

SYS to start the backup, the effect will be somewhat less noticeable.

Starting the save at location 828 also means you must load the program from disk with the nonrelocating load command, as specified in step 6 above. If you object to this, you can change the Transfer program to save only the locations you want.

To start saving from a location other than 828, POKE location 740 with the least significant byte (LSB) of the desired address and POKE 744 with the most significant byte (MSB) of the address. You can use these formulas to convert the address into LSB/MSB bytes:

```
POKE 744,(INT(starting address/256))
POKE 740,(starting address-(INT(starting
address/256))*256))
```

To change the ending address of the backup, POKE 748 with the LSB of the desired ending address and POKE 750 with the MSB of the address. You can use the same formulas above by substituting *ending address* for *starting address*.

If you change the ending address, you'll also have to make two further modifications to the machine language by typing:

```
POKE 747,162:POKE 749,160
```

For example, to start saving from the normal beginning of BASIC program storage (location 2049), you would enter:

```
POKE 740,1:POKE 744,8
```

because the integer portion of 2049 divided by 256 equals 8, the MSB, and 2049 minus the product of 8 times 256 equals 1, the LSB. After making these POKES, run Tape to Disk Transfer as usual by entering SYS 679.

A program transferred to disk in this manner can be loaded with the usual LOAD "filename",8 command.

Tape To Disk Transfer

Please refer to "COMPUTE!'s Guide to Typing In Programs" before entering this listing.

```
10 FOR I=679 TO 767: READX: POKEI,X: NEXT
   I                                     :rem 97
50 NEW: REM DON'T INCLUDE UNTIL YOU ARE S
   URE IT IS CORRECT                   :rem 184
100 DATA 169,1,162,1,160,255,32,186,255,1
   69,0,162,0,160,0,32,189,255,169,0
                                       :rem 48
200 DATA 162,255,160,255,32,213,255,160,0
   ,32,207,255,153,245,2,200,201,13
                                       :rem 231
300 DATA 208,245,132,254,169,8,162,8,160,
   2,32,186,255,165,254,162,245,160,2
                                       :rem 113
400 DATA 32,189,255,169,60,133,251,169,3,
   133,252,166,174,164,174,169,251
                                       :rem 241
500 DATA 32,216,255,60,0,0,0,0,0,0,0,0,0,0,
   0,0
                                       :rem 39 ©
```

CAPUTE!

Modifications Or Corrections To Previous Articles

SpeedScript 3.0 Update

Three minor bugs have been discovered in *SpeedScript* 3.0 for the Commodore 64 (March 1985) and VIC-20 (April 1985). The errors appear in both the printed program listings and the COMPUTE! disks for those issues. First, the *SpeedScript* buffer is supposed to be preserved after an Erase All or a Load. The buffer is indeed preserved after a Load, making it useful for transferring text between files, but not after an Erase All (SHIFT-CLR/HOME). Secondly, sometimes the cursor does not appear when you first run *SpeedScript* 3.0. It's a minor annoyance, since the cursor reappears when you begin typing, but it's easy enough to fix. The third bug prevents dual-drive owners from accessing drive 1 when loading and saving. Follow these steps to make corrections:

1. Load *SpeedScript*, but do not run it.
2. When you see the READY prompt, enter one of the following lines without a line number and press RETURN:

```
For the Commodore 64:
POKE 2547,96:POKE 4316,200:POKE 4946,234:
POKE 4947,234:POKE 7716,49
```

```
For the VIC-20:
POKE 4625,1:POKE 5095,96:POKE 7370,234:POKE 7371,234
```

3. Immediately resave *SpeedScript* by entering SAVE "filename" for tape or SAVE "filename",8 for disk.

Also, it was not mentioned in either article (although it's shown on the keyboard map) that you can press CTRL-4 to display the disk directory. The disk directory can be paused by pressing any key; the next keystroke continues the directory listing. When the directory has finished listing, press RETURN to exit back to editing. Displaying the directory does not affect any text in memory.

In the "File Converter" program for the 64 version in the March issue (Program 2, p. 137), the modem option does not function properly and should not be used. To transfer *SpeedScript* files over a modem, you should instead create ASCII files on disk, then use a terminal program with upload/download capability, such as "Plus/Term" from the February issue.

Plus/Term For VIC And 64

This telecommunications terminal program from the February 1985 issue has several bugs, although most common communications formats should operate correctly. The program does not select word sizes of five or six bits, and the parity menu is not properly supported. To fix this, make the following changes:

```
420 POKE 659,(PEEK(659)AND159)OR((VAL(MA$
   )-1)*32)
800 ON VAL(MD$) GOTO 805,810,820,830,840
805 POKE 660,PEEK(660)AND 31:GOTO 850 ©
```


MLX Machine Language Entry Program For Atari

Charles Brannon, Program Editor

"MLX" is a labor-saving utility that allows almost fail-safe entry of machine language programs published in COMPUTE!. You need to know nothing about machine language to use MLX—it was designed for everyone.

"MLX" is a new way to enter long machine language (ML) programs with a minimum of fuss. MLX lets you enter the numbers from a special list that looks similar to BASIC DATA statements. It checks your typing on a line-by-line basis. It won't let you enter illegal characters when you should be typing numbers. It won't let you enter numbers greater than 255 (forbidden in ML). It won't let you enter the wrong numbers on the wrong line. In addition, MLX creates a ready-to-use tape or disk file.

Using MLX

Type in and save MLX (you'll want to use it in the future). When you're ready to type in an ML program, run MLX. MLX asks you for three numbers: the starting address, the ending address, and the run/init address. These numbers are given in the article accompanying the ML program presented in MLX format. You must also choose one of three options for saving the file: as a boot tape, as disk binary file, or as boot disk. The article with the ML program should specify which formats may be used.

When you run MLX, you'll see a prompt corresponding to the starting address. The prompt is the current line you are entering from the listing. It increases by six each time you enter a line. That's because each line has seven numbers—six actual data numbers plus a checksum number. The checksum verifies that you typed the previous six numbers correctly. If you enter any of the six numbers wrong, or enter the checksum wrong, the computer rings a buzzer and prompts you to reenter the line. If you enter it correctly, a bell tone sounds and you continue to the next line.

MLX accepts only numbers as input. If you make a typing error, press the DEL/BACK SPACE; the entire number is deleted. You can press it as many times as necessary back to the start of the line. If you enter three-digit numbers as listed, the computer automatically prints the

comma and goes on to accept the next number. If you enter less than three digits, you can press the comma key, the space bar, or the RETURN key to advance to the next number. The checksum automatically appears in inverse video for emphasis.

MLX Commands

When you finish typing an ML listing (assuming you type it all in one session), you can then save the completed program on tape or disk. Follow the screen instructions. If you get any errors while saving, you probably have a bad disk, or the disk is full, or you've made a typo when entering the MLX program itself.

Fortunately, you don't have to enter the whole ML program in one sitting. MLX lets you enter as much as you want, save it, and then reload the file from tape or disk later. MLX recognizes these commands:

CTRL-S	Save
CTRL-L	Load
CTRL-N	New Address
CTRL-D	Display

To issue a command, hold down the CTRL key (CONTROL on the XL models) and press the indicated key. When you enter a command, MLX jumps out of the line you've been typing, so we recommend you do it at a new prompt. Use the Save command (CTRL-S) to save what you've been working on. It will save on tape or disk, as if you've finished, but the tape or disk won't work, of course, until you finish the typing. Remember to make a note of what address you stop at. The next time you run MLX, answer all the prompts as you did before—regardless of where you stopped typing—then insert the disk or tape. When you get to the line number prompt, press CTRL-L to reload the partly completed file into memory. Then use the New Address command to resume typing.

To use the New Address command, press CTRL-N and enter the address where you previously stopped. The prompt will change, and you can then continue typing. Always enter a New Address that matches up with one of the line numbers in the MLX-format listing, or else the checksum won't work. The Display command lets you display a section of your typing. After you press CTRL-D, enter two addresses

within the line number range of the listing. You can break out of the listing display and return to the prompt by pressing any key.

