

MODEM COMMUNICATIONS MANUAL

PIED PIPER is a trademark of Semi-Tech Microelectronics Corporation.

CP/M is a registered trademark of Digital Research Inc.

* The Source is a service mark of Source Telecomputing Inc.

** Dow-Jones News Retrieval is a registered trademark of Dow Jones & Co. Inc.

*** CompuServe is a registered trademark of CompuServe Incorporated, an H & R Block Company.

FCC COMPLIANCE STATEMENT

USER INSTRUCTIONS

This device has been granted a registration number by the Federal Communications Commission, under Part 68 Rules and Regulations for direct connection to telephone lines. In order to comply with these FCC rules, the following instructions must be carefully read and applicable portions followed completely.

1. Direct connection to telephone lines may be made only through the standard plug-ended cord furnished to the utility-installed jack. No connection may be made to party or coin phone lines. Prior to connecting the device to the telephone line, you must:
2. Call your telephone company and inform them you have an FCC registered device you wish to connect to their telephone lines. Give them the number(s) of the line(s) to be used, the make and model of the device, the FCC registration number and ringer equivalence. This information will be found on the device or enclosed with the instructions as well as the jack suitable for your device.
3. After the telephone company has been advised of the above, you may connect your device if the jack is available, or after the telephone company has made the installation.
4. Repairs to the device may be made only by the manufacturer or his authorized service agency. This applies at any time during and after warranty. If such unauthorized repair is performed, registration, connection to the telephone lines and remainder of warranty period all become null and void.
5. If, through abnormal circumstances, harm to the telephone lines is caused, it should be unplugged until it can be determined if your device or the telephone line is the source. If your device is the source, it should not be reconnected until necessary repairs are effected.
6. Should the telephone company notify you that your device is causing harm, the device should be unplugged. The telephone company will, where practicable, notify you that temporary discontinuance of service may be required. However, where prior notice is not practicable, the telephone company may temporarily discontinue service, if such action is reasonably necessary. In such cases, the telephone company must (A) promptly notify you of such temporary discontinuance, (B) afford you the opportunity to correct the condition and (C) inform you of your rights to bring a complaint to the FCC under their rules.

7. The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such action is reasonably required in the operation of its business and is not inconsistent with FCC rules. If such changes can be reasonably expected to render any customer's devices incompatible with telephone company facilities, or require modification or alteration, or otherwise materially affect its performance, written notification must be given to the user, to allow uninterrupted service.

TABLE OF CONTENTS

	Page
Introduction	1
Modem + RS232C Serial Card Installation Instructions	2
Modem + RS232C Serial Card Configuration	6
Modem Connection	11
- Direct Connect	11
- Acoustic Coupler	12
MCOM	13
- Main Menu Options	14
- Auto-dial/Connection	15
- Answer Connection Request	19
- Voice to Data Communication (Originate/Answer)	21
- Communication Line Configuration	22
- Dial for Voice Communication	25
- Exit to CP/M®	26
- Communication Menu Options	27
- Transfer a File	28
- Send Remote Command	30
- Enter Conversation Mode	36
- Data to Voice Communication	38
- Disconnect from Remote Computer	39
- Receive Remote Command	40
- Exit to CP/M® Without Disconnecting	41
RS232C Serial Port	42
- Interface Information	42
- Connection to a Serial Printer	42
- TERMINAL	43

INTRODUCTION

The Modem Communications Manual provides you with information and instructions on the installation and use of the optional modem + RS232C serial card you have purchased for your PIED PIPER.[™]

The package you have received contains the modem + RS232C serial card and associated hardware, a diskette labelled "MODEM COMMUNICATIONS" and this manual.

The "MODEM COMMUNICATIONS" diskette contains the necessary software to configure the card for your PIED PIPER,[™] as well as the communication utility MCOM.

The modem + RS232C serial card consists of one 300/600/1200 baud auto-dial, auto-answer, direct connect telephone modem supporting Bell 103, 202 and CCITT V.21 and V.23 protocol, and one asynchronous/synchronous serial port. The modem interface provides connection to telecommunications networks such as Datapac, Telenet and Tymnet. These networks then provide users with the ability to access information utilities such as The Source*, Dow Jones News Retrieval**, and CompuServe***.

Both the telephone modem interface and the serial interface are installed in the expansion opening above the RESET button. There is one 25-pin connector for the serial port, and there are two connectors for the modem interface: one for direct connect, and one for an acoustic coupler.

Telephones with detachable cords allow you to hook your telephone line directly to the computer. This is done by plugging the line cord and jack normally attached to the telephone, directly into the PIED PIPER.[™] For those telephones without detachable cords, there is a 5-pin connector for connection to an acoustic coupler. The acoustic coupler (available as an accessory) attaches directly to the computer through the 5-pin connector. It communicates with the telephone through the telephone handset, which fits directly onto the coupler.

Remember to refer to the handy glossary located in the PIED PIPER[™] User's Manual for definitions of any computer terms and jargon you may not be familiar with.

It is a good idea to complete and mail the warranty card now. Completing the card will register your new modem + RS232C serial card with STM and ensure service in the unlikely event the card should fail.

MODEM + RS232C SERIAL CARD INSTALLATION INSTRUCTIONS

The following section includes the installation instructions for the modem + RS232C serial card. While installation of the card is not complicated, it does require some concentration and basic tools (such as screwdrivers). If you feel uncomfortable installing the card yourself, please consult the dealer from whom the card was purchased. He can refer you to trained service personnel who will perform the installation for a small fee.

The modem + RS232C serial card is installed inside the PIED PIPER case on top of the computer's main board. The expansion opening used for the card is located above the RESET button on the back panel of the PIED PIPER. To install the modem + RS232C serial card, follow the step-by-step instructions below and refer to the corresponding illustrations.

- Step 1: Turn off the power to the PIED PIPER.
- Step 2: Unplug the line cord from the wall outlet.
- Step 3: Disconnect all the cables from the rear panel of the PIED PIPER.
- Step 4: Using a Philips screwdriver, remove the seven mounting screws on the bottom of the machine as pictured in Figure 1.

