TRS-80 COLOR COMPUTER SOFTWARE

— CARTRIDGE —

COLORCOM / E

SMART TERMINAL PACKAGE

COLORCOM/E FEATURES

* ACCURATE FULL DUPLEX COMMUNICATIONS
* 32, 51, OR 64 CHARACTERS PER LINE
* SUPPORTS UP TO 64K RAM
* EASY FILE DOWNLOADING AND UPLOADING
* DIRECT FILE TRANSFER
* SELECTABLE RS232 PARAMETERS
* PRINTING OF RECEIVED DATA

RATED MOST POPULAR COCO TERMINAL PACKAGE
(January, 1984 80-MICRO)

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INTRODUCTION

COLORCOM/E is a Smart Terminal program designed to allow the user to communicate with a wide variety of computers and information services. COLORCOM/E features accurate, full duplex communications at up to 1200 baud. Advanced features include upload/download support, printing, 64K support, direct file transfer for any type of file, optional high resolution display and more!

For beginners the most important section of this manual is the section entitled "Getting Started". It gives a very simple step by step guide to logging on a host computer. It is suggested that first time users read this section and then practice a few times before going on to advanced features like downloading or uploading. When you are ready, the sections on "Uploading", "Downloading" and "Printing" will show you have to do these frequently performed operations.

LEGAL STUFF

HARDWARE REQUIRED

COLORCOM/E will work with 4 through 64k Color Computers. All that is required is a full duplex RS232 compatible modem properly connected to the RS232 port of the Color Computer. The Radio Shack Modem 1 is a recommended modem. Almost any other modem will also work.

If you are using a non-Radio Shack modem or printer you will probably need to make a cable to connect these devices to the RS232 port of the Color Computer. Please refere to Appendix A which contains signal definitions for the RS232 port.

For high resolution display you will need at least 16K of memory.

KEYBOARD

COLORCOM/E is able to transmit the complete 127 character ASCII character set. These include characters not marked on the keyboard. Appendix B contains a complete list of the ASCII character set and the corresponding keyboard keys.

CONTROL CHARACTERS: Control characters are sent by simultaneously holding down the Down Arrow key and pressing the desired key. For example a Control-C is sent by simultaneously depressing both the Down Arrow key and the "C" key.

UPPER/LOWER CASE: Upper and lower case works the same way in COLORCOM/E as it does in the regular Color Computer. At power-up the computer is in the upper case mode. To enter the upper/lower case mode press the Shift-0 (zero) key. While in the upper case only mode data is stored exactly as it is received, whether upper or lower case, but is displayed only in upper case.

TRUE BREAK: True break (required by some hosts) may be asserted by simultaneously holding the Down Arrow key and the BREAK key.

GETTING STARTED

The instructions in this section show the simplest and quickest way to use COLORCOM/E to talk to a host computer. Beginning users should become familiar with this procedure before going on. This section assumes that you will be manually dialing the phone.

1. Insert the COLORCOM/E Cartridge into the Color Computer with POWER TURNED OFF.

2. Turn on power. The following message will appear on the screen.

```
COLORCOM/E V4.x
(C) 1984 EIGEN SYSTEMS

SELECT SCREEN SIZE

   1 - 32 CHARS/LINE
   2 - 51 CHARS/LINE
   3 - 64 CHARS/LINE
```

3. Select the number of characters per line that your desire by entering either the "1", "2", or "3" key.

4. The screen will go blank except for the "cursor" in the upper left hand corner. COLORCOM/E is waiting for you to call the host computer.

5. Call the host computer. When the other computer answers you should hear a loud whistle coming over the phone. At this time turn on your modem (put in ORIGinate mode) and hang up the phone.

You are now in contact with the host computer. What happens now depends on the host computer you are talking to. More than likely the host computer will ask you a question. Some host computers expect you to hit the "BREAK" key before they will talk to you. In any case anything you type will be sent to the host computer

THE MODES OF COLORCOM/E

COLORCOM/E can be in one of several different modes at any given time; and since we will continually refer to these modes throughout this manual now is a good time to give you a brief description of them.

