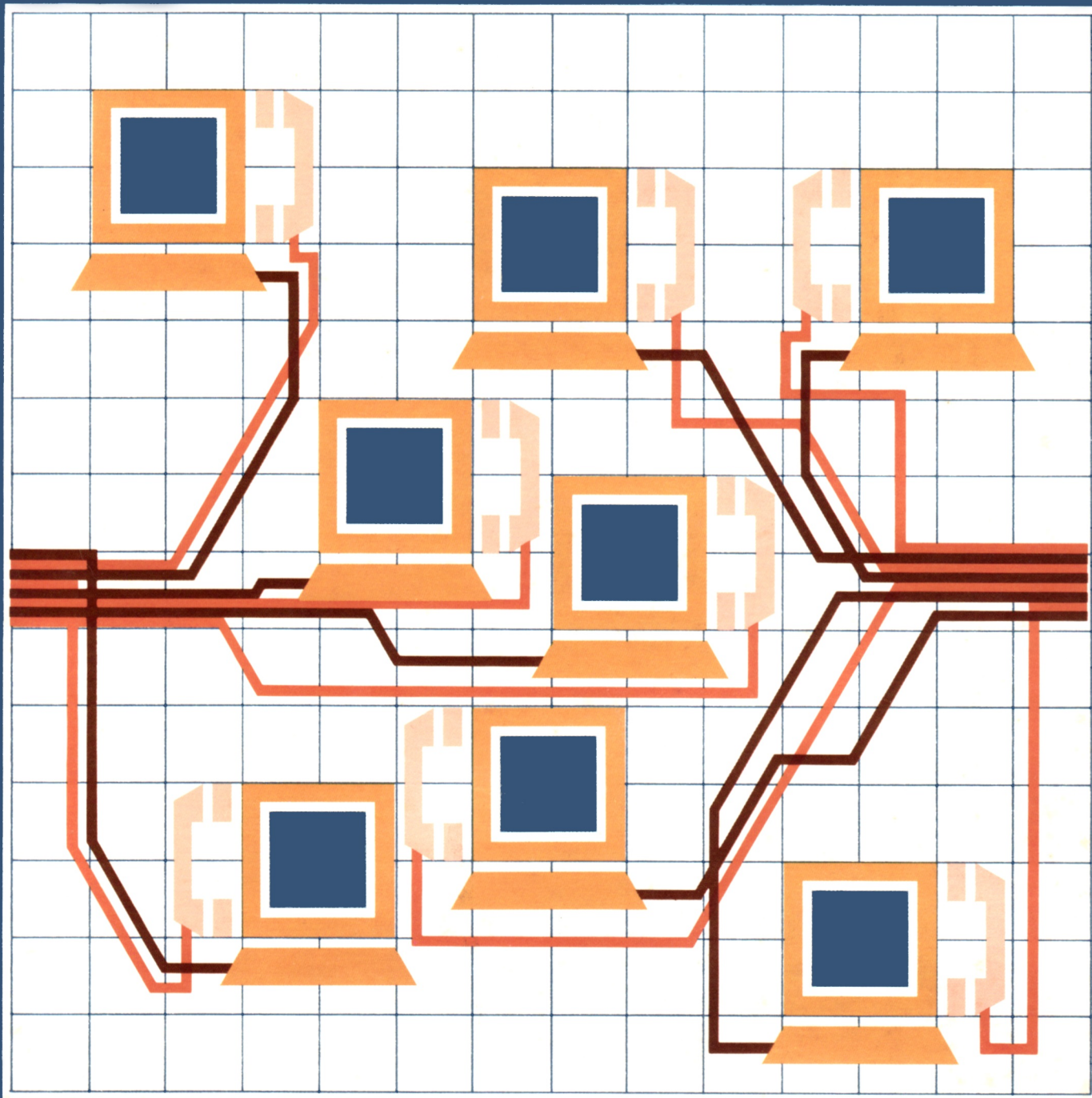


COMPAC



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COMPAC

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10 9 8 7 6 5 4 3 2

Table of Contents

Introduction	1
Required Equipment	1
Setting Up the COMPAC System	3
Connecting a Cassette Recorder	3
Connecting a Modem	3
System Power-Up	3
Using COMPAC	5
Loading COMPAC into Memory	5
Relocating COMPAC (for 32K and 64K machines)	6
Saving COMPAC to a New Tape	6
Loading COMPAC to Higher Memory	7
Changing Communications Settings	7
Terminal Communications Mode	9
Transmit BASIC Program	11
Receive BASIC Program	12
Transmit a Machine-Language Program	12
Receive Machine Language	13
Saving a BASIC or Machine-Language Program Onto Cassette Tape	14
A Sample Log-On Session	15
Appendix A/ Copying COMPAC to Disk	17
Appendix B/ COMPAC Character Set	19

Introduction

COMPAC is a software package that provides your Color Computer with computer-to-computer communication abilities. With COMPAC (and some additional equipment), you can use your Color Computer to access information services or perform data transfer operations with other computers.

COMPAC's special features include:

- Relocatable Code for use on 32K or 64K Color Computers
- Programmable Baud Rate capability
- Full or Half-Duplex capability
- Selectable 7 or 8 Bit Word Length
- 1 or 2 Stop Bit Selection
- The ability to transmit and receive BASIC or Machine-Language programs.

This manual shows you how to:

- Set up your equipment when using COMPAC
- Use COMPAC's options to connect with a particular host
- Transmit and receive BASIC or Machine-Language programs
- Save and load information stored in memory (the RAM Buffer)

Required Equipment

To use COMPAC you'll need the following equipment:

- A Color Computer with at least 16K of RAM, Extended Color BASIC, and a Color TV
- A telephone
- A modem for communication over the telephone lines. Radio Shack provides several — the Modem I (26-1172), the Modem II (26-1173), the Telephone Interface II (26-1171), and the Acoustic Coupler (26-1002).

Setting Up the COMPAC System

Before you can use COMPAC, a modem and a cassette recorder must be connected to the Color Computer. With the Color Computer properly connected to a color TV, proceed to connect the required peripheral equipment.