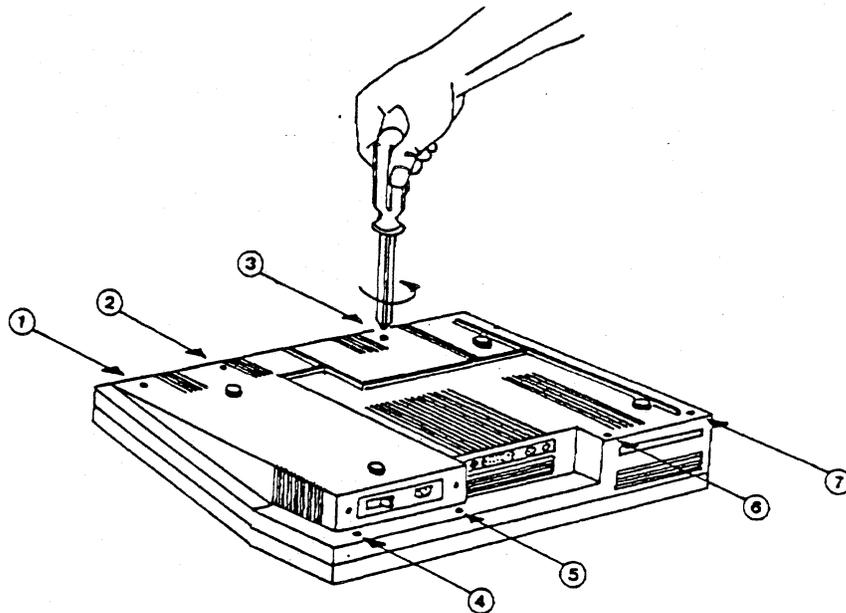


FIGURE 1

Step 5: Carefully lift off the top of the PIED PIPER. **CAUTION:** The top of the computer is connected to the bottom via the keyboard cable. Since this cable is only 7" long, it must be removed to provide better access to the inside of the computer. To do this, simply disconnect the keyboard cable attached to the computer's main board at connector J13. **NOTE:** When you remove the top of the PIED PIPER, the black plastic face plate of the disk drive may drop as shown in Figure 2. If this happens, it is easily put back into position when the cover is replaced.

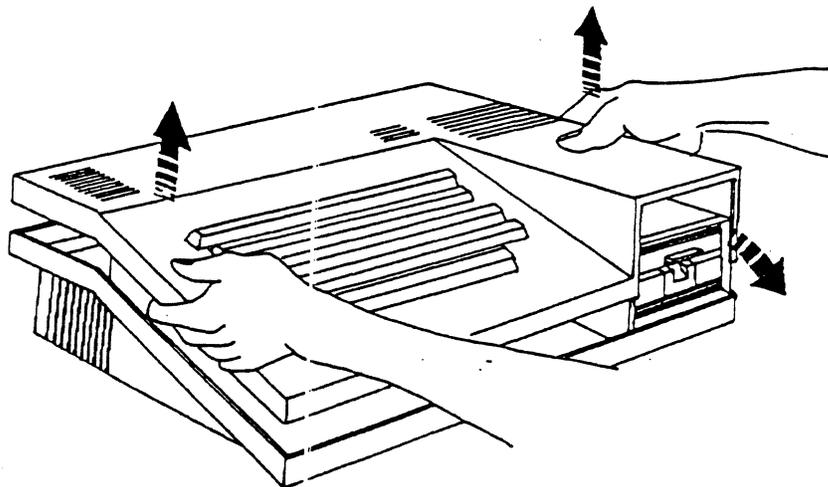


FIGURE 2

Step 6: Push out the plastic panel covering the expansion opening as shown in Figure 3.

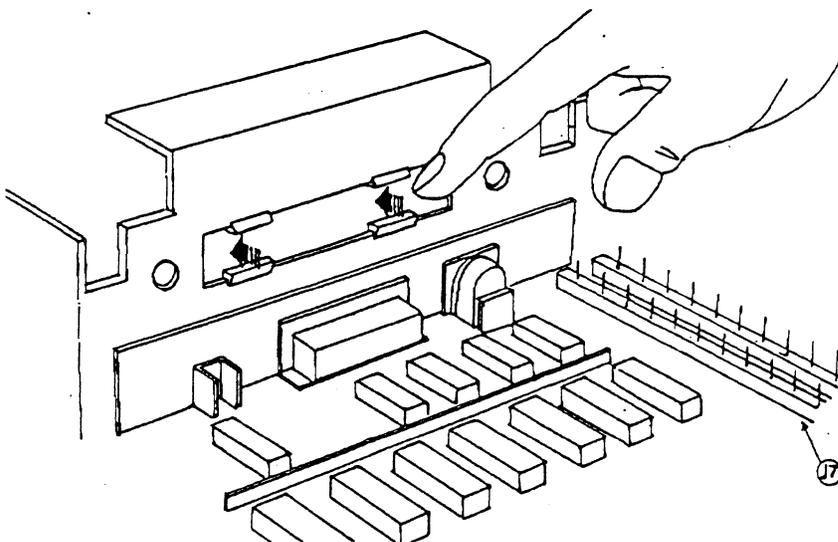


FIGURE 3

Step 7: Attach the two plastic stand-offs to the modem + RS232C serial card as pictured in Figure 4.