ADVANCED ENTRY

The Advanced Entry Mode is the mode COLORCOM/E is in right after you turn on power and answer the prompt requesting the number of characters per line. When you first enter the Advanced Entry Mode the screen is clear except for the cursor in the upper left hand corner. Later, in the section on Advanced Entry, we will show how you can "pre-enter" text in this mode before dialing. In the advanced entry mode COLORCOM/E is basically just waiting to be connected to the host computer.

ON LINE MODE

The on-line mode is what you enter when a connection is made with the host computer. In the On-Line Mode everything you type is sent to the host computer. The cursor is always present in the On-Line Mode.

COMMAND MODE

You enter the Command Mode when you disconnect from the host computer. In this mode there is no cursor present and a menu of commands is displayed. Command Mode may also be entered from the Advanced Entry or On-Line Modes by entering Control-5.

All of these modes will be explained in detail in the following sections.

ON-LINE MODE

COLORCOM/E is in the On-Line Mode when you are actually talking to another computer. While in this mode there will always be a cursor on the screen. Ordinarily any key you type will be transmitted to the other computer. The only exceptions are several COLORCOM/E functions which are called while in the On-Line Mode by entering certain control characters.

The Control key is the "down arrow" key. A Control character is entered by simultaneously depressing the down arrow key and the indicated letter or number.

The following is a list of the COLORCOM/E functions called by using Control Keys while in the On-Line Mode.

CNTRL-1: Entering this command will cause ONE line of the transmit buffer to be sent to the host computer. If the buffer is empty this has no effect.

CNTRL-2: Entering this command will cause the entire transmit buffer to be sent.

CNTRL-3: Entering this command will cause the receive buffer to be alternately "frozen" and "unfrozen". When frozen no data is stored and once it is scrolled off of the screen you will not be able to retrieve for viewing, printing or storing to disc. The buffer is unfrozen initially. (Note: The host computer can also freeze/unfreeze your buffer).

CNTRL-4: Entering this command will cause the amount of memory left in the buffer to be displayed on the top line. The number is in decimal. Note that if you fill up the buffer it will wrap around ERASING the oldest data in the buffer.

CNTRL-5: Entering Control-5 will force COLORCOM/E into the Command Mode. Most of COLORCOM/E's advanced features are accessed from Command Mode.

CNTRL-6: Entering Control-6 causes COLORCOM/E to change the RS232 parameters to those needed to control the Radio Shack Modem II.(8 data bits, parity off) Entering it a 2nd time will return the RS232 parameters to their original value.

COMMAND MODE

The Command Mode is entered in one of two ways. You may enter the Command Mode from the On-Line or Advanced Entry modes by entering the CNTRL-5 as described in the section on On-Line Mode. If you do this you may return to the On-Line (or Advanced Entry) Mode by entering <spacebar>.

You will enter the Command Mode automatically when you disconnect from the host computer.

When in the Command Mode the top part of the screen will display data stored in the receive buffer. The bottom part of the screen will contain a menu of commands. The menu may be deleted by entering <?> (question mark).

COMMANDS TO EXAMINE RECEIVED DATA

Up Arrow: Scrolls back 1 line in the receive buffer

Down Arrow: Scrolls forward 1 line in the receive buffer

Shift up Arrow: Scrolls back 12 (22 high resolutionmode) lines.

Shift down Arrow: Scrolls forward 12 (22) lines.

T: Entering <T> will position the display to show the oldest data in the receive buffer.

Using these commands you can scroll through the receive buffer to examine any received data. Besides just looking at data you can also select particular sections of data you want to print or write to disk! More on that later.

CASSETTE COMMANDS

W: This command initiates a write to cassette.

M: This command turns the cassette motor on/off. Use this to space past a leader on a cassette before writing out.

R: This command initiates a read from cassette.

X: This command allows you to look at the TRANSMIT buffer.

F: Allows you to suppress writing all control characters except carriage return to cassette

COMMANDS TO CHANGE COLORCOM/E PARAMETERS

L: This command allows you to change the RS232 valus used to communicate with the host computer. This command is explained in the section on Changing RS232 values.

V: This command allows you to change the RS232 values used to PRINT data. This command SHOULD NOT be used until after you have disconnected from the host computer. This command is also explained in the section on Changing RS232 values.