Atari MLX: Machine Language Entry

Refer to the "Automatic Proofreader" article before typing this program in.

```
DA 100 GRAPHICS 0:DL=PEEK(560)+256*PEEK(561)+4:POKE DL-1,71:POKE DL+2,6
NJ 110 POSITION 8,0:?"MLX":POSITION 23,0:?"failsafe entry":POKE 710,0:?"Starting Address":INPUT BEG:?"Ending Address":INPUT FIN:?"Run/Init Address":INPUT STARTADR
DD 130 DIM A(6),BUFFER$(FIN-BEG+127),T$(20),F$(20),CIO$(7),SECTOR$(128),DSKINV$(6)
JJ 140 OPEN #1,4,0,"K":?"Tape or Disk":
BH 150 BUFFER$=CHR$(0):BUFFER$(FIN-BEG+30)=BUFFER$:BUFFER$(2)=BUFFER$:SECTOR$=BUFFER$
GC 160 ADDR=BEG:CIO$="hhh":CIO$(4)=CHR$(170):CIO$(5)="LV":CIO$(7)=CHR$(228)
EJ 170 GET #1,MEDIA:IF MEDIA<>84 AND MEDIA<>68 THEN 170
PD 180 ? CHR$(MEDIA):?"":IF MEDIA<>ASC("T") THEN BUFFER$="":GOTO 250
PL 190 BEG=BEG-24:BUFFER$=CHR$(0):BUFFER$(2)=CHR$(INT((FIN-BEG+127)/128))
KF 200 H=INT(BEG/256):L=BEG-H*256:BUFFER$(3)=CHR$(L):BUFFER$(4)=CHR$(H)
EC 210 PINIT=BEG+8:H=INT(PINIT/256):L=PINIT-H*256:BUFFER$(5)=CHR$(L):BUFFER$(6)=CHR$(H)
PB 220 FOR I=7 TO 24:READ A:BUFFER$(I)=CHR$(A):NEXT I:DATA 24,96,169,60,141,2,211,169,0,133,10,169,0,133,11,76,0,0
DP 230 H=INT(STARTADR/256):L=STARTADR-H*256:BUFFER$(15)=CHR$(L):BUFFER$(19)=CHR$(H)
KL 240 BUFFER$(23)=CHR$(L):BUFFER$(24)=CHR$(H)
HI 250 IF MEDIA<>ASC("D") THEN 360
DD 260 ?:"Boot Disk or Binary File":
LI 270 GET #1,DTYPE:IF DTYPE<>68 AND DTYPE<>70 THEN 270
GH 280 ? CHR$(DTYPE):IF DTYPE=70 THEN 360
PJ 290 BEG=BEG-30:BUFFER$=CHR$(0):BUFFER$(2)=CHR$(INT((FIN-BEG+127)/128))
KB 300 H=INT(BEG/256):L=BEG-H*256:BUFFER$(3)=CHR$(L):BUFFER$(4)=CHR$(H)
HH 310 PINIT=STARTADR:H=INT(PINIT/256):L=PINIT-H*256:BUFFER$(5)=CHR$(L):BUFFER$(6)=CHR$(H)
AD 320 RESTORE 330:FOR I=7 TO 30:READ A:BUFFER$(I)=CHR$(A):NEXT I
BA 330 DATA 169,0,141,231,2,133,14,16
```

```
9,0,141,232,2,133,15,169,0,133,10,169,0,133,11,24,96
OB 340 H=INT(BEG/256):L=BEG-H*256:BUFFER$(8)=CHR$(L):BUFFER$(15)=CHR$(H)
DD 350 H=INT(STARTADR/256):L=STARTADR-H*256:BUFFER$(22)=CHR$(L):BUFFER$(26)=CHR$(H)
JP 360 GRAPHICS 0:POKE 712,10:POKE 710,10:POKE 709,2
JK 370 ? ADDR:?"":FOR J=1 TO 6
NF 380 GOSUB 570:IF N=-1 THEN J=J-1:GOTO 380
BF 390 IF N=-19 THEN 720
OI 400 IF N=-12 THEN LET READ=1:GOTO 720
AI 410 TRAP 410:IF N=-14 THEN ?:"New Address":INPUT ADDR:?"":GOTO 370
JD 420 TRAP 32767:IF N<>-4 THEN 480
AJ 430 TRAP 430:?"Display:From":INPUT F:?"To":INPUT T:TRAP 32767
ML 440 IF F<BEG OR F>FIN OR T<BEG OR T>FIN OR T<F THEN ? CHR$(253):"At least ";BEG:?", Not More Than ";FIN:GOTO 430
MH 450 FOR I=F TO T STEP 6:?"":FOR K=0 TO 5:N=PEEK(ADR(BUFFER$)+I+K-BEG):T$="000":T$(4-LEN(STR$(N)))=STR$(N)
MA 460 IF PEEK(764)<255 THEN GET #1,A:POP:POP:?"":GOTO 370
FM 470 ? T$:?",":NEXT K:?"":CHR$(126):NEXT I:?"":GOTO 370
BA 480 IF N<0 THEN ?:"":GOTO 370
MH 490 A(J)=N:NEXT J
JM 500 CKSUM=ADDR-INT(ADDR/256)*256:FOR I=1 TO 6:CKSUM=CKSUM+A(I):CKSUM=CKSUM-256*(CKSUM>255):NEXT I
KK 510 RF=128:SOUND 0,200,12,8:GOSUB 570:SOUND 0,0,0,0:RF=0:?"":CHR$(126)
CN 520 IF N<>CKSUM THEN ?:"Incorrect":CHR$(253):?"":GOTO 370
EK 530 FOR W=15 TO 0 STEP -1:SOUND 0,50,10,W:NEXT W
FL 540 FOR I=1 TO 6:POKE ADR(BUFFER$)+ADDR-BEG+I-1,A(I):NEXT I
HB 550 ADDR=ADDR+6:IF ADDR<=FIN THEN 370
GM 560 GOTO 710
FI 570 N=0:Z=0
PH 580 GET #1,A:IF A=155 OR A=44 OR A=32 THEN 670
FB 590 IF A<32 THEN N=-A:RETURN
EB 600 IF A<>126 THEN 630
ML 610 GOSUB 690:IF I=1 AND T=44 THEN N=-1:?"":CHR$(126):GOTO 690
GN 620 GOTO 570
GJ 630 IF A<48 OR A>57 THEN 580
AN 640 ? CHR$(A+RF):N=N*10+A-48
EB 650 IF N>255 THEN ? CHR$(253):A=126:GOTO 600
EH 660 Z=Z+1:IF Z<3 THEN 580
JH 670 IF Z=0 THEN ? CHR$(253):GOTO 570
KC 680 ? ",":RETURN
ND 690 POKE 752,1:FOR I=1 TO 3:?"":CHR$(30):GET #6,T:IF T<>44 AND T<>58 THEN ? CHR$(A):NEXT I
```



```

PI 700 POKE 752,0:?" ";CHR$(126);:RE
TURN
KH 710 GRAPHICS 0:POKE 710,26:POKE 71
2,26:POKE 709,2
FF 720 IF MEDIA=ASC("T") THEN 890
DJ 730 REM DISK
OK 740 IF READ THEN ? :? "Load File":
?
IG 750 IF DTYPE<>70 THEN 1040
AE 760 ? :? "Enter AUTORUN.SYS for au
tomatic use":? :? "Enter file n
ame":INPUT T$
GF 770 F$=T$:IF LEN(T$)>2 THEN IF T$(
1,2)<>"D:" THEN F$="D:":F$(3)=
T$
NJ 780 TRAP 870:CLOSE #2:OPEN #2,8-4*
READ,0,F$:? :? "Working..."
JH 790 IF READ THEN FOR I=1 TO 6:GET
#2,A:NEXT I:GOTO 820
PD 800 PUT #2,255:PUT #2,255
DJ 810 H=INT(BEG/256):L=BEG-H*256:PUT
#2,L:PUT #2,H:H=INT(FIN/256):
L=FIN-H*256:PUT #2,L:PUT #2,H
NF 820 GOSUB 970:IF PEEK(195)>1 THEN
870
IF 830 IF STARTADR=0 OR READ THEN 850
FD 840 PUT #2,224:PUT #2,2:PUT #2,225
:PUT #2,2:H=INT(STARTADR/256):
L=STARTADR-H*256:PUT #2,L:PUT
#2,H
HH 850 TRAP 32767:CLOSE #2:?"Finishe
d.":IF READ THEN ? :? :LET REA
D=0:GOTO 360
HF 860 END
FD 870 ? "Error ";PEEK(195);" trying
to access":? F$:CLOSE #2:?:GO
TO 760
MC 880 REM BOOT TAPE
HN 890 IF READ THEN ? :? "Read Tape"
HI 900 ? :? :? "Insert, Rewind Tape."
:?"Press PLAY ";:IF NOT READ
THEN ? "& RECORD"
LP 910 ? :? "Press RETURN when ready:
";
JH 920 TRAP 960:CLOSE #2:OPEN #2,8-4*
READ,128,"C:":? :? "Working..."
NH 930 GOSUB 970:IF PEEK(195)>1 THEN
960
HH 940 CLOSE #2:TRAP 32767:?"Finishe
d.":?:?:IF READ THEN LET REA
D=0:GOTO 360
HF 950 END
CD 960 ? :? "Error ";PEEK(195);" when
reading/writing boot tape":?
:CLOSE #2:GOTO 890
MB 970 REM CIO Load/Save File#2 opens
d READ=0 for write, READ=1 fo
r read
EA 980 X=32:REM File#2,$20
EF 990 ICCOM=834:ICBADR=836:ICBLEN=84
0:ICSTAT=835
ND 1000 H=INT(ADR(BUFFER$)/256):L=ADR
(BUFFER$)-H*256:POKE ICBADR+X
,L:POKE ICBADR+X+1,H
FH 1010 L=FIN-BEG+1:H=INT(L/256):L=L-
H*256:POKE ICBLEN+X,L:POKE IC
BLEN+X+1,H
ND 1020 POKE ICCOM+X,11-4*READ:A=USR(
ADR(CIO$),X)
BG 1030 POKE 195,PEEK(ICSTAT):RETURN
KA 1040 REM SECTOR I/O
GC 1050 IF READ THEN 1100
HE 1060 ? :? "Format Disk In Drive 1?
(Y/N)":?
FC 1070 GET #1,A:IF A<>78 AND A<>89 T
HEN 1070
EC 1080 ? CHR$(A):IF A=78 THEN 1100
CP 1090 ? :? "Formatting...":XIO 254,
#2,0,0,"D:":? "Format Complet
e":?
AC 1100 NR=INT((FIN-BEG+127)/128):BUF
FER$(FIN-BEG+2)=CHR$(0):IF RE
AD THEN ? "Reading...":GOTO 1
120
LE 1110 ? "Writing..."
LI 1120 FOR I=1 TO NR:S=I
IO 1130 IF READ THEN GOSUB 1220:BUFFE
R$(I*128-127)=SECTOR$:GOTO 11
60
PL 1140 SECTOR$=BUFFER$(I*128-127)
AM 1150 GOSUB 1220
DN 1160 IF PEEK(DSTATS)<>1 THEN 1200
FB 1170 NEXT I
GM 1180 IF NOT READ THEN END
DH 1190 ? :? :LET READ=0:GOTO 360
JJ 1200 ? "Error on disk access.":? "
May need formatting.":GOTO 10
40
KI 1210 REM
BL 1220 REM SECTOR ACCESS SUBROUTINE
IG 1230 REM Drive ONE
IH 1240 REM Pass buffer in SECTOR$
MP 1250 REM sector # in variable S
EG 1260 REM READ=1 for read,
KJ 1270 REM READ=0 for write
BN 1280 BASE=3*256
GL 1290 DUNIT=BASE+1:DCOMND=BASE+2:DS
TATS=BASE+3
NL 1300 DBUFLO=BASE+4:DBUFHI=BASE+5
AI 1310 DBYTLO=BASE+8:DBYTHI=BASE+9
JA 1320 DAUX1=BASE+10:DAUX2=BASE+11
PN 1330 REM DIM DSKINV$(4)
CA 1340 DSKINV$="hLS":DSKINV$(4)=CHR$(
228)
PF 1350 POKE DUNIT,1:A=ADR(SECTOR$):H
=INT(A/256):L=A-256*H
BP 1360 POKE DBUFHI,H
CO 1370 POKE DBUFLO,L
PD 1380 POKE DCOMND,87-5*READ
AA 1390 POKE DAUX2,INT(S/256):POKE DA
UX1,S-PEEK(DAUX2)*256
KJ 1400 A=USR(ADR(DSKINV$))
KG 1410 RETURN

```

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SpeedScript 3.0

All Machine Language Word Processor For Atari

Charles Brannon, Program Editor

COMPUTE! continues its SpeedScript 3.0 series this month with a version for Atari computers. SpeedScript has become one of the most popular word processors for the Commodore 64 and VIC-20, and now the latest, most powerful version has been translated to run on all eight-bit Ataris with at least 24K, disk or cassette (including the 400/800, 600XL/800XL, 1200XL, and new XE series). SpeedScript compares favorably with commercial word processors and has some features never seen before in an Atari word processor. It represents unique value in a type-in program.

SpeedScript 3.0, though compact in size (8K), has many features found on commercial word processors. SpeedScript is also very easy to learn and use. You type in everything first; preview and make corrections on the screen; insert and delete words, sentences, and paragraphs; then print out an error-free draft, letting SpeedScript take care of things like margins, centering, headers, and footers.

Typing In SpeedScript

Atari SpeedScript is the longest machine language program we've ever published, but COMPUTE!'s MLX entry system helps you type it right the first time. MLX can detect most errors people make when entering numbers. (See the MLX article elsewhere in this issue.) MLX also lets you type SpeedScript in more than one sitting. Although the program listing is lengthy, we guarantee the effort will be worthwhile.