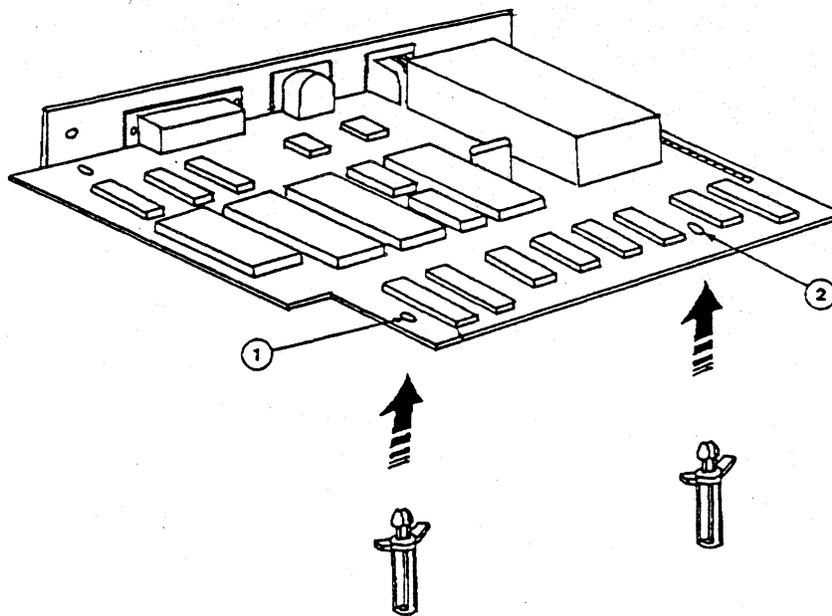


FIGURE 4

Step 8: Position the modem + RS232C serial card in front of the expansion opening as shown in Figure 5. Connect the cable attached to the card to connector J7 on the main board of the computer.

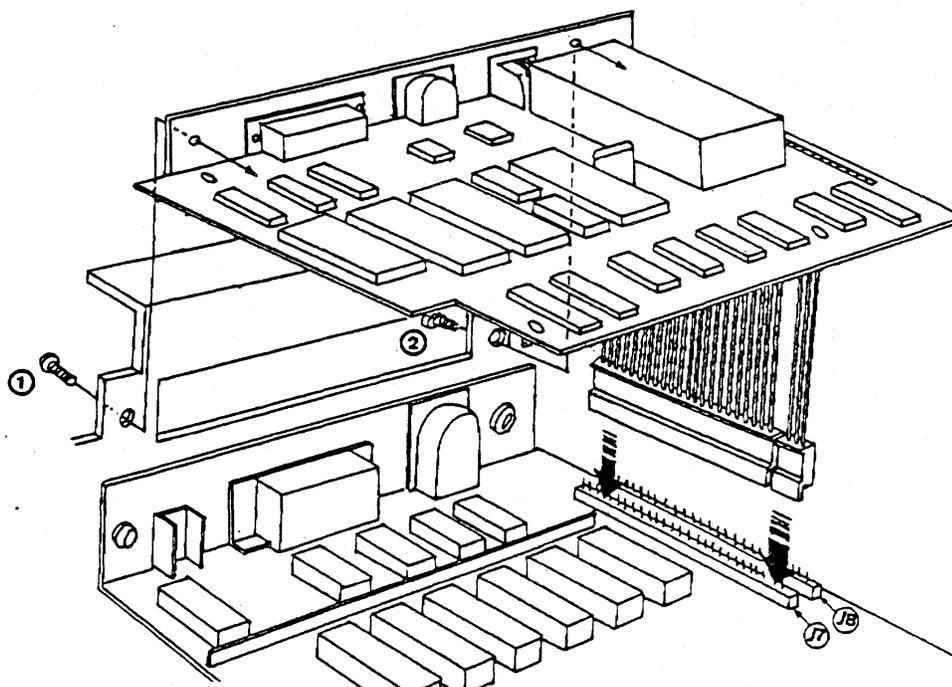


FIGURE 5

- Step 9: Align the screw holes of the card with the holes in the PIED PIPER.
- Step 10: Using the two screws you received with the modem + RS232C serial card, attach the card to the PIED PIPER.
- Step 11: Reconnect the keyboard cable to connector J13 on the computer's main board.
- Step 12: Carefully replace the lid on the PIED PIPER, making sure you have put the disk drive face plate back into position as pictured in Figure 6. Tighten the seven mounting screws.

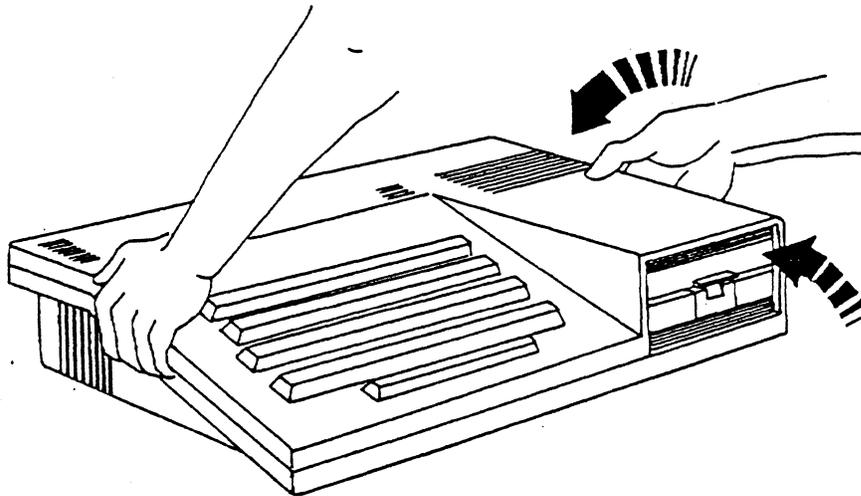


FIGURE 6

- Step 13: Re-connect all the cables to the PIED PIPER and plug the line cord into a wall outlet.

The modem + RS232C serial card installation is now complete.

MODEM + RS232C SERIAL CARD CONFIGURATION

The "MODEM COMMUNICATIONS" diskette you have received contains the latest versions of the PIED PIPER utilities plus additional software programs for the modem + RS232C serial card. This diskette also contains two programs called INSTALL and CONFIG, and the activation program required for the modem + RS232C serial card. Once the modem configuration is complete, the "MODEM COMMUNICATIONS" diskette becomes a new "SYSTEM" diskette. You should therefore use this newly configured diskette whenever you start up your system or run any of the PIED PIPER utilities.

Before you begin, it is a good idea to make a back-up copy of this diskette, and store the original in a safe place.

The INSTALL & CONFIG Programs

The INSTALL program will allow your existing PIED PIPER system to support the optional modem + RS232C serial card you have purchased. You must run this program on your system before you use your new card the first time, but you need only do it once.

