allows the host system to write text to the 25th line by using special escape sequences. Selecting "Blank Status Line" leaves the 25th line blank and "25 Line Screen" allows the 25th line to operate in the same manner as lines 1-24.

Emulation

The Colleague can emulate any one of the following four terminals: VT52 Mode, VT100 Mode, VT220 Mode/7-bit or VT220 Mode/8-bit.

If you choose to have your Colleague emulate a VT220/8-bit terminal, then select one of the 8 data-bit options in the Data Bits field in the Auto-Connect Set-Up Menu.

Terminal Identification (I.D.)

Your Colleague can respond to a primary device attribute request with a VT100 or VT220 I.D. Some applications require specific responses. To find out which is appropriate, check with the host system's technical support.

FKeys

This field controls the programming of the functions keys. You can set the function keys to operate as one of the following: VT220 function keys, programmable function keys, or numeric/application keys. The table below shows the behavior of the shifted function keys and the control function keys when the function keys are set to each of the three operations:

F Keys =	Function Keys	Shifted Function Keys	Control Function Key
VT220 FKeys	VT220 FKeys	Programmable	Numeric/Application
Programmable	Programmable	VT220 FKeys	Numeric/Application
Numeric Keypad	Numeric/Application	Programmable	VT220 FKeys

Local Echo On/Off

Program this setting according to how you want your codes transmitted between the host system, keyboard, and screen. Select either "Local Echo On" or "Local Echo Off".

The "Local Echo Off" setting transmits codes from the keyboard to the host system only. The "Local Echo On" setting transfers codes from the keyboard to both the screen and the host system. This is a host-specific setting and you need to get this information from the host system's technical support.

Auto-Redial

Your options in this field are "Auto-Redial On" or "Auto-Redial Off". Selecting this field to On tells the Colleague to redial the host system's telephone number every 60 seconds until it contacts the host system. The Colleague will make a total of 10 attempts. If you are using an external modem in this channel, select "Serial Port Modem Controls" on the previous screen.

Modem Retrain

With this field, you may either enable or disable internal modem retrain at 9600 and 2400 bps. Retraining is sometimes necessary when the Modem Carrier signal has been lost and then restored. This will allow the modems to re-adjust themselves. In most cases, this feature should be left disabled.

Press the F3 key to return to the Main Menu screen.

```
  Auto-Connect              Printer                  Display
  Keyboard                  General                  Security
  Save Set-Up               Back-Up Set-Up To Host   Default Selections
  Recall Set-Up             Restore Set-Up From Host
                                                     CR-Select Menu
```

Now let's move on to the other selections in the Main Menu.

PRINTER SET-UP MENU

Select the Printer Set-Up Menu from the Colleague's Main Menu. The following screen will be displayed:

```
  Print Attributes Disabled
  No Form Feeds In Prints
  Normal Print Mode

F1-Prev Menu   F2-Next Menu   F3-Main Menu                    CR-Next Option
```

Print Attributes

Use this field to program boldface and underline attribute codes that should be used when printing from the PLUS word processor (See Chapter 6, p. 6-13), or to disable the attributes altogether. You have three options: "Print Attributes Disabled", Printer 01: "IBM Proprinter" (defaults to IBM Proprinter) or Printer 02: "LA-100" (defaults to DEC LA-100).

If using a printer that is not capable of boldface and underline printing, disable these attributes by selecting "Print Attributes Disabled". This will allow the printer to print the characters without the boldface and underline attributes.

When using an IBM Proprinter or DEC LA-100, select the proper printer choice from the Print Attributes field. The boldface and underline attributes for these printers are displayed in the second and third menus of the Printer Set-Up. If, for example, you have selected "IBM Proprinter", press the F2 (Next Menu) key for a display of the printer's attributes. The following screen will appear:

```
  Printer 1:  IBM Proprinter
            Bold On:  E_c E        Underline On:  E_c -1
            Bold Off:  E_c F       Underline Off:  E_c -0

F1-Prev Menu   F2-Next Menu   F3-Main Menu                    EDIT-Edit line
```

Press the F2 (Next Menu) key again and information is displayed for the DEC LA-100 printer:

```
  Printer 2:  LA100
            Bold On:  E_c [3"z      Underline On:  E_c [4m
            Bold Off:  E_c [2"z     Underline Off:  E_c [0m

F1-Prev Menu                F3-Main Menu                      EDIT-Edit line
```

> **NOTE:** The information on these two screens does not need to be changed unless you are using a different printer.

If using a different printer, press the RETURN key to display one of the printer settings (IBM Proprinter or DEC LA-100) in the Print Attributes field.

For printers other than those provided, alter the screen less likely to be used.

Now press the EDIT or RETURN key and type in the printer name in the first field.

Select the next field, Bold On. Type in the Bold On control string. (You will find this in the manual that came with your printer.) Repeat this procedure for the other fields.

Form Feeds in Prints

Use this field to instruct your Colleague as to whether you want the printer to form feed (advance to the top of the next page) after it prints each screen. You may select one of the following: "No Form Feeds In Prints" or "Form Feeds In Prints".

Print Mode

In this field, you have three options: "Normal", "Auto-Print", and "Controller".

If you select the Normal mode, you can print the entire screen by pressing the gray PRINT key.

In the Auto-Print mode, each line prints after receiving a line feed, form feed, or vertical tab from the host system.

If you select the Controller mode, the host system has direct control over the printer. All characters are sent directly to the printer and are not displayed on the screen.

Press the F3 key to return to the Main Menu.

Auto-Connect	Printer	Display
Keyboard	General	Security
Save Set-Up	Back-Up Set-Up To Host	Default Selections
Recall Set-Up Data	Restore Set-Up From Host	
		CR-Select Menu

DISPLAY SET-UP MENU

Select this option from the Main Menu. The options presented in this menu enable you to control the Colleague display.

```
    Auto-Wrap Off              Interpret Controls        Standard Video
    Bold Attribute Ignored     Back Light Off


    F1-Prev Menu               F3-Main Menu              CR-Next Option
```

Auto-Wrap

The Auto-Wrap feature automatically advances characters that extend beyond the 80th or 132nd column, depending on the Column Setting, to a new line. This prevents losing characters that extend beyond the last column.

Select either "Auto-Wrap On" or "Auto-Wrap Off".

Bold Attribute

This feature enables the Colleague to display bold characters sent from the host system as either reverse video, underlined or blinking. If "Bold Attribute Ignored" is selected, all bold characters sent from the host system will be displayed as regular text.

Interpret/Display Controls

Set your Colleague to interpret control codes or display them. For normal operation, set this field to "Interpret Controls". You will not use the display control codes setting in normal operation, but it is useful during troubleshooting or monitoring procedures.

Back Light

Back Lighting is an optional feature which allows you to view the Colleague's display screen in a dimly lit environment.

Select either Low, Medium, High, or Off. (Off will maximize your battery life.)

This feature will only appear in Colleagues that have the Back Light option installed.

Display

Your screen displays information in either Standard Video or Reverse Video. Standard Video displays dark characters on a light background. Reverse Video displays light characters on a dark background. Select the type of display you prefer.

Press the F3 key to return to the Main Menu.

```
    Auto-Connect          Printer                  Display
    Keyboard              General                  Security
    Save Set-Up           Back-Up Set-Up To Host   Default Selections
    Recall Set-Up         Restore Set-Up From Host
                                                    CR-Select Menu
```

KEYBOARD SET-UP MENU

Use the Keyboard Set-Up Menu to control keyboard features, including warning bells and tab positions. You can also reprogram the 20 programmable function keys if you desire.

Select the Keyboard Set-Up Menu from the Main Menu and the following screen will be displayed:

```
    Auto-Repeat On           Key Click On           Caps Lock
    Repeat Rate: 10 cps      Warning Bell On
    Hold Down Delay: 1 sec   Margin Bell On

F1-Prev Menu   F2-Next Menu   F3-Main Menu           CR-Next Option
```

Auto-Repeat

When this feature is enabled, the keys repeat after a one (1) or two (2) second delay, as long as you hold them down (See Chapter 4, p. 4-21, "Hold Down Delay"). This is convenient when you want to type lines of periods, spaces or dashes or strings of any single character.

Your options are: "Auto-Repeat On" or "Auto-Repeat Off".

Repeat Rate

This field instructs your Colleague to repeat keys at either 10 characters per second (cps) or 20 cps. The Repeat Rate is significant only if the Auto-Repeat feature is enabled.

Hold Down Delay

The Hold Down Delay field selects the amount of delay you want before Auto-Repeat begins. Choose either a one (1) or two (2) second delay. This feature is important only when the Auto-Repeat feature is enabled.

Key Click

With this option, you can instruct the Colleague to make a sound each time a key is pressed. If you prefer not to hear this sound, you can disable the key click. Choose the selection you prefer: "Key Click On" or "Key Click Off".

Warning Bell

When the warning bell is enabled, bell signals (Control G) from a host system are audibly heard via the Colleague's internal speaker.

In the Warning Bell field, you have two selections: "Warning Bell On" and "Warning Bell Off".

Margin Bell

When enabled in the 80 column mode, the Margin Bell sounds a bell every time a typed character extends beyond column 72. When 132 column mode is selected, a bell sounds when the characters extend beyond column 124.

If your host system software has its own warning bell, you may want to disable this feature. Make your selection: "Margin Bell Enabled" or " Margin Bell Disabled".

Caps Lock/Shift Lock

This field enables you to determine how you want the LOCK key to work. There are two possible options: "Caps Lock" and "Shift Lock".

The "Caps Lock" option shifts only the letter keys to uppercase when the LOCK key is depressed. The "Shift Lock" option shifts all keys to their uppercase positions when the LOCK key is depressed.

Press the F2 key to proceed to the second keyboard screen.

```
Channel #:  1                Copy From Channel       Free Memory:  1200
Function Key #:   1          Clear The Channel       FKeys Unlocked
Current Key:

F1-Prev Menu   F2-Next Menu   F3-Main Menu                    EDIT-Edit line
```

The Programmable Function Keys

With the second Keyboard Set-Up menu screen options, you can change and/or display the functions of the Colleague's programmable function keys. See Chapter 4, p. 4-15, for an explanation of how to use the programmable function keys.

Channel Number: In this field, select the number of the Auto-Connect channel you want to modify.

Function Key Number: Make sure the number in this field corresponds to the number of the function key (1-20) you want to program. If it does not, enter the correct function key number. If you programmed the function key previously, its current contents will appear on the display in the Current Key field. You may now reprogram the key by altering the key's current contents.

Current Key: This field displays the current programming of the key you have selected. You can program or edit the function key string (a name, a phrase, a control character, or a number that you use often) by simply typing in the information you want the host system to receive.

When you press the function key (with the SHIFT key, when FKeys = VT220 FKeys) (See Chapter 4, p. 4-15), the Colleague sends the programmed information as though you typed it in each time. There is a limit of 80 characters for each function key sequence.

Copy From Channel: This feature permits you to copy all 20 function keys from an Auto-Connect channel that has been previously programmed to the channel you are currently programming. Press the RETURN key, and you see the prompt:

<Enter Auto-Connect Channel number to copy from :>

Type in the number of the channel from which you want to copy the function keys.

Clear The Channel: Use this feature to clear all of the programmable function keys for this channel. Unless you reprogram the keys, they are inactive when pressed while in this channel.

When you press the RETURN key, you see the following message displayed on the screen:
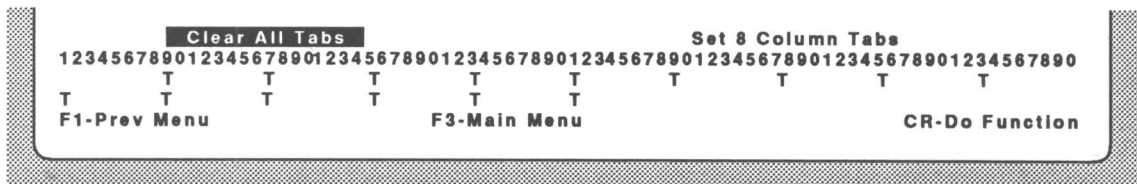
<Clear all Function Keys? Y/N>

Press the (y) indicating "yes" if you desire to clear the channel or the (n) indicating "no" if you want to preserve the programmed function keys.

Free Memory: YOU **CANNOT** CHANGE THE INFORMATION IN THIS FIELD. It displays the total amount of space available for programming all function keys.

The initial total is 1200 bytes. You can program up to 80 characters per function key or until the Free Memory field reads 0. When the 0 appears on your display screen, you have no more room to program function keys.

FKeys Unlocked/Locked: Use this field to prevent the function keys from being reprogrammed by the host system while on-line. This is a global function, which means that it affects all of the function keys for all 20 Auto-Connect channels. Select one of the options: "FKeys Unlocked" or "FKeys Locked".

Press the F2 key to access the third and final Keyboard Set-Up Menu screen.

```
            Clear All Tabs                    Set 8 Column Tabs
1234567890123456789012345678901234567890123456789012345678901234567890123456789 0
        T       T       T       T       T       T       T       T       T       T
T       T       T       T       T       T
F1-Prev Menu                  F3-Main Menu                   CR-Do Function
```

Tab Settings

This field allows you to change the tab position settings on the keyboard. You can select the default settings for tabs at every eighth space, or you can clear all tab positions.

Make one of the following selections: "Clear All Tabs" or "Set 8 Column Tabs".

If you want to set your own tabs, use the DOWN ARROW key to move the cursor to the bottom of the screen. Next, press the EDIT key to highlight the entire tab ruler. Move the cursor to the tab position you desire and press the "T" key to set a tab. Press the spacebar to remove a tab.

Press the F3 key to return to the Main Menu.

```
Auto-Connect          Printer                   Display
Keyboard              General                   Security
Save Set-Up           Back-Up Set-Up To Host    Default Selections
Recall Set-Up         Restore Set-Up From Host
                                                CR-Select Menu
```

GENERAL SET-UP MENU

This menu is a selection in the Main Menu. It controls the parallel printer port and several communication options. The General Set-Up Menu is shown below:

```
Audio Volume Low              On Line              Power-Up Channel:   0
Auto-Off:  15 min             Reset Terminal       Remote Access Channel:   0
Tone Dial                     Clear Comm

F1-Prev Menu                  F3-Main Menu                  CR-Next Option
```

Setting the Audio Volume

Select one of the following: "Audio Volume Off", "Audio Volume Low", or "Audio Volume High".

This feature, when set to low or high volumes, enables you to hear what comes in over the telephone line (dial tones, etc.), as well as margin and warning bells and key clicks. You can adjust the volume in relation to the noise level in the room where you are operating the Colleague.

Auto-Off Timer

These selections instruct your Colleague to wait a specified period of time before turning itself Off. The timer starts over again every time you press a key or receive a character from the active communication ports (RS-232 or internal modem).

Your options are: "Auto-Off Disabled", "Auto-Off: 5 mins", "Auto-Off: 15 mins", or "Auto-Off: 30 mins".

Tone or Pulse Dial

With this feature, you can select the type of dial you require for establishing communications with a host system. If you have a touchtone telephone system, select the Tone Dial option. If you have a rotary dial telephone system, select the Pulse Dial option.

> **NOTE:** Most long-distance services do not recognize pulse dial signals. The Switch to Tone Dial command may be used in the Channel Telephone Number Field (See Chapter 4, p. 4-8).

On Line/Local

Sometimes you may want to operate in the local (standalone) mode instead of being on-line to a host system.