B: This command allows you to change the automatic capture characters. These are the characters the host computer uses to open and close your buffer. This command is further explained in the section on Capturing Data.

>: Entering ">" will enable Word Mode. Word Mode eliminates split words on the display by shifting an entire word down to the next line when necessary.

<: Entering "<" disables Word Mode.

O: (zero) This command allows you to set the XON and XOFF characters. See the section on Uploading for an explanation of these characters.

Q: Entering this command will disable reception of data. This is primarily intended to assist users whose modems do not provide a Carrier Detect signal. A good indication that your modem does not provide Carrier Detect is if you must manually enter Command Mode when you disconnect. If you do not have a Carrier Detect signal you MAY have to hit the Q key to disable incoming data before you can print data.

Z: Allows you to set the time between characters when sending files from the transmitt buffer. Useful when talking to hosts who cannot receive data at full speed. A value of 0 is fastest, a value of 99 is the slowest transmission.

OTHER COMMANDS

S: Used to mark the start of a section for printing or writing to disk. To mark the beginning of the section position the line you want as the first line to the top of the screen (by using the scroll keys) and then press "S".

E: Used to mark the end of a section for printing or writing to disk. Depressing the "E" key will mark the line immediately above the top line on the display as the last line of the section.

P: Initiates Printing. Either the entire buffer will be printed or if you have used the "S" and "E" keys only the section you marked will be printed.

G: Go to start of the program. Just like entering the communications section of COLORCOM/E from the main menu except any data in the Transmit buffer is retained.

?: Entering "?" will alternately enable/disable the display of the Command Mode menu.

CLEAR: Depressing the Clear key will erase any data in the receive buffer.

Shift CLEAR: Entering Shift Clear will erase both the transmit and receive buffer.

SPACEBAR: Depressing the spacebar at any time will return you to the On-Line Mode.

!: Initiates Direct File Transfer.

PRINTING RECEIVED DATA

You may print received data AFTER you have disconnected from the host. At this time you may either disconnect the modem and plug in the printer or if you have a "Y" cable just turn on the printer after turning the modem off.

When you disconnect from the host computer COLORCOM/E sets up the RS232 port for the following parameters: 8 data bits, no parity, 600 baud. These are the default values for Color Basic also. If you can LLIST basic programs you should be able to print from COLORCOM/E using the default parameters. Should you need to change the default parameters use the "V" command as described in the section on "Changing RS232 Parameters".

To print data you need to be in the Command Mode. When you are in Command Mode if you want to print the entire received buffer just hit the "P" command.

If you only want to print part of the received data you will have to mark the section you want to print. You do this with the "S" and "E" keys. To mark the beginning of the section position the first line you want to print as the top line on the screen and hit the "S" key. To mark the last line you want to print position the LINE AFTER the last line you want to print as the top line on the screen and hit the "E" key. Then press "P". You may only mark one section at a time.

You may stop printing at any time by holding down the ENTER key.

IMPORTANT: If COLORCOM/E does not automatically go into Command Mode (display the menu) when you disconnect from the host computer you may have to use the "V" command to manually set up the RS232 parameters for your printer. You may also have to enter the "Q" command once to disable reception of data, otherwise, COLORCOM/E may interpret signals from the printer as incoming data and go into the On-Line mode automatically.

WRITING RECEIVED DATA TO CASSETTE

You may write any data stored in the receive buffer to cassette. There are 3 options here: 1) write the entire buffer to cassette, 2) mark one section using the S and E keys, 3) use capture characters. The last method is the easiest, but you can only use it if the host computer sends capture characters around files it sends to you. You will have to ask the service you are talking to whether they do this or not.

A word about file names. Do not put quote marks around the file name. They are not necessary and may make it impossible for you

to read the file back.

WRITING ENTIRE BUFFER TO CASSETTE

This is easy. When in the command mode press the "W" command. COLORCOM/E will respond:

```
USE CAPTURE CHARACTERS
     1 - YES
     2 - NO
```

Enter "2" for No. COLORCOM/E will respond:

```
FILE NAME
```

Enter the file name. DO NOT put quote marks around the file name. The file will be written and the the Command Mode menu will return.

