Small Business Programs for the Commodore 64

Many ready-to-run programs to help you save time and money

- ★ Mailing List
- ★ Inventory Control
- ★ Invoicing
- ★ Utilities

S. Roberts

First Edition
First Printing
1984 in the Federal Republic of Germany

Cover design: Artwork © 1984 by Franz Berthold

ISBN 3-88963-186-X

Publisher:
Ing. W. HOFACKER GmbH, Tegernseer Str. 18, D-8150 Holzkirchen, W.-Germany

US-Distributor:
ELCOMP PUBLISHING, INC., 53 Redrock Lane, Pomona, CA 91766

ELCOMP Computer (S) Pte Ltd., 89 Short Street, Unit 03-07, Golden Wall Auto C.
Singapore 0718

S. Roberts

SMALL-BUSINESS

Programs for the

Commodore 64

S. Roberts

SMALL-BUSINESS

Programs for the

Commodore 64

Many ready-to-run programs to help you save time and money

Mailing List
Inventory Control
Invoicing
Utilities

PREFACE

It is well known, that the COMMODORE 64 home computer is well suited for entertainment programs. Games available run from simple BASIC programs performing word games to complex machine language programs accomplishing the most sophisticated graphics and sound run on computers of that size.

The purpose of this book is to show you different and more profitable ways to use your COMMODORE 64.

The programs listed and described in this book are meant to serve the small businessman. The programs range from mortgage calculations over bargraph to a checkbook balancer.

At the end of the book you will find a listing of a complete business package program which does the job of larger programs. These programs would have cost tens of thousands of dollars only a few years ago.

This program (called BUSIPACK) combines invoice writing, mailing list, and inventory control. The three separate parts interface with each other. This allows the invoice writing part to retrieve addresses from the mailing list file and products from the inventory control file. The most sensational feature of the BUSIPACK system is that the inventory file is automatically updated by the invoice writing part !

HAPPY PROGRAMMING

Here are some samples of the cursor control and color caracters.

```
1 PRINT"[illegible]":REM CURSOR HOME
2 PRINT"[illegible]":REM CLEAR HOME
3 PRINT"[illegible]":REM CURSOR RIGHT
4 PRINT"[illegible]":REM CURSOR LEFT
5 PRINT"[illegible]":REM CURSOR DOWN
6 PRINT"[illegible]":REM CURSOR UP
7 PRINT"[illegible]":REM <CTRL>-<RVS ON>
8 PRINT"[illegible]":REM <CTRL>-<RVS OFF>
9 PRINT"[illegible]":REM <COMMODORE KEY>-<4>
10 PRINT"[illegible]":REM <CTRL>-<3>
11 PRINT"FOR OTHER COLORS SEE MANUAL"
12 PRINT"[illegible]":REM <CTRL>-<6>
13 PRINT"[illegible]":REM <CTRL>-<7>
14 PRINT"[illegible]":REM <CTRL>-<2>
```

The listings were printed with a Commodore VC1525 printer. The line width was limited to 42 characters per line. Please take this in account when you count spaces and cursor control characters, or when you try to identify color characters. Use the following figure to count the characters.

```
123456789012345678901234567890
```

TABLE OF CONTENTS

Because it is not always easy to identify the control characters in a BASIC listing, we put together a summary of the C-64 cursor control characters.

ASCII	PRINTS	DESCRIPTION	
146		Reverse Off	Use CTRL key
18		Reverse On	Use CTRL key
3		RUN / STOP	
147		Clear	CRL
19		Home	
145		Cursor Up	
17		Cursor Down	
157		Cursor Left	
29		Cursor Right	
148		Insert	

Depreciation

1

This program calculates depreciation in four different methods :

1. Straight line
2. Double declining balance
3. Sum of the year digits
4. 150% declining balance.

Year, month, and depreciation amount for each method are listed on each line, providing a good layout for comparison of methods. The program gives a choice of monthly or annual amounts.