To run the INSTALL program, you must first start up your PIED PIPER with your original "SYSTEM" diskette (or any diskette containing the CP/M operating system). Once the command prompt ("A>") has appeared, remove the "SYSTEM" diskette and insert the "MODEM COMMUNICATIONS" diskette. **DO NOT HIT CTRL C**, just type in:

INSTALL ◀

Remember ◀ means hit the RETURN key.

After a few seconds, the computer will respond with:

Installation complete.

Reading in System Configuration Utility....

Once the installation is complete, the INSTALL program will activate the CONFIG program automatically.

The CONFIG program will configure your new peripheral for use with the PIED PIPER. The program offers three configuration options:

Change number of floppy drives (Y/N)?
Configure terminal (Y/N)?
Configure expansion card (Y/N)?

As each option is chosen, a number of questions will appear on your screen that must be answered before the configuration can be completed.

When you begin, the CONFIG program will prompt you to insert a "source" diskette. If you have already configured a diskette for another option, you can simply modify this diskette (providing it contains a release number of 2.00 or later; the release number will appear in the sign-on message) instead of configuring for all the options again. Therefore, you should use this as your source diskette. If the diskette does not have the proper release number, or if you have not configured for any options before, use the "MODEM COMMUNICATIONS" diskette. When the configuration is complete, the program will prompt you to insert a "destination" diskette. You can then insert any diskette on which you wish the configuration to reside.

The CONFIG program can be used to configure all of the PIED PIPER peripherals, but we'll review just the modem + RS232C serial card configuration here. If you wish to configure for either the expansion floppy disk drive or the dual RS232C serial card, refer to the PIED PIPER Peripherals Guide.

When the CONFIG program is activated, the following will appear:

System Configuration Utility (STM REL. 2.02)

Insert source diskette
Press RETURN to continue.

If the diskette currently in the drive is the source diskette, just hit RETURN, or insert the source diskette, hit RETURN and you will see:

Present configuration on currently logged disk:

Number of drives : One
Terminal emulation : Hazeltine

Any change (Y/N)?

To change the current configuration, type "Y" and the following will appear:

Change number of floppy drives (Y/N)?

Since we are configuring for the modem + RS232C serial card and not for the expansion floppy disk drive, type "N" and the following will appear:

Configure terminal (Y/N)?

Type "N" again and you will see:

Configure expansion card (Y/N)?

Type "Y" to this option and the following will appear:

1. Serial card
2. Modem card
3. No expansion card

Enter #: 3

The number "3" indicates that the system is currently configured for no expansion card. To configure the serial port of the modem + RS232C serial card, type in:

2

and you will see:

Reinitialize port A (Y/N)?

The serial port (Port A) is initially configured to operate in the asynchronous mode with the following parameters:

Baud rate : 9600
Stop bit : One
Data bit : Eight
Parity bit: None

If you do not need to change these parameters, type in "N". If you do (referred to as "reinitializing"), type in:

Y

and the following will be displayed:

Baud Rate:	Stop Bit:	Data Bit:	Parity Bit:
1. 110	1. One	1. Five	1. Even
2. 300	2. One & one half	2. Six	2. Odd
3. 600	3. Two	3. Seven	3. None
4. 1200		4. Eight	
5. 2400			
6. 4800			
7. 9600			

Select baud rate #: 7

To leave as is, hit the RETURN key. To change, simply type in the number corresponding to the parameter you desire. Use the same procedure to answer the following questions which will appear one after the other:

Select stop bit #: 1
 Select data bit #: 4
 Select parity bit #: 3

If you do not need to change all of these parameters, you can hit the "ESCape" key and by-pass the remaining questions. For example, if you must change the stop bit parameter, but do not need to change the remaining ones, type in the corresponding number for the stop bit parameter you desire. Then hit the "ESC" key and you will by-pass the remaining questions.

Once you have answered all of the questions or have hit the "ESC" key, the following will appear (for example):

Configuration as currently modified:

```

Number of drives      : One
Terminal emulation   : Hazeltine
Modem card:          Baud rate
                    transmit receive stop bit data bit parity
                    port A:  9600      9600      one      eight      none
  
```

Any change (Y/N)?

If you answer "Y", each configuration option will be displayed again one at a time. "N" will produce the following:

Insert destination diskette
 Press RETURN to continue.

Insert the "MODEM COMMUNICATIONS" diskette, hit RETURN and you will see:

**To activate selected options,
press RESET button.**

System configuration completed.

A>

At this point, you should press the RESET button as requested, to activate the modified CP/M operating system. Since the "MODEM COMMUNICATIONS" diskette contains the most up-to-date versions of the PIED PIPER utilities as well as the modem configuration and the modified operating system, it should now be used as a new "SYSTEM" diskette. Use this diskette whenever you start up your system or run any of the PIED PIPER utilities.

You do not have to run the CONFIG program each time you want to use your peripheral. Simply use the new "SYSTEM" diskette (or a copy of it) whenever you start up your system in order to activate the modem + RS232C serial card option. It is advisable to make copies of this diskette and store the original on file. To make a copy of the new "SYSTEM" diskette, run the PREPARE program on a blank diskette. Running PREPARE will automatically copy the modified operating system to the new diskette.

It's important to note that you DO NOT have to copy all your existing files onto new diskettes to use them.

To use any of your old diskettes, you simply start up your PIED PIPER with your new "SYSTEM" diskette (or a copy). Once the command prompt has appeared, remove this diskette and insert the diskette of your choice. Hit "CTRL C" to let the computer know you have inserted a different diskette and proceed as usual.

It is not necessary to insert a configured diskette each time you change diskettes. Do this only if you have turned the computer off or have hit the RESET button. Otherwise, just remember to hit "CTRL C" after inserting a different diskette.

THE MODEM INTERFACE

The following section explains how to connect the modem to your telephone line.

The modem can be connected directly to the telephone line using the cable supplied with the modem + RS232C serial card. Or, an acoustic coupler can be used if the telephone jack required for direct connect is not supplied by your telephone company.

Check the plug on the end of the cord connecting your telephone to the telephone company's line (usually a small box mounted on a wall near your telephone). If the plug does not match the one on the cable supplied with the modem + RS232C serial card, or if no plug exists, you must purchase an acoustic coupler.