WRITING ONE SECTION TO CASSETTE

This is also easy. Just use the S and E keys to mark ONE section, just like you would for printing. Then follow the same procedure as for Writing the entire buffer to cassette.

WRITING USING CAPTURE CHARACTERS

If the data downloaded was sent with automatic capture characters COLORCOM/E will make life easier for you. It will find the capture characters and only write out the part between them. Here's what to do:

When in Command Mode type "W". COLORCOM/E will respond:

```
USE CAPTURE CHARACTERS

     1 - YES
     2 - NO
```

Type "1" for yes. When you select this option COLORCOM/E will search through the received data looking for the FIRST set of capture characters. When it finds them it will display the first 6 lines of the captured data. It will then ask the following question:

```
CORRECT FILE

     1 - YES
     2 - NO
```

If NO is selected COLORCOM/E will continue searching the receive buffer looking for the next set of capture characters. When it finds them it will again display the first 6 lines and repeat the above prompt. This procedure allows you to sequence through all of the files in the buffer with automatic capture

characters. If at any time no file is found the display will return to the Command Mode.

If you answer yes to the CORRECT FILE prompt you will be prompted for the file name and then the file will be written out.

UPLOADING FILES

This section discusses the uploading of ASCII files to hosts other than another COLORCOM/E. The preferred method of sending files to another COLORCOM/E is Direct File Transfer which is discussed in another section. The method we will describe here works for ASCII files which you want to transmit to another computer. If you want to send a Basic program with this method make sure you have previously saved it to cassette with the ASCII option (e.g. CSAVE "TEST",A).

Before you can upload a file you must read it into the transmitt buffer. To read in a file you must be in Command Mode. You can read in a file either before or after you go on-line with the host computer. It is generally preferable to read in the file before going on-line for two reasons. 1) It saves on-line connect time. 2) Reading in a file erases all received data.

READING CASSETTE FILES

Data read into the transmit buffer will be added to any previously there. This allows you to load multiple files for transmission. You can clear the transmit buffer by entering the Shift-CLEAR key. this will also erase all received data.

To initiate a read type "R" while in the Command Mode. COLORCOM/E will respond:

```
XMIT OPTIONS
    1 - NONE
    2 - ADD HEADER
```

Selecting option 1 will result in the file being read into the transmit buffer exactly as is. Option 2 will cause the file data to be bracketed by Automatic Capture Characters. This is useful if the host recognizes automatic capture characters. This also allows you to read multiple files and send them one at a time, since COLORCOM/E stops sending from the transmitt buffer when it finds an end automatic capture character.

The next prompt is:

```
FILE NAME
```

Do not use quotes in the file name. COLORCOM/E will search the cassette for the indicated file. If an error occurs the message "I/O ERR" will be displayed. When the load is complete the screen will return to the Command Mode display.

You may look at the transmit buffer with the "X" command. The contents of the transmit buffer will be scrolled through the screen. To stop scrolling press any key. To resume scrolling press any key except the ENTER key. Depressing the ENTER key while scrolling is stopped will exit the X mode.

UPLOADING

Once you have read the file into the transmit buffer you may send it by hitting either CNTRL-1 or CNTRL-2. The former will only send one line at a time (you must keep hitting CNTRL-1 to send the next line) and the latter will send the whole file.

VERY IMPORTANT! You MUST know some things about the computer you are sending to. Does it use automatic capture characters? Can it accept an entire file without stopping? If not does it accept one line at a time? Perhaps it expects to be able to turn off and on the data you are sending? (This is usually done by having the host send special characters; XON - start transmitting, and XOFF - stop transmitting).

Actually you can make some intelligent guesses to the answers to these questions. If the other computer is running another COLORCOM/E it does recognize automatic capture characters and it can receive an entire file at one time. If you are talking to a large timeshare computer it probably cannot accept an entire file without resting (most bulletin boards can't either). Furthermore if the program you are talking to at the other computer is some kind of an editor (like FILGE on Compuserve) it expects to receive a line at a time. Frequently if it expects one line at a time it will give some kind of prompt on the screen to tell you to type the next line. If so you can define this prompt character to be the XON character that COLORCOM/E recognizes to tell it to send the next line.