This capability is particularly appropriate while conducting troubleshooting

procedures. Select one of the options, "On-Line" or "Local".

> **NOTE:** If you set this field to local, you must reset it to "On-Line" to communicate with a host system.

Reset Terminal

The Reset Terminal feature resets many terminal operating features to a default setting used by most application programs (for more information, see Soft Terminal Reset in Appendix A). The screen, communication, and user defined keys are <u>not</u> affected.

Clear Comm

Selection of this feature clears communication as follows:

- Aborts any escape sequence, control sequence, or device control string processing.
- Aborts any print operation.
- Clears the keyboard, receive, and transmit buffers.
- Sends XON to the host.
- Resets XOFF received flag.

Power-Up Channel

Use this option to direct the Colleague to enter a specific Auto-Connect channel number (1-20) as soon as you turn on the Colleague. If the value 0 is entered in the Power-Up Channel field, the Auto-Connect Menu appears when the Colleague is turned on.

> **NOTE:** To return to the opening menu from an Auto-Connect channel, press the SHIFT and BREAK keys simultaneously to disconnect from the host system. This takes you off-line and returns you to the Auto-Connect Menu.
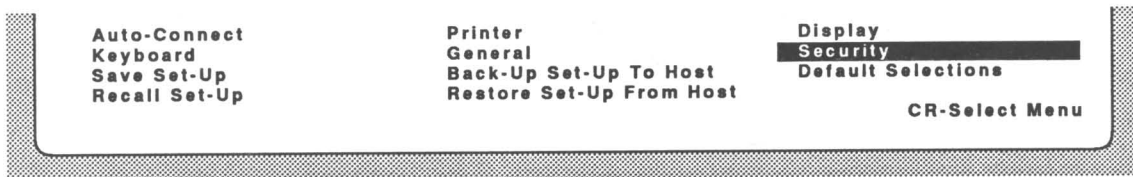
Remote Access Channel

The Colleague's VT220 emulation has been expanded to allow a host or terminal to control a remote Colleague (See Appendix A). This capability is used to restore new set-up parameters in a remote Colleague or upload/download files from a remote Colleague PLUS.

Use this option to direct the Colleague to enter a specific Auto-Connect channel (1-20) when the phone line rings. The Colleague must be On and at the Auto-Connect Menu to enable this option. The Colleague will Auto-Answer in the Answer mode and communicate using the Remote Access Channel's set-up parameters. When entering a Remote Access Channel, the phone number field is ignored.

Entering 0 in this field disables the Remote Access Channel option.

Press the F3 key to return to the Main Menu.

```
Auto-Connect              Printer                     Display
Keyboard                  General                     Security
Save Set-Up               Back-Up Set-Up To Host      Default Selections
Recall Set-Up             Restore Set-Up From Host
                                                      CR-Select Menu
```

SECURITY SET-UP MENU

The Security Set-Up Menu may be selected from the Main Set-Up Menu. The options presented in this menu enable you to restrict access to the Set-Up Menu and the Auto-Connect channels. Also presented is the option to program an Answer Back Sequence. The Security Set-Up Menu is shown below:

```
Set-Up Password:
Auto-Connect Password:
Answer Back Sequence:

F1-Prev Menu              F3-Main Menu                EDIT-Edit line
```

The Set-Up Password capability restricts access to the Set-Up Menu system of your Colleague. Choose a password and enter its characters into the field. You will now be prompted to enter this password each time you press the SET-UP key.

The Auto-Connect password restricts the ability to enter any of the 20 Auto-Connect channels. Choose a password and enter its characters into the field. After selecting a channel on the Auto-Connect menu, you will be prompted to enter this password before continuing the Auto-Connect process.

> **NOTE:** When using the Back-Up Set-Up feature, the Set-Up and Auto-Connect passwords will <u>not</u> be backed-up. Conversely, when using the Restore Set-Up feature, the Set-Up and Auto-Connect passwords will <u>not</u> be restored.

If you forget your passwords, you can erase them by typing CLEAR as the channel number at the "Please Enter Your Selection:" prompt. The CLEAR command is case sensitive and should be typed in capital letters.

> **CAUTION:** All the data you have programmed into your channels will be lost when you type CLEAR (all in caps). All selections will be set to their default values.

Answer Back Sequence

Once communications are initiated between the Colleague and a host system, some host systems require a specific response, such as a second password or identification (ID) code, during the log-on procedures. This required response is called an Answer Back Sequence.

The Colleague sends an Answer Back message when it receives an ENQ (enquire, Control E) signal from the host system, or when you press the CONTROL and BREAK keys simultaneously.

To enter an Answer Back Sequence, press the EDIT key and type in the code.

To conceal the Answer Back Sequence, press the F11 key and the EDIT key when finished entering your sequence. If you want to change a concealed Answer Back, use the EDIT mode to make your changes. This clears the old Answer Back message and allows you to enter a new sequence as a replacement.

Press the F3 key to return to the Main Menu.

```
Auto-Connect          Printer                  Display
Keyboard              General                  Security
Save Set-Up           Back-Up Set-Up To Host   Default Selections
Recall Set-Up         Restore Set-Up From Host
                                               CR-Do Function
```

SAVE SET-UP

This option allows changes made in the Set-Up Menu while on-line to be permanent.

> **NOTE:** If the Save Set-Up option is not selected, changes made to the Set-Up Menu while on-line will be discarded when the Auto-Connect channel is exited.

```
   Auto-Connect          Printer              Display
   Keyboard              General              Security
   Save Set-Up           Back-Up Set-Up To Host   Default Selections
   Recall Set-Up         Restore Set-Up From Host
                                              CR-Do Function
```

RECALL SET-UP

If you modify Auto-Connect parameters while on-line, you can recall the original data by using this selection from the Main Menu. If you use the Save Set-Up feature after you modify the Set-Up parameters, this feature will not work.

```
   Auto-Connect          Printer              Display
   Keyboard              General              Security
   Save Set-Up           Back-Up Set-Up To Host   Default Selections
   Recall Set-Up         Restore Set-Up From Host
                                              CR-Do Function
```

BACK-UP SET-UP TO HOST

The Back-Up Set-Up feature allows you to save your Colleague Set-Up configuration onto a host system. This information will be stored in ASCII format.

To operate the Back-Up Set-Up command, you must be on-line to a host system. Once on-line, you must direct your host system to accept transmitted text for storage in a file. Check with your host system's technical support for the best method.

Next, press the SET-UP key and select the Back-Up command. The Colleague will now send its Set-Up configuration to the host system. If the host system echoes the Back-Up information, asterisks (*) will appear on the screen for security reasons. Back-Up turns itself Off after the data is sent. To terminate Back-Up before it is complete, press the SET-UP key and select the command again.

> **NOTE:** The Set-up Menu and Auto-Connect passwords will <u>not</u> be backed-up.

Auto-Connect	Printer	Display
Keyboard	General	Security
Save Set-Up	Back-Up Set-Up To Host	Default Selections
Recall Set-Up	Restore Set-Up From Host	
		CR-Do Function

RESTORE SET-UP FROM HOST

The Restore Set-Up feature allows you to retrieve your Colleague Set-Up configuration from a host system. Only data created by the Back-Up Set-Up function can be restored.

> **CAUTION:** Restoring any other data will cause the Set-Up Menu selections to be lost.

To operate the Restore Set-Up command, you must be on-line to a host system. Press the SET-UP key and select the Restore command. You will now be returned to the on-line session. Invoke the procedure required to send the backed-up data to your Colleague. This depends on the host system you are connected to (consult your host system's technical support if you are unsure).

Asterisks (*) will appear on the screen as the Back-Up information is received. The Restore Set-Up command automatically turns itself Off when Restore is complete.

> **NOTE:** Changes made to the Set-Up of the active Auto-Connect channel will not take effect until you exit and re-enter the channel.

> The Set-up Menu and Auto-Connect passwords will <u>not</u> be restored.

```
Auto-Connect          Printer                    Display
Keyboard              General                    Security
Save Set-Up           Back-Up Set-Up To Host     Default Selections
Recall Set-Up         Restore Set-Up From Host
                                                 CR-Do Function
```

DEFAULT SELECTIONS

Select the Default Selections field from the Main Menu and press RETURN.

This returns all Auto-Connect channels to the default settings initially programmed into your Colleague during manufacture.

> **CAUTION:** If this option is used, you will lose all other data stored in the Colleague. However, you will not lose the PLUS data if you have the PLUS Option.

The following message appears on your display:

<WARNING! all data will be erased, are you sure (y/n)>

Pressing the (y) key indicates "yes", you want all of the data erased. Pressing the (n) key indicates "no", you want to preserve all of the programmed data. You are automatically returned to the Main Menu once you have indicated a response.

Now that you have learned how to program your Auto-Connect channels, you are ready for the next chapter, which explains the basic operation to perform when connecting to a host system.

5   *Operation*

Chapter 5 explains the procedure for establishing communications with a host system, how the Colleague operates while on-line, and the process for ending an on-line session.

ESTABLISHING COMMUNICATIONS

Complete the following steps:

Cable Connection: Connect the Colleague either to a telephone line (See Chapter 2, p. 2-6), directly to a host system or to an external modem (See Chapter 2, p. 2-8).

Power Up: Turn the unit On by pressing the red ON/OFF key.

Channel Selection: Select a channel from the Auto-Connect menu in order to establish communications with a host system (See Chapter 4, p. 4-5).

An Auto-Connect channel is selected in two ways. You may either enter the channel number and press the RETURN key, or press the corresponding function key of the channel number you wish to select (For example, press F1 to select Channel 1).

If you have not programmed a channel, you may do so at this time (See Chapter 4, p. 4-5), or you can use a channel with the pre-programmed default settings. The important default settings and their default values are:

> Phone Number: Manual
> Log-On: Manual
> Connection Type: 212A internal modem (1200 bps)*
> Communication: 8 data bits, no parity, 1 stop bit

* With the 2400 bps modem option, the default is V.22bis. With the 9600 bps modem option, the default is V.32.

Any channel not already programmed is automatically set to the above default values. If these settings are not appropriate, you must program an Auto-Connect channel (See Chapter 4, p. 4-5). If the default settings are okay, select any unprogrammed channel to begin connection.

Connection: Once a channel is selected, the Colleague attempts to connect to a host system. (However, if an Auto-Connect password has been entered during programming of your Colleague, you will be prompted to enter this password in order for the Colleague to attempt connection.) The following message appears on the screen:

<The Auto-Connect Sequence is Active>

If using the internal modem and the Colleague is correctly connected to a telephone line, a dial tone is heard. If no dial tone is present, the following error message is displayed:

<Dial Tone not detected, Error ignored.>

Regardless of whether or not the Colleague detects a dial tone, it continues with the connection sequence. If you have programmed a channel to automatically dial up and/or log on to the host system, it will now do so.

If using the Manual Dial function, this message appears on the screen:

<Manual Dial selected>
<ESC to restart Manual Dial, F16 to switch to tone dialing.>

While using the Manual Dial function, you may dial your host system's phone number by using the number keys (just as you would with a standard touch tone). You should hear the Colleague dial the phone number.

> NOTE: The Audio Volume field must be set to LOW or HIGH for any sounds to be heard.

If using an external modem, the phone number is transferred from the Colleague to the external modem. Refer to your external modem's user's manual for more information about dialing up and connecting to a remote host system.

If you are using the serial (RS-232) port connected directly to a host system, dialing is unnecessary and connection should occur immediately upon selecting an Auto-Connect channel.

Once the phone number is dialed, the Colleague looks for the carrier from the remote modem. If your Colleague does not detect the carrier within 30 seconds, your connection automatically terminates.

If your connection fails, you see:

<Carrier not detected>

<Press RETURN to continue.>

Press the RETURN key to return to the Auto-Connect menu. Check all of your cable connections and Auto-Connect parameters and try again. If you still cannot make a connection, call the host system's technical support to make sure the problem is not in the host system. If you still cannot find any reason for continued communication failure, then call the Random Corporation Customer Service Department.

When the connection is successful, the Colleague clears its screen and displays <Connect> on the first line. This message is followed by the actual communication rate of the connection in bits per second. If MNP (Microcom Networking Protocol) is On and a successful link to an MNP compatible modem is established, the word "RELIABLE", followed by the connection level (1-5), will appear after the bits per second communication rate.

You may now enter whatever log-on sequences are required for the host system you are using. These sequences can be programmed into the Auto-Connect channel (See Chapter 4, p. 4-9).
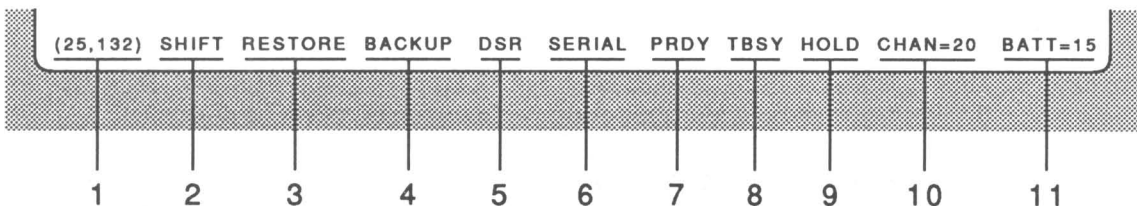
ON-LINE TO THE HOST COMPUTER SYSTEM

Once connected to the host system, your Colleague should essentially act as a DEC VT220 terminal. (See Chapter 3, p. 3-5 for information about which Colleague keys are similar to the function of VT220 keys.)

One notable difference between the operation of the VT220 and the Colleague is the addition of a 25th line which can operate in one of four modes (See Chapter 4, p. 4-14).

Indicator Status Line

This line gives you the status of the various communication modes of the Colleague. It also indicates the presence (or absence) of the hardware signals supplied by the host system. These and other important features of the status line are explained on the following pages.

```
(25,132)  SHIFT  RESTORE  BACKUP  DSR  SERIAL  PRDY  TBSY  HOLD  CHAN=20  BATT=15
   |        |       |        |      |     |      |     |     |      |         |
   1        2       3        4      5     6      7     8     9     10        11
```

1   **Cursor Status**

This field displays the current position (line, column) of the cursor.

2   **Keyboard Status**

This status line field displays the following messages under these conditions:

> **CAPS**   -The LOCK key function is active in Caps Lock Mode
> **SHIFT**   -The LOCK key function is active in Shift Lock Mode
> **KLOCK**   -The keyboard has been locked by the host system
> **WAIT**   -The Colleague is busy, stop typing

This field is blank if none of these conditions are active.

3   **Receive Status ***

This field indicates whether any of the Colleague's receive functions are active.

> **RESTORE**   -Set-Up Menu Restore function is active
>   -PLUS file Restore function is active (PLUS Option only)
> **CAPTURE**   -Data Capture function is active (PLUS Option only)
> **RECORD**   -Record function is active (PLUS Option only)
> **SNAP**   -Screen-Snap function is active (PLUS Option only)
> **PAUSE**   -Receive functions are suspended (PLUS Option only)

3   **Transmit Status ***

This field indicates whether any of the Colleague's transmit functions are active.

> **BACK-UP**   -Set-Up Menu Back-Up function is active
>   -PLUS file Back-Up function is active (PLUS Option only)
> **SEND**   -Send file function is active (PLUS Option only)
> **PLAYBACK**   -Playback function is active (PLUS Option only)

* When the Colleague is logging-on to the host system, the Receive Status and Transmit Status functions will be disabled and the message "LOGGING-ON" will be displayed in their place. PLUS and Set-up activation will also be disabled during log-on.