After you run the Atari version of MLX, answer the first two questions like this:

Starting Address? 7936
Ending Address? 16229
Run/Init Address 7936

Next you'll be asked "Tape or Disk." SpeedScript can be saved as either an AUTORUN.SYS file on disk or as a boot tape. Press T for use with a tape drive. If you press D for disk, you'll be asked "Boot Disk or Binary File." Press F to select the Binary File option. Although you could save SpeedScript as an auto-booting disk, it makes no sense, since such a disk cannot contain DOS, which is necessary for file-oriented disk access.

The screen will then show the first prompt, the number 7936 followed by a colon. Type in each three-digit number shown in the listing. You do not need to type the comma shown in the listing. MLX inserts the comma automatically.

The last number you enter in each line is a *checksum*. It represents the values of the other numbers in the line summed together. If you type the line correctly, the checksum calculated by MLX and displayed on the screen should match the checksum number in the listing. If it doesn't match, you will have to retype the line. MLX is not foolproof, though. It's possible to fool the checksum by exchanging the position of the three-digit numbers. Also, an error in one number can be offset by an error in another. MLX will help catch your errors, but you still must be careful.

Typing In Multiple Sittings

If you want to stop typing the listing at some point and pick up later, press CTRL-S and follow the screen prompts. (For disk, MLX will ask you to specify a filename; do not use AUTORUN.SYS until the entire listing is typed in.) Remember to note the line number of the last line you entered. When you are ready to continue typing, load MLX, answer the prompts as you

did before, then press CTRL-L. For a boot tape, be sure the cassette is in the tape drive and rewound. For a binary disk file, MLX asks for the filename you gave to the partially typed listing. After the LOAD is complete, press CTRL-N and tell MLX the line number you stopped at. Now continue typing as before.

When you finish all typing, MLX automatically prompts you to save the program. For disk, save the completed program with the filename AUTORUN.SYS.

At this point, MLX has saved either a boot tape or binary disk file. To load your boot tape, remove all cartridges, rewind the tape, and hold down the START button while turning on the power. (On the 600XL, 800XL, and XE series, disable BASIC by holding down both START and OPTION while turning on the power.) When the computer turns on, you'll hear a single beep tone. (On the XL and XE series, make sure the volume is turned up on your TV or monitor.) Press PLAY on the tape drive, then press any key on the keyboard to start the load. SpeedScript will auto-

The Atari version of SpeedScript 3.0, and all other Atari programs in this issue, may be ordered on disk directly from COMPUTE! Publications. Call **TOLL FREE 1-800-334-0868** (in NC 1-919-275-9809) to charge your order 8:30 a.m.-7:00 p.m. Eastern Time, Monday through Friday. Or send check or money order (\$12.95 plus \$2.00 shipping and handling) to:

COMPUTE! Publications, Inc.
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Greensboro, NC 27403 USA

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matically run once the boot is successfully completed.

To use *SpeedScript* with a disk, you must save or copy it on a disk which also contains DOS.SYS and DUP.SYS. Since you've saved *SpeedScript* as AUTORUN.SYS, it will automatically load and run when you turn on your computer with this disk in the drive. (On the 600XL, 800XL, and XE series, disable BASIC by holding down OPTION when switching on the computer.) *SpeedScript* must always be named AUTORUN.SYS in order to load properly with Atari DOS. If you want to prevent it from automatically running for some reason, you can save it with another name, then rename it AUTORUN.SYS later.

If you're using Optimized System Software's OS/A+ DOS or a compatible successor, you can give *SpeedScript* any filename you like. Just use the LOAD command from DOS, and *SpeedScript* will automatically run. Or you can give it a filename with the extension .COM, such as SPEED.COM. Then you can start up by just typing SPEED at the DOS prompt. You can also write a simple batch file to boot up *SpeedScript* automatically.

Note: The AUTORUN.SYS file on your DOS master disk is responsible for booting up the 850 Interface Module for RS-232 communications. There is no easy way to combine the 850 boot program with *SpeedScript*, so you can't access the R: device. We'll show you later how to transfer files over a modem, or print to a serial printer.

Entering Text

When you run *SpeedScript*, the screen colors change to black on white. The first line on the screen is black with white letters. *SpeedScript* presents all messages on this command line. The remaining 18 lines of the screen are used to enter, edit, and display your document. *SpeedScript* makes use of a special but little-used Atari character mode that permits larger, more readable characters with true lower-case descenders. The screen still shows up to 40 columns; only five rows are sacrificed. We think you'll agree that this is the most readable text you've ever seen on an Atari—perfect for word processing. (Tech-

nical note: *SpeedScript* starts at \$1F00, and the ANTIC 3 character set is embedded at \$2000.)

The cursor, a blinking square, shows where the next character you type will appear on the screen. *SpeedScript* lets you move the cursor anywhere within your document, making it easy to find and correct errors.

To begin using *SpeedScript*, just start typing. When the cursor reaches the right edge of the screen, it automatically jumps to the beginning of the next line, just as in BASIC. But unlike BASIC, *SpeedScript* never splits words at the right edge of the screen. If a word you're typing won't fit at the end of one line, it's instantly moved to the next line. This feature, called *word-wrap* or *parsing*, also helps to make your text more readable.

Scrolling And Screen Formatting

When you finish typing on the last screen line, *SpeedScript* automatically scrolls the text upward to make room for a new line at the bottom. Imagine the screen as an 18-line window on a long, continuous document. If you've unplugged all cartridges or disabled BASIC as described above, there's room in memory for 3328 characters of text with 24K RAM and up to 27,904 characters on a 48K machine. (Unfortunately, *SpeedScript* 3.0 cannot make use of the extra memory available in the XL and XE series.) An additional 2K of text memory is available if *SpeedScript* is loaded from a boot tape. To check at any time how much unused space is left, press CTRL-U (hold down the CTRL key while pressing the U key). The number appearing in the command line indicates how much unused room remains for characters of text.

If you're used to a typewriter, you'll have to unlearn some habits if this is your first experience with word processing. Since the screen is only 40 columns wide, and most printers have 80-column carriages, it doesn't make sense to press RETURN at the end of each line as you do on a typewriter. *SpeedScript*'s word-wrap takes care of this automatically. Press RETURN only when you want to force a car-

riage return to end a paragraph or limit the length of a line. A *return-mark* appears on the screen as a crooked left-pointing arrow.

Using The Keyboard

Most features are accessed with control-key commands—you hold down CTRL while pressing another key. In this article, control-key commands are abbreviated CTRL-x (where x is the key you press in combination with CTRL). An example is the CTRL-U mentioned above to check on unused memory. CTRL-E means hold down CTRL and press E. Sometimes you must also hold down the OPTION button to select a special option of a command, such as OPTION-CTRL-H. Other keys are referenced by name or function, such as DELETE/BACK S for the backspace key, CTRL-CLEAR for the clear screen key, and *cursor left* or CTRL-+ for the cursor left key. See the figure for a complete quick-reference chart of all keyboard commands.

Some keys let you move the cursor to different places in the document to make corrections or scroll text into view. You can move the cursor by character, word, sentence, or paragraph. Here's how to control the cursor:

- The **cursor left/right** keys (CTRL-+ and CTRL-*) work as usual; pressing CTRL-* moves the cursor right (forward) one space, and CTRL-+ moves the cursor left (backward) one space.
- The **cursor up/down** keys (CTRL-minus and CTRL=) move the cursor to the beginning of either the next or previous sentence. Press CTRL-minus to move the cursor up (backward) to the beginning of the previous sentence. Press CTRL= to move the cursor down (forward) to the beginning of the next sentence.
- **SHIFT-+** moves the cursor left (backward) to the beginning of the previous word. **SHIFT-*** moves the cursor right (forward) to the beginning of the next word. If you get confused, just look at the arrows on the keys for a reminder.
- **SHIFT-minus** moves the cursor up (backward) to the beginning of the previous paragraph. **SHIFT=** moves the cursor down

space, and press CTRL-INSERT.

It can be tedious to use CTRL-INSERT to open up enough space for a whole sentence or paragraph. For convenience, *SpeedScript* has an insert mode that automatically inserts space for each character you type. In this mode, you can't type over characters; everything is inserted at the cursor position. To enter insert mode, press CTRL-I. To cancel insert mode, press CTRL-I again. To let you know you're in insert mode, the black command line at the top of the screen turns blue.

Insert mode is the easiest way to insert text, but it can become too slow when inserting near the top of a very long document because it must move *all* the text following the cursor position. So *SpeedScript* has even more ways to insert blocks of text.

One way is to use the TAB key. It is programmed in *SpeedScript* to act as a five-space margin indent. To end a paragraph and start another, press RETURN twice and press TAB. TAB always inserts; you don't need to be in insert mode. You can also use TAB to open up more space than CTRL-INSERT. (You cannot set or clear tab stops in *SpeedScript* as you can with the normal screen editor.) No matter how much space you want to insert, each insertion takes the same amount of time. So the TAB key can insert five spaces five times faster than pressing CTRL-INSERT five times.

There's an even better way, though. Press SHIFT-INSERT to insert 255 spaces (it does not insert a line; use RETURN for that). You can press it several times to open up as much space as you need. And SHIFT-INSERT is *fast*. It inserts 255 spaces as fast as CTRL-INSERT opens up one space. Now just type the text you wanted to insert over the blank space. (You don't want to be in CTRL-I insert mode when you use this trick; that would defeat its purpose.)

Since the DELETE/BACK S key (backspace) is also slow when working with large documents (it, too, must move all text following the cursor), you may prefer to use the cursor-left key to backspace when using this method.

After you're done inserting,

there may be some inserted spaces left over that you didn't use. Just press SHIFT-DELETE/BACK S. This instantly deletes all extra spaces between the cursor and the start of following text. It's also useful whenever you need to delete a block of spaces for some reason.

Erasing Text

Press DELETE/BACK S by itself to erase the character to the left of the cursor. All the following text is pulled back to fill the vacant space.

Press CTRL-DELETE/BACK S to delete the character on which the cursor is sitting. Again, all the following text is moved toward the cursor to fill the empty space.

These keys are fine for minor deletions, but it could take all day to delete a whole paragraph this way. So *SpeedScript* has two commands that can delete an entire word, sentence, or paragraph at a time. CTRL-E erases text *after* (to the right of) the cursor position, and CTRL-D deletes text *behind* (to the left of) the cursor.

To use the CTRL-E erase mode, first place the cursor at the beginning of the word, sentence, or paragraph you want to erase. Then press CTRL-E. The command line shows the message "Erase (S,W,P): RETURN to exit." Press S to erase a sentence, W for a word, or P for a paragraph. Each time you press one of these letters, the text is quickly erased. You can keep pressing S, W, or P until you've erased all the text you wish. Then press RETURN to exit the erase mode.

The CTRL-D delete mode works similarly, but deletes only one word, sentence, or paragraph at a time. First, place the cursor after the word, sentence, or paragraph you want to delete. Then press CTRL-D. Next, press S, W, or P for sentence, word, or paragraph. The text is immediately deleted and you return to editing. You don't need to press RETURN to exit the CTRL-D delete mode unless you pressed this key by mistake. (In general, you can escape from any command in *SpeedScript* by simply pressing RETURN.) CTRL-D is most convenient when the cursor is already past what you've been typing.