No we will give instructions for uploading in the three most common situations: 1) host can accept entire file; 2) host expects a line at a time; 3) host expects to be able to Start and Stop transmission.

Case 1:

In this case we are assuming that the host can accept an entire file at one time. In this case you would use CNTRL-2 to send the file. Your only decision would be whether the host used some kind of automatic capture characters. If so, when you read in the file to be transmitted, be sure to select the option which allows you to add a header to the file.

Case 2:

In this case we are assuming that the host computer expects one line at a time and that it gives a single character prompt when it is ready for the next line.

COLORCOM/E will allow the host computer to tell it when to send the next line. The host does this by sending a special character called "XON". You can make XON anything you want usingthe "O" (zero) command when in Command Mode. In this case you want to make XON be the character that the host prompts with

when it is ready to receive the next line. Just remember to define XON before you initiate the send. Remember that when you define XON you must enter the hexidecimal representation of the prompt character. Appendix B lists the hexidecimal values of each of the ASCII characters. A common prompt character is the greater than symbol (>). The hex value for this symbol is 3E. Many systems use the ASCII standard XON character of 11, which is not a displayable character so you won't see it on the screen. This is the COLORCOM/E default.

Once you are ready to transmit enter CNTRL-1. This will cause one line to be sent and then COLORCOM/E will stop. When the host responds with the prompt character COLORCOM/E will automatically send the next line. This will continue until the end of the transmit buffer is reached or until an end capture character is encountered.

Remember that COLORCOM/E does not recognize the XON character until after you enter CNTRL-1 once; so you must initiate the send.

Case 3:

This case assumes that the host cannot accept an entire file, does not expect one line at a time, but will send characters telling your computer when to send and when not to. These characters are called XON(start sending) and XOFF (stop sending). You can define these characters for COLORCOM/E using the "O" command. The most common value for XON is $11 and for XOFF $13. These are te COLORCOM/E default values. Check with the host to find out for sure.

Assuming that you have defined these characters, have read in the file, and are on line with the host press CNTRL-2. COLORCOM/E will not send the entire file, stopping and starting under control of the host computer.

MISCELLANEOUS UPLOAD COMMANDS

In Command Mode you can set the time delay between each character transmission. This is convenient when talking to an especially slow host. To do this type "Z" while in Command Mode. You will be prompted to enter a speed value. A value of 0 means the fastest transmission and a value of 99 is the slowest. You will have to experiment with values good for the host. (hint: start with 3).

DIRECT FILE TRANSFER (DFT)

The easiest way to transfer a file between two Color Computers that are both running Cartridge COLORCOM/E version 4.0 or later is to use Direct File Transfer (DFT). COLORCOM/E does all of the work with DFT. The file is transferred, checked for errors, and any portions with errors retransmitted. Here is all you do.

1. Set up the required RS232 parameters(see Appendix C) and establish communications.

2. After communications are established the side which is going to transmit the file enters Command Mode and presses the exclamation point (!) (this is Shift-1). The receiving side should have the cassette positioned and in write mode.

3. COLORCOM/E will respond:

   FILE NAME

4. Enter the complete name of the file you want to send. Do not enter quotation marks around the name.

5. COLORCOM/E will take it from there. The file will be transferred and any errors in transmission will be corrected. The file will be given the same name at the receiving end as it had at the transmitting end.

The transmitting side should verify that the cassette is being read in. If it is an ASCII file one record will be read in and then it will be transmitted. For non-ASCII files the entire file will be read into memory at once and then transmitted. The receiving side should be aware of what type of file is being sent so they know what to expect. For an ASCII file the cassette will turn on/off frequently (between each record). For a non-ASCII file the entire file will be transmitted before anything (except the header) is written out.

Have patience. At 300 baud a 4K program will take about 3 minutes to be transmitted. Except during actual cassette operations either side can abort DFT by hitting any key. ONce in the On-Line Mode the other end can then be aborted (usually) by holding Control-BREAK down for 15 seconds.

Possible error messages which may be seen at either end are

I/O ERROR : ERROR IN READING FROM CASSETTE

Transmitting computer should either re-read cassette or abort receiving computer by holding Control-BREAK down for 15 seconds.