Follow the directions outlined in Section A for direct connect and the directions in Section B for connection to an acoustic coupler.

A. Direct Connect

Step 1: Unplug your telephone line from the wall jack.

Step 2: Plug one end of the telephone line cord supplied with the modem + RS232C serial into the wall jack.

Step 3: Plug the other end of the cord into the jack on the back of the PIED PIPER.

NOTE: If you use your telephone line to connect to the computer, but don't want to keep changing the connection from regular telephone use to modem connection, you can purchase a "multi-phone adapter". Plug this adapter into the wall jack, then plug your telephone into one of the jacks of the adapter. Plug one end of the telephone line cord supplied with the modem + RS232C serial card in the remaining jack of the adapter. Now plug the other end of the cord into the jack on the back of the PIED PIPER and proceed as usual.

B. Acoustic Coupler

- Step 1: Plug the cable coming from the acoustic coupler into the 5-pin connector labelled "COUPLER" on the back of the PIED PIPER. NOTE: This cable must be disconnected if you wish to use the direct connect method.
- Step 2: Now place your telephone handset firmly into the cups of the acoustic coupler ensuring the mouthpiece of the handset is placed in the cup labelled "MOUTHPIECE".
- Step 3: To restore normal telephone operation, replace the handset on your telephone.

PIED PIPER COMMUNICATION UTILITY

The PIED PIPER communication utility MCOM, supplied with the modem + RS232C serial card provides the following capabilities:

- telephone number directory
- auto-dialing and auto-answering when establishing connection to a remote computer
- use your PIED PIPER as a terminal to connect to a host computer
- transferring of files between computers
- voice to data/data to voice communication

The auto-dial feature enables MCOM to dial any number you specify, or you can select a number from the program's "Phone Directory". You can create the "Phone Directory" yourself and include up to ten telephone numbers. These numbers can then be changed or deleted as desired, and new numbers can be added. Once the number has been dialed, connection is automatically established with the remote computer.

When using your PIED PIPER as a terminal, anything typed on your system will be sent to and displayed on the remote computer. Anything the remote computer sends to you is displayed on your screen. This enables you to access timesharing mainframe computers. This could be an information utility such as The Source*, Dow Jones News Retrieval**, or CompuServe***. It could also be a local timesharing computer in a large company or educational institution.

File transfer can be accomplished through two different methods: 1) between two PIED PIPER's, and 2) between a PIED PIPER and a host computer.

File transfer between two PIED PIPER's is performed at 1200 baud, half duplex. You can send a file to a PIED PIPER (upload), or receive a file from a PIED PIPER (download).

When transferring a file between a PIED PIPER and a host computer, the transfer is performed at 300 baud. The most frequent usage for this capability is in Electronic Mail.

You can also call someone on the telephone, activate MCOM and switch to data communication. Once you have finished with data communication, it's possible to switch back to voice communication. You don't have to re-dial everytime you change from one mode to another, providing your telephone and computer are connected in parallel.

The MCOM utility begins by displaying the Main Menu which lists the options available. These options allow you to establish connection with a remote computer, display the telephone number directory, or alter the parameters of the modem interface.

Once connection with a remote computer is established, you can display the Communication Menu. This menu lists the options available for inter-computer communication.

To activate the communication utility and display the Main Menu, type in:

MCOM ◀

and the following will be displayed:

Modem Communications Program

<<< MAIN MENU >>>

- 1. Dial to remote computer and establish connection**
- 2. Answer connection request from remote computer**
- 3. Voice to Data Communication (ORIGINATE mode)**
- 4. Voice to Data Communication (ANSWER mode)**
- 5. Change Modem Interface Parameters**
- 6. Dial for voice communication**
- 7. Exit to CP/M**

Enter the selection number:

We will go through each of the above Main Menu options separately and describe the features and capabilities of each.

If after you have activated "MCOM", the above menu is not displayed, check the version number of the CONFIG.COM program you used to configure your modem + RS232C serial card. If the program is not release 2.02 or later, reconfigure the card using the proper release of the program.

1. AUTO-DIAL/CONNECTION

To dial a remote computer and establish connection or to access the telephone number directory, type in:

1

and you will see:

Modem Communications Program

--- dial to remote computer and establish connection ---

Phone directory does not exist, create? (Y/N):

To create your own telephone directory, type "Y" and the following will appear:

Modem Communications Program
--- Phone Directory ---

<u>Label</u>	<u>Name</u>	<u>Phone Number</u>
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		

A - J: Dial number in directory
1: Dial number directly
2: ADD/CHANGE directory entry
3: DELETE directory entry

Enter the selection number:

A = J: Dial number in directory

You can dial a number listed in the directory by simply entering the corresponding label (A - J). After entering the label, the computer will dial the telephone number and display the following:

Dialing in progress, please wait....

DIALING

Each number will be displayed on the screen as it is being dialed. When the dialing is complete, the following will be displayed:

Waiting for answer....

Once an answer has been received by the remote computer, you will see:

Connection established.

In conversation with remote computer, the following commands can be used to control other functions:

Press FUNCT H to enter command mode,

H - to enter conversation mode.

A - enable/disable copying of all data displayed on screen

B - send a text file

C - close a file

D - delete a file

K - abort send file command

O - open a file

P - set/reset half duplex

S - status of the computer

X - exit to communications menu

Enter command ==>

Turn to page 36 for explanations and instructions on these options.

1. Dial number directly

If you wish to enter a number to dial without adding it to your Telephone Directory, type "1", and you will see:

Enter the phone number:

Enter the phone number you desire, hit the RETURN key, and the following will be displayed:

Dialing in progress, please wait....

DIALING

As each number is being dialed, it will appear on your screen. You will then see:

Waiting for answer....

Once an answer has been received, you will see the same message and menu which appeared on the preceding page in the "Dial number in directory" option.