Connecting a Cassette Recorder

To load COMPAC (or any Basic or Machine-Language program that you intend to transmit), you will need a cassette recorder, such as the CCR-81 (26-1208), which comes with a computer-to-cassette cable.

1. Turn OFF your Color Computer and TV set.
2. Connect the single, round end of the computer-to-cassette cable to the jack labeled CASSETTE on the back of the Color Computer.
3. Connect the three plugs on the other end of the cable to the cassette recorder. Consult your Color Computer Operation Manual and the cassette recorder owner's manual for instructions on connecting these plugs.

Connecting a Modem

An RS-232C cable is required to connect the modem. You may use either a 4-pin DIN to 4-pin DIN (26-3020) or a 4-pin DIN to DB 25 (26-3014) RS-232C cable.

1. Before connecting the modem, turn OFF your system.
2. Be sure your RS-232C cable is properly connected to the modem.
3. Plug the other end of the RS-232C cable into the Color Computer's RS-232C connector.

System Power-Up

Having connected the cassette recorder and modem, you may power-up your system. First turn on the TV set, and then press the Power Switch on your Color Computer. The startup message and the **OK** prompt appear on the screen.

Using COMPAC

At this point, you are ready to load COMPAC into your Color Computer and begin using all of its options. COMPAC is a Machine Code program that may be relocated within memory. Owners of 32K and 64K machines may opt to load COMPAC in higher memory as indicated in "Relocating COMPAC." (Loading COMPAC in higher memory has the effect of providing additional memory for transmitting or receiving programs.)

Loading COMPAC Into Memory

With the cassette recorder properly connected to the Color Computer, follow this procedure:

1. Insert the tape into the cassette recorder and rewind it completely. Then press the PLAY button.
2. At the OK prompt, type:

```
PCLEAR 1 (ENTER)
CLEAR 200, 12288 (ENTER)
CLOADM "COMPAC" (ENTER)
```

The tape begins turning, and the screen shows **S** to indicate that the Computer is searching for the program. **F** appears when COMPAC is found. After COMPAC is fully loaded, the OK prompt returns to the display.