4   **Data Communication Signal Status**

Data Set Ready (**DSR**) is the signal sent by the host system when connected to a terminal. If this signal is supplied by the host system, then DSR appears on the status line.

NOTE: The DSR signal is only displayed when the Modem Controls function in the Auto-Connect Set-Up menu is set to "Serial Port Modem Controls" (See Chapter 4, p. 4-13).

5   Connection Type

This field indicates whether the current Auto-Connect channel is programmed for a serial (RS-232) port or an internal modem connection (See Chapter 4, p. 4-10) or whether it is in the Local mode. Accordingly, **SERIAL, MODEM,** or **LOCAL** is displayed in this field.

6   Printer Status

PRDY	-Printer is connected and ready
PBSY	-Printer is connected but busy
NOPR	-No printer is connected

7   Terminal Status

TBSY indicates the terminal is busy and is asking the host system to wait.

8   Display Status

HOLD indicates the HOLD SCROLL function is activated (See Chapter 3, p. 3-3, for an explanation of the HOLD SCROLL key).

9   Channel Indicator

CHAN = , followed by the current Auto-Connect channel number, is displayed.

10   Low Battery Indicator

When **BATT = 15** appears in this field, you only have 15 minutes of battery operation left before the Colleague turns itself Off to preserve its internal programming (See Chapter 2, p. 2-5).

NOTE: With the optional V.32 modem installed and in use, the Low Battery Indicator message will read **BATT = 5**. When **BATT = 5** appears in the field, you only have 5 minutes of power remaining.

The Colleague's internal battery is recharged when the unit is plugged into a standard electrical outlet (See Chapter 2, p. 2-4). While the Colleague is recharging, **CHARGING** appears in the Low Battery Indicator field of the status line.

Remote Disconnect

If the host system disconnects from your Colleague for some reason, this message appears on the status line:

<REMOTE DISCONNECT - Now in AUTO-ANSWER MODE, Press RETURN to Exit>

When you press the RETURN key, you return to the Auto-Connect menu.

If you are using the internal modem, the Colleague automatically answers an incoming call in this mode (See Chapter 4, p. 4-8). If you are expecting a call, do not press the RETURN key at this prompt.

ENDING AN ON-LINE SESSION

When you finish your on-line session, you should log off of the host system and exit from the Auto-Connect channel.

You can exit the Auto-Connect channel by either turning the Colleague Off or by pressing the SHIFT and BREAK keys simultaneously. Pressing the SHIFT and BREAK keys returns you to the Auto-Connect menu.

In most cases, the host system automatically logs you off when you exit a channel. If this is not the case, you must log off manually as required by your host system. Logging off is particularly important when you are being billed by the hour for on-line time.

In the next chapter, the features of the Colleague PLUS are explained in detail.

6 *Colleague PLUS*

THE COLLEAGUE PLUS MENU

In this chapter, the features of the Colleague PLUS are described. The PLUS function provides a 64K (expandable to 320K) internal memory RAMdisk, as well as enhanced communication capabilities, a word processor, and a file management system. These features may be accessed at anytime (except when you are in the Set-Up Menu) by pressing the gray PLUS key on the upper left side of the keyboard.
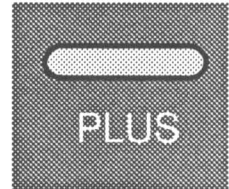
When the PLUS function is active, the PLUS commands are displayed across the top of the screen. Commands are organized into three categories: Communications, Word Processing, and General. In addition to displaying the available commands, the Colleague PLUS Menu provides a directory of the files you have in the RAMdisk memory. The directory and the command areas are explained in the following sections.

RANDOM CORPORATION - COLLEAGUE PLUS

COMMUNICATIONS		WORD PROCESSING		GENERAL	
Pause	Screen-Snap	Edit	Print	Copy	Format
Capture	Send	Backup	Restore	Rename	Help
Record	Playback			Erase	Quit

Directory:

Free disk space: 65201

Command: ▮

COLLEAGUE PLUS FILE COMMANDS

The Directory, located on the lower half of the Colleague PLUS menu, displays the files contained in the RAMdisk memory. To view more files, press the SHIFT-DOWN ARROW keys simultaneously to display the next screen of files in the directory. Press the SHIFT-UP ARROW keys simultaneously to display the previous screen of files.

After accessing the PLUS commands (described in the next section), pressing the HOME key will take the cursor to the first file in the directory while pressing the SHIFT-HOME keys simultaneously will take the cursor to the last file in the directory.

The Free Disk Space indicator, located below the directory area, reflects the amount of memory still available. There is approximately 64K (or 320K) of memory in the RAMdisk initially.

ACCESSING THE PLUS COMMANDS

There are two ways to access the PLUS commands:

1) With the ARROW keys, move the reverse video bar to the command you wish to use and press the RETURN key.

2) Type the desired PLUS command after the <Command:> prompt appears on the status line of the opening screen. You may simply type in the full command or an abbreviation of the command (see table below). When you have completed entering the command, press the RETURN key to execute.

Most commands require additional information to carry out their function. For example, if you wish to edit a file you must specify the filename (parameter to be used). When a PLUS command is invoked, it prompts you for the additional information required.

Alternatively, when commands are typed in directly from the <Command:> prompt, all necessary information is entered at once. For example, to edit a file called "FILENAME", type "EDIT FILENAME" at the <Command:> prompt. PLUS commands that can be entered on the status line are as follows:

Command	Abbreviation	Parameter
Pause	PA	-------
Capture	CA	New Filename
Record	REC	New Filename
Screen-Snap	SC	New Filename
Send	SE	Existing Filename

Playback	PL	Existing Filename
Edit	E	New or Existing Filename
Print	PR	Existing Filename
Back-Up	B	Existing Filename
Restore	RES	New Filename
Copy	CO	Existing Filename to New Filename
Rename	REN	Existing Filename to New Filename
Erase	ERA	Existing Filename
Format	FORMAT	--------
Quit	Q	--------

NOTE: You may correct or change the text you enter after the <Command:> prompt by using the Edit Line Keys (See Chapter 4, p. 4-4).

NOTE: The ESC key serves as a universal abort key.

To exit the PLUS option, simply press the PLUS key (or select the Quit command). This returns you to the screen you were using prior to entering the PLUS mode. If you press the PLUS key again, you are returned to the point where you left off in the PLUS mode.

NOTE: The PLUS key can be pressed at any time during operation of the standard Colleague or PLUS mode, except when using the Set-Up Menus.

ENHANCED COMMUNICATIONS

There are six communication selections: Pause, Screen-Snap, Capture, Send, Record, and Playback.

You must be on-line with a host system to use the communication options. If you are not on-line (See Chapter 5: Operation, for instructions on establishing on-line communications) and you try to access one of these six fields, the following message will appear on the screen:

<Not on-line>

Pause

Use the Pause feature in conjunction with the Capture, the Screen-Snap and the Record features of the Colleague Plus. You can use Pause to suspend the normal operations of these features. Pause permits you to exclude unimportant sections of data from the Capture, Screen-Snap, and Record functions.

When Pause is activated, you are returned to the on-line screen and the word "PAUSE" appears on the status line.

When Pause is selected again, it is de-activated and Capture, Screen-Snap, or Record will continue.

Screen-Snap

The Screen-Snap function allows you to take a snap shot of the information displayed on your terminal screen and store it in the Colleague's internal memory (RAMdisk).

Technically, this communication option enables you to re-route data from the VT220 print functions to the internal RAMdisk. All data normally sent to the printer is stored in the RAMdisk.

If the Print mode in the Set-Up Menu is set to Auto-Print, only lines that end in a line feed, form feed, vertical tab or auto-wrap are saved (See Chapter 4, p. 4-18).

When the print mode is set to Controller, information does not appear on the screen, but is routed directly to the RAMdisk.

In Normal print mode, characters sent to the terminal are displayed on the screen.

If your application sends data directly to the printer without sending it to the screen, the data sent is stored in the RAMdisk.

Enter a filename after you activate Screen-Snap.

> **NOTE:** If you enter a filename that is the same as an existing filename, you append the new data onto the old file.
>
> You may not select a file that has been edited by the Colleague PLUS word processor or you will get the following message:
>
> <Can't append to edited file.>

When this function is active, the word "SNAP" appears on the status line. To store a screen, press the gray PRINT key. You hear a "beep" indicating that the screen has been saved.

> **NOTE:** If you push the PRINT key more than once, you will snap more than one copy of the screen.

You must select the Screen-Snap function a second time in order to turn it Off.

Capture

The Capture function enables you to transfer a file from the host system to the Colleague's internal memory (RAMdisk). The Pause option can be used to suspend the operation of the Capture function.

Select the Capture option and enter a filename in which you wish the captured information to be stored. Once the Capture function is activated, you are returned to the on-line session.

The host system file that you wish to capture must be scrolled to the Colleague's display. Direct the host system to scroll the file at this time. All characters displayed on the screen are stored in the capture file and all control characters except Carriage Returns (Control M) and Line Feeds (Control J) are filtered out (See Appendix A: Control Sequences).

If Boldfaced, Underlined or Flashing text is displayed, only the text is captured, not the attribute.

If you capture to a file that already exists, data is appended onto the end of the existing file. However, you cannot append to a file that has already been edited by the Colleague's word processor.

When the Capture function is active, the word "CAPTURE" appears on the status line.

In case of a host system disconnect or in the event that communications are otherwise broken, what has been captured up to the point of disconnection is stored.

Select Capture a second time in order to turn Capture Off. A disconnect (SHIFT-BREAK) or turning the unit Off will also turn Off the Capture function.

Send

The Send feature enables you to send a Colleague PLUS file to a host system or a printer. To send a file, you must select the Send command and then select the file to be sent.

After completing the above procedure, the terminal returns to the on-line session and the data is sent.

The "SEND" Status indicator appears on the status line. The Send command automatically stops after the file has been sent.

To stop the Send command before it is complete, you must select the Send command a second time.

There are various features available for use with the Send command from the Send Set-Up menu (See Chapter 6, p. 6-12). Also, see End of Page Sequence section in Chapter 6, p. 6-18.

Record

The Record feature allows you to save an on-line session in the Colleague's internal memory (RAMdisk). Once this information is stored, you may replay the information. When played back, the information appears identical to when it was first transmitted to the Colleague's terminal.

The Record option permits you to store all characters received through the serial port or the internal modem. The Pause option can be used to suspend the operation of the Record option.

After you have activated Record, you must select a file you wish the recorded data to be stored in.

> **NOTE:** You cannot select a file that has been edited by the Colleague PLUS word processor.

When Record is active, the word "RECORD" appears on the status line.

In case of a host system disconnect or in the event that communications are discontinued, the Record session is also disconnected. However, information recorded up to the point of disconnection is stored and may be played back.

Turn the Record feature Off by selecting the Record command a second time. A disconnect (SHIFT-BREAK) or turning the unit Off will also turn the Record feature Off.

Playback

This communication option allows you to Playback a Recorded, Captured, or Screen-Snapped file. Enter the filename you wish to playback. This action does not affect the host system.

> **NOTE:** Files that have been created or edited with the Colleague's word processor cannot be played back.

> **NOTE:** You do not have to be connected to the host system, but the Auto-Connect channel you use for Playback must be compatible with the Auto-Connect channel you were using when you recorded.

If XOFF Enable is selected, you can pause your Playback by pressing the HOLD SCROLL key.

To abort a Playback, press the PLUS key, move the reverse video bar to the Playback field, and press the RETURN key. You may also press the SHIFT and BREAK keys simultaneously.

> **NOTE:** Pressing the SHIFT and BREAK keys simultaneously disconnects the Colleague from the host system.

The speed of the Playback can be adjusted by using the ARROW keys and 0-9 keys. There are ten possible speed settings for Playback and this setting can be controlled in the following two ways:

1) Press the Up and Down ARROW keys to move the speed setting to faster and slower options, respectively.

2) Press the number keys 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 to set the speed directly. 1 is the slowest and 0 is the fastest setting.

The next section gives you a detailed description of the Colleague's word processing features.

WORD PROCESSING

With the word processing features of the Colleague, you can create or edit files, as well as print them out.

Creating/Editing a File

To create/edit a file, select the Edit option. To create a new file, enter a new filename at the <Command:> prompt. To edit an existing file, move to the file you wish to edit and press the RETURN key.

After you select or enter the filename, you will see the word processing screen with right and left margins and tab positions indicated on the display screen.

> **NOTE:** You can press the F20 key (FINISH) key to return to the opening menu if the filename is not entered correctly. The PLUS word processor will not save an empty file.

The bottom two lines of your screen give you information about the document file.

Ruler line: This line tells you where your left and right margins are and where your tab positions are set. To change the tabs, see Chapter 6, p. 6-16.

░░░░ L ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░░░ T ░ R ░░░░░░░

Indicator line: This line is below the ruler line. It shows you the following:

File: Filename   Underline   Bold   Mode: Replace   Page: 1   Line: 1   Col: 1

1) Name of the file you are editing (or creating).

2) Whether the Bold and/or Underline attributes are active.

3) Whether you are in Insert or Replace mode (for inserting or replacing text).

4) The page, line, and column number where your cursor is positioned.

The dark bars running up and down either side of the screen indicate the left and right margins. They are currently set so that you begin typing on the tenth space in from the left edge of your page and stop at the seventy-sixth space (when Left Margin Offset = 5). To change these margins, see Chapter 6, p. 6-16.

Once you are editing a file (new or existing), you can use any of the 20 function keys displayed on the word processing overlay to access the menu functions. A description of each of the keys is found below the respective key.

Each key and its function is described with its corresponding screen on the following pages.
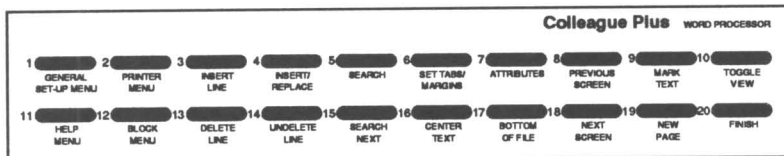
Entering Text

Once you are in a file, you may enter text into the Colleague PLUS word processor.

An automatic wrap feature allows you to keep on typing while the Colleague returns you to the next line automatically. You do not need to press RETURN for a carriage return; only if you want to indicate the end of a paragraph.

The BACKSPACE key moves you back one space and underlines erases the previous character. If you type an incorrect letter and realize it immediately, you can press the BACKSPACE key to erase and retype it.

Cursor Movement

There are several ways to move the cursor around in your file.

Each ARROW key moves the cursor one position in the direction indicated on the key. Below is a list of the other cursor movement keys and their functions:

HOME:	Move to the top (beginning) of the file.
SHIFT-HOME or F17:	Move to the end of the file.
SHIFT-LEFT ARROW:	Move to the beginning of the previous word.
SHIFT-RIGHT ARROW:	Move to the beginning of the next word.
CONTROL-LEFT ARROW:	Move to the beginning of the line.
CONTROL-RIGHT ARROW:	Move to the end of the line.
SHIFT-UP ARROW or F8:	Move to the previous screen.
SHIFT-DOWN ARROW or F18:	Move to the next screen.
CONTROL-UP ARROW:	Move to the top of the screen.
CONTROL-DOWN ARROW:	Move to the bottom of the screen.
TAB:	Replace current character with tab character in Replace mode. Insert tab character in Insert mode.
SHIFT-TAB:	Move to previous tab position.