AMT OF INVESTMENT= 900 SALVAGE= 100 DEPR LIFE= 5

DATE	STRLINE	DDB	SYD	150/DB
1980	93.33	213.33	233.33	160
CUM DEP	93.33	213.33	233.33	160
UNDEPR BAL	606.67	486.67	466.67	540
1981	140	234.67	173.33	192
CUM DEP	233.33	448	406.66	352
UNDEPR BAL	466.67	252	293.34	348
1982	140	140.8	133.34	134.4
CUM DEP	373.33	588.8	540	486.4
UNDEPR BAL	326.67	111.2	160	213.6
1983	140	84.48	93.33	94.08
CUM DEP	513.33	673.28	633.33	580.48
UNDEPR BAL	186.67	26.72	66.67	119.52
1984	140	26.72	53.34	65.86
CUM DEP	653.33	700	686.67	646.34
UNDEPR BAL	46.67	0	13.33	53.66
1985	46.67	0	13.33	46.1
CUM DEP	700	700	700	700.96
UNDEPR BAL	0	0	0	0

```
100 REM DEPRECIATION
105 OPEN1,4,0
110 DEFFNR(X)=INT(X*100+.5)/100:PRINT"□":P
RINT
120 PRINT"THIS PROGRAM COMPUTES DEPRECIATI
ON BY"
130 PRINT"MONTHS, BY STRAIGHT LINE, BY DOU
BLE"
140 PRINT"DECLINING BALANCE, SUM-THE-YEARS
-DIGITS"
150 PRINT"AND 150 PERCENT DECLINING BALANC
E"
160 PRINT
170 PRINT"DO YOU WANT MONTH BY MONTH DETAI
L (Y/N)":INPUTY$
180 PRINT
190 INPUT"AMOUNT OF INVESTMENT ";I1
200 PRINT
210 INPUT"SALVAGE VALUE ";S1
220 PRINT
230 INPUT"DEPRECIABLE LIFE (YEARS) ";L1
240 PRINT
250 INPUT"MONTH AND YEAR INVESTMENT MADE "
;A1,A9
260 PRINT
280 PRINT#1,"AMT OF INVESTMENT= ";I1;"
  SALVAGE= ";S1;
290 PRINT#1,"       DEPR LIFE= ";L1
300 PRINT#1:PRINT#1
310 PRINT#1,"  DATE"," STRLINE","  DDB","
 SYD","150/DB"
314 PRINT#1,"-----------------------------
----------";
316 PRINT#1,"-----------------------------
------"
320 PRINT#1
330 K=A9
340 D1=((I1-S1)/L1)*(1-A1/12)
350 D1=FNR(D1)
360 Q1=D1
370 F2=0
380 D2=(2/L1)*I1*(1-A1/12)
390 D2=FNR(D2)
```

```
400 Q2=D2
410 D3=((I1-S1)*(1-A/12)*(2*L1))/((L1+1)*L
1)
420 D3=FNR(D3)
430 Q3=D3
440 D4=(1.5/L1)*I1*(1-A1/12)
450 D4=FNR(D4)
460 Q4=D4
470 M1=D1/(12-A1)
480 M2=D2/(12-A1)
490 M3=D3/(12-A1)
500 M4=D4/(12-A1)
505 M1=FNR(M1):M2=FNR(M2):M3=FNR(M3):M4=FN
R(M4)
510 K1=LEN(STR$(M1)):K2=LEN(STR$(M2)):K3=L
EN(STR$(M3)):K4=LEN(STR$(M4))
520 IFY$="N"THEN580
530 FORM=A1TO12
540 PRINT#1,K;"/";M;
550 PRINT#1,SPC(13-K1);M1;SPC(15-K2);M2;
560 PRINT#1,SPC(15-K3);M3;SPC(12-K4);M4
570 NEXTM
580 GOSUB1330
590 K=K+1
594 PRINT"PRESS SPACE BAR FOR ";K
596 GETW$:IFW$=""THEN596
600 D1=(I1-S1)/L1
610 IFK<(A9+L1)THEN670
620 D1=I1-S1-Q1
630 IFD1>1THEN680
640 D1=0
650 M1=D1/A1
660 GOTO680
670 M1=D1/12
680 D2=(2/L1)*(I1-Q2)
690 IFK>A9+L1THEN850
700 IFY<1THEN790