The Text Buffer

When you erase or delete with CTRL-E and CTRL-D, the text isn't lost forever. *SpeedScript* remembers what you've removed by storing deletions in a separate area of memory called a *buffer*. The buffer is a failsafe device. If you erase too much, or change your mind, just press CTRL-R to restore the deletion. However, be aware that *SpeedScript* remembers only the last erase or delete you performed.

Another, more powerful, use of this buffer is to move or copy sections of text. To move some text from one location in your document to another, first erase or delete it with CTRL-E or CTRL-D. Then move the cursor to where you want the text to appear and press CTRL-R. CTRL-R instantly inserts the contents of the buffer at the cursor position. If you want to copy some text from one part of your document to another, just erase or delete it with CTRL-E or CTRL-D, restore it at the original position with CTRL-R, then move the cursor elsewhere and press CTRL-R to restore it again. You can retrieve the buffer with CTRL-R as many times as you like. If there is no room left in memory for inserting the buffer, you'll see the message "Memory Full."

Important: The CTRL-E erase mode lets you erase up to the maximum size of the buffer (2K for disk, about 6K for tape), and CTRL-E also removes the previous contents of the buffer. Keep this in mind if there's something in the buffer you'd rather keep. If you don't want the buffer to be erased, hold down the OPTION key while you press CTRL-E. This preserves the buffer contents and adds newly erased text to the buffer.

If you ever need to erase the contents of the buffer, press CTRL-K (kill buffer).

The Wastebasket Command

If you want to start a new document, or simply obliterate all your text, hold down OPTION while you press SHIFT-CLEAR (that's not a combination you're likely to press accidentally). *SpeedScript* asks, "ERASE ALL TEXT: Are you sure? (Y/N)." This is your last chance. If you *don't* want to erase the entire

document, press N or any other key. Press Y to perform the irreversible deed. There is no way to recover text wiped out with Erase All.

Search And Replace

SpeedScript has a Find command that searches through your document to find a selected word or phrase. A Change option lets you automatically change one word to another throughout the document.

OPTION-CTRL-F (*find*) activates the search feature, **OPTION-CTRL-C** (*change*) lets you selectively search and replace, and **CTRL-G** (*global*) is for automatically searching and replacing.

Searching is a two-step process. First you need to tell *SpeedScript* what to search for, then you trigger the actual search. Hold down **OPTION** and press **CTRL-F**. The command line prompts "Find:" Type in what you'd like to search for, the *search phrase*. If you press **RETURN** alone without typing anything, the Find command is canceled.

When you are ready to search, press **CTRL-F**. *SpeedScript* looks for the next occurrence of the search phrase starting from the current cursor position. If you want to hunt through the entire document, press **START** twice to move the cursor to the very top before beginning the search. Each time you press **CTRL-F**, *SpeedScript* looks for the next occurrence of the search phrase and places the cursor at the start of the phrase. If the search fails, you'll see the message "Not Found."

CTRL-C works together with **CTRL-F**. After you've specified the search phrase with **OPTION-CTRL-F**, press **OPTION-CTRL-C** to select the replace phrase. (You can press **RETURN** alone at the "Change to:" prompt to select a null replace phrase. When you hunt and replace, this deletes the located phrase.) To manually search and replace, start by pressing **CTRL-F**. After *SpeedScript* finds the search phrase, press **CTRL-C** if you want to replace the phrase. If you don't want to replace the phrase, don't press **CTRL-C**. You are not in a special search and replace mode. You're free to continue writing at any time.

CTRL-G links **CTRL-F** and

CTRL-C together. It first asks "Find:", then "Change to:", then automatically searches and replaces throughout the document starting at the cursor position.

There are a few things to watch out for when using search and replace. First, realize that if you search for "the," *SpeedScript* finds the embedded "the" in words like "therefore" and "heathen." If you changed all occurrences of "the" to "cow," these words would become "cowrefore" and "heacown." If you want to find a single word, include a space as the first character of the word, since almost all words are preceded by a space. Naturally, if you are replacing, you need to include the space in the replace phrase, too.

Also, *SpeedScript* distinguishes between upper- and lowercase. The word "Meldids" does not match with "meldids." *SpeedScript* will not find a capitalized word unless you capitalize it in the search phrase. To cover all bases, you will sometimes need to make two passes at replacing a word. Keep these things in mind when using **CTRL-G**, since you don't have a chance to stop a global search and replace.

Storing Your Document

Just press **CTRL-S** to store a document. You'll see the prompt "Save: (Device:Filename)>". Type C: for cassette or D: plus a legal Atari filename for disk. If you use the same name as a file already on disk, that file will be replaced by the new one. **CTRL-S** always saves the entire document. The cursor position within the document is not important.

When the **SAVE** is complete, *SpeedScript* reports "No errors" if all is well, or gives a message like "Error #144" if not. Check your DOS or BASIC manual for a list of error numbers and their causes.

Loading A Document

To recall a previously saved document, press **CTRL-L**. Answer the "Load: (Device:Filename)>" prompt with the filename. Again, remember to include the C: for cassette or D: for disk. *SpeedScript* loads the file and should display "No errors." Otherwise, *SpeedScript* reports the error number.

The position of the cursor is im-

portant before loading a file. Documents start loading at the cursor position, so be sure to press **START** twice or **OPTION-SHIFT-CLEAR** (Erase All) to move the cursor to the start of text, unless you want to merge two documents. When you press **CTRL-L** to load, the command line turns green to warn you if the cursor is not at the top of the document.

To merge two or more files, simply load the first file, press **CTRL-Z** to move the cursor to the end of the document, and then load the file you want to merge. Do not place the cursor somewhere in the middle of your document before loading. A Load does not insert the text from tape or disk, but overwrites all text after the cursor position. The last character loaded becomes the new end-of-text pointer, and you cannot access any text that appears ahead of this pointer.

Since *SpeedScript* stores files in ASCII (American Standard Code for Information Interchange), you can load any ASCII file with *SpeedScript*. You could write a BASIC program with *SpeedScript*, save it on disk, then use **ENTER** to read the file from BASIC. In BASIC, you can store a program in ASCII form with **LIST "D:filename"** for disk or **LIST "C:"** for tape, ready to load with *SpeedScript*. You can even load files produced by most other word processors, and most word processors can read *SpeedScript* files. You can make full use of *SpeedScript*'s editing features to prepare ASCII files for the Atari *Assembler/Editor*, *MAC/65*, and most other Atari assemblers. And *SpeedScript* files can be transferred via modem with your favorite telecommunications program that handles ASCII (such as "JTERM," published in the January 1985 issue of *COMPUTE!*).

Disk Commands

Sometimes you forget the name of a file, or need to delete or rename a file. *SpeedScript* provides a unique mini-DOS for your convenience. Just press **CTRL-M** (*menu*). *SpeedScript* reads the entire disk directory and puts it on the screen in three columns. A large cursor shows you which file is currently selected. Use the cursor keys to

move the cursor to the file you want to select. A menu at the bottom of the screen shows you what keys you need to press. Press **CTRL-D** to delete the selected file, **R** to rename, **L** to lock, **U** to unlock, or **F** to format the disk. You can load the selected file by pressing **CTRL-L**. The position of the cursor within your document is not important when loading a file from the menu—*SpeedScript* always erases anything you previously had in memory.

Any changes you make to the directory will not show up until you call up the directory again. Press either 1, 2, 3, or 4 to update the directory from drive 1-4. This also sets the default disk drive, the drive accessed for further changes. When you're ready to return to writing, press either **ESC** or the **RETURN** key.

Additional Features

SpeedScript has a few commands that don't do much, but are nice to have. **CTRL-X** exchanges the character under the cursor with the character to the right of the cursor. Thus you can fix transposition errors with a single keystroke. **CTRL-A** changes the character under the cursor from uppercase to lowercase or vice versa.

Press **CTRL-B** to change the background and border colors. Each time you press **CTRL-B**, one of 128 different background colors appears. Press **CTRL-T** (text) to cycle between one of eight text luminances. The colors are preserved until you change them or reboot *SpeedScript*.

If your TV suffers from *overscanning*, some characters on the left or right margin may be chopped off. Atari *SpeedScript* lets you widen and narrow the width of the screen. Press **OPTION-CTRL-+** (the cursor left key) to decrease the width of the screen. Each time you press it, the text is reformatted, and the left and right screen margins are adjusted by one character. You can decrease the width all the way down to two characters (although if your screen overscans *that* much, it's time to buy a new TV). To increase the width, up to a maximum of 40 (the default width), press **OPTION-CTRL-*** (the cursor right key).

One disadvantage of word-wrapping is that it's hard to tell exactly how many spaces are at the end of a screen line. When a word too long to fit on a line is wrapped to the next line, the hole it left is filled with "false" spaces. That is, the spaces are not actually part of your text, and won't appear on paper. If you want to distinguish between true spaces and false spaces, press **CTRL-O** (on/off). The false spaces become tiny dots. You can write and edit in this mode if you wish, or turn off the feature by pressing **CTRL-O** again.

Atari *SpeedScript* disables the **BREAK** and inverse video keys when you're entering or editing text. The inverse video key was disabled because it is frequently pressed by accident on the 800 and 800XL models. If you want to enter inverse video characters, hold down **SELECT** while typing the keys.

Atari 400 and 800 owners will notice that the action of the **CAPS/LOWR** key has been changed in *SpeedScript*. It works like the **CAPS** key on the XL and XE models. Press it once to switch to uppercase, and again to switch to lowercase. In other words, the **CAPS/LOWR** key toggles between upper- and lowercase. You can still use **SHIFT-CAPS/LOWR** to force entry to all uppercase.

CTRL-CAPS/LOWR has no effect. Pressing **SYSTEM RESET** returns you to *SpeedScript* without erasing your text when using Atari DOS. With **OS/A+ DOS**, **SYSTEM RESET** returns you to the DOS command prompt. You can get back to *SpeedScript* without losing any text if you type **RUN** at the prompt.

PRINT!

If you already think *SpeedScript* has plenty of commands, wait until you see what the printing package offers. *SpeedScript* supports an array of powerful formatting features. It automatically fits your text between left and right margins you can specify. You can center a line or block it against the right margin. *SpeedScript* skips over the perforation on continuous-form paper, or can wait for you to insert single-sheet paper. A line of text can be printed at the top of each page (a

header) and/or at the bottom of each page (a footer), and can include automatic page numbering, starting with whatever number you like.

SpeedScript can print on different lengths and widths of paper, and single-, double-, triple-, or any-spacing is easy. You can print a document as big as can fit on a tape or disk by linking several files together during printing. You can print to the screen or to a file instead of to a printer. Other features let you send special codes to the printer to control features like underlining, boldfacing, and double-width type (depending on the printer).

But with all this power comes the need to learn additional commands. Fortunately, *SpeedScript* sets most of these variables to a default state. If you don't change these settings, *SpeedScript* assumes a left margin of five, a right margin position of 75, no header or footer, single-spacing, and continuous-paper page feeding. You can change these default settings if you want (see below). Before printing, be sure the paper in your printer is adjusted to top-of-form (move the paper perforation just above the printing element). One additional note: Some printers incorporate an automatic skip-over-perforation feature. The printer skips to the next page when it reaches the bottom of a page. Since *SpeedScript* already controls paper feeding, you need to turn off this automatic skip-over-perf feature before running *SpeedScript*, or paging won't work properly.