Deleting Text

To delete a character, use the ARROW keys to place the cursor over the character you want to remove and press the DELETE key. To delete large sections of text, you may use the Block Menu functions (See Chapter 6, p. 6-15).

Other delete functions include:

SHIFT-BACKSPACE:	Delete a word to the left.
SHIFT-DELETE:	Delete a word to the right.
CONTROL-BACKSPACE:	Delete text to the beginning of the line.
CONTROL-DELETE:	Delete text to the end of the line.
F13:	Delete line.
F14:	Undelete last line deleted with Delete line function.

Inserting Text

To insert characters, you must be in the Insert mode. Position the ARROW keys at the position you want to insert characters and type in the new text.

Insert/Replace (F4): The Insert/Replace key allows you to switch (or toggle) between the Insert and Replace modes. Insert mode places characters at the cursor and moves all other characters to the right. A character typed in Replace mode overwrites the character at the cursor and proceeds to the next character.

In the Insert/Replace mode, the setting is displayed on the 25th line of the screen (when in editing mode next to the word <Mode:>).

Insert Line (F3): Pressing the F3 key inserts a blank line at the cursor. It also moves all text below the inserted line down one line.

Centering Text (F16): The F16 key inserts the correct number of spaces to display the text on the current line in the center of the screen.

Marking Text

You must mark blocks of text you wish to manipulate (move, copy, delete, or write) and you must be in the Block Menu (See Chapter 6, p. 6-15) to do so.

Be sure that your cursor is at the beginning of the text you wish to mark. Press the F9 key to indicate the beginning of the block.

Move the cursor to the end of the block of text you are marking and press the F9 key again. The marked text appears in reverse video (See Chapter 6, p. 6-15).

> **NOTE:** Blocks of marked text are automatically unmarked when you are finished with the file.

MENU FUNCTIONS

In addition to the Cursor Movement, Delete, Insert, Center, and Mark Text functions, the word processor contains menu functions.

These menus provide functions not ordinarily available by just hitting a key stroke. Examples of such functions include: searching for and replacing text, setting boldface and underline text attributes, as well as setting up a printer.

You can access the menu functions in the following two ways:

1) Press the function key associated with the menu you have chosen (See Chapter 6, p. 6-8, for diagram of function keys and menus).

2) Press F1 to select the General Set-Up Menu. From this menu, use the ARROW keys to select the appropriate menu and press the RETURN key.
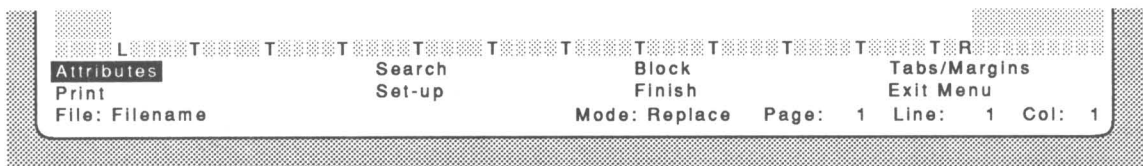
Exit Menu

Once a menu has been selected (is active), you may exit the menu by selecting the Exit Menu option, by pressing the ESCAPE key, or by accessing another menu.

The following sections describe the functions contained in each menu and list the associated function key that will access it.
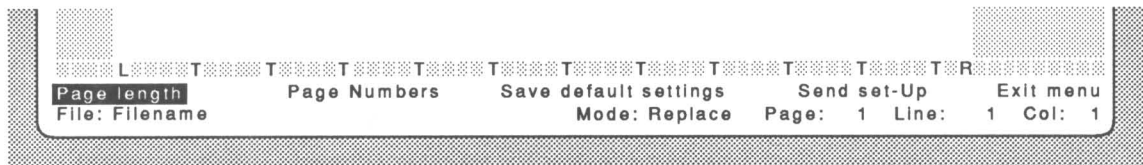
General Set-Up Menu (F1)

This menu displays the available menus (listed on the following pages) to choose from. You may select the Set-Up Menu from this menu.

```
        L     T     T     T     T     T     T     T     T     T     T   R
 Attributes              Search              Block              Tabs/Margins
 Print                   Set-up              Finish             Exit Menu
 File: Filename                       Mode: Replace   Page:   1  Line:   1   Col:  1
```

Set-Up Menu

Press the RETURN key to access the Set-Up Menu.

```
        L     T     T     T     T     T     T     T     T     T     T   R
 Page length        Page Numbers     Save default settings    Send set-Up     Exit menu
 File: Filename                             Mode: Replace   Page:   1  Line:   1   Col:  1
```

Page Length: Access this field to set the page length you desire. You may enter page lengths from 2 lines up to 255 lines. The default page length is 66 lines.

> **NOTE:** The average mailing label is 4 lines with a blank line in between each label. An 8-1/2" X 11" sheet of paper is 66 lines long with an assumed 6 lines per inch or 423 micas. An 8-1/2" X 14" sheet of paper is 84 lines long with an assumed 6 lines per inch or 423 micas.

Page width is locked at an assumed 10 characters per inch or 254 micas. If a different number of characters per inch is required, you may wish to change to Left Margin Offset in the Print Menu (See Chapter 6, p. 6-18). This allows text to be printed in the center of the page.

Proportional spacing justification is not supported.

Page Numbers: You can decide whether or not you want Page Numbers by selecting either the On or Off option. The page numbers print on the next to the last line before the bottom margin.

> **NOTE:** The page numbers appear on the printed document only and will not appear on the display screen.

Save Default Settings: This function saves the current file parameters to the internal memory of the Colleague. Whenever a new file is created, these default settings will be used.

These settings include: Top and Bottom, Left and Right Margins, Tab Settings, Left Margin Offset, Page Length, End of Page Sequence, and End of Line Sequence.

Send Set-Up Menu

This menu controls various options that can be used with the Send and Back-Up commands.

```
    L    T    T    T    T    T    T    T    T    T    T    T R
 Line prompt char    Line delay      Page prompt char     Page delay
 Open sequence       Close sequence  Send attributes      Send CR at end of line
 Send paragraph margins              Exit menu
 File: Filename                            Mode: Replace  Page:  1  Line:   1  Col:  1
```
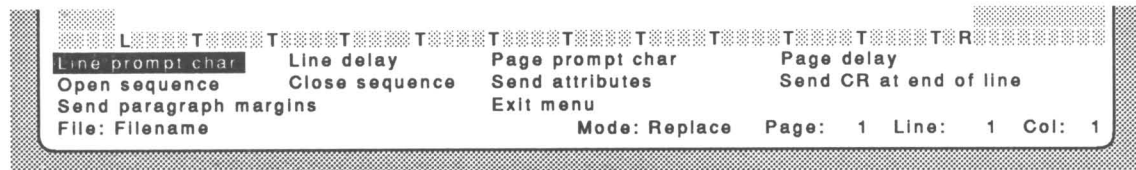
Line Prompt Char and Page Prompt Char: These commands can be used to prevent the Colleague from sending information too fast for the host system to receive it. When these fields are selected, the Colleague will pause the Send operation at the end of every line and/or page, respectively. The Send operation will continue when the host system sends the designated prompt character. (Page Prompt Char is not supported in the Back-Up function.)

Line Delay and Page Delay: These commands make the Colleague wait a designated period of time after sending each line and/or page, respectively. These delays are in tenths of seconds and are used to prevent the Colleague from sending information too fast for the host system to receive it. (Page Delay is not supported in the Back-Up function.)

Open and Close Sequences: These are used to automate the Send and Back-Up commands. Enter a sequence of characters you want to use to either open or close a Back-Up and/or Send operation.

The Open Sequence is sent at the beginning of the Back-Up and/or Send operation. The Close Sequence is sent after the Back-Up and/or Send operation. Text, Delays, Wait For Prompt characters and breaks can be programmed like log-on sequences (See Chapter 4, p. 4-9). You must press the F20 key in order to send the filename.

Send Attributes: When the Send attributes option is set to On, the Colleague will transmit the Printer Attribute codes for underlined and/or bold text (See Chapter 4, p. 4-17). (Send Attributes is not supported in the Back-Up function.)

Send CR at end of line: When this message is set to On, the Colleague will send a Carriage Return at the end of every line. When set to Off, the Colleague will send a Carriage Return only at the end of a paragraph. This may be useful when sending a file directly into a host system word processor. (Send CR at end of line is not supported in the Back-Up function.)

Send Paragraph Margins: When set to On, the Colleague will send spaces before sending text with paragraph margins. Otherwise, the paragraph will be left justified on the same left margin as the rest of the document. (Send Paragraph Margins is not supported in the Back-Up function.)

Attributes Menu (F7) (Boldface and Underline)

With this menu, you can create boldfaced or underlined text. You can also modify existing text to take on bold or underline attributes, or change bold or underlined text back to its normal appearance.

When you select the Boldface or Underline field, an "ON" or "OFF" selection will be displayed on the screen. The current state of the option will be highlighted.

Make your choice by moving the reverse video bar over either the ON or OFF selection and press the RETURN key.

If text has been marked using the F9 (Mark Text) key (See Chapter 6, p. 6-10), only this text will take on the attribute you have chosen.

If no text has been marked, only text typed after the attribute selection will be affected. The status line will display the current status of the Boldface or Underline attribute selected.

Search Menu (F5)

To search the file for a specific word or text, select the Search Menu.

The following screen appears on the display:

```
     L    T    T    T    T    T    T    T    T    T    T    R
 Search                           Replace              Exit menu
 File: Filename                   Mode: Replace   Page:  1  Line:   1  Col:  1
```
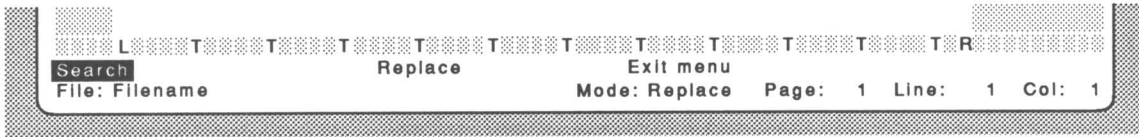
Search: When you access the Search field, you are prompted to enter the text you want to find: <Find text:>

> **NOTE:** If what you are searching for does not exist in the file, you will get the following message: <WARNING: No match found.>

Enter the text you wish to search for and press RETURN. If the text you want to find exists in the document, the cursor will be positioned on the first occurrence of it.

Once you have found the first occurrence of the text you are searching for, you may search for succeeding occurrences by using the Search Next (F15) function discussed below.

Replace: After accessing the Replace field, you are prompted to enter the word or text you want to replace: <Replace text:>

Press the RETURN key after your entry and you are prompted to enter the word or text you want left in its place: <with:>

Next, you are asked: <Confirm each replacement (y/n):> Choose whether or not you want to confirm each replacement.

Press "y" if you wish the Colleague to prompt you before it makes each replacement. This allows you to selectively replace words and text.

Search Next (F15)

This command is used with the Search Menu (F5) above. When locating text within a document, first access the Search Menu (F5) and enter the particular text in the Search field. The first occurrence of that text will be located. To find subsequent occurrences, use the Search Next (F15) command.

Block Menu (F12)

When you select the Block field in the General Set-Up Menu, the following screen appears:

```
         L     T     T     T     T     T     T     T     T     T     T    T  R
  Move                             Copy                        Delete
  Unmark                           Read                        Write
  File: Filename             Mode: Replace    Page:  1   Line:   1   Col:   1
```
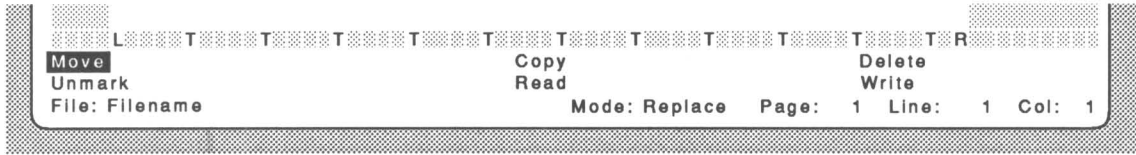
In this menu, you may move, copy, delete, or write to internal memory blocks of text you have marked (See Chapter 6, p. 6-10).

> **NOTE:** You must mark text before you can move, copy, delete or write. If you do not mark text by using the F9 (MARK TEXT) key, you get this message: <ERROR: No marked text.> (See Chapter 6, p. 6-10.)

To move, copy, delete, or unmark blocks of text, select one of the following: Move, Copy, Delete, or Unmark. These marked blocks of text appear in reverse video form on the screen.

Move: To move blocks of text you have marked, position the cursor where you want the marked text to appear and select the Move option. The marked text is moved to this position.

Copy: To copy blocks of text, place the cursor where you want to copy the marked text to and select Copy. The marked text is copied to this position.

Delete: When you select the Delete option, the block of text you marked will disappear from the screen.

Unmark: This option simply unmarks the block of text you originally marked.

Read: This function incorporates another file into the one you are currently editing. When you access the Read field, the existing file directory is displayed. Select the file you want to read from the directory. Be sure your cursor is positioned where you want the inserted text to be before reading a different file into your current file.

> **NOTE:** You cannot Read the file that is currently being edited.

Write: If you want to Write your block of text to a separate file, access the Write field. You are prompted to enter the filename you want to write to.

Tabs/Margins Menu (F6)

This menu allows you to set your tab positions and margins. The following menu appears on your screen:

```
    L   T   T   T   T   T   T   T   T   T   T   T  R
 Left margin              Right margin        Top margin           Bottom margin
 Set all tabs            Clear all tabs       Manual tab set       Paragraph
 Exit menu
 File: Filename                          Mode: Replace   Page:   1  Line:   1  Col:   1
```
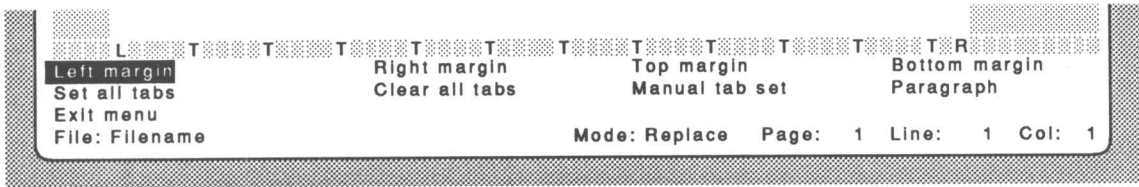
Left Margin and Right Margin: Adjust your left and right margins by accessing these fields.

Use your RIGHT and LEFT ARROW keys to move your margins to the left (L) and right (R). The cursor flashes on the "L" and "R". When you have placed the margins where you want them, press the RETURN key to set them.

Pressing the RETURN key sets new margins and returns you to the Tabs/Margins Menu. Pressing ESC aborts you from the operation without changing your margins.

Top Margin and Bottom Margin: Adjust your top and bottom margins from this menu. You are prompted as follows:

<Top margin (0-n):>
<Bottom margin (0-n):>

(n = page length selected)

(The default setting is 5 for both.)

Set All Tabs: To set your tabs at evenly spaced intervals, access this field and you are prompted as follows:

<Tab spacing (2-126):>

Enter the desired interval and press the RETURN key. The interval begins at the left margin with the first usable tab setting being the interval you have entered. (The default setting is every 5 spaces.) You are returned to the Tabs/Margins Menu after setting your tab positions.

Clear All Tabs: This function erases all your tab positions.

Manual Tab Set: For tab settings that require uneven spacing (at 5 spaces for paragraphs and at 42 for the center of the page, for instance), you can access this field and set your tab positions manually.