710 IFF2>0THEN780
720 E2=(I1-S1-Q2)/(A9+L1-K+(A1/12))
730 IFY=1THEN760
740 IFK<YTHEN790
750 GOTO770
760 IFD2>E2THEN790
```

```
770 F2=E2
780 D2=F2
790 IFD2<=(I1-S1-Q2)THEN830
800 D2=I1-S1-Q2
810 IFD2>1THEN830
820 D2=0
830 M2=D2/12
840 GOTO880
850 IFD2>1THEN870
860 D2=0
870 M2=D2/A1
880 P3=(I1-S1-Q3)*2*(A9+L1-K+(A1/12))
890 P4=(A9+L1-K+1)*(A9+L1-K+(A1/6))
900 D3=P3/P4
910 IFK<(A9+L1)THEN960
920 IFD3>1THEN940
930 D3=0
940 M3=D3/A1
950 GOTO970
960 M3=D3/12
970 D4=(1.5/L1)*(I1-Q4)
980 IFK<A9+L1THEN1060
990 IFK=A9+L1THEN1020
1000 D4=0
1010 GOTO1100
1020 IFD4>1THEN1040
1030 D4=0
1040 M4=D4/A1
1050 GOTO1110
1060 IFD4<=I1-S1-Q4THEN1080
1070 D4=I1-S1-Q4
1080 IFD4>1THEN1100
1090 D4=0
1100 M4=D4/12
1110 D1=FNR(D1):D2=FNR(D2):D3=FNR(D3):D4=F
NR(D4)
1115 K1=LEN(STR$(D1)):K2=LEN(STR$(D2)):K3=
LEN(STR$(D3)):K4=LEN(STR$(D4))
1120 FORM=1TO12
1130 IF(I1-S1-Q1)>1THEN1150
1140 M1=0
1150 Q1=Q1+M1
1160 IF(I1-S1-Q2)>1THEN1180
```

```
1170 M2=0
1180 Q2=Q2+M2
1190 IF(I1-S1-Q3)>1THEN1210
1200 M3=0
1210 Q3=Q3+M3
1220 IF(I1-S1-Q4)>1THEN1240
1230 M4=0
1240 Q4=Q4+M4
1250 IFY$="N"THEN1300
1260 M1=FNR(M1):M2=FNR(M2):M3=FNR(M3):M4=F
NR(M4)
1265 K1=LEN(STR$(M1)):K2=LEN(STR$(M2)):K3=
LEN(STR$(M3)):K4=LEN(STR$(M4))
1270 PRINT#1,K;"/";M;
1280 PRINT#1,SPC(13-K1);M1;SPC(15-K2);M2;
1290 PRINT#1,SPC(15-K3);M3;SPC(12-K4);M4
1300 NEXTM
1310 GOSUB1330
1320 GOTO1580
1330 K1=LEN(STR$(D1)):K2=LEN(STR$(D2)):K3=
LEN(STR$(D3)):K4=LEN(STR$(D4))
1340 PRINT#1
1350 PRINT#1,K;"      ";SPC(13-K1);D1;SPC(1
5-K2);D2;
1360 PRINT#1,SPC(15-K3);D3;SPC(12-K4);D4
1370 IFA8=1THEN1400
1380 PRINT
1390 Q1=FNR(Q1):Q2=FNR(Q2):Q3=FNR(Q3):Q4=F
NR(Q4)
1395 K1=LEN(STR$(Q1)):K2=LEN(STR$(Q2)):K3=
LEN(STR$(Q3)):K4=LEN(STR$(Q4))
1400 PRINT#1,"CUM DEP     ";SPC(13-K1);Q1;S
PC(15-K2);Q2;
1405 PRINT#1,SPC(15-K3);Q3;SPC(12-K4);Q4
1410 IFY$="N"THEN1430
1420 PRINT
1430 B1=I1-S1-Q1
1440 IFB1>1THEN1460
1450 B1=0
1460 B2=I1-S1-Q2
1470 IFB2>1THEN1490
1480 B2=0
1490 B3=I1-S1-Q3
```

```
1500 IFB3>1THEN1520
1510 B3=0
1520 B4=I1-S1-Q4
1530 IFB4>1THEN1544
1540 B4=0
1544 B1=FNR(B1):B2=FNR(B2):B3=FNR(B3):B4=F
NR(B4)
1546 K1=LEN(STR$(B1)):K2=LEN(STR$(B2)):K3=
LEN(STR$(B3)):K4=LEN(STR$(B4))
1550 PRINT#1,"UNDEPR BAL ";SPC(13-K1);B1;S
PC(15-K2);B2;
1555 PRINT#1,SPC(15-K3);B3;SPC(12-K4);B4
1560 PRINT#1
1570 RETURN
1580 IFK>=(A9+L1)THEN1600
1590 GOTO590
1600 PRINT#1
1610 STOP
```