To begin printing, simply press **CTRL-P**. *SpeedScript* prompts "Print: (Device:Filename)>". You can print to almost any device, even disk or cassette. If you enter **E** (for Editor), *SpeedScript* prints to the screen, letting you preview where lines and pages break. Enter **P** to Print for most printers. If your printer is attached, powered on, and selected (online), *SpeedScript* begins printing immediately. To cancel printing, hold down the **BREAK** key until printing stops. You can use **CTRL-1** to pause printing. Press **CTRL-1** again to continue.

If you need to print to an RS-232 printer, just Print to a disk

file, then boot up your DOS master disk and use the copy selection to copy the print file to the R: device. You can also write BASIC programs to read and process a Printed disk file. Remember, a Print to disk is not the same as a Save to disk.

Formatting Commands

The print formatting commands must be distinguished from normal text, so they appear on-screen in inverse video with the text and background colors switched. As mentioned above, the regular inverse video key is not used for entering inverse video text. Instead, hold down the **SELECT** key while typing the format key. All lettered printer commands should be entered in lowercase (unSHIFTed). During printing, *SpeedScript* treats these characters as printing commands.

There are two kinds of printing commands, which we'll call Stage 1 and Stage 2. Stage 1 commands usually control variables such as left margin and right margin. Most are followed by a number, with no space between the command and the number. Stage 1 commands are executed before a line is printed.

Stage 2 commands, like centering and underlining, are executed while the line is being printed. Usually Stage 1 commands must be on a line of their own, although you can group several Stage 1 commands together on a line. Stage 2 commands are by nature embedded within a line of text. Again, remember to hold down **SELECT** to enter the boldface characters shown here.

Stage 1 Commands

l Left margin. Follow with a number from 0 to 255. Use 0 for no margin. Defaults to 5.

r Right margin position, a number from 1 to 255. Defaults to 75. Be sure the right margin value is greater than the left margin value, or *SpeedScript* will go bonkers.

t Top margin. The position at which the first line of text is printed, relative to the top of the page. Defaults to 5. The header (if any) is always printed on the first line of the page, before the first line of text.

b Bottom margin. The line at which printing stops before con-

tinuing to the next page. Standard 8½ × 11-inch paper has 66 lines. Bottom margin defaults to the fifty-eighth line. Don't make the bottom margin greater than the page length.

p Page length. Defaults to 66. If your printer does not print six lines per inch, multiply lines-per-inch by 11 to get the page length. European paper is usually longer than American paper—11¾ or 12 inches. Try a page length of 69 or 72.

s Spacing. Defaults to single-spacing. Follow with a number from 1 to 255. Use 1 for single-spacing, 2 for double-spacing, 3 for triple-spacing.

@ Start numbering at page number given. Page numbering normally starts with 1.

? Disables printing until selected page number is reached. For example, a value of 3 would start printing the third page of your document. Normally, *SpeedScript* prints starting with the first page.

x Sets the page width, in columns (think a cross). Defaults to 80. You need to change this for the sake of the centering command if you are printing in double-width or condensed type, or are using a 40-column or wide-carriage printer.

n Forced paging. Normally, *SpeedScript* prints the footer and moves on to the next page only when it has finished a page, but you can force it to continue to the next page by issuing this command. It requires no numbers.

m Margin release. Disables the left margin for the next printed line. Remember that this executes before the line is printed. It's used for outdenting.

w Page wait. This command should be placed at the beginning of your document before any text. With page wait turned on, *SpeedScript* prompts you to "Insert next sheet, press RETURN" when each page is finished printing. Insert the next sheet, line it up with the printhead, then press RETURN to continue. Page wait is ignored during disk or screen output.

j Select automatic linefeeds after carriage return. Like **w**, this command must be placed before any text. Don't use this command

to achieve double-spacing, but only if all text prints on the same line.

i Information. This works like REM in BASIC. You follow the command with a line of text, up to 255 characters, ending in a return-mark. This line will be ignored during printing, and is handy for making notes to yourself such as the filename of the document.

h Header define and enable. The header must be a single line of text (up to 254 characters) ending in a return-mark. The header prints on the first line of each page. You can include Stage 2 commands such as centering and page numbering in a header. You can use a header by itself without a footer. The header and footer should be defined at the top of your document, before any text. If you want to prevent the header from printing on the first page, put a return-mark by itself at the top of your document before the header definition.

f Footer define and enable. The footer must be a single line of text (up to 254 characters) ending in a return-mark. The footer prints two lines prior to the last line of each page. As with the header, you can include Stage 2 printing commands, and you don't need to set the header to use a footer.

g Go to (link) next file. Put this command as the last line in your document. Follow the command with the filename, including D: for disk. After the text in memory is printed, the link command loads the next file into memory. You can continue linking in successive files, but don't include a link in the last file. Before you start printing a linked file, make sure the first of the linked files is in memory. When printing is finished, the last file linked to will be in memory.

Stage 2 Commands

These commands either precede a line of text, or are embedded within one.

c Centering. Put this at the beginning of a line you want to center. This will center only one line ending in a return-mark. Repeat this command at the beginning of every line you want centered. Centering uses the page-width setting (see above) to properly center the line. To center a double-width line,

either set the page width to 40 or pad out the rest of the line with an equal number of spaces. If you use double width, remember that the spaces preceding the centered text will be double-wide spaces.

When *SpeedScript* encounters this command, it prints the current page number. You usually embed this within a header or footer.

u A simple form of underlining. It works only on printers that recognize CHR\$(8) as a backspace and CHR\$(95) as an underline character. Underlining works on spaces, too. Use the first u to start underlining, and another one to turn off underlining.

Fonts And Styles

Most dot-matrix printers are capable of more than just printing text at ten characters per inch. Some printers have several character sets, with italics and foreign language characters. Most can print in double width (40 characters per line), condensed (132 characters per line), and in either pica or elite. Other features include programmable characters, programmable tab stops, and graphics modes. Many word processors customize themselves to a particular printer, but *SpeedScript* was purposely designed not to be printer-specific. Instead, *SpeedScript* lets you define your own Stage 2 printing commands.

You define a programmable *printkey* by choosing any character that is not already used for other printer commands. The entire uppercase alphabet is available for printkeys, and you can choose letters that are related to their function (like D for double width). You enter these commands like printer commands, by holding down **SELECT** while you type them. The printkeys are like variables in BASIC.

To define a printkey, just hold down **SELECT** while you type the key you want to assign as the printkey, then an equals sign (=), and finally the ASCII value to be substituted for the printkey during printing. Now whenever *SpeedScript* encounters the printkey embedded in text, it prints the character with the ASCII value you previously defined.

For example, to define the + key as the letter z, you first look up

the ASCII value of the letter z (in either your printer manual or in any Atari manual). The ASCII value of the letter z is 122, so the definition is:

␣=122

Now, anywhere you want to print the letter z, substitute the printkey:

GadZooks! The Zoo is Zany!

This would appear on paper as:

Gadzooks! The zoo is zany!

More practically, here's how you could program italics on an Epson MX-80 compatible printer. You switch on italics by sending an ESC (a character with an ASCII value of 27), then the character 4. You turn off italics by sending ESC 5. So define SHIFT-E as the escape code. Anywhere you want to print a word in italics, bracket it with printkey E then 4 and printkey E then 5:

The word **␣4italics␣5** is in italics.

You can similarly define whatever codes your printer uses for features like double-width or emphasized mode. For your convenience, four of the printkeys are predefined, though you can change them. The keys 1-4 are defined as 27, 14, 15, and 18, common values for most printers. On most printers, CHR\$(27) is the ESCape key, CHR\$(14) starts double-width, CHR\$(15) either stops double-width or starts condensed characters, and CHR\$(18) usually cancels condensed characters.

SpeedScript actually lets you embed any character within text, so you may prefer to put in the actual printer codes as part of your text. To set italics, you could just press ESC twice, then 4. The ESC key appears in text as a mutant E. Double-width has a value of 14, the same value as CTRL-N. To start double width, just embed a CTRL-N. Remember that you must press ESC before any CTRL key to get it to appear in text. CTRL keys appear as small "shadowed" capital letters. These characters, though, are counted as part of the length of a line, and excessive use within one line can result in a shorter than normal line. It can be more convenient to use the printkeys, since if you ever change printers, you have to change only the definitions of

the keys.

Keep one thing in mind about printkeys. *SpeedScript* always assumes it is printing to a rather dumb, featureless printer, the least common denominator. *SpeedScript* doesn't understand the intent of a printkey; it just sends out its value. So if you make one word within a line double-width, it may make the line overflow the specified right margin. There's no way for *SpeedScript* to include built-in font and typestyle codes without being customized for a particular printer, since no set of codes is universal to all printers.

Hints And Tips

It may take you awhile to fully master *SpeedScript*, but as you do you'll discover many ways to use the editing and formatting commands. For example, there is a simple way to simulate tab stops, say for a columnar table. Just type a period at every tab stop position. Erase the line with CTRL-E, then restore it with CTRL-R multiple times. When you are filling in the table, just use word left/word right to jump quickly between the periods. Or you can use the programmable printkeys to embed your printer's own commands for setting and jumping to tab stops.

You don't have to change or define printer commands every time you write. Just save these definitions, and load this file each time you write. You can create many custom definition files and have them ready to use on disk. You can create customized "fill-in-the-blank" letters. Just type the letter, and everywhere you'll need to insert something, substitute a unique character, such as an * or a CTRL character. When you're ready to customize the letter, use Find to locate each symbol and insert the specific information. Instead of typing an oft-used word or phrase, substitute a unique character, then use CTRL-G to globally change these characters into the actual word or phrase. You can even use *SpeedScript* as a simple filing program. Just type in all your data, flagging each field with a unique character. You can use Find to quickly locate any field.

If you experience any problems with *SpeedScript* that you are sure

are not due to your error, please write (not call) with a detailed explanation of what the problem is and how it occurred. Describe your hardware configuration. It also helps to send us a tape or disk copy (disk preferred) of your typing so we can determine with our equipment whether you have a hardware problem.

Due to the volume of mail, we cannot always reply to individual questions, but we welcome your suggestions. Who knows—your feedback may help make *SpeedScript 4.0* a reality.

The Atari version of *SpeedScript 3.0*, and all other Atari programs in this issue, may be ordered on disk directly from COMPUTE! Publications. Call TOLL FREE 1-800-334-0868 (in NC 1-919-275-9809) to charge your order 8:30 a.m.–7:00 p.m. Eastern Time, Monday through Friday. Or send check or money order (\$12.95 plus \$2.00 shipping and handling) to:

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SpeedScript 3.0 For Atari

Please refer to the "MLX" article before entering this listing.