Pressing the space bar toggles the tab On and Off. Use the space bar in conjunction with your LEFT and RIGHT ARROW keys to set the tab positions you require.

```
     L     T     T     T     T     T     T     T     T     T     T     T  R
<SPACE> - toggles Tab On/Off                    <RETURN> - set new tabs

File: Filename                        Mode: Replace   Page:   1  Line:   1  Col:  1
```
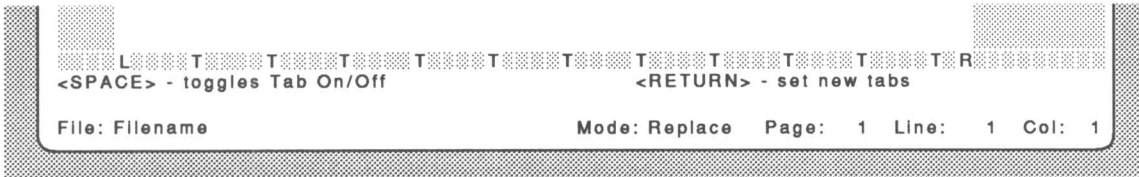
Toggle View (F10)

This feature allows you to view your text as it will appear when printed, without the margin, tab, and paragraph indicators.

When this function is inactive, the tabs, margins, and paragraph markers used are indicated on the screen only. Conversely, pressing the F10 key makes this function active and what you see on your display is what you get if you print out your file.

Print Menu (F2)

This menu allows you to control aspects of your printed document.

When you select the Print field, you print the file you are currently editing. To invoke this command, you must have your printer turned on and have your printer connected to either the printer or RS-232 port. Your printer must also be on-line before you can print.

```
     L     T     T     T     T     T     T     T     T     T     T  R
Print                   Line spacing    Left margin offset      Output device
Header                  Footer          End of page sequence    End of line sequence
Exit menu
File: Filename                        Mode: Replace   Page:   1  Line:   1  Col:  1
```
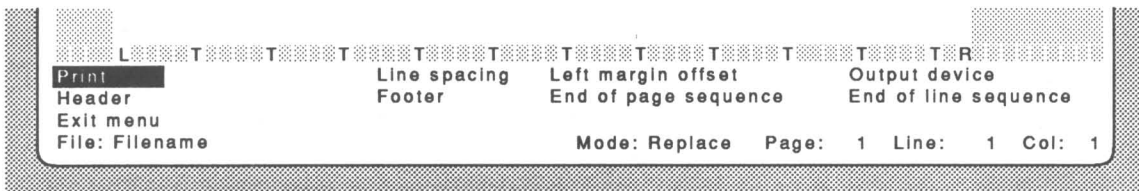
NOTE: Press the ESCAPE key to abort a print operation.

Line Spacing: You can set the Line Spacing from the Print Menu screen to single (1), double (2) or triple (3) spacing. (Default setting is single spacing.)

You are prompted to enter your selection: <Line spacing (1-3):>

Left Margin Offset: This option adds spaces before printing each line, thus allowing for centered printing on wide paper.

You are prompted as follows: <Left margin offset (0-132):> The default setting is 5.

Output Port: This field allows you to switch the print output from the printer port to the host port (serial port or internal modem connection) and vice-versa. If you are printing out the host port, you MUST be on-line through the Colleague's Auto-Connect Menu. This is necessary to ensure you have the proper data bits, parity and speed.

To change output devices, press the RETURN key when the reverse video bar is over the desired selection.

Header: This field allows you to have a consistent message printed at the top of each printed page (e.g., chapter title or text description).

To enter a header, select the Header field. You are prompted to enter your desired header. (You can enter up to 132 characters.) The header only allows for one line of text. Pressing the RETURN key enters the text as the header. Two blank lines are added between the header and the text. You can edit the header by using the Edit Line Keys (See Chapter 4, p. 4-4).

Footer: This field allows you to have a consistent message printed at the bottom of each printed page.

To enter the footer, select the Footer field. (You can enter up to 132 characters.) The footer only allows for one line of text.

Pressing the RETURN key enters the text as the footer. Two blank lines are added between the text and the footer. Use the Edit Line Keys (See Chapter 4, p. 4-4) to edit the footer.

End of Page Sequence: This is the code the Colleague uses to tell the printer to go directly to the top of the next page when it comes to a page break. Ordinarily, the Colleague counts all lines of each page while it prints, whether there is actually text on the rest of the page or not.

To program this function, select the End of Page Sequence field. Enter the code that makes the printer you are using advance to the next page. This code can be found in your printer manual (Ctrl -L, ASCII 12, is very common).

Below the prompt, "End of Page Sequence:", this message will appear: F1=CR and F2=ESC. When F1 is pressed, the letters "E" and "C" (^E_C) will appear. When F2 is pressed, the letters "C" and "R" (^C_R) are displayed.

These characters ensure that when control codes are used, a carriage return (CR) and escape (ESC) can still be communicated to the printer.

> **NOTE:** The End of Page Sequence can also be transmitted when using the File Send command.

End of Line Sequence: This is the code that designates whether the Colleague transmits a carriage return (CR), a line feed (LF), or a carriage return and a line feed (CR-LF) at the end of each line while printing. The default setting is a carriage return and a line feed (CR-LF).

New Page (F19)

You perform this function to designate the end of a page of text.

If finished typing all of the text you want on a page and you want the succeeding text you type to be on another page, position the cursor where you want the page break to be and press the F19 key.

If you want to remove a page break you have created, place the cursor just before the page break and press the SHIFT key and the F19 key simultaneously. The page break will be removed.

Help System (F11)

Pressing the F11 key activates the Help System. The Help System directs you to an appropriate help screen based on your current position and situation. You may access the Help System at anytime to assist you in your word processing.

Select options in the help screens by positioning the reverse video bar over your selections and pressing the RETURN key.

Pressing any other key besides the ARROW keys and the RETURN key automatically returns you to the point where you left off before accessing the Help System.

Finish (F20) (Saving Text Changes)

You can access this field through the General Set-Up Menu or you may simply press the F20 key while editing a file.

If the Colleague has sufficient RAMdisk space, it automatically creates a back-up file when you begin editing. This allows you to revert back to the original file if you decide not to save your changes.

To save text changes to a file, press the F20 key. The following prompt will appear:
<Save changes (y/n):>

If you say yes (y), the Colleague saves the file with the changes. If you say no (n), the Colleague reverts to the original file and the changes are lost. Once you make your selection, you are returned to the Companion PLUS opening menu.

When a file takes up more than a third of the Free Disk Space, there is insufficient memory for a temporary back-up of your original file to be created. In this case, the following message appears on your screen:

<WARNING: Insufficient memory for back-up - Changes will be permanent.>

If there is not sufficient memory for a back-up, each change to the file will be saved automatically. These changes will be permanent, since the Colleague will not be able to revert to a back-up of the original file. Pressing the F20 key will close the file and return you to the Colleague PLUS opening menu.

WORD PROCESSOR DEFAULT SETTINGS

Feature	Default Setting	Lower Limit	Upper Limit
Page Length	66	01	255
Page Numbers	OFF	OFF	ON
Line prompt char	none	--	1 char
Page prompt char	none	--	1 char
Line Delay (10ths of sec)	00	00	99
Page Delay (10ths of sec)	00	00	99
Open Sequence	none	--	80 char
Close Sequence	none	--	80 char
Send Attributes	OFF	OFF	ON
Send CR at end of line	ON	OFF	ON
Send paragraph margins	OFF	OFF	ON
Left Margin	04	00	Right Margin - 20
(when capturing)	00	--	--
Right Margin	64	Left Margin + 20	134
(when capturing)	134	--	--
Top Margin	05	00	Page Length - Bottom Margin - 2
Bottom Margin	05	00	Page Length - Top Margin - 2
Tab Spacing	05	00	79
Line Spacing	00	00	02
Left Margin Offset	05	00	132
Printer Interface	Printer Port	--	--
Header	none	--	132 char
Footer	none	--	132 char
End of Page Sequence	Line Feed	--	80 char
End of Line Sequence	CR-LF	--	--

BACK-UP AND RESTORE

The Back-Up and Restore commands allow you to archive your word processor files on your host system, while preserving the original attributes and format. To use these commands, you must be on-line with a host system. We recommend using MNP error correction during Back-Up and Restore.

The Back-Up command saves your word processor files in a special format that is not usable on your host system.

To operate the Back-Up command, you must be on-line to a host system. Once on-line, you must direct your host system to accept transmitted text for storage in a file. (This is dependent on the host system you are connected to.) To back-up a file, you must select the Back-Up command and select a file to Back-Up.

After completing the above procedure, the terminal returns to the on-line session and the file is backed-up.

The "BACK-UP" indicator appears on the status line. The Back-Up function automatically stops after the file has been sent.

The Back-Up command utilizes the Send parameters in the Send Set-Up Menu (See Chapter 6, p. 6-12).

The Restore command operates like the Capture function, which enables you to transfer a file from the host system to the Colleague' s internal memory (RAMdisk).

Select the Restore option and enter a filename you wish the restored information to be stored in. Once the Restore function is activated, you are returned to the on-line session.

Here, you must direct the host system to display the host system file you wish to restore to the RAMdisk. All characters displayed on the screen are stored in the capture file. Control Sequences are filtered out (See Appendix A: Control Sequences).

When the Restore function is active, the word "RESTORE" appears on the status line.

In the case of a host system disconnect or in the event that communications are otherwise broken, the Restored file will be deleted.

The Restore command will automatically disengage when the complete file has been received. You must have a file backed-up before it can be restored. If you do not have a backed-up file or cannot complete reception of the file, turn Restore Off.

GENERAL FILE SYSTEM FUNCTIONS

The General area consists of six fields: Copy, Rename, Erase, Format, Help, and Quit. These functions allow manipulation of the RAMdisk files and provide an expanded Help System that contains additional information regarding the communication, word processor, and file management functions.

Copy

The Copy function allows you to make an exact copy of a file. After selecting the Copy option, choose the file you wish to copy.

The cursor appears at the <Enter filename:> line at the bottom of the screen. Enter the new filename here.

> **NOTE:** If you copy a file to a filename that already exists, the **original file is erased** and overwritten by the new one.

You may **NOT** copy a file when the directory area is full (when 36 filenames exist).

You may **NOT** copy a file if there is not enough Free Disk Space remaining. If one file takes up more than one third of the RAMdisk, you may not duplicate it.

Rename

This function allows you to change a file's name, without changing the file in any other way.

After selecting the Rename option from the menu, choose the file you wish to rename. The cursor appears at the <Enter new filename:> prompt at the bottom of the screen. Enter the new filename here.

> **NOTE:** You cannot rename a file with a filename that already exists.

Erase

The Erase function permanently erases a file from the directory. After selecting this function, select the file you wish to erase.

> **CAUTION: TO INSURE THAT YOU DO NOT ERASE A FILE ACCIDENTLY,** the Colleague will then ask, "Are you sure you want to erase file? (y/n):". You must then indicate your answer (yes or no) by pressing the RETURN or "n" key if you do not want to erase the file or the "y" key if you do.

> **WARNING: ONCE A FILE IS ERASED, IT CANNOT BE RECOVERED.**

Format

This function **erases all files in the Colleague PLUS memory.**

WARNING: ALL FORMATTED RAMDISK FILES ARE PERMANENTLY ERASED.

Choose the Format function. **To prevent the erasure of files accidently,** the Colleague replies <Format will erase all files, are you sure (y/n)?:> If you wish to proceed with the Format function, press the "y" key for yes.

If you do not wish to proceed, either press the RETURN key or "n" key for no.

Help

The Help function activates the Help System. Press the F11 (HELP) key to call up the Help System at anytime while in the PLUS mode.

This system can be activated to answer questions you may have concerning your Colleague PLUS option. Areas of available help include Communications, Word Processing and General File System Functions.

The Help System tries to anticipate your questions based upon your position in the program and directs you to the appropriate Help screen. Press any keys except RETURN and the ARROW keys to exit this option.

Quit

The Quit function returns you to the screen you were viewing before you entered the PLUS mode. This function is used when you want to exit the PLUS mode. You may also exit the PLUS mode by pressing the PLUS key.

A Control Sequences

Control sequences are used to initiate various terminal functions of the Colleague. The control sequences that are transmitted and received by the Colleague can have two forms, 7- and 8-bit. 7-bit codes (0-1F HEX) are defined as C0 control codes (some of these include Carriage Return, Line Feed, and Escape). 8-bit codes (80-9F HEX) are defined as C1 control codes (CSI falls in this category). All control sequences listed in this appendix will be shown in 7-bit form.

8-bit, C1 control codes can be represented in 7-bit form by a two character Escape sequence. For example, a CSI (9B HEX) can be represented by ESC (1B HEX), followed by '[' (5B HEX).

When the Colleague is in 7-bit mode, it is capable of receiving 8-bit codes. However, it will only transmit 7-bit codes.

TERMINOLOGY AND REFERENCE NOTATIONS:

In this section, all control strings are presented in ASCII form. The following is an example:

ESC [1 A

Variable values ("parameters") in control sequences are represented by a "P" with a small letter immediately following to designate its purpose. For example:

ESC [Ps $ }
    where Ps = 1 or 2

The "^" symbol preceding an upper case letter means to hold the "CTRL" key while pushing the letter. The following keys are examples:

Control Key	Function
^H	"Backspace"
^I	"Tab"
^M	"Return" (If New Line Mode is set to "No New Line" in the Auto-Connect Set-up Menu)

RECEIVED CODES

The following series of tables are the control sequences that the Colleague recognizes when received.

CO (ASCII) Control Characters Recognized:

Name	Mnemonic	Result
NULL	NUL	This character is ignored when received.
ENQUIRY	ENQ	Causes the terminal to send the Answer Back Sequence.
BELL	BEL	Causes a bell to sound if option is enabled.
BACKSPACE	BS	Moves the cursor one position to the left. No action is taken if the cursor resides at the left margin.
HORIZONTAL TAB	HT	Moves the cursor to the next tab stop location.
LINE FEED	LF	Moves the cursor down one line vertically without changing horizontal position. However, if New Line Mode is set to "New Line", the cursor goes to the beginning of the next line.
VERTICAL TAB	VT	(same effect as Line Feed).
FORM FEED	FF	(same effect as Line Feed).
CARRIAGE RETURN	CR	Moves the cursor to left margin of the current line.
SHIFT OUT	SO	Maps G1 character set into GL. G1 is designated by a select-character-set sequence.
SHIFT IN	SI	Maps G0 character set into GL. G0 is designated by a select-character-set sequence.

Name	Mnemonic	Result
XOFF	DC3	If "XOFF Enabled" is selected, XOFF causes the terminal to stop transmitting characters.
XON	DC1	XON causes the terminal to resume transmitting characters.
CANCEL	CAN	If received during an escape or control sequence, this code causes the sequence to be terminated and cancelled. In either case, no error character is displayed.
SUBSTITUTE	SUB	Same as CANCEL, except that an error character is displayed.
ESCAPE	ESC	This character is processed as an escape sequence introducer. Any escape or control sequence that is in process is terminated.
DELETE	DEL	This character is ignored when it is received. Note: May not be used as a time fill character.

C1 Control Characters Recognized:

Name	Mnemonic	7-Bit Equivalent	Result
INDEX	IND	ESC D	Moves the cursor down one line. Scrolls up if the cursor is at bottom margin.
NEXT LINE	NEL	ESC E	Moves the cursor to the start of the next line. Scrolls up if the cursor is at the bottom margin.
HORIZONTAL SET	HTS	ESC H	Sets a horizontal tab at the TAB current horizontal cursor position.
REVERSE INDEX	RI	ESC M	Moves the cursor up one line. Scrolls down if the cursor is at the top margin.