3. Now you may execute COMPAC simply by typing:

```
EXEC (ENTER)
```

The "Protocol Menu" appears on the screen:

COMPAC 1.0

```
B: BAUD RATE: 300
D: DUPLEX: HALF
W: WORD LENGTH: 8 BITS
P: PARITY: NONE
S: STOP BITS: 1
L: AUTO LINE FEED: ON
U: UPPER CASE ONLY MODE
M: MODEM I
Z: TERMINAL COMMUNICATIONS MODE
```

```
CHANGE ITEM OR BREAK FROM MENU:
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```

On power-up, the Protocol Menu always shows the above settings. If your information service communicates at 300 baud, half-duplex, 8-bit word length, no parity, 1 stop bit, auto line feed ON, uppercase, and you are using a Modem I (non-dialing modem), you only need to press **BREAK** to begin communications.

Relocating COMPAC (for 32K and 64K machines)

If you own a 32K or 64K Color Computer, you can relocate COMPAC to a higher section of memory. Doing this provides additional memory space for storing longer programs (to be sent or received).

The relocating procedure requires that you save COMPAC onto a new tape with a special set of commands. After doing that, use the new copy of COMPAC whenever you wish to load it into your Computer.

Saving COMPAC to a New Tape

Follow this procedure to load COMPAC (from the cassette provided) and then save it to a new tape:

1. With the cassette recorder properly connected to your Computer, rewind the tape completely and then press the PLAY button.
2. Type the following commands on your computer:

```
PCLEAR 1 ENTER  
CLEAR 200, 12288 ENTER  
CLOADM "COMPAC", 16384 ENTER
```

The tape begins turning and then stops after COMPAC is loaded.

3. Insert a blank cassette into the recorder and set it in the record mode.
4. Save COMPAC on the blank cassette by typing:

```
CSAVEM "COMPAC", 28672, 31999, 28672 ENTER
```

After COMPAC is saved, the tape stops turning and **OK** returns to the screen.

From this point on, use this new tape for loading COMPAC into your Computer. Also, note that the procedure for loading COMPAC to higher memory differs from the one described earlier. The next section explains how to load COMPAC to higher memory.

Loading COMPAC to Higher Memory

To load your new COMPAC tape to higher memory, use the following procedure:

1. Insert the new cassette containing COMPAC into the recorder, rewind it, and then press PLAY.
2. Type the following commands:

```
PCLEAR 1 (ENTER)
CLEAR 200, 28672 (ENTER)
CLOADM "COMPAC" (ENTER)
```

The tape begins turning as COMPAC is loaded into high memory. After the load operation is complete, you may run COMPAC by typing:

```
EXEC (ENTER)
```

The Protocol Menu appears on the screen.

Changing Communications Settings

Communications settings are changed by pressing the alphabetic key which precedes a specific option on a line of the Protocol Menu. Each time you press a key, a different option appears. For example, press (W) to change the Word Length from 8 to 7 bits. Press (W) again to return to 8 bits. In other words, COMPAC provides all available options. You do not have to type specific values.

After changing an option, either proceed to another option (by pressing the corresponding key), or press (BREAK) to begin communications. If, after establishing communications, you discover an incorrect setting, return to the Protocol Menu by pressing (BREAK). You can then correct any inappropriate settings without disconnecting communications.

The following is an explanation of all the Setting Options:

B **Baud Rate (300, 1200)**

Press and release (B) to change the Baud Rate setting. Your options are 300 and 1200 Baud.

D **Duplex (Half or Full)**

Press (D) to change the Duplex setting. Your options are either Full (for simultaneous, two-way communication), or Half (for one-way communication).

W

Word Length (7 or 8 Bits)

Press **(W)** to change the Word Length setting. There are two options — 7 Bits and 8 Bits.

P

Parity (None, Odd, or Even)

Press **(P)** to change the Parity option. Your options are None, Odd, or Even.

S

Stop Bits (1 or 2)

Press **(S)** to change the Stop Bit. The option is either 1 or 2.

L

Auto Line Feed (ON or OFF)

This option lets you select whether carriage returns are interpreted as carriage return/line feed (referred to as “Automatic Carriage Return”), or carriage return only. Press **(L)** to turn the Auto Carriage Return ON or OFF.

U

Uppercase Only Mode

This option lets you communicate in either Uppercase only or Upper- and Lowercase mode. Press and release **(U)** to select the correct mode. (This mode can also be changed while communicating by pressing **(SHIFT)** and **(0)** together.)

M

Modem Type

COMPAC provides you with the flexibility of manual or automatic dialing. These options are MODEM I and MODEM II respectively.

The MODEM I option is for non-dialing modems and can be applied to Acoustic Couplers. The MODEM II option is designed for automatic dialing modems (although you can choose to ignore the automatic dialing capability).

To change the modem type, press and release **(M)** until the required option appears.

Modem I (manual dialing) Users. . .

If you select the MODEM I (or manual dialing modem) option, either make another setting selection or press **(BREAK)** to proceed with communications.

Modem II (auto dialing) Users. . .

If you select the MODEM II option, COMPAC prompts you with

PHONE #?

You may then type a telephone number consisting of up to 19 digits.

Note: To provide a two second pause between numbers, insert an asterisk (*). This is especially useful if you need to get an outside line to dial a telephone number. For example, the number 9*1264567 would tell the modem to dial 9 and wait for an outside line (*), then dial the telephone number.

Z

TERMINAL COMMUNICATION MODES

Pressing **Z** consecutively displays the following communications modes:

TERMINAL COMMUNICATIONS MODE

TRANSMIT BASIC PROGRAM

RECEIVE BASIC PROGRAM

TRANSMIT MACHINE CODE
STARTING ADDRESS?
ENDING ADDRESS?

RECEIVE MACHINE CODE
STARTING ADDRESS?

GO TO "BASIC"

Terminal Communications Mode

Selecting this mode lets you use your Color Computer as an interactive terminal with a host system. Most information services can be contacted via this mode.

Before using the Terminal Communications Mode, be sure that all of your settings are in agreement with the host you are contacting. Also, check that your modem is properly connected to the Computer.

Auto Dialing Modem Users. . .

If you are using an auto-dial modem, the number is dialed automatically as specified in the MODEM II option. After the carrier is established with the host, proceed with the log-on protocol as outlined by that host system.

Follow this procedure for dialing the host's number with an auto-dial modem:

1. Be sure your auto-dial modem is ON and set for auto-dial and originate. If you have a Modem II, turn the DTR switch OFF.
2. After typing the host's phone number at the **PHONE #?** prompt, press **(BREAK)**. The modem dials the host's number. With the Modem II, the CD light goes ON when the host answers the telephone.
3. When the CD light goes ON, send the character prescribed by the particular information service. For example, a commonly used response is **^C**, which is produced by pressing **(↓)(C)** (down arrow and **(C)** together). After sending your response, the host begins the **Log-On sequence**.

Note: The **Log-On sequence** varies among the many information services. Usually, a password and an identification number are required to let you access the facilities of the service. For detailed **Log-On** procedures, consult your information service's user's guide.

Manual Dialing Modem Users. . .

If you are using a manual dial modem, check your communications settings so that they correspond to those of the host system. Then, you can proceed to access the host:

1. Press **(BREAK)** and dial the host's telephone number manually. When you reach the host, you will hear a high-pitched tone.

If you have a Modem I, set it to ORIG. When the tone changes to a lower tone, gently hang up the phone.

If you are using a Modem II, the DTR Switch at the rear of the modem must be in the OFF position and the POWER switch ON. Also, set the MODE switches to the MAN/ORIG position. When you hear the tone, gently hang up the phone.

2. Proceed with the log-on sequence as outlined by your host system user's guide.

Transmit BASIC Program

One of COMPAC's main features is its ability to transmit BASIC programs. The BASIC program that you intend to transmit must be stored in memory prior to transmission.

Follow this procedure to transmit a BASIC program:

1. Load and execute COMPAC. When the Protocol Menu appears, press **Z** until the **GO TO BASIC** setting appears. Then, press **BREAK**.
2. Type **NEW** **ENTER** to clear out any existing program.
3. Insert the cassette containing the BASIC program you wish to transmit and set the recorder to **PLAY**.
4. Load the BASIC program into memory by typing

CLOAD "name" ENTER

(where "**name**" refers to the name under which the program was saved).

5. Having loaded the BASIC program, return to the Protocol Menu and transmit the program by typing:

EXEC &H3000 ENTER

or

EXEC 12288 ENTER

6. Confirm that the communication settings are the same as those of the host computer. Then, press **Z** until the **TRANSMIT BASIC PROGRAM** message appears.
7. Press **BREAK** to begin transmission.

Note: If the program you wish to transmit exceeds the memory capacity of your Color Computer, an O/M (out of memory) error occurs. You can check available memory at the BASIC screen by typing **?MEM ENTER**.

Receive BASIC Program

Follow the steps below to receive a BASIC program:

1. At the Protocol Menu, select the **RECEIVE BASIC PROGRAM** communication mode. Then, press **BREAK** to begin receiving.
2. The received program appears on the Screen line-by-line. Press any key to stop reception and return to the Protocol Menu.
3. After the entire program is received, return to the Protocol Menu by typing

EXEC &H3000 **ENTER**

or

EXEC 12288 **ENTER**

4. At the Protocol Menu, press and release **Z** until the **GO TO BASIC** message appears. Then, press **BREAK**.
5. To confirm that the program was indeed received, type **LIST** **ENTER**.

You can now save the program to tape using the **CSAVE** command.

Transmit a Machine-Language Program

Follow the steps below to transmit a Machine-Language program:

1. At the Protocol Menu, press **Z** until the **GO TO BASIC** setting appears. Then, press **BREAK**.
2. Type **NEW** **ENTER** to clear out any existing program.
3. Insert the tape containing the Machine-Language program into the recorder and set to **PLAY**.
4. Load the Machine-Language program into memory by typing

CLOADM "name" **ENTER**

("name" is the name under which the program was saved).

5. After loading the program, return to the Protocol Menu so you can now transmit the program. This is done by typing:

EXEC &H3000 **(ENTER)**

or

EXEC 12288 **(ENTER)**

6. Confirm that the communication settings are the same as those of the host computer. Then, press **(Z)** until the following message appears:

**TRANSMIT MACHINE CODE
STARTING ADDRESS?
ENDING ADDRESS?**

Enter the starting and ending addresses of the Machine-Language program. Use decimal numbers.

7. Press **(BREAK)** to initiate transmission.

Note: If the program you wish to transmit exceeds the memory capacity of your Color Computer, an O/M (out of memory) error occurs. You can check available memory at the BASIC screen by typing **?MEM** **(ENTER)**.

Receive Machine Language

Follow the steps below to receive a Machine Language program:

1. At the Protocol Menu, select the **RECEIVE MACHINE CODE** communications mode. The **STARTING ADDRESS?** prompt appears on the screen.
2. Type the starting address of the Machine-Language program to be received (in decimal numbers), and press **(ENTER)**.
3. Press **(BREAK)** to begin reception of the program. Each incoming byte is displayed to indicate that data transfer is in progress. After the entire program is received, the Protocol Menu returns to the screen.
4. At the Protocol Menu, press and release **(Z)** until the **GO TO BASIC** message appears. Then press **(BREAK)**.
5. Save the Machine-Language program on cassette using the **CSAVEM** command.

Saving a BASIC or Machine-Language Program Onto Cassette Tape

Follow the steps below to save BASIC and Machine-Language programs:

1. Insert a blank cassette into the recorder and advance it past the leader.
2. Press the recorder's PLAY and RECORD buttons at the same time until they lock.
3. If you are saving a BASIC program, type the following at the OK prompt:

CSAVE "filename" (ENTER)

If, however, you are saving a Machine-Language program, type:

CSAVEM "filename", START, END, TRANSFER (ENTER)

("filename" is a sequence of eight or fewer characters.)

After saving any program, the OK prompt appears on the screen, and the recorder's motor shuts off automatically. If you wish to continue using COMPAC, return to the Protocol Menu by typing **EXEC &H3000 (ENTER)** or **EXEC 12288 (ENTER)**.

A Sample Log-On Session

This sample session shows you how to use COMPAC's Terminal Communication mode. During the session, you will learn how to make selections from the COMPAC Protocol Menu and contact a host system.

Suppose you are using a Modem II (automatic dialing) and want to contact a host that uses the following communication parameters:

300 Baud Rate
Full Duplex
8 Bit Word Length
No Parity
1 Stop Bit
Auto Line Feed On
Upper and Lowercase

1. Power-up your system. Be sure all peripheral equipment is connected properly.
2. Display the Protocol Menu by typing **EXEC &H3000** **(ENTER)** or **EXEC 12288** **(ENTER)**.
3. When the Protocol Menu appears, compare the default settings (those shown on the initial Protocol Menu) with those required by the host. Notice that there are only four settings that do not correspond:

Duplex
Word Length
Upper and Lowercase
Modem type

4. Change the above settings by:
 - Pressing **(D)** to change the Duplex setting to Full-Duplex.
 - Pressing **(U)** to change the Uppercase setting to Upper and Lowercase.
 - Pressing **(M)** to change the modem setting to Modem II. Now, with the modem set to ON and AUTO/ORIG, type the telephone number, and press **(ENTER)**.
5. Press **(BREAK)**. The number specified is automatically dialed. You can now comply with the Log-On procedure.

Appendix A/ Copying COMPAC to Disk

If you own a Mini Disk drive, you may wish to copy COMPAC to disk for extra speed and convenience. The procedure is very simple:

1. Insert the tape containing COMPAC into the recorder and press the PLAY button.
2. Load COMPAC by typing the following commands:

```
CLEAR 200, 12288 (ENTER)
CLOADM "COMPAC" (ENTER)
```

The tape begins turning as COMPAC is loaded into memory.

3. With the Mini Disk turned ON and properly connected to your computer, type:

```
SAVEM "COMPAC", &H3000, &H3CFF, &H3000 (ENTER)
```

When COMPAC is saved on disk, the OK prompt returns to the screen. To run COMPAC from Disk, type:

```
LOADM "COMPAC" (ENTER)
EXEC (ENTER)
```

The Protocol Menu then appears on the screen.

Appendix B/ COMPAC Character Set

The table below shows all of the characters that COMPAC supports:

Unshifted	ASCII	Shifted	ASCII	Control*	ASCII
@	64	@	—	@	—
a	97	A	65	—	01
b	98	B	66	—	02
c	99	C	67	—	03
d	100	D	68	—	04
e	101	E	69	—	05
f	102	F	70	—	06
g	103	G	71	—	07
h	104	H	72	—	08
i	105	I	73	—	09
j	106	J	74	—	10
k	107	K	75	—	11
l	108	L	76	—	12
m	109	M	77	—	13
n	110	N	78	—	14
o	111	O	79	—	15
p	112	P	80	—	16

q	113	Q	81	—	17
r	114	R	82	—	18
s	115	S	83	—	19
t	116	T	84	—	20
u	117	U	85	—	21
v	118	V	86	—	22
w	119	W	87	—	23
x	120	X	88	—	24
y	121	Y	89	—	25
z	122	Z	90	—	26
	94		94	—	—
v	—	—	—	—	—
space	32	space	32	space	32
0	48	—	—]	125
1	49	!	33	—	—
2	50	”	34	—	—
3	51	#	35	—	—
4	52	\$	36	—	—
5	53	%	37	—	—
6	54	&	38	—	—
7	55	‘	39	[123
8	56	(40	[91
9	57)	41]	93

:	58	*	42	↑	126
;	59	+	43	—	—
,	44	<	60	<-	95
-	45	=	61	↵	124
.	46	>	62	↑	126
/	47	?	63	\	92
ENTER	13	ENTER	13	—	—
CLEAR	12	CLEAR	12	—	—
BREAK	—	BREAK	—	EXT. BREAK	—

*CONTROL is produced by pressing the down arrow key, (↓), along with any of the other keys.

— Notes —

— Notes —

— Notes —

— Notes —

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