2. ADD/CHANGE directory entry

To ADD or CHANGE a telephone entry, type "2" and you will see:

Enter label (A to J) of entry to ADD/CHANGE:

Choose the position (A to J) in which you wish the new or changed number to reside, and you will see:

Enter name to ADD/CHANGE (1 to 20 characters):< >

Once you have entered the name, hit RETURN and the following will appear:

Enter number to ADD/CHANGE (1 to 20 digits):< >

Enter the telephone number and press the RETURN key. The Phone Directory will be re-displayed reflecting any additions or changes you have made. The following message is then displayed:

Press RETURN to ADD/CHANGE another or press "M" to return to previous MENU:

You can press RETURN to add or change another entry in the directory or you can press "M" and return to the Phone Directory Menu.

NOTE: If you do not need to change all of the information in an entry, you can hit the RETURN key to leave the information as shown. For example, if you need to change only the telephone number in the entry, press the RETURN key when you are prompted to enter the name to change. Hitting RETURN will leave the name as shown and you will be asked for the number you wish to change.

3. DELETE from directory

To DELETE an entry, type "3" and you will see:

Enter label (A to J) of entry to DELETE:

After entering the corresponding letter for the entry you wish to delete, you will see:

Delete Entry...(Y/N)?

Typing "Y" to delete the entry will re-display the Phone Directory reflecting the deletion. You will see the following:

Press RETURN to DELETE another or
press "M" to return to previous MENU:

2. ANSWER CONNECTION REQUEST FROM REMOTE COMPUTER

If you wish to answer a connection request from a remote computer, type in:

2

and you will see:

Modem Communications Program

--- answer connection request from remote computer ---

Waiting in answer mode

When an incoming call is detected, the following is displayed:

Ring...

and your PIED PIPER will generate a ringing tone. The PIED PIPER will answer this ring and you will see:

Communication established...

Waiting for remote command.

Your PIED PIPER is now ready to receive commands from a remote PIED PIPER.

If the carrier is lost, the PIED PIPER will hang up after a time-out delay, return to the auto-answer mode and wait for the next incoming call. If this occurs, you will see:

Modem Communication Program

---- answer connection request from remote computer ----

Waiting in answer mode

When the PIED PIPER is waiting in this mode, you can return to the Main Menu by pressing the "ESCAPE" key.

The PIED PIPER will hang up even if a carrier is present but there has been no activity detected for 10 minutes. If this happens, the PIED PIPER returns to the auto-answer mode.

3. VOICE TO DATA COMMUNICATION (ORIGINATE MODE)

4. VOICE TO DATA COMMUNICATION (ANSWER MODE)

It is possible to switch from voice to data communication without hanging up your telephone and re-dialing under computer control, providing your PIED PIPER is already connected in parallel with the telephone.

For example, if you wish to transfer a file to another PIED PIPER, but are in voice communication, both you and the other PIED PIPER must be running the MCOM utility. Decide who will ORIGINATE and who will ANSWER. After making your selections, the Communication Menu is displayed. You can then use the file transfer option to transfer the file.

If you are using an acoustic coupler, you should first activate the MCOM utility, and then dial the remote computer number. When you hear the answer tone (high-pitched sound), place the telephone handset firmly into the cups of the acoustic coupler, and select number "3". The Communication Menu will then be displayed.

5. CHANGE MODEM INTERFACE PARAMETERS

The modem interface parameters are presently configured for normal operation on the North American telephone system. If you would like to change these parameters, type in:

5

and the following will be displayed:

MCOM CONFIGURATION

Current entries are shown in square parenthesis []
Press RETURN to keep current entry
ALL numeric values in decimals please.

Inter Digit Time (10-2550ms)nearest ten unit.....[710ms]

To change the current entry, type in a new entry from the range specified in brackets. To leave as shown, simply hit the RETURN key. Hitting the RETURN key to leave the entry as is, or after changing the entry, will display the following configuration options one at a time. Use the same procedure outlined above to either change or leave the entries. Hitting "ESC" will return you to the Main Menu with any parameters yet to be displayed remaining unchanged.

Dial Pulse Off Hook Time (1-255ms).....[60ms]
Dial Pulse On Hook Time (1-255ms).....[40ms]
Max Time to wait for connection (1-255s).....[20s]
Max Time for Recovery from no carrier (1-255s).....[5s]
Number of Rings before Answering Phone (1-255).....[1]
Auto Line feed in conversation mode (Y/N).....[Y]
Detect Dial Tone before dialing (Y/N).....[Y]
Detect RING or BUSY Signal (Y/N).....[Y]
Ring Tone generated when ringing (Y/N).....[Y]
Wait for call party to send Carrier (Y/N).....[Y]
ANY CHANGES....(Y/N)?

"Y" for yes will re-display each option again for your consideration. "N" will return you to the Main Menu.

Note that the changes made to the above parameters are permanent unless altered again using the same procedures.

Following is a brief explanation of the parameters listed above.

"Inter Digit Time
Dial Pulse Off Hook Time
Dial Pulse On Hook Time"

In MCOM, dialing is achieved by pulse dialing. The above three parameters are used by the dialing routine to perform the pulse dialing function. The default values of these parameters are 710 milliseconds, 60 milliseconds and 40 milliseconds respectively.

"Max Time to Wait for Connection"

After dialing is complete, the program waits for a certain amount of time, specified by this parameter, within which the carrier from the answering side must be detected. Otherwise, a time out occurs and the line is automatically disconnected.

"Max Time for Recovery from no carrier"

This parameter specifies the maximum amount of time from the detection of a lost carrier before a time out occurs and automatic disconnection is performed. If the carrier is lost but detected again before the time out limit, connection remains established.

"Number of Rings before Answering Phone"

This parameter specifies the number of rings before an incoming call is answered.

"Auto Line feed in conversation mode"

If you specify "Y" to this parameter, a line feed character is added whenever the RETURN key is pressed while in the conversation mode.

"Detect Dial Tone Before Dialing
Detect Ring or Busy Signal"

The signal detection process can be bypassed by specifying "N" for these two parameters. As an example, when you dial the U.K. from the U.S., you should specify that you wish to bypass the ring or busy signal detection. If you specify this, the program will wait for the carrier signal only.