Name	Mnemonic	7-Bit Equivalent	Result
SINGLE SHIFT G2	SS2	ESC N	Temporarily maps G2 character set into GL for the next graphic character. G2 is designated by a select character-set sequence.
SINGLE SHIFT G3	SS3	ESC O	Temporarily maps G3 character set into GL for the next graphic character. G3 is designated by a select character-set sequence.
DEVICE CONTROL STRING	DCS	ESC P	Opening delimiter of a device control string. (ESC, CAN and SUB no longer cancel device control strings.)
CONTROL SEQUENCE INTRODUCER	CSI	ESC [	Opening delimiter of a control sequence.
STRING TERMIN-ATOR	ST	ESC \	Closing delimiter of a string opened by a DCS.
OPERATING SYSTEM COMMAND	OSC	ESC]	Opening delimiter of an operating system command.*
PRIVACY MESSAGE	PM	ESC ^	Opening delimiter of a privacy message string.*
APPLICATION PROGRAM COMMAND	APC	ESC _	Opening delimiter of an application program command.*

* All characters following these codes are ignored until an ST (ESC \) control character is received.

TERMINAL EMULATION MODES:

Name	Sequence	Result
Select VT100	ESC [6 1 " p	Sets the terminal to emulate a VT100.
Select VT220 8-bit	ESC [6 2 " p	Sets the terminal to emulate a VT220 using 8-bit control codes. Communications must be set to 8 data bits.
Select VT220 8-bit	ESC [6 2 ; 0 " p	Sets the terminal to emulate a VT220 using 8-bit control codes. Communications must be set to 8 data bits.
Select VT220 7-bit	ESC [6 2 ; 1 " p	Sets the terminal to emulate a VT220 using 7-bit control codes.
Select VT220 8-bit	ESC [6 2 ; 2 " p	Sets the terminal to emulate a VT220 using 8-bit control codes. Communications must be set to 8 data bits.

SELECT C1 CONTROL TRANSMISSION:

Name	Sequence	Result
Transmit 7-bit codes	ESC sp F	C1 codes are converted to their 7-bit equivalents before transmission to the host. This sequence is ignored when the Colleague is in the VT100 mode.
Transmit 8-bit codes	ESC sp G	C1 codes are transmitted to the host without being converted to their equivalent 7-bit code extensions.

TERMINAL MODES:

Set Mode	Sequence	Reset Mode	Sequence	Description
Locked	ESC [2 h	Unlocked	ESC [2 l	Keyboard action
Insert	ESC [4 h	Replace	ESC [4 l	Insertion-replacement
Local Echo Off	ESC [1 2 h	Local Echo On	ESC [1 2 l	Local echo
New Line	ESC [2 0 h	Line Feed	ESC [2 0 l	Interpretation of LF code and RETURN key
Application	ESC [? 1 h	Cursor	ESC [? 1 l	Cursor keys send application or ANSI cursor codes
132 Columns	ESC [? 3 h	80 Columns	ESC [? 3 l	Virtual screen width
Reverse Video	ESC [? 5 h	Normal Video	ESC [? 5 l	Normal or reverse video screen
Relative	ESC [? 6 h	Absolute	ESC [? 6 l	Line numbers are absolute or relative to top margin
Auto-Wrap On	ESC [? 7 h	Auto-Wrap Off	ESC [? 7 l	Automatic newline at right-most column
Auto-Repeat On	ESC [? 8 h	Auto-Repeat Off	ESC [? 8 l	Automatic key repeat
Form Feed On	ESC [? 1 8 h	Form Feed Off	ESC [? 1 8 l	Use of Form Feed (FF) as print screen terminator

Set Mode	Sequence	Reset Mode	Sequence	Description
Full Screen	ESC [? 1 9 h	Scrolling Region	ESC [? 1 9 1	Portion of screen printed by print screen function
Cursor Visible	ESC [? 2 5 h	Cursor Invisible	ESC [? 2 5 1	Cursor visibility

Terminal Modes Not Supported:

Smooth Scroll ESC [? 4 h

CURSOR POSITIONING:

Name	Sequence	Result
Cursor Up	ESC [Pn A	Moves the cursor up Pn lines in the current cursor column.
Cursor Down	ESC [Pn B	Moves the cursor down Pn lines in the current cursor column.
Cursor Right	ESC [Pn C	Moves the cursor right Pn columns in the current cursor line.
Cursor Left	ESC [Pn D	Moves the cursor left Pn columns in the current cursor line.
Cursor Position	ESC [Pl ; Pc H or ESC [Pl ; Pc f	Moves the cursor to line Pl, column Pc of the display. The first sequence is preferred.
Index	ESC D	Moves the cursor down one line in the current cursor column. If the cursor is at the bottom margin, the screen is scrolled up.

Name	Sequence	Result
Reverse Index	ESC M	Moves the cursor up one line in the current cursor column. If the cursor is at the top margin, the screen is scrolled down.
Next Line	ESC E	Moves the cursor to the start of the next line. If the cursor is at the bottom margin, the screen is scrolled up.
Save Cursor	ESC 7	Saves, in terminal memory, the cursor position, graphic rendition, character sets, selective erase attribute, and origin mode.
Restore Cursor	ESC 8	Restores cursor to the state saved by a previous ESC 7. If an ESC 7 has not been received, the cursor moves to the home position with no attributes.

TAB STOPS:

Tab stops are positioned on the horizontal lines of the screen. The cursor advances to the next tab stop when the terminal receives a horizontal tab code (HT, 09 HEX). If there is not another tab, the horizontal tab (HT) moves the cursor to the right margin. To set and clear the tab stops, use the following sequences:

Name	Key Sequence	Description
Horizontal Tab Set	ESC H	HTS sets a tab stop at the current column. HTS is an 8-bit control character which can be given as an escape sequence when coding for a 7-bit environment.
Tabulation Clear	ESC [g or ESC [0 g	Clears a horizontal tab stop at the cursor position.
Clear All Tabs	ESC [3 g	Clears all horizontal tab stops.

LINE AND CHARACTER ATTRIBUTES:

SELECT GRAPHIC RENDITION:

ESC [Ps ; ... Ps m

Character (or graphic) renditions may be selected by entering the Ps code for that rendition from the list that follows. More than one rendition may be selected at one time by using an ASCII ";" as a delimiter. (e.g., "ESC [4;5;7 m")

Ps Character Rendition Code	Result
0	All attributes off
2	Bold attribute on
4	Underscore attribute on
5	Blinking attribute on
7	Reverse video attribute on
2 2	Bold attribute off
2 4	Underscore attribute off
2 5	Blinking attribute off
2 7	Reverse video attribute off

Note that the bold attribute is not supported directly but can be mapped to one of the other attributes (in the Set-Up menus). (See Chapter 4, p. 4-19)

Line Attributes Not Supported:

ESC #3	Double High Line Top
ESC #4	Double High Line Bottom
ESC #5	Single Width Line (Default)
ESC #6	Double Width Line

SELECT CHARACTER ATTRIBUTES:

You can select subsequent characters to be "selectively erasable" or "not selectively erasable" (VT220 mode only) using the following code sequences:

Sequence	Result
ESC [0 " q	All attributes Off (does not apply to select graphic renditions).
ESC [1 " q	Subsequent characters are non-erasable (see "ERASING SEQUENCES").
ESC [2 " q	Subsequent characters are erasable (see "ERASING SEQUENCES").

CHARACTER SET SELECTION:

Character Set	Escape Sequence	Designated As
ASCII	ESC (B	G0 (Default)
ASCII	ESC) B	G1
ASCII	ESC * B	G2
ASCII	ESC + B	G3
DEC Special Graphics	ESC (0	G0
DEC Special Graphics	ESC) 0	G1
DEC Special Graphics	ESC * 0	G2
DEC Special Graphics	ESC + 0	G3

Character Set	Escape Sequence	Designated As
DEC Supplemental	ESC (<	G0
DEC Supplemental	ESC) <	G1
DEC Supplemental	ESC * <	G2
DEC Supplemental	ESC + <	G3

Character Set Selections Not Supported:

"Soft" Character Sets	ESC (Dscs	G0
	ESC) Dscs	G1
	ESC * Dscs	G2
	ESC + Dscs	G3

LOCK SHIFTS:

Sequence	Description
SI	Lock shift G0 into GL
SO	Lock shift G1 to GL
ESC ~	Lock shift G1 into GR
ESC n	Lock shift G2 into GL
ESC }	Lock shift G2 into GR
ESC o	Lock shift G3 into GL
ESC l	Lock shift G3 into GR

EDITING SEQUENCES:

Name	Sequence	Result
Insert Line	ESC [Pn L	Insert(s) Pn lines at the cursor.
Delete Line	ESC [Pn M	Delete(s) Pn line(s) starting at the cursor line.
Insert Characters	ESC [Pn @	Insert(s) Pn blank character(s) at the cursor position with the character attributes set to normal (VT220 mode only).
Delete Characters	ESC [Pn P	Delete(s) Pn character(s) starting with the character at the current cursor position.

ERASING SEQUENCES:

Name	Sequence	Result
Erase in Line	ESC [Pn X	Erases Pn characters starting with the character at the current cursor position (VT220 mode only).
Erase in Line	ESC [K or ESC [0 K	Erases from the cursor position to the end of the current line (including current cursor position).
Erase in Line	ESC [1 K	Erases from the beginning of the line to the cursor position (including the current position).
Erase in Line	ESC [2 K	Erases the current line.
Erase in Display	ESC [J or ESC [0 J	Erases from the cursor to the end of the screen (including the cursor position).

Name	Sequence	Result
Erase in Display	ESC [1 J	Erases from beginning of display to the cursor (including the cursor position).
Erase in Display	ESC [2 J	Erases the complete display.
Selective Erase in Line	ESC [? K or ESC [? 0 K	Erases all erasable characters from the cursor to the end of the current line (VT220 mode only).
Selective Erase in Line	ESC [? 1 K	Erases all erasable characters from the beginning of the current line to, and including, the cursor position (VT220 mode only).
Selective Erase in Line	ESC [? 2 K	Erases all erasable characters on the current line (VT220 mode only).
Selective Erase in Display	ESC [? J or ESC [? 0 J	Erases all erasable characters from the cursor to the end of the display, including cursor position (VT220 mode only).
Selective Erase in Display	ESC [? 1 J	Erases all erasable characters from the beginning of the display to the cursor, including cursor position (VT220 mode only).
Selective Erase in Display	ESC [? 2 J	Erases all erasable characters on the display (VT220 mode only).

SETTING TOP AND BOTTOM MARGINS:

ESC [Pt ; Pb r   Define the scrolling region. Pt is the line number of the first line in the scrolling region (top margin) and Pb is the line number of the last line in the scrolling region (bottom margin). If either Pt or Pb are not selected, they default to the top and bottom of the screen, respectively. Lines are counted from "1."

PRINTING:

Name	Sequence	Result
Auto-Print Mode	ESC [? 5 i	Turns on Auto-Print mode. This causes the current line to be printed when the cursor is moved off of the line due to a Line Feed (LF), Form Feed (FF), Vertical Tab (VT) or Auto-Wrap. Printed line is terminated by a Carriage Return and the character which moved the cursor off the line. (Auto-Wrap uses Line Feed.)
	ESC [? 4 i	Turns off Auto-Print mode.
Controller Mode	ESC [5 i	Turns on Controller mode. Received characters are routed directly to the printer without appearing on the display (except NUL, XON, XOFF ESC [5 i and ESC [4 i). This mode has higher priority than Auto-Print mode. It can be entered while in Auto-Print mode. When in Controller mode, keyboard entry continues to go directly to the host system.
	ESC [4 i	Turns off Controller mode.
Print Cursor Line	ESC [? 1 i	Prints line the cursor is on. Cursor position does not move.
Print Screen	ESC [i or ESC [0 i	Prints the screen (full screen or scrolling region depending on print extent selected; see table of terminal modes).

USER DEFINED KEYS:

The terminal programmable function keys may be defined remotely by using this sequence (VT220 mode only):

ESC P Pc ; Pl I Ky1 / St1 ; Ky2 / St2 ; .... Kyn /Stn ESC \

Pc	Means
None	Clear all keys before loading new values.
0	Clear all keys before loading new values.
1	Load new key values, clear old only where defined.

Pl	Means
None	Lock the keys against future redefinition.
0	Lock the keys against future redefinition.
1	Do not lock the keys against future redefinition.

Function Key	Value (Kyn)	Function Key	Value (Kyn)
F1	1 2	F11	2 3
F2	1 3	F12	2 4
F3	1 4	F13	2 5
F4	1 5	F14	2 6
F5	1 6	F15	2 8
F6	1 7	F16	2 9
F7	1 8	F17	3 1
F8	1 9	F18	3 2
F9	2 0	F19	3 3
F10	2 1	F20	3 4

St1, St2,....., Stn are encoded values which represent the user defined contents of the programmable function keys. These encoded values are hexadecimal pairs in the ranges of 30H to 39H (0 through 9), 41H to 46H (A through F), and 61H to 66H (a through f). When combined, these values represent 8-bit quantities and, thereby, allow any of the 256 character codes to be used in the key sequence. The following example shows how the word "HELP" would be encoded:

Stn = 4 8 4 5 4 C 5 0

DEVICE ATTRIBUTE REPORTS:

Based on request sequences from the host computer system, the Colleague briefcase terminal will respond with reports to provide identification, cursor position and terminal operating status. These reports fall into two categories - Device Attribute Reports and Device Status Reports. The Device Status Reports follow the Device Attribute Reports list below:

Communication	Sequence	Meaning
Host to Terminal	ESC [c or ESC [0 c	"What is your service class code and what are your attributes?"
Terminal to Host	ESC [? 6 2 ; 2 ; 6 ; 8 c	"I am a service class 2 terminal (62) with printer port (2), selective erase (6), user defined keys (8)."
Host to Terminal	ESC [> c or ESC [> 0 c	"What type of terminal are you, what is your firmware version and what hardware options do you have installed?"
Terminal to Host	ESC [> 1 ; Pv ; 0 c	"I am a VT220-type terminal (1) with firmware version Pv."

DEVICE STATUS REPORTS:

Communication	Sequence	Meaning
Host to Terminal	ESC [5 n	"Please report your operating status using a device status report control sequence. Are you in good operating condition or is there a malfunction?
Terminal to Host	ESC [0 n	"I have no malfunction."
Terminal to Host	ESC [3 n	"I have a malfunction."

Communication	Sequence	Meaning
Host to Terminal	ESC [6 n	"Please report your cursor position using a CPR control sequence."
Terminal to Host	ESC [Pl ; Pc R	"The cursor is at line Pl, column Pc."
Host to Terminal	ESC [? 1 5 n	"What is the printer status?"
Terminal to Host	ESC [? 1 3 n	"No printer."
Terminal to Host	ESC [? 1 0 n	"The printer is ready."
Terminal to Host	ESC [? 1 1 n	"The printer is NOT ready."
Host to Terminal	ESC [? 2 5 n	"Are user-defined keys locked or unlocked?'
Terminal to Host	ESC [? 2 0 n	"User-defined keys are unlocked."
Terminal to Host	ESC [? 2 1 n	"User-defined keys are locked."