7936:173,198,002,141,197,002,201
7942:032,137,037,169,203,205,021
7948:179,066,141,179,066,240,115
7954:033,032,031,037,032,080,007
7960:042,165,012,141,118,037,027
7966:165,013,141,119,037,169,162
7972:117,133,012,169,037,133,125
7978:013,169,000,141,068,002,179
7984:169,001,133,009,032,234,114
7990:037,076,072,038,000,000,021
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8044:000,000,000,000,000,000,108
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8098:000,000,000,000,000,000,162
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8770:153,129,153,153,153,246,029
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8782:097,127,062,050,050,050,002
8788:050,114,198,124,230,153,185
8794:146,132,146,153,153,230,026
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8812:137,153,153,230,230,153,140
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8860:249,153,195,126,254,194,047
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8884:153,194,100,056,246,153,058
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9586:240,251,096,032,064,021,050
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 10726:138,201,000,240,247,136,168
 10732:076,020,041,164,140,076,241
 10738:189,041,173,102,063,133,175
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 10768:021,201,094,240,017,200,021
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 10780:205,118,063,240,226,144,000
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 10792:014,230,135,165,135,205,156
 10798:118,063,144,005,240,003,107
 10804:076,090,041,177,134,201,003
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 10918:129,141,216,063,165,130,242
 10924:141,217,063,133,128,165,251
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 10936:056,173,214,063,109,210,241
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 10966:063,133,130,173,210,063,218
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 10984:209,063,173,214,063,133,036
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 11128:064,201,087,208,009,032,209
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 11146:032,108,042,032,155,041,036
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13432:003,173,103,063,157,069,176
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13444:102,063,157,072,003,173,190
13450:118,063,237,103,063,157,111
13456:073,003,169,011,157,066,111
13462:003,032,086,228,048,011,046
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13480:072,032,255,051,104,168,082
13486:192,128,240,033,152,072,223
13492:169,125,032,127,047,169,081
13498:050,160,062,032,089,037,104
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13510:047,032,224,052,032,173,246
13516:045,169,001,141,113,063,224
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13528:160,062,032,089,037,076,160
13534:199,052,174,185,067,169,044
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13564:032,206,046,104,141,190,203
13570:002,173,120,063,208,008,064
13576:032,010,038,104,104,076,116
13582:173,045,032,224,052,174,202
13588:185,067,169,163,157,068,061
13594:003,169,063,157,069,003,234
13600:173,120,063,157,072,003,108
13606:169,000,157,073,003,173,101
13612:186,067,157,074,003,169,188
13618:003,157,066,003,076,086,185
13624:228,056,165,134,237,102,210
13630:063,133,138,133,142,165,068
13636:135,237,103,063,133,139,110
13642:133,143,005,138,240,004,225
13648:169,196,133,145,032,026,013
13654:038,169,084,160,062,032,119
13660:089,037,169,004,032,235,146
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13714:072,003,173,105,063,229,023
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 13810:032,127,047,169,074,160,083
 13816:062,032,089,037,076,199,231
 13822:052,169,064,141,014,212,138
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 13918:205,063,233,001,141,205,174
 13924:063,173,206,063,233,000,070
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 13942:084,054,173,207,063,216,147
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 14824:201,094,240,001,136,140,020
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 14986:020,054,141,224,063,076,204
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 16138:212,210,204,045,196,101,210
 16144:108,101,116,101,032,204,166
 16150:111,099,107,032,213,110,182
 16156:108,111,099,107,032,210,183
 16162:101,110,097,109,101,032,072
 16168:197,211,195,198,111,114,042
 16174:109,097,116,032,195,212,039
 16180:210,204,045,204,111,097,155
 16186:100,032,032,068,114,105,253
 16192:118,101,032,091,177,032,103
 16198:178,032,179,032,180,093,252
 16204:058,032,000,082,101,110,203
 16210:097,109,101,032,116,111,136
 16216:058,000,070,111,114,109,038
 16222:097,116,032,100,105,115,147
 16228:107,000,000,000,000,000,207

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COMPUTE!'s Guide To Typing In Programs

Before typing in any program, you should familiarize yourself with your computer. Learn how to use the keyboard to type in and correct BASIC programs. Read your manuals to understand how to save and load BASIC programs to and from your disk drive or cassette unit. Computers are precise—take special care to type the program *exactly* as listed, including any necessary punctuation and symbols. To help you with this task, we have implemented a special listing convention as well as a program to help check your typing—the “Automatic Proofreader.” Please read the following notes before typing in any programs from COMPUTE!. They can save you a lot of time and trouble.

Since programs can contain some hard-to-read (and hard-to-type) special characters, we have developed a listing system that spells out in abbreviated form the function of these control characters. You will find these special characters within curly braces. For example, {CLEAR} or {CLR} instructs you to insert the symbol which clears the screen on the Atari or Commodore machines. A symbol by itself within curly braces is usually a control key or graphics key. If you see {A}, hold down the CONTROL key and press A. Commodore machines have a special control key labeled with the Commodore logo. Graphics characters entered with the Commodore logo key are enclosed in a new kind of special bracket. A graphics character can be listed as [<A>]. In this case, hold down the Commodore logo key as you type A. Our Commodore listings are in uppercase, so shifted symbols are underlined>. A graphics heart symbol (SHIFT-S) would be listed as S. One exception is {SHIFT-SPACE}. Hold down SHIFT and press the space bar.

If a number precedes a symbol, such as {5 RIGHT}, {6 S}, or {<8 Q>}, you would enter five cursor rights, six shifted S's, or eight Commodore-Q's. On the Atari, inverse characters (printed in white on black) should be entered with the Atari logo key. Since spacing is sometimes important, any more than two spaces will be listed, for example, as: {6 SPACES}. A space is never left at the end of a line, but will be moved to the next printed line as {SPACE}. There are no special control characters found in our IBM PC/PCjr, TI-99/4A, and Apple program listings. For your convenience, we have prepared this quick-reference key for the Commodore and Atari special characters:

Atari 400/800/XL

When you see	Type	See
{CLEAR}	ESC SHIFT <	↵ Clear Screen
{UP}	ESC CTRL -	↑ Cursor Up
{DOWN}	ESC CTRL =	↓ Cursor Down
{LEFT}	ESC CTRL +	← Cursor Left
{RIGHT}	ESC CTRL -	→ Cursor Right
{BACK S}	ESC DELETE	⌫ Backspace
{DELETE}	ESC CTRL DELETE	⌫ Delete character
{INSERT}	ESC CTRL INSERT	⌫ Insert character
{DEL LINE}	ESC SHIFT DELETE	⌫ Delete line
{INS LINE}	ESC SHIFT INSERT	⌫ Insert line
{TAB}	ESC TAB	⌫ TAB key
{CLR TAB}	ESC CTRL TAB	⌫ Clear tab
{SET TAB}	ESC SHIFT TAB	⌫ Set tab stop
{BELL}	ESC CTRL 2	⌫ Ring buzzer
{ESC}	ESC ESC	⌫ ESCape key

Commodore PET/CBM/VIC/64

When You Read:	Press:	See:	When You Read:	Press:	See:
{CLR}	SHIFT CLR/HOME	⌫	{GRN}	CTRL 6	⌫
{HOME}	CLR/HOME	⌫	{BLU}	CTRL 7	⌫
{UP}	SHIFT ↑ CRSR	⌫	{YEL}	CTRL 8	⌫
{DOWN}	↓ CRSR	⌫	{F1}	f1	⌫
{LEFT}	SHIFT ← CRSR	⌫	{F2}	f2	⌫
{RIGHT}	→ CRSR	⌫	{F3}	f3	⌫
{RVS}	CTRL 9	⌫	{F4}	f4	⌫
{OFF}	CTRL 0	⌫	{F5}	f5	⌫
{BLK}	CTRL 1	⌫	{F6}	f6	⌫
{WHT}	CTRL 2	⌫	{F7}	f7	⌫
{RED}	CTRL 3	⌫	{F8}	f8	⌫
{CYN}	CTRL 4	⌫	←	←	⌫
{PUR}	CTRL 5	⌫	↑	SHIFT ↑	⌫

The Automatic Proofreader

Also, we have developed a simple, yet effective program that can help check your typing. Type in the appropriate Proofreader program for your machine, then save it for future use. On the VIC, 64, or Atari, run the Proofreader to activate it, then enter NEW to erase the BASIC loader (the Proofreader will still be active, hidden in memory, as a machine language program). Pressing RUN/STOP-RESTORE or SYSTEM RESET deactivates the Proofreader. You can use SYS*886 to reactivate the VIC/64 Proofreader, or PRINT USR(1536) to reenact the Atari Proofreader. The IBM Proofreader is a BASIC program that lets you enter, edit, list, save, and load programs that you type. It simulates the IBM's BASIC line editor.

Using The Automatic Proofreader

Once the Proofreader is active, try typing in a line. As soon as you press RETURN, either a number (on the Commodore) or a pair of letters

(Atari or IBM) appears. The number or pair of letters is called a *checksum*. Try making a change in the line, and notice how the checksum changes.

All you need to do is compare the value provided by the Proofreader with the checksum printed in the program listing in the magazine. In Commodore listings, the checksum is a number from 0 to 255. It is set off from the rest of the line with *rem*. This prevents a syntax error if the checksum is typed in, but the REM statements and checksums need *not* be typed in. It is just there for your information.

In Atari and IBM listings, the checksum is given to the left of each line number. Just type in the program, a line at a time (without the printed checksum) and compare the checksum generated by the Proofreader to the checksum in the listing. If they match, go on to the next line. If not, check your typing: You've made a mistake. On the Commodore and Atari Proofreader, spaces are not counted as part of the checksum, and no check is made to see that you've typed in the characters in the right order. If characters are transposed, the checksum will still match the listing. Because of the checksum method used, do not use abbreviations, such as ? for PRINT. However, the Proofreader does catch the majority of typing errors most people make. The IBM Proofreader is even pickier; it *will* detect errors in spacing and transposition. Also, be sure you leave Caps Lock on, except when you need to enter lowercase characters.

Special Proofreader Notes For Commodore Cassette Users

The Proofreader resides in the cassette buffer, which is used during tape LOADs and SAVEs. Be sure to press RUN/STOP-RESTORE before you save or load a program, to get the Proofreader out of the way. If you want to use the Proofreader with tape, run the Proofreader, then enter these two lines *exactly* as shown, pressing RETURN after each one:

```
A$="PROOFREADER.T":B$="{10 SPACES}"
:FORX=1TO4:A$=A$+B$:NEXT
FORX=886TO1018:A$=A$+CHR$(PEEK(X))
:NEXT:OPEN 1,1,A$:CLOSE1
```

Then press RECORD and PLAY on a blank tape, and a special version of the Proofreader will be saved to tape. Anytime you need to reload the Proofreader after it has been erased, just rewind the tape, type OPEN1:CLOSE1, then press PLAY. When READY comes back, enter SYS 886.

IBM Proofreader Commands

Since the IBM Proofreader replaces the computer's normal BASIC line editor, it has to include

many of the direct-mode IBM BASIC commands. The syntax is identical to IBM BASIC. Commands simulated are LIST, LLIST, NEW, FILES, SAVE, and LOAD. When listing your program, press any key (except Ctrl-Break) to stop the listing. If you enter NEW, the Proofreader will prompt you to press Y to be especially sure you mean yes.