XMIT ERROR: SAME RECORD HAD TRANSMISSION ERROR 3 TIMES

Either end may get this message. Wait for transmitting side to either resend or abort DFT by holding Control-BREAK down for 15 seconds.

SETTING RS232 PARAMETERS

The RS232 port can be used to talk to two different devices: another computer or a printer. Only one of these devices can be connected at a time to the RS232 port on the Color Computer. In the Command Mode there are commands which allow you to set the communications parameters for each of these devices. You need to do this if the default values are not appropriate for the particular device you are talking to. These commands are:

V : SET PRINTER RS232 VALUES
(Should only be done AFTER disconnecting)

L : SET HOST COMPUTER RS232 VALUES

The default values COLORCOM/E uses for each of these devices are:

HOST COMPUTER

300 BAUD
EVEN PARITY
7 DATA BITS
NORMAL DELAY AFTER CR
PASS LINEFEED
FULL DUPLEX

PRINTER

600 BAUD
PARITY OFF
8 DATA BITS
NORMAL DELAY AFTER CR
STRIP LINEFEEDS
PASS ALL CONTROL CHARACTERS

ADVANCED ENTRY MODE

At power-up but before connection is made to another computer COLORCOM/E is in the Advanced Entry Mode. The cursor is present on the screen in this mode. At this time you can do things like read cassette files, adjust communications parameters, etc. You would do this by entering the Command Mode using Control-5. The Advanced Entry Mode is terminated when contact with the host computer is made.

When in Advanced Entry Mode you can enter data from the keyboard for later transmission. While in the Advanced Entry Mode anything you type on the keyboard is echoed to the screen and is stored in the transmit buffer, but it IS NOT transmitted at the time you type it in. You can send it later using the CNTRL-1 or CNTRL-2 as described in the section on Uploading.

How much data can you type? As much as will fit in memory. But remember, this is not a text editor. You will not be able to go back and correct lines! Within a line, however, you can use the back arrow key to backup and make corrections. A line can be a maximum of 255 characters long. If word mode is enabled (which it normally is) split words at the end of a line will be suppressed. However this has NOTHING to do with the data that will actually be transmitted. A transmitted line ends when you hit the ENTER key.

AUTO DIALING MODEMS

There are two types of Auto Dial modems you are likely to encounter. The first type (like the Radio Shack modem II) DO NOT allow you to use the carrier detect signal with the Color Computer. Hence you cannot use the Carrier Detect signal to determine when you are connected or disconnected. The second type of modem will still provide a true Carrier Detect when connected to the Color Computer. You will have to determine from your modem documentation which type you have.

NO CARRIER DETECT PROVIDED

These instructions will be directed specifically at the Radio Shack modem II. To Auto-Dial perform the following steps:

1) Start up COLORCOM/E normally

2) Hit the BREAK key TWICE. This forces COLORCOM/E into the On line mode (necessary since there is not a valid Carrier Detect from the modem II)

3) Enter Control-6. This changes the RS232 parameters to what is required for the Modem II.

4) Follow instructions in the MOdem II manual to dial

5) Enter Control-6. This changes the RS232 parameters back to the normal value. Should you have to re-dial enter a Control-6 before doing this.

COLORCOM/E will never get a valid Carrier Detect signal so it will not Automatically go into Command Mode. To make the Modem II hang up hold the down arrow and BREAK key down simultaneously for a couple of seconds.

CARRIER DETECT PROVIDED

This is the easiest mode. COLORCOM/E provides a special mode to dial in. You enter this mode by pressing the BREAK key ONCE when in the advanced entry mode. COLORCOM/E will still be waiting for a valid carrier detect signal to tell it that it has connected with the host computer and it will still recognize the loss of carrier and automatically go into Command Mode.

OTHER FEATURES

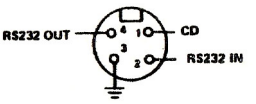
PRINTER CONTROL CHARACTERS

In some cases it might be desireable to send characters to a printer before printing data. You can send any character to the printer from the keyboard in the following manner. Let us assume that you are in the Command Mode AFTER disconnecting from the host computer and the printer is connected. To send keyboard characters to the printer enter the On-Line Mode by hitting the space bar. While in the ON-Line Mode any characters you type will be sent to the printer. They WILL NOT be echoed to the screen or stored in memory. To re-enter the Command Mode type CNTRL-5 as usual.