IDENTIFICATION:

Sequence	Result
ESC Z	Causes terminal to send an identification response (as in Device Attribute Report). Identification using ESC Z is not recommended.

TERMINAL RESET:

Name	Sequence	Result
Hard Terminal Reset	ESC c	Exits the channel and returns to the Auto-Connect menu.
Soft Terminal Reset	ESC [! p	Returns many terminal settings to their defaults.

Mode	State After Power Up or Soft Terminal Reset
Cursor Visibility	Visible
Insert/Replace Mode	Replace
Origin Mode	Independent (of margins)
Auto-Wrap	Set-up setting (Power Up) or Off (Soft Terminal Reset)
Keyboard Action	Unlocked
Keypad Mode	Numeric Characters
Cursor Key Mode	Cursor (ANSI codes)
Top Margin	Top of screen (1)
Bottom Margin	Bottom of screen (24 or 25)
Character Sets	G0, G1 = ASCII
	G2, G3 = Supplemental
	GL = G0 GR = G2
Character Attributes	Normal
Selective Erase Attribute	Normal (erasable)
Save Cursor State *	Home position with defaults

* Applies only to subsequent restore cursor commands.

TESTS:

Screen Alignment Pattern	ESC #8

Test Not Supported:

Terminal Self Test	ESC [4 ; D1 y

COLLEAGUE EXTENSIONS TO THE VT220 CONTROL SEQUENCES:

Status Line:

Name	Sequence	Description
Blank status line	ESC [0 $ ~	Sequences to specifically address the status line are ignored.
Indicator status line	ESC [1 $ ~	This command will clear the status line and then redisplay the status information.
	ESC [= 1 h	Although the previous sequence is preferred, this sequence is provided for use with preceding Colleague Models.
Host-Writable status line	ESC [2 $ ~	This command clears the status line and permits the usage of the WRITE TO STATUS LINE COMMAND.
	ESC [= 1 l	Although the previous sequence is preferred, this sequence is provided for use with preceding Colleague Models.
25 line screen	ESC [= 0 $ ~	This command will allow line 25 to be accessed by the same methods as lines 1-24. Sequences to specifically address the status line are ignored.
Write to status line	ESC P D1 } string ESC \	This command will write the string of characters in "string" to the status line starting at position D1. For this command to be used, the status line has to be enabled. This command is available in VT-220 emulation mode only.

Remote Access:

Remote Access allows a host or terminal to access Colleague keyboard commands through the modem connection. This is useful for restoring or backing-up set-up parameters or uploading or downloading files to Colleague PLUS.

Remote Access   ESC P = r Sk...Sk ESC\

The string parameters (Sk) can be any key on the keyboard, encoded as pairs of Hex codes (eg. A is 4 1). Codes for non-ASCII keys are in the following table. Example: ESC P = r 5 4 4 5 5 3 5 4 9 A ESC\ will cause "TEST" to be displayed on the screen and the screen to be printed.

Key	Sk	Key	Sk	Key	Sk
F1	80	EDIT	9E	CTRL F1	C0
F2	81	HOLD	9F	CTRL F2	C1
F3	82	SHIFT F1	A0	CTRL F3	C2
F4	83	SHIFT F2	A1	CTRL F4	C3
F5	84	SHIFT F3	A2	CTRL F5	C4
F6	85	SHIFT F4	A3	CTRL F6	C5
F7	86	SHIFT F5	A4	CTRL F7	C6
F8	87	SHIFT F6	A5	CTRL F8	C7
F9	88	SHIFT F7	A6	CTRL F9	C8
F10	89	SHIFT F8	A7	CTRL F10	C9
F11	8A	SHIFT F9	A8	CTRL F11	CA
F12	8B	SHIFT F10	A9	CTRL F12	CB
F13	8C	SHIFT F11	AA	CTRL F13	CC
F14	8D	SHIFT F12	AB	CTRL F14	CD
F15	8E	SHIFT F13	AC	CTRL F15	CE
F16	8F	SHIFT F14	AD	CTRL F16	CF
F17	90	SHIFT F15	AE	CTRL F17	D0
F18	91	SHIFT F16	AF	CTRL F18	D1
F19	92	SHIFT F17	B0	CTRL F19	D2
F20	93	SHIFT F18	B1	CTRL F20	D3
HOME	94	SHIFT F19	B2	CTRL HOME	D4
UP	95	SHIFT F20	B3	CTRL UP	D5
DOWN	96	SHIFT HOME	B4	CTRL DOWN	D6
LEFT	97	SHIFT UP	B5	CTRL LEFT	D7
RIGHT	98	SHIFT DOWN	B6	CTRL RIGHT	D8
PLUS	99	SHIFT LEFT	B7	CTRL PLUS	D9
PRINT	9A	SHIFT RIGHT	B8	CTRL PRINT	DA
LISTEN	9B	SHIFT TAB	BD	CTRL BKSP	DE
LOCK	9C	SHIFT BKSP	BE	CTRL DEL	DF
SETUP	9D	SHIFT DEL	BF		

TRANSMITTED CODES

The Colleague's 20 function keys can be set to operate as one of the following: VT220 function keys, VT220 Numeric/Application keys, or Programmable function keys. The function keys transmit different character sequences (depending whether Shift or Control is used) and are for use with application software. Set-up of the operation of the functions keys is through the Auto-Connect Set-Up Menu and may be set-up differently for each of the 20 Auto-Connect channels. (See Chapter 3, p. 3-5 and Chapter 4, p. 4-15)

VT220 FUNCTION KEYS:

Key definitions below are the VT220 function keys.

The first 5 function keys send the following sequences in the VT220 and VT100 mode.

Function Key	VT100/220 Keyboard Equivalent	Sequence
F1	PF1	ESC O P
F2	PF2	ESC O Q
F3	PF3	ESC O R
F4	PF4	ESC O S
F5	<ENTER>	ESC O M

The **next 15 function keys (F6 through F20)** send the following sequences in the VT220 mode only. These keys correspond with F6-F20 on a VT220 terminal.

Function Key	Sequence
F6	ESC [1 7 ~
F7	ESC [1 8 ~
F8	ESC [1 9 ~
F9	ESC [2 0 ~
F10	ESC [2 1 ~
F11	ESC [2 3 ~
F12	ESC [2 4 ~
F13	ESC [2 5 ~
F14	ESC [2 6 ~
F15	ESC [2 8 ~
F16	ESC [2 9 ~
F17	ESC [3 1 ~
F18	ESC [3 2 ~
F19	ESC [3 3 ~
F20	ESC [3 4 ~

NUMERIC KEYPAD KEYS:

Some applications use the VT220 numeric keypad found on the right-hand side of the DEC keyboard as a "numeric/application keypad." The Colleague function keys support the keypad's application mode sequences only. (See Chapter 3, p. 3-5)

VT100/220 Numeric Key	Colleague Key	Sequence
0	F20	ESC O p
1	F11	ESC O q
2	F12	ESC O r
3	F13	ESC O s
4	F14	ESC O t
5	F15	ESC O u
6	F16	ESC O v
7	F17	ESC O w
8	F18	ESC O x
9	F19	ESC O y
-	F6	ESC O m
,	F7	ESC O l
.	F8	ESC O n
PF1	F1	ESC O P
PF2	F2	ESC O Q
PF3	F3	ESC O R
PF4	F4	ESC O S
ENTER	F5	ESC O M

PROGRAMMABLE FUNCTION KEYS

The Colleague's function keys support user-programmed functions. The Colleague's function keys may be programmed through the Colleague's Keyboard Set-Up Menu (See Chapter 4, p. 4-22) or via a remote host or terminal (See Appendix A, p. A-15).

EDIT KEY:

Depressing the Edit Key causes a re-definition of the F1 through F8 Function Keys when the terminal is on-line (not supported in the VT100 mode). As a result of this re-definition, the status line changes to show the new key definitions on line 25 of the display (See Chapter 3, p. 3-3). F1 through F8 are defined as follows (for use in some editing applications):

Key	VT220 Keyboard Equivalent	Code Sequence Generated
F1	Help	ESC [2 8 ~
F2	Do	ESC [2 9 ~
F3	Find	ESC [1 ~
F4	Insert Here	ESC [2 ~
F5	Remove	ESC [3 ~
F6	Select	ESC [4 ~
F7	Previous Screen	ESC [5 ~
F8	Next Screen	ESC [6 ~

NOTE: Pressing EDIT key again turns the EDIT keys OFF.

KEYS USED TO SEND 7-BIT CONTROL CODES

Control Character Mnemonic	Key Pressed With Ctrl Key
NUL	2 or space bar
SOH	A
STX	B
ETX	C
EOT	D
ENQ	E
ACK	F
BEL	G
BS	H
HT	I
LF	J
VT	K
FF	L
CR	M
SO	N
SI	O
DLE	P
DC1	Q *
DC2	R
DC3	S *
DC4	T
NAK	U
SYN	V
ETB	W
CAN	X
EM	Y
SUB	Z
ESC	3 or [
FS	4 or \
GS	5 or]
RS	6 or ~
US	7 or ?
DEL	8

* These are sent only when "XOFF Disabled" is selected in the Set-Up Menu.

ASCII Chart

For your reference, the following ASCII Chart has been provided:

COLUMN / ROW	BITS	0	1	2	3	4	5	6	7		8	9
0	0 0 0 0	NUL 0/0	DLE 10/16	SP 20/32	0 30/48	@ 40/64	P 50/80	` 60/96	p 70/112		80/128	DCS 90/144
1	0 0 0 1	SOH 1/1	DC1 (XON) 11/17	! 21/33	1 31/49	A 41/65	Q 51/81	a 61/97	q 71/113		81/129	PU1 91/145
2	0 0 1 0	STX 2/2	DC2 12/18	" 22/34	2 32/50	B 42/66	R 52/82	b 62/98	r 72/114		82/130	PU2 92/146
3	0 0 1 1	ETX 3/3	DC2 (XOFF) 13/19	# 23/35	3 33/51	C 43/67	S 53/83	c 63/99	s 73/115		83/131	STS 93/147
4	0 1 0 0	EOT 4/4	DC4 14/20	$ 24/36	4 34/52	D 44/68	T 54/84	d 64/100	t 74/116	IND 84/132	CCH 94/148
5	0 1 0 1	ENQ 5/5	NAK 15/21	% 25/37	5 35/53	E 45/69	U 55/85	e 65/101	u 75/117	NEL 85/133	MW 95/149
6	0 1 1 0	ACK 6/6	SYN 16/22	& 26/38	6 36/54	F 46/70	V 56/86	f 66/102	v 76/118	SSA 86/134	SPA 96/150
7	0 1 1 1	BEL 7/7	ETB 17/23	' 27/39	7 37/55	G 47/71	W 57/87	g 67/103	w 77/119	ESA 87/135	EPA 97/151
8	1 0 0 0	BS 8/8	CAN 18/24	(28/40	8 38/56	H 48/72	X 58/88	h 68/104	x 78/120	HTS 88/136	98/152
9	1 0 0 1	HT 9/9	EM 19/25	) 29/41	9 39/57	I 49/73	Y 59/89	i 69/105	y 79/121	HTJ 89/137	99/153
A	1 0 1 0	LF A/10	SUB 1A/26	* 2A/42	: 3A/58	J 4A/74	Z 5A/90	j 6A/106	z 7A/122	VTS 8A/138	9A/154
B	1 0 1 1	VT B/11	ESC 1B/27	+ 2B/43	; 3B/59	K 4B/75	[5B/91	k 6B/107	{ 7B/123	PLD 8B/139	CSI 9B/155
C	1 1 0 0	FF C/12	FS 1C/28	, 2C/44	< 3C/60	L 4C/76	\ 5C/92	l 6C/108	| 7C/124	PLU 8C/140	ST 9C/156
D	1 1 0 1	CR D/13	GS 1D/29	- 2D/45	= 3D/61	M 4D/77	] 5D/93	m 6D/109	} 7D/125	RI 8D/141	OSC 9D/157
E	1 1 1 0	SO E/14	RS 1E/30	. 2E/46	> 3E/62	N 4E/78	^ 5E/94	n 6E/110	~ 7E/126	SS2 8E/142	PM 9E/158
F	1 1 1 1	SI F/15	US 1F/31	/ 2F/47	? 3F/63	O 4F/79	_ 5F/95	o 6F/111	DEL 7F/127	SS3 8F/143	APC 9F/159

← CO Codes → ← ASCII Graphic → ← C1 Codes →

KEY

CHARACTER	ESC	1B	HEX
		27	DECIMAL

C   *Specifications*

For your reference, the following is a list of the technical specifications for the Random Colleague and Colleague Plus Portable Terminals.

PHYSICAL SPECIFICATIONS:

HEIGHT	2-5/8 INCHES (6.7cm)
WIDTH	13 INCHES (33cm)
DEPTH	10 INCHES (25.4cm)
WEIGHT	7.5 POUNDS (3.4kg)

ENVIRONMENTAL SPECIFICATIONS:

OPERATING TEMPERATURE	0 to 40 degrees Centigrade
STORAGE TEMPERATURE	-20 to 55 degrees Centigrade
HUMIDITY	10 to 95% non-condensing

ELECTRICAL SPECIFICATIONS:

LINE VOLTAGE (using exterior wall mount unit)	100 to 132 VAC, SINGLE PHASE
LINE FREQUENCY	47 to 63 Hertz.
INPUT POWER	12 watts Max.
	20 watts Max (with both backlight and 9600 bps modem options)
BATTERY CAPACITY	10 hours per charge
	3.5 hours per charge (with both backlight and 9600 bps modem options)
BATTERY VOLTAGE	6 VDC
CHARGER CONNECTION	5.5mm barrel connector (center positive)

DISPLAY SPECIFICATIONS:

SUPERTWIST LCD	24 lines x 80 characters (text)
	1 line x 80 characters (status)
CHARACTER	6 x 8 dot matrix (w/descenders)

| CHARACTER SETS | 128 ASCII characters |
| | DEC Line Special Graphics |

CHARACTER ATTRIBUTES   Reverse video, blank, underline, blink

DISPLAY ANGLE ADJUST   0 to 180 degrees

INTERFACE SPECIFICATIONS:

BELL 224 (optional), 212A/103   6 pin RJ11C permissive connection
CCITT V.32 (optional)/   Asynchronous/Synchronous
    V.22 bis (optional)/V.22/V.21   9600 (optional)/2400 (optional)/1200/300 bps
    Dual tone or pulse dial

RS232C Port   25 pin "D" connection
    Selectable bps rate (150 to 19200)
    Selectable parity
    7 or 8 bit data

PARALLEL PRINTER PORT   15 pin "D" connection
    5K bytes/second maximum transfer rate
    8 data bits
    Negative strobe out
    Positive busy in

pin 1: Ground (GND)
pin 2: Transmit Data (TXD)
pin 3: Receive Data (RXD)
pin 4: Request To Send (RTS)
pin 5: Clear To Send (CTS)
pin 6: Data Set Ready (DSR)
pin 7: Ground (GND)
pin 8: Data Carrier Detect (DCD)

pin 20: Data Terminal Ready (DTR)

pin 1: Data bit 0
pin 2: Data bit 1
pin 3: Data bit 2
pin 4: Data bit 3
pin 5: Data bit 4
pin 6: Data bit 5
pin 7: Data bit 6
pin 8: Data bit 7

pin 15: Strobe
pin 14: Strobe
pin 13: Ground
pin 12: Busy
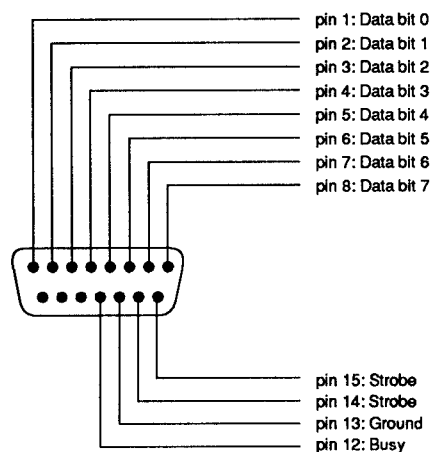
RS-232 port - pin diagram   **Printer port - pin diagram**

(Cable End View)

D   *Routine Care*

Your Colleague will give you years of use, while the maintenance requires only minutes of your time. The following instructions will assist you in keeping your Colleague in the best possible working condition.