"Ring Tone generated when ringing"

If an incoming call is detected when in the auto-answer mode, the message "Ring..." is displayed on the screen and the speaker in the PIED PIPER will generate a ringing sound. This can be disabled by specifying "N" when this question appears.

"Wait for call party to send Carrier"

When the ANSWER side picks up the phone to answer an incoming call, an answer tone is generated. MCOM then waits for the ORIGINATE side to generate the Carrier before generating the carrier itself. This can be eliminated by typing in "N" to this question.

6. DIAL FOR VOICE COMMUNICATION

If you wish, you can have your PIED PIPER dial a number for voice communication. To do this, type in:

6

and you will see:

Modem Communications Program

Dialing for voice communication ---

You will then see the Phone Directory as you did in option number 1. Use the same procedures outlined in that section to complete your call.

After dialing is complete, the following message will be displayed:

**Dialing completed, please pick up the phone
Press RETURN to go to Communication Menu.**

7. EXIT TO CP/M

To exit to CP/M, enter:

7

and you will receive the command prompt.

COMMUNICATION MENU OPTIONS

Once you have established connection with a remote computer (using for instance the Main Menu option number 1), you have the option of either entering into conversation with the remote computer or performing other tasks outlined in the Communication Menu displayed below.

Modem Communications Program

<<< Communication Menu >>>

1. Transfer a file between two STM computers
2. Send remote command
3. Enter conversation mode with remote computer
4. Data to voice communication
5. Disconnect from remote computer
6. Receive remote command
7. Exit to CP/M without disconnecting

Enter the selection number:

We will now review each of the Communication Menu options.

1. TRANSFER A FILE BETWEEN TWO STM COMPUTERS

To transfer a file to another STM computer, both parties must be running the MCOM program and agree to transfer a file. We will go through the "Send" and "Receive" file procedures separately.

"Send File"

First, establish connection with the other STM computer, obtain the Communication Menu display and type in:

1

You will see:

Modem Communication Program

--- transfer a file between two STM computers ---

Please enter file to transfer -

Enter the name of the file you wish to transfer, hit RETURN and the following will appear:

Select send or receive mode (S/R):

To send the file, type in:

S

and you will see:

Sending "FILENAME"
Block "#"

As each block is transferred, the number will be displayed on the screen. When the transfer is complete, you will see:

File transferred.

and the Communication Menu will be re-displayed.

"Receive File"

Ensure you have established communication with the other STM computer, obtain the Communication Menu display and type in:

1

and you will see:

Modem Communications Program

--- transfer a file between two STM computers ---

Please enter file to transfer -

Enter the name of the file to transfer, hit RETURN and you will see:

Select send or receive mode (S/R):

To receive the file, type in:

R

The following will appear:

**Receiving "FILENAME"
Block "1"**

When the transfer is complete, you will see:

File transferred.

and the Communication Menu will be re-displayed.

2. SEND REMOTE COMMAND

To send a command to a remote STM computer, type in:

2

and you will see:

Modem Communications Program

--- Remote Command Menu ---

1. Type file content
2. Display directory
3. Send file to remote computer
4. Receive file from remote computer
5. Rename file
6. Delete file
7. Return to Communication Menu

Enter the selection number:

We will now go through each of the "Send Remote Command" commands.

1. Type file content

If you would like to type the content of a file from the remote computer, type in:

1

and you will see:

Modem Communications Program

--- Send remote command ---

--- typing remote command ---

Enter filename:

Enter the name of the file you wish displayed and press the RETURN key.

When the entire file has been displayed, you will see:

Remote command finished.

Press RETURN to return to Remote Command Menu.

NOTE: During this command, "CTRL S" will stop the display and "CTRL Q" will resume it. Entering RETURN before you enter the filename will return you to the "Send Remote Command" menu. Hitting "ESCAPE" before entering the filename will return you to the Communication Menu.

2. Display Directory

To display the directory of the remote computer, type in:

2

and you will see:

--- Displaying directory ---

The directory will be displayed four filenames at a time.

As in the previous command, to stop and resume the display, hit "CTRL S" and "CTRL Q" respectively. RETURN will return you to the "Send Remote Command" menu and "ESC" will return you to the Communication Menu.

When the directory display is complete, the following will appear:

Remote command finished.

Press RETURN to return to Remote Command Menu.

3. Send file to remote computer

To send a file to a remote computer (upload), type in:

3

and the following will appear:

Modem Communications Program

--- Send remote command ---

--- Sending file to remote computer ---

Enter drive name:

You should now enter the drive name on which the file to be sent is stored, and you will see:

Enter filename:

Type in the name of the file you wish to send, and hit RETURN. The following will be displayed:

**Sending file "FILENAME"
Block "1"**

As each block of the file is transmitted, the number will be displayed on your screen.

When the procedure is complete, you will see:

File transferred.

Remote command finished.

Press RETURN to return to Remote Command Menu.

4. Receive file from remote computer

To receive a file from a remote computer (download), type in:

4

and you will see:

Modem Communications Program

--- Send remote command ---

--- receiving file from remote computer ---

Enter drive name:

Enter the drive name for the drive on which you wish the file to be stored, and the following will appear:

Enter filename:

Enter the name of the file you wish to receive from the remote computer, hit RETURN and the following will be displayed:

**Receiving file "FILENAME"
Block "1"**

As each block of the file is received, the block number will be displayed on the screen.

When the transmission is complete, you will see:

File transferred.

**Remote command finished.
Press RETURN to return to Remote Command Menu.**

5. Rename file

To rename a file on the remote computer, type in:

5

and you will see:

Modem Communications Program

--- send remote command ---

--- renaming remote file ---

--- Old filename

Enter filename:

Enter the old filename and hit RETURN. The following will be displayed:

--- New filename

Enter filename:

Enter the new name for the file you wish to rename and hit RETURN.

When the procedure is complete, you will see:

Remote command finished.

Press RETURN to return to Remote Command Menu.

6. Delete file

To delete a file from the remote computer, type in:

6

and the following will be displayed:

Modem Communications Program

--- Send remote command ---

--- Deleting remote filename ---

Enter filename:

Enter the name of the file you wish to delete and hit the RETURN key.