APPENDIX A

RS232 CONNECTIONS

The RS232 interface utilizes a 4-pin DIN connector. The four signals used by the interface are:



REQUIRED MODEM SIGNALS

1 : CD - Carrier Detect from modem

2 : RS232IN - serial data input from modem

3 : GROUND - zero voltage reference

4 : RS232OUT - serial data out

REQUIRED PRINTER SIGNALS

2 : STATUS - Request To Send (or similar signal) from printer

3 : GROUND - zero voltage reference

4 : RS232OUT - Serial data out

Please note that signal 2 is used for different purposes depending on whether a modem or printer is connected. This is in accordance with the standard set by Radio Shack for this interface. Radio Shack modem and printer cables made for the Color Computer conform to this standard.

APPENDIX B

KEYBOARD CHARACTER SET

HEX NUMBER	KEY SEQUENCE	ASCII CHAR	DISPLAYED CHAR
01	CONTROL-A	SOH	
02	CONTROL-B	STX	
03	CONTROL-C	ETX	
04	CONTROL-D	EOT	
05	CONTROL-E	ENQ	
06	CONTROL-F	ACK	
07	CONTROL-G	BEL	
08	CONTROL-H or BACK ARROW	BS	
09	CONTROL-I or FORWARD ARROW	HT	
0A	CONTROL-J	LF	
0B	CONTROL-K	VT	
0C	CONTROL-L or CLEAR	FF	
0D	CONTROL-M or ENTER	CR	
0E	CONTROL-N	SO	
0F	CONTROL-O	SI	
10	CONTROL-P	DLE	
11	CONTROL-Q	DC1	
12	CONTROL-R	DC2	
13	CONTROL-S	DC3	
14	CONTROL-T	DC4	
15	CONTROL-U	NAK	
16	CONTROL-V	SYN	
17	CONTROL-W	ETB	
18	CONTROL-X	CAN	
19	CONTROL-Y	EM	
1A	CONTROL-Z	SUB	
1B	CONTROL-CLEAR	ESC	
1C	CONTROL-: (colon)	FS	
1D	CONTROL-; (semi-color)	GS	
1E	CONTROL UP ARROW	RS	
1F	CONTROL-. (period)	US	
20	SPACE BAR		
21	!	!	!
22	"	"	"
23	#	#	#
24	$	$	$
25	%	%	%
26	&	&	&
27	'	'	'
28	(	(	(

HEX NUMBER	KEY SEQUENCE	ASCII CHAR	DISPLAYED CHAR
29	)	)	)
2A	*	*	*
2B	+	+	+
2C	,	,	,
2D	-	-	-
2E	.	.	.
2F	/	/	/
30...39	0..9	0..9	0..9
3A	:	:	:
3B	;	;	;
3C	<	<	<
3D	=	=	=
3E	>	>	>
3F	?	?	?
40	@	@	@
41..5A	U/C A..Z	A..Z	A..Z
5B	CONTROL BACK ARROW	[	[
5C	SHIFT CLEAR	\	\
5D	SHIFT RIGHT ARROW	]	]
5E	UP ARROW	^	↑
5F	SHIFT UP ARROW	_	←
60	CONTROL-0 (zero)	`	@
61..7A	a..z	a..z	a..z
7B	CONTROL- @	{	[
7C	CONTROL- _	|	\
7D	CONTROL- 7	}	]
7E	CONTROL- 8	~	↑
7F	CONTROL-	RUBOUT SPACEBAR	

APPENDIX C
COMMUNICATION BETWEEN 2 COLOR COMPUTERS

The RS232 settings necessary for tw Color Computers equipped with COLORCOM/E to talk to each other are shown below:

300 BAUD
EVEN PARITY
SEVEN DATA BITS
NORMAL DELAY AFTER CARRIAGE RETURN
INSERT LINEFEED
HALF DUPLEX