1. **Temperature Requirements:** Your Colleague will operate in a temperature range of 0 to 40 degrees Centigrade. You may store the unit in temperatures ranging from minus 20 to 55 degrees Centigrade.

2. **Power cord and plug:** To avoid overheating of the cord, do not cover any part of the cord with carpet, rugs, furniture, etc. Arrange the cord away from traffic areas, where it will not be tripped over or stepped on. Insert the cylinder-like end of the black power cord into the **POWER** opening at the back of the Colleague. Insert the plug of the charger into a standard AC electrical outlet.

3. **Clutch Screw:** This screw is located on the display section of your Colleague and is used to tighten the screen into an upright position for use. Be careful not to over-tighten the screw so the plastic casing will not be cracked or damaged. If the screw is not tightened enough, however, the display could fall forward onto the keyboard and become damaged. Check the tension on the clutch screw periodically to prevent these accidents from occurring.

4. **Battery Charging:** To operate your Colleague on its internal battery, you must recharge the unit from a standard electrical outlet. The Colleague will be fully charged after eight consecutive hours of charging. This recharge will last up to 10 hours. Note that you can continue to use your Colleague while it is recharging without depleting the recharged internal battery or lengthening the recharge time required.

5. **Display:** Clean the display with a soft, damp, lint-free cloth. Avoid using paper materials, as they may scratch your screen. (The unit should be turned off during cleaning.)

6. **Keyboard:** Dust the keyboard periodically with a soft, lint-free cloth.

E   *Equipment List*

UNITS:	PART NUMBER
Colleague Laptop Portable Terminal *	PFCLGS1SS
w/Backlit Screen	PFCLGS1BS
w/2400 Modem	PFCLGS2SS
w/Backlit Screen and 2400 Modem	PFCLGS2BS
w/9600 Modem	PFCLGS9SS
w/Backlit Screen and 9600 Modem	PFCLGS9BS
Colleague PLUS Laptop Portable Terminal *	PFCLGP1SS
w/Backlit Screen	PFCLGP1BS
w/2400 Modem	PFCLGP2SS
w/Backlit Screen and 2400 Modem	PFCLGP2BS
w/9600 Modem	PFCLGP9SS
w/Backlit Screen and 9600 Modem	PFCLGP9BS
w/320K Expanded Memory	PFCLGQ1SS
w/Backlit Screen and 320K	PFCLGQ1BS
w/2400 Modem and 320K	PFCLGQ2SS
w/Backlit Screen, 2400 Modem and 320K	PFCLGQ2BS
w/9600 Modem and 320K	PFCLGQ9SS
w/Backlit Screen, 9600 Modem and 320K	PFCLGQ9BS

* Telephone Cord, Colleague AC Charger, User's Guide and Function Key Overlays included.

EXTENDED WARRANTIES:

Colleague 1 Year Extended Warranty	PFCLGY025
Colleague 1 Year Express Extended Warranty	PFCLGY026
Colleague Warranty Express Option	PFCLGY071

KODAK™ DICONIX™ MODEL 150 PLUS INKJET PRINTER:

Diconix™ Model 150 Plus Inkjet Printer	PFCLGY048
Diconix™ Model 150 Plus Inkjet Printer w/ Batteries	PFCLGY049
Diconix™ Inkjet Plain Paper Refill Cartridge (10)	PFCLGY002
Diconix™ Carrying Case	PFCLGY003
Diconix™ AC Charger (1 included with each printer)	PFCLGY004
Diconix™ Printer Manual (1 included with each Printer)	PFCLGY005
Batteries ("C" Cell Ni-Cad) (5)	PFCLGY042

CASES:

Colleague Travel Bag	PFCLGY008
Colleague Mini Case (Hard)	PFCLGY009
Colleague/Diconix™ System Case (Hard)	PFCLGY010

CABLES:

Printer Cable (DB15-DB25)	PFCLGY012
Printer Cable (DB15-CTRX)	PFCLGY013
Printer Cable Data Products	PFCLGY014
Printer Cable (DB15-DB15HP)	PFCLGY015
Serial Cable (DB25-DB25)	PFCLGY016
Serial Cable (DB25-DB9)	PFCLGY017

ACCESSORIES:

Acoustic Coupler to RJ11 Adapter	PFCLGY036
BlackJack™, Handset Adapter	PFCLGY037
BlackJack II™, Handset Adapter	PFCLGY056
Colleague Numeric Keypad	PFCLGY018
Parallel to Serial Converter with Cable (DB15-DB25)	PFCLGY031
Colleague Auto Charger	PFCLGY022
Colleague Telephone Cord	PFCLGY020
Colleague AC Charger	PFCLGY021
Colleague Function Key Overlay Package	PFCLGY023
Colleague and Colleague PLUS User's Guide	PFCLGY024

UPGRADES:

Colleague MNP Software Upgrade	PFCLGY027
Colleague PLUS MNP Software Upgrade	PFCLGY028
Backlit Screen Upgrade	PFCLGY029
Colleague to Colleague PLUS Upgrade	PFCLGY030
Colleague 2400 bps Modem Upgrade	PFCLGY035
Colleague 9600 bps Modem Upgrade	PFCLGY064
Colleague PLUS 320K Upgrade	PFCLGY050

F   Troubleshooting

In this appendix we provide a table listing common problems, their causes, and possible solutions. If you are experiencing trouble with your Colleague or Colleague PLUS and the corrective actions in this section do not solve your problem, then contact Random Corporation or your authorized Colleague dealer.

Problem	Cause	Corrective Action
Unit will not turn on	Battery is discharged	Connect unit to recharger
	Contrast level is too low to view characters on screen	Press contrast key until characters become visible
	Memory failure	Press and hold ON/OFF key for 5 seconds. Release and wait 5 seconds. Press ON/OFF key again.
BATT 15 message appears in lower right corner of display	Battery is low	Plug Colleague into recharger
Getting unexpected results when attempting to connect to the host system	Data bits/Parity field may be set improperly in Auto-Connect Set-Up Menu	Check Auto-Connect Set-Up Menu options to insure they are set properly (see Chapter 4)
Erratic or unexpected operation of the Colleague	Unit may not be programmed properly	Check Auto-Connect Set-Up Menu options to insure they are set properly (see Chapter 4)
Colleague will not recharge	The recharger plug is not well seated into Colleague power jack	Check the connections between the Colleague and the recharger
	The recharger is not plugged into the outlet all the way	Check the power outlet connections
	Electrical outlet does not have power	Check electrical outlet
	Recharger is malfunctioning	Call Random Corporation

Problem	Cause	Corrective Action
Auto-Connect Menu does not appear when unit is turned on	The Colleague is programmed to automatically go into an Auto-Connect channel upon power up	Press SHIFT-BREAK to exit from the channel and return to the Auto-Connect Menu
Colleague will not accept password when trying to enter Set-Up Menus	Forgot password or entered password incorrectly	Type "CLEAR" (all in caps) at the Auto-Connect Menu. **WARNING:** This will erase all Auto-Connect programming
Unfamiliar channel names appear in Auto-Connect Set-Up Menu	Memory failure	Type "CLEAR" (all in caps) at the Auto-Connect Menu **WARNING:** This will erase all Auto-Connect programming
Unfamiliar filenames appear in the PLUS file directory	Memory failure	Type "FORMT" (all in caps) at the Auto-Connect Menu **WARNING:** This will erase all Colleague PLUS files
Function keys will not send sequences you have programmed into them	Keys were programmed while in an active Auto-Connect channel and were cleared upon exiting the channel	Program the function keys while you are not in an Auto-Connect channel or use the "Save Set-Up" function
	The host system re-programmed your function keys	Lock the function keys from the Keyboard Set-Up Menu, so the host will be unable to re-program them
	The SHIFT key was not pressed along with the function key	Press the SHIFT key simultaneously with the function key
Number keys are shifted to their uppercase positions	The LOCK key is programmed to SHIFT LOCK	Select the CAPS LOCK setting from the Keyboard Set-Up Menu
BREAK key will not work	BREAK key is disabled	Enable BREAK key from the Auto-Connect Set-Up Menu
	Host system does not recognize BREAK key	Do not use BREAK key

G   *Host Checklist*

The following page contains a list of information you must obtain from your host system's technical support before you can program your new Colleague. You either fill in the required information or check the box containing the selection you need. Once you have filled in a sheet you will have all the information required to program a Colleague Auto-Connect channel.

You may photocopy your host checklist for each Auto-Connect channel.

Host Information Checklist

Channel Name: [   ]   Channel Number: [   ]

Telephone Number: [   ]

Logon Sequence (User IDs/Passwords):

[   ]

Connection Type:

Internal Modem							RS-232
V.32	V.22 bis	224	V.22	212A	V.21	103	
9600 bps	2400 bps		1200 bps		300 bps		150 bps
							300 bps
							600 bps
							1200 bps
							2400 bps
							4800 bps
							9600 bps
							19,200 bps

MNP (Microcom Networking Protocol): | ON | OFF | Screen Columns: | 80 | 132 |

Serial Port Data Leads Only: | ON | OFF | Output Rate: | NORMAL | SLOW |

Data Bits: | 7 | 8 | Stop Bits: | 1 | 2 | XOFF Flow Control: | ENABLED | DISABLED |

Parity: | NONE | EVEN | ODD | MARK | SPACE | Parity Check: | ON | OFF |

Terminal Type: | VT220 8 BIT | VT220 7 BIT | VT100 | VT52 |

Terminal ID: | VT220 | VT100 | Local Echo: | ON | OFF |

Break: | ENABLED | DISABLED | New Line Mode: | ON | OFF |

Status Line: | INDICATOR | HOST WRITABLE | BLANK | 25 LINE SCREEN |

Function Keys: | VT220 | NUMERIC | PROGRAMMABLE |

Modem Retrain: | ON | OFF | Auto-Redial: | ON | OFF |

Notes:

[   ]

Fill in required information or check the appropriate box.

H   *Warranty*

LIMITED 1 YEAR WARRANTY FOR THE COLLEAGUE

Terms and Conditions

The "Colleague" from Random Corporation is warranted free from defects in workmanship and material, and in conformity with this owner's manual. The foregoing warranty will expire one (1) year after date of purchase of the "Colleague" and any warranty claim must be made during this 1 year period. Any Colleague which fails to meet this express warranty during the relevant period will, at Random Corporation's option, be repaired or replaced at no additional charge except as set forth below. If your "Colleague" is returned to Random Corporation by common carrier, you agree to insure the Colleague or assume the risk of loss or damage in transit, to prepay shipping and insurance charges to Random Corporation at the address above. A receipt of purchase or other proof of the date of purchase of the "Colleague" will be required before any warranty service will be performed.

This warranty applies only to equipment which is purchased new and which is located within the United States, Canada, Puerto Rico or Mexico during the entire relevant warranty period. This warranty is contingent upon normal and proper use and care of the "Colleague" and does not cover damage which occurs in shipment or damage or failure resulting in whole or in part from alteration, unusual physical or electrical stress, misuse, failure to follow the instructions in this manual from Random Corporation with respect to proper use of the Colleague, abuse, neglect, fire, accident, flood, Act of God, improper installation, storage, or maintenance, or any defect or error in any hardware, peripheral device or software other than the Colleague. This warranty does not cover equipment on which the original identification marks or serial numbers have been removed, covered or altered.

THE ABOVE EXPRESS WARRANTY IS THE SOLE WARRANTY MADE BY RANDOM CORPORATION WITH RESPECT TO THE "COLLEAGUE" AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

THE PURCHASER'S SOLE REMEDIES AND SOLE OBLIGATIONS UNDER THE FOREGOING WARRANTY ARE AT RANDOM'S OPTION TO REPAIR OR REPLACE ANY EQUIPMENT WHICH FAILS TO MEET THE EXPRESS WARRANTY SET FORTH ABOVE.

THE COLLEAGUE COVERED BY THIS WARRANTY IS MARKETED AND SOLD BY RANDOM CORPORATION AS A BUSINESS RATHER THAN A CONSUMER PRODUCT AND IS NOT INTENDED FOR A PERSONAL, FAMILY OR HOUSEHOLD USE.

Under no circumstances will Random Corporation be liable for any consequential, incidental, special or exemplary damages arising out of or connected with the sale, delivery, use or performance of the "Colleague" even if Random Corporation is appraised of the likelihood of such damages occurring. Some states do not allow for the exclusion of consequential damages of the limitation of implied warranties with respect to consumer products, so the above exclusion may not be applicable if the Colleague constitutes a consumer product under applicable law.

In no event shall Random Corporation's liability, (whether in Contract, Tort or otherwise) for damages arising out of or related to a breach of the above express warranty or the sale, delivery, use or performance of the Colleague exceed the purchase price of the equipment. Such limitation of liability shall, without limitation, be applicable in the event that the sole remedy of repair or replacement for a breach of the above expressed warranty fails of its essential purpose or is otherwise unenforceable.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

If a problem with this equipment develops during the warranty period, first contact the dealer from which you purchased it. If the problem is not handled to your satisfaction, then write to Random Corporation at the company address indicated on the previous page.

WARRANTY PROCEDURES

Random Corporation performs both Warranty and Non-Warranty repairs for the Colleague, according to the guidelines outlined below.

Warranty Repairs

Warranty repairs are only performed after all conditions of the "LIMITED 1 YEAR WARRANTY FOR THE COLLEAGUE" are met (See Appendix H, p. H-1).

In order to repair the unit under warranty, a copy of the proof of purchase receipt from an authorized Random Reseller or Random Corporation direct must accompany the unit being repaired.

The customer must pre-pay the freight and insurance costs for the unit to be shipped to Random Corporation. The return freight and insurance will be paid by Random Corporation.

The replacement parts and workmanship supplied under this warranty are warranted for 90 days from the date of repair, with the same "LIMITED 1 YEAR WARRANTY FOR THE COLLEAGUE".

Non-Warranty Repairs

Non-Warranty repair charges apply when the 1 year warranty period is over, if any of the warranty conditions are not met, or if no proof of purchase receipt accompanies the unit being repaired.

Non-Warranty repairs are charged on a time ($50.00 per hour) and material basis. If repair charges exceed a $200.00 estimate, Random Corporation will call the customer for repair authorization.

Random will return the defective parts, if requested by the customer in writing, prior to making the necessary repairs to the Colleague.

The customer is responsible for paying the freight costs for non-warranty repairs both to and from Random Corporation. The method of freight will be UPS ground or the equivalent, unless instructed otherwise by the customer prior to returning the unit for repair.

The replacement parts and workmanship supplied with the repairs from Random Corporation are warranted for 90 days from the date of repair, with the same conditions as the "LIMITED 1 YEAR WARRANTY FOR THE COLLEAGUE".

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