Two new commands are BASIC and CHECK. BASIC exits the Proofreader back to IBM BASIC, leaving the Proofreader in memory. CHECK works just like LIST, but shows the checksums along with the listing. After you have typed in a program, save it to disk. Then exit the Proofreader with the BASIC command, and load the program into the normal BASIC environment (this will replace the Proofreader in memory). You can now run the program, but you may want to resave it to disk. This will shorten it on disk and make it load faster, but it can no longer be edited with the Proofreader. If you want to convert a program to Proofreader format, save it to disk with SAVE "filename",A.

VIC/64 Proofreader

```
100 PRINT "{CLR}PLEASE WAIT...":FORI=886TO1018:READA:CK=CK+A:POKEI,A:NEXT
110 IF CK<>17539 THEN PRINT "{DOWN}YOU MADE {SPACE}AN ERROR":PRINT "IN DATA STATEMENTS." :END
120 SYS886:PRINT "{CLR}{2 DOWN}PROOFREADER ACTIVATED." :NEW
886 DATA 173,036,003,201,150,208
892 DATA 001,096,141,151,003,173
898 DATA 037,003,141,152,003,169
904 DATA 150,141,036,003,169,003
910 DATA 141,037,003,169,000,133
916 DATA 254,096,032,087,241,133
922 DATA 251,134,252,132,253,008
928 DATA 201,013,240,017,201,032
934 DATA 240,005,024,101,254,133
940 DATA 254,165,251,166,252,164
946 DATA 253,040,096,169,013,032
952 DATA 210,255,165,214,141,251
958 DATA 003,206,251,003,169,000
964 DATA 133,216,169,019,032,210
970 DATA 255,169,018,032,210,255
976 DATA 169,058,032,210,255,166
982 DATA 254,169,000,133,254,172
988 DATA 151,003,192,087,208,006
994 DATA 032,205,189,076,235,003
1000 DATA 032,205,221,169,032,032
1006 DATA 210,255,032,210,255,173
1012 DATA 251,003,133,214,076,173
1018 DATA 003
```

Atari Proofreader

```
100 GRAPHICS 0
110 FOR I=1536 TO 1700:READ A:POKE I,A:CK=CK+A:NEXT I
120 IF CK<>19072 THEN ? "Error in DATA Statements. Check Typing.":END
130 A=USR(1536)
140 ? :? "Automatic Proofreader Now Activated."
```



```

150 END
1536 DATA 104,160,0,185,26,3
1542 DATA 201,69,240,7,200,200
1548 DATA 192,34,208,243,96,200
1554 DATA 169,74,153,26,3,200
1560 DATA 169,6,153,26,3,162
1566 DATA 0,189,0,228,157,74
1572 DATA 6,232,224,16,208,245
1578 DATA 169,93,141,78,6,169
1584 DATA 6,141,79,6,24,173
1590 DATA 4,228,105,1,141,95
1596 DATA 6,173,5,228,105,0
1602 DATA 141,96,6,169,0,133
1608 DATA 203,96,247,238,125,241
1614 DATA 93,6,244,241,115,241
1620 DATA 124,241,76,205,238,0
1626 DATA 0,0,0,0,32,62
1632 DATA 246,8,201,155,240,13
1638 DATA 201,32,240,7,72,24
1644 DATA 101,203,133,203,104,40
1650 DATA 96,72,152,72,138,72
1656 DATA 160,0,169,128,145,88
1662 DATA 200,192,40,208,249,165
1668 DATA 203,74,74,74,74,24
1674 DATA 105,161,160,3,145,88
1680 DATA 165,203,41,15,24,105
1686 DATA 161,200,145,88,169,0
1692 DATA 133,203,104,170,104,168
1698 DATA 104,40,96

```

IBM Proofreader

```

10 'Automatic Proofreader Version 2.00 (L
    ines 270,510,515,517,620,630 changed f
    rom V1.0)
100 DIM L$(500),LNUM(500):COLOR 0,7,7:KEY
    OFF:CLS:MAX=0:LNUM(0)=65536!
110 ON ERROR GOTO 120:KEY 15,CHR$(4)+CHR$(
    70):ON KEY(15) GOSUB 640:KEY (15) ON
    :GOTO 130
120 RESUME 130
130 DEF SEG=&H40:W=PEEK(&H4A)
140 ON ERROR GOTO 650:PRINT:PRINT"Proofre
    ader Ready."
150 LINE INPUT L$:Y=CSRLIN-INT(LEN(L$)/W)
    -1:LOCATE Y,1
160 DEF SEG=0:POKE 1050,30:POKE 1052,34:P
    OKE 1054,0:POKE 1055,79:POKE 1056,13:
    POKE 1057,28:LINE INPUT L$:DEF SEG:IF
    L$="" THEN 150
170 IF LEFT$(L$,1)="" THEN L$=MID$(L$,2)
    :GOTO 170
180 IF VAL(LEFT$(L$,2))=0 AND MID$(L$,3,1
    )="" THEN L$=MID$(L$,4)
190 LNUM=VAL(L$):TEXT$=MID$(L$,LEN(STR$(L
    NUM))+1)
200 IF ASC(L$)>57 THEN 260 'no line numbe
    r, therefore command
210 IF TEXT$="" THEN GOSUB 540:IF LNUM=LN
    UM(P) THEN GOSUB 560:GOTO 150 ELSE 15
    0
220 CKSUM=0:FOR I=1 TO LEN(L$):CKSUM=(CKS
    UM+ASC(MID$(L$,I))*I) AND 255:NEXT:L0
    CATE Y,1:PRINT CHR$(65+CKSUM/16)+CHR$(
    65+(CKSUM AND 15))+" "+L$
230 GOSUB 540:IF LNUM(P)=LNUM THEN L$(P)=
    TEXT$:GOTO 150 'replace line
240 GOSUB 580:GOTO 150 'insert the line
260 TEXT$="":FOR I=1 TO LEN(L$):A=ASC(MID
    $(L$,I)):TEXT$=TEXT$+CHR$(A+32*(A>96
    AND A<123)):NEXT

```

```

270 DELIMITER=INSTR(TEXT$," "):COMMAND$=T
    EXT$:ARG$="":IF DELIMITER THEN COMMAN
    D$=LEFT$(TEXT$,DELIMITER-1):ARG$=MID$(
    TEXT$,DELIMITER+1) ELSE DELIMITER=IN
    STR(TEXT$,CHR$(34)):IF DELIMITER THEN
    COMMAND$=LEFT$(TEXT$,DELIMITER-1):AR
    G$=MID$(TEXT$,DELIMITER)
280 IF COMMAND$<>"LIST" THEN 410
290 OPEN "scrn:" FOR OUTPUT AS #1
300 IF ARG$="" THEN FIRST=0:P=MAX-1:GOTO
    340
310 DELIMITER=INSTR(ARG$,"-"):IF DELIMITE
    R=0 THEN LNUM=VAL(ARG$):GOSUB 540:FIR
    ST=P:GOTO 340
320 FIRST=VAL(LEFT$(ARG$,DELIMITER)):LAST
    =VAL(MID$(ARG$,DELIMITER+1))
330 LNUM=FIRST:GOSUB 540:FIRST=P:LNUM=LAS
    T:GOSUB 540:IF P=0 THEN P=MAX-1
340 FOR X=FIRST TO P:N$=MID$(STR$(LNUM(X)
    ),2)+" "
350 IF CKFLAG=0 THEN A$="":GOTO 370
360 CKSUM=0:A$=N$+L$(X):FOR I=1 TO LEN(A$
    ):CKSUM=(CKSUM+ASC(MID$(A$,I))*I) AND
    255:NEXT:A$=CHR$(65+CKSUM/16)+CHR$(6
    5+(CKSUM AND 15))+" "
370 PRINT #1,A$+N$+L$(X)
380 IF INKEY$<>" " THEN X=P
390 NEXT :CLOSE #1:CKFLAG=0
400 GOTO 130
410 IF COMMAND$="LLIST" THEN OPEN "lpt1:"
    FOR OUTPUT AS #1:GOTO 300
420 IF COMMAND$="CHECK" THEN CKFLAG=1:GOT
    O 290
430 IF COMMAND$<>"SAVE" THEN 450
440 GOSUB 600:OPEN ARG$ FOR OUTPUT AS #1:
    ARG$="":GOTO 300
450 IF COMMAND$<>"LOAD" THEN 490
460 GOSUB 600:OPEN ARG$ FOR INPUT AS #1:M
    AX=0:P=0
470 WHILE NOT EOF(1):LINE INPUT #1,L$:LNU
    M(P)=VAL(L$):L$(P)=MID$(L$,LEN(STR$(V
    AL(L$))+1):P=P+1:WEND
480 MAX=P:CLOSE #1:GOTO 130
490 IF COMMAND$="NEW" THEN INPUT "Erase p
    rogram - Are you sure":L$:IF LEFT$(L$
    ,1)="y" OR LEFT$(L$,1)="Y" THEN MAX=0
    :GOTO 130 ELSE 130
500 IF COMMAND$="BASIC" THEN COLOR 7,0,0:
    ON ERROR GOTO 0:CLS:END
510 IF COMMAND$<>"FILES" THEN 520
515 IF ARG$="" THEN ARG$="A:" ELSE SEL=1:
    GOSUB 600
517 FILES ARG$:GOTO 130
520 PRINT"Syntax error":GOTO 130
540 P=0:WHILE LNUM>LNUM(P) AND P<MAX:P=P+
    1:WEND:RETURN
560 MAX=MAX-1:FOR X=P TO MAX:LNUM(X)=LNUM
    (X-1):L$(X)=L$(X-1):NEXT:RETURN
580 MAX=MAX+1:FOR X=MAX TO P+1 STEP -1:LNU
    M(X)=LNUM(X-1):L$(X)=L$(X-1):NEXT:L$
    (P)=TEXT$:LNUM(P)=LNUM:RETURN
600 IF LEFT$(ARG$,1)<>CHR$(34) THEN 520 E
    LSE ARG$=MID$(ARG$,2)
610 IF RIGHT$(ARG$,1)=CHR$(34) THEN ARG$=
    LEFT$(ARG$,LEN(ARG$)-1)
620 IF SEL=0 AND INSTR(ARG$,".")=0 THEN A
    RG$=ARG$+".BAS"
630 SEL=0:RETURN
640 CLOSE #1:CKFLAG=0:PRINT"Stopped.":RET
    URN 150
650 PRINT "Error #";ERR:RESUME 150

```


NEWS & PRODUCTS

64 Music Program

Brøderbund Software has announced several new packages, including *The Music Shop*, a music composition tool and music synthesizer, for the Commodore 64. The program allows you to create, store, and edit compositions and print out sheet music. The synthesizer can add sound textures. Suggested retail price is \$44.95 (disk). Versions for the IBM PCjr and Apple Macintosh are scheduled for this spring.