When the deletion has been made, the following will appear:

Remote command finished.
Press RETURN to return to Remote Command Menu.

7. Return to Communication Menu

To return to the Communication Menu, type in:

7

and the Communication Menu will be displayed.

Remote Command Error Conditions

The following error message:

*****ERROR: Remote command failed.**
Press RETURN to return to Remote Command Menu

may appear during the above remote commands if:

- 1) you rename a file to one that already exists
- 2) you delete a non-existent file
- 3) an error occurs during file transfer (upload or download)

If this message appears, simply retry the command.

3. ENTER CONVERSATION MODE WITH REMOTE COMPUTER

To enter into the conversation mode with a remote computer, type in:

3

and you will see:

In conversation with remote computer, the following commands can be used to control other functions.

Press FUNCT and H to enter command mode,

H - to enter conversation mode

A - enable/disable copying of all data displayed on screen

B - send a text file

C - close a file

D - delete a file

K - abort send file command

O - open a file

P - set/reset half duplex

S - status of the computer

X - exit to Communication Menu

Enter command ==>

In the conversation mode, anything you type on your PIED PIPER will be displayed on the screen of the remote computer.

To return from the conversation mode to the command mode, press the "FUNCT" and "H" keys simultaneously. The display screen can be cleared by pressing "FUNCT E".

Following is an explanation of the above commands:

"H - to enter conversation mode"

This allows you to return from the command mode to the conversation mode. You can change the conversation mode parameters during the command mode. For example, setting to half duplex, enabling data capturing, sending a text file, etc. These changes will take effect immediately upon returning to conversation mode.

"A - enable/disable data capturing"

When enabled, all data received from the communication line is stored in a data buffer. A file must have been opened using the "O" command before data capturing will take effect. If the buffer is full, the data will be saved on the diskette under the name of the opened file.

"B - send a text file"

The data in the file specified is sent through communication lines to the remote computer.

"C - close a file"

The previously opened file for saving captured data is closed. The buffer is written to the disk and the data capturing is disabled.

"D - delete a file"

The file specified is removed from the directory of the diskette.

"K - abort send file command"

The most recent "send text file" operation is aborted.

"O - open a file"

The file specified is opened and used for saving all data captured from the communication line.

"P - set/reset half duplex"

If set to half duplex, any key pressed is echoed onto the CRT display.

"S - status"

This command provides information on the following: file open, half or full duplex, and amount of storage left in the data capture buffer.

4. DATA TO VOICE COMMUNICATION

This function allows two PIED PIPER users to switch to voice communication. The two PIED PIPER's must be connected in parallel with the telephone.

NOTE: Once you select this option, the program will drop the carrier signal. The carrier signal is essential during data transmission. Therefore, when one side switches to voice communication, the other side must also select voice communication within the time specified by the "Max. time to recover from no carrier" parameter. Otherwise, the line will be automatically disconnected.

5. DISCONNECT FROM REMOTE COMPUTER

To disconnect from the remote computer, type in:

5

and you will see:

Modem Communications Program

--- disconnect from remote computer ---

phone disconnected

Press RETURN to return to Main Menu.

6. RECEIVE REMOTE COMMAND

To receive commands from the remote PIED PIPER, type in:

6

and you will see:

Waiting for remote command

You are now ready to receive commands from the remote computer.

7. EXIT TO CP/M WITHOUT DISCONNECTING

You can exit to CP/M without disconnecting from the remote computer by typing:

7

You will receive the following warning:

WARNING: TELEPHONE LINE OFF-HOOK
A>

After returning control to CP/M, you can activate normal CP/M commands such as "DIR" and "STAT", etc. You can also use the MODEM741.COM program supplied with your modem + RS232C serial card to do file transfers using a telephone line. In this case, the sole function of the MCOM utility is to establish communication through the telephone line.

You can always re-activate MCOM and display the Communications Menu.

THE RS232C SERIAL PORT

INTERFACE INFORMATION

The RS232C serial port (Port A) of the card is classified as DTE (Data Terminal Equipment) and follows all EIA standards. Pin assignments for the serial port 25-pin connector are as follows:

PORT A:

PIN NO.	SIGNAL NAME	SIGNAL FLOW
1	Chasis Ground	-
2	Transmit Data	Output
3	Receive Data	Input
4	Request to Send	Output
5	Clear to Send	Input
6	Data Set Ready	Input
7	Signal Ground	-
8	Receive Line Signal Detector	Input
15	Transmit Baud Rate from DCE	Input
17	Receive Baud Rate from DCE	Input
20	Data Terminal Ready	Output
22	Ring Indicator	Input
24	Transmit Baud Rate to DCE	Output

CONNECTION TO A SERIAL PRINTER

One of the most common uses of the RS232C serial port is for connection to serial printers.

Before you connect a serial printer, you must purchase the proper data cable for the printer you will be connecting to the PIED PIPER.

To connect a serial printer to the RS232C serial port, connect one end of the cable to the printer. Then, connect the other end to the serial port of the card. Now start-up your system with a diskette that has been configured for the modem + RS232C serial card option. When the command prompt appears, type in the following command to activate the serial port:

STAT LST:=LPT:

The command prompt will re-appear and you will be ready to begin using your PIED PIPER with a serial printer.

To activate the parallel port again, type in:

STAT LST:=TTY: ◆

TERMINAL

TERMINAL is a terminal emulation program that will enable the PIED PIPER to act as a dumb terminal.

To use the TERMINAL program, connect one end of the appropriate cable to the host computer or modem. Connect the other end to Port A of the PIED PIPER. Then type in:

TERMINAL ◆

The following will be displayed:

Serial Communication Utility (STM REL. 2.02)

Baud Rate Selection:

1. **300 Baud**
2. **1200 Baud**
3. **2400 Baud**
4. **4800 Baud**
5. **9600 Baud**

Enter selection:

You simply type in the number corresponding to the baud rate you desire and the following will appear:

TERMINAL EMULATION

At this point, the PIED PIPER will act as a dumb terminal using Port A.

To exit from the program, hit the RESET button.

Part Number: 20000154