Also from Brøderbund are *The Ancient Art of War* (\$44.95), a new strategy game for the IBM PC and PCjr, featuring 11 built-in war campaigns from the pages of history; *Where in the World is Carmen Sandiego* (\$39.95) for Apple II-series computers, a mystery/adventure educational game with color animation and sound effects plus different scenarios involving 30 countries and 10 villains; and *Science Toolkit* (\$59.95) for the Apple II series, which turns the computer into a science lab simulator for a variety of applications.

Brøderbund Software, 17 Paul Dr., San Rafael, CA 94903-2101

Circle Reader Service Number 223.

Software For Dieters

The Original Boston Computer Diet, a personalized weight-loss program, has been released by Scarborough Systems. Developed by Harvard University and Harvard Medical School nutritionists and psychiatrists, the program analyzes

weight, height, eating habits, and personality traits to create an individual diet.

Calories and other nutritional values are computed using a database of about 700 items. The program also features a "computer weight-loss counselor" and a cartoon character which offer encouragement and advice.

The program is currently available for the IBM PC/XT/PCjr (with 128K) for \$79.95. Versions for the Apple II series and Commodore 64 will be available soon.

Among Scarborough's other recent releases are *Make Millions*, a business simulation adventure by Tom Snyder, available initially for the Macintosh with versions to follow for the Apple II series and IBM PC/PCjr (price not available); and *Build-a-Book*, a program and kit package which allows children to write their own stories, print them out, and bind the finished work as a four-color book. The program is available for \$34.95 for the Apple II series, the IBM PC and PCjr, and the Commodore 64. (Additional two-book replacement sets are priced at \$19.95).

Scarborough Systems, Inc., 25 N. Broadway, Tarrytown, NY 10591

Circle Reader Service Number 224.

Electronic Novels

A series of sophisticated all-text adventure programs has been introduced by Synapse for the PC, Apple, Atari, and Commodore computers. The first titles

in the series are *Mindwheel*, a journey into the minds of four deceased people for clues to the Wheel of Wisdom; and *Essex*, an intergalactic search and rescue mission.

Additional novels are underway, including *Brimstone*, a medieval adventure story; *Breakers*, a science-fiction fantasy on the planet Borg; and *Ronin*, a samurai epic. IBM and Apple versions will sell for \$44.95, and Atari and Commodore versions will be priced at \$39.95.

Synapse Software, 5221 Central Avenue, Richmond, CA 94804

Circle Reader Service Number 225.


New Printers

A new line of dot-matrix printers with a wide range of prices and features has been introduced by Star Micronics. These include the SG, SD, and SR series, which combine the Star standard and PC printer lines into one line that is switch-selectable for all personal computers. They are available in two widths (10-inch and 15-inch) and feature near letter quality printing. Prices range from \$299 for the 120 characters per second (cps) SG-10 to \$799 for the 200 cps SR-15.

Also new from Star are the STX-10, a thermal printer for \$199, and the Powertype, a daisywheel printer for \$499.

Star Micronics, Inc., 200 Park Avenue, New York, NY 10166

Circle Reader Service Number 226.



Copy Atari 400/800/XL Series Cartridges to Disk and run them from a Menu

ATARI CARTRIDGE-TO-DISK COPY SYSTEM \$69.95

Supercart lets you copy ANY cartridge for the Atari 400/800/XL Series to diskette, and thereafter run it from your disk drive. Enjoy the convenience of selecting your favorite games from a "menu screen" rather than swapping cartridges in and out of your computer. Each cartridge copied by Supercart functions exactly like the original. Supercart includes:

- DISKETTE with:
 - COPY PROGRAM - Copies the cartridge to a diskette (up to 9 cartridges will fit on one disk.)
 - MENU PROGRAM - Automatically runs and displays a menu prompting user for a ONE keystroke selection of any cartridge on the disk.
- CARTRIDGE:
 - "Tricks" the computer into thinking that the original "copy protected" cartridge has been inserted.

To date there have been no problems duplicating and running all of the protected cartridges that we know of. However, FRONTRUNNER cannot guarantee the operation of all future cartridges. Supercart is user-friendly and simple to use and requires no modifications of your hardware. **PIRATES TAKE NOTE:** SUPERCART is not intended for illegal copying and/or distribution of copyrighted software. . . Sorry!!!

SYSTEM REQUIREMENTS:
Atari 400/800 or XL Series Computer / 48K Memory / One Disk Drive
Available at your computer store or direct from FRONTRUNNER. DEALER INQUIRIES ENCOURAGED.
TOLL FREE ORDER LINE: (24 Hrs.) 1-800-848-4780/In Nevada or for questions Call: (702) 786-4600
Include \$3.50 (\$7.50 Foreign orders) for shipping. M/C and VISA accepted.
FRONTRUNNER COMPUTER INDUSTRIES
316 California Ave., Suite #712, Reno, Nevada 89509 - (702) 786-4600
Others Make Claims. . . SUPERCART makes copies!!!
ATARI is a trademark of Warner Communications, Inc.



Star Micronics' SG-10 is a \$299 dot matrix printer with speeds of 120 characters per second (cps) in draft mode and 30 cps in near letter quality mode.

www.commodore.ca

Music System, Educational Software
Tech Sketch has released *Music Port*, a new keyboard and synthesizer system for the Commodore 64. It has a three-octave keyboard, double-tracking capability, and dozens of preset sounds and musical sequences. Special effects include vibrato, reverberation, and phase shifting. *Music Port* also features the ability to record, playback, and store up to ten minutes of music on disk. Suggested retail price is \$149.

Tech Sketch is also introducing two series of educational software and, as a promotional offer, is packaging a free light pen (valued at \$34.95) with each series during initial distribution.

The Kinderware series, for children ages four to nine, features the programs *Math Fun*, *Alphabet Fun*, *Shapes and Colors*, *Memory Jogger*, *Connect-a-Dot*, and *Simon Sez*. The programs are designed for use with the light pen and are available on disk for the Commodore 64 or Atari. Suggested retail price for the Kinderware package is \$34.95.

The other new series is for high school science students and includes the programs *Molecules and Atoms*, *Structure of Leaves*, and *Passive Transport*. The programs are available on disk for the 64 and require a light pen. Prices will be announced.

Tech Sketch, Inc., 26 Just Rd., Fairfield, NJ 07006

Circle Reader Service Number 227.

Inexpensive Games For 64 And VIC
Mastertronic has released ten games for the Commodore 64, each for \$9.99. They include nine arcade games (*Chiller*, 1985—*The Day After*, *Kick Start*, *Challenger*, *Magic Carpet*, *BMX Racer*, *Dark Star*, *More Adventures of Big Mac*, *The Mad Maintenance Man*, and *Mind Control*) and one adventure game, *Monty Python's Quest for the Holy Grail*. Versions for the VIC-20 are expected to be available on tape as well.

Also to be released is *The Games Creator*, an arcade-game construction set for nonprogrammers which will retail at \$19.99 for the 64. It lets you create games with sound effects, scrolling scenery, and animated multicolored sprites. The VIC version is entitled *The Games Designer* and will be available on tape for \$12.99.

Mastertronic International, Inc., 407 Park Avenue South, Suite 16A, New York, NY 10016

Circle Reader Service Number 228.

New Music Keyboard

Sequential Circuits, Inc. has announced the MusicMate keyboard for \$99. The MusicMate can be plugged into a Commodore 64 joystick port and features full-sized keys with a traditional key-

board feel.

It comes with the Model 970 software, which lets you record and play back up to ten continuous minutes of music. The monitor displays a four-color illustration of the notes played.

Sequential Circuits, Inc., 3051 North First Street, San Jose, CA 95134

Circle Reader Service Number 229.

Spreadsheet Program; Printer Interface

Cal-Kit, a new spreadsheet program for the Commodore 64 from Batteries Included, can be used for planning budgets, preparing income taxes, balancing checkbooks, estimating construction costs, and other home and business applications. All these calculations are pre-programmed. *Cal-Kit* sells for \$49.95.

Batteries Included has also introduced the B.I. Printer Interface, which connects almost any parallel printer to Commodore computers (price to be announced). Other recent products include: the Atari version of the company's popular word processor, *PaperClip* (\$69.95); and an integrated word processing, communications, and data management package, *HomePak* (\$49.95), for the Atari, Commodore 64, Apple II family, and IBM PCjr computers.

Batteries Included, 17875 Sky Park North, Suite P, Irvine, CA 92714; or in Canada, 30 Mural Street, Richmond Hill, Ontario, L4B 1B5

Circle Reader Service Number 230.

Apple Action Game

Sir-Tech Software has introduced *Rescue Raiders*, a World War II action game for Apple computers. The player defends a European city in a command helicopter equipped with modern-day weapons.

Scoring is based on efficient use of resources as well as successful strategy. After each of the eight battles in the game is won, the player is presented with a short history of a city involved in World War II.

Rescue Raiders is available on disk for \$34.95.

Sir-Tech Software, Inc., 6 Main Street, Ogdensburg, NY 13669

Circle Reader Service Number 231.

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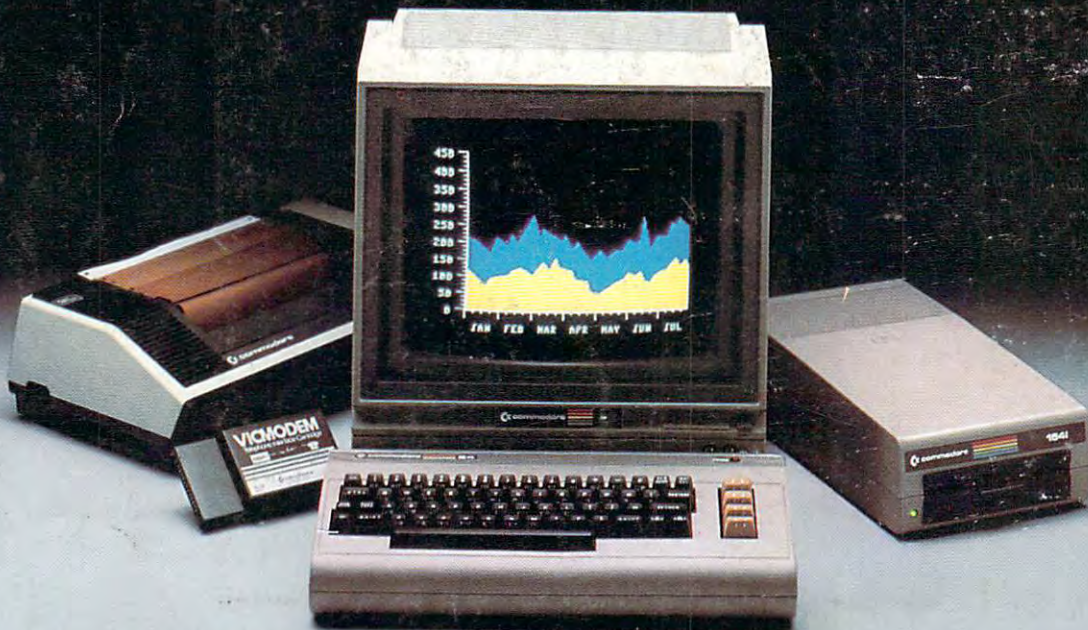
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