Checkbook Balancer

2

The following program is helpful in balancing your checkbook. You can record all your transactions on disk. The program gives you the following options:

1. Read data from disk
2. Enter transactions
3. Change or delete
4. Write data on disk
5. List transactions
6. Reconciliation

The data are stored on the disk in a file named CHECKS.

The following transactions are possible :

check (CK), deposit (DP), withdrawl (CM), debit (DB), credit (CR).

```
100 DIMRE$(99):RD=0:SP$=" ":FORK=1TO38:SP$
=SP$+" ":NEXT:EC$="ZZZZ
105 HK$=" HIT ANY KEY TO CONTINUE
110 PRINT"□":PRINT:PRINT:PRINTTAB(9)"CHECK
BOOK SELECTOR
120 PRINT:PRINTTAB(9)"1. READ DATA FILE":P
RINT:PRINTTAB(9)"2. ENTER TRANSACTIONS
130 PRINT:PRINTTAB(9)"3. CHANGE/DELETE":PR
INT:PRINTTAB(9)"4. WRITE DATA FILE
140 PRINT:PRINTTAB(9)"5. LIST TRANSACTIONS
":PRINT:PRINTTAB(9)"6. RECONCILIATION
150 PRINT:PRINTTAB(9)"7. END
```

```
200 X=12:Y=21:MS$="LINE NO.":GOSUB8000
210 CH$=LEFT$(VA$,1):IFCH$="1"THENGOSUB100
0
220 IFCH$="2"THENGOSUB2000
230 IFCH$="3"THENGOSUB3000
240 IFCH$="4"THENGOSUB4000
250 IFCH$="5"THENGOSUB5000
260 IFCH$="6"THENGOSUB6000
265 IFCH$="7"THENEND
270 GOTO110
620 "■■■      $=""GOTO6120
1000 PRINT"□":OPEN1,8,3,"0:CHECKS,S,R"
1010 IB=1
1020 FORI=IBTO99:INPUT#1,R$:IFR$=EC$GOTO10
35
1030 RE$(I)=R$:NEXTI
1035 IB=I:GOTO1040
1036 INPUT#1,WB$:WB=VAL(WB$):DF=RB-WB:BA=B
A-DF:BA$=STR$(BA)
1037 FORK=1TO3:INPUT#1,R$:NEXTK:INPUT#1,RB
$:RB=VAL(RB$):GOTO1060
1040 INPUT#1,BA$:INPUT#1,MC$:INPUT#1,PC$:I
NPUT#1,BI$:INPUT#1,RB$
1050 BA=VAL(BA$):MC=VAL(MC$):PC=VAL(PC$):B
I=VAL(BI$):RB=VAL(RB$):IB=I
1060 CLOSE1:RD=1:RETURN
2000 IFRD=1GOTO2100
2010 PRINT"□OPENING BALANCE";:INPUTBA:BA$=
STR$(BA)
2020 PRINT"■MONTHLY SERVICE CHARGE";:INPUT
MC:MC$=STR$(MC)
2030 PRINT"■PER CHECK CHARGE";:INPUTPC:PC$
=STR$(PC):IB=1:RB=BA
2040 RB$=STR$(RB):PRINT"■BEGINNING ITEM NO
.";:INPUTBI:BI=BI-1
2100 FORI=IBTO99
2110 BI=BI+1:CI=BI:GOSUB8200:BI$=CI$:PRINT
"□ITEM NUMBER: ";BI$:GOSUB7120
2282 GOSUB8500
2290 N=1:GOSUB9000:X=2:Y=15:MS$="CORRECT (
Y/N)":GOSUB8000:IFVA$="Y"GOTO2295
2291 AM=-AM:GOSUB8500
2292 BI=BI-1:PC=-PC:GOTO2110:PC=-PC
```

```
2295 GOSUB9500
2296 IFFRE(0)>190GOTO2302
2297 PRINT:PRINT"■ OUT OF MEMORY!":PRINT"
WRITE TAPE, END PROGRAM,":PRINT" THEN USE
OPTION 2.
2298 PRINTHK$
2299 GETA$:IFA$=""GOTO2299
2300 GOTO2310
2302 MS$="CONTINUE (Y/N)":GOSUB8000:IFVA$<
>"Y"GOTO2310
2305 NEXTI
2310 BI=I:RETURN
3000 N=1:PRINT"■";"ITEM NO.";:INPUTCI:IF(C
I<0)OR(CI>999)GOTO3000
3010 GOSUB8200:FORI=1TO99:IFRE$(I)=""GOTO3
025
3015 GOSUB9600:IFBI$=CI$GOTO3030
3020 NEXTI
3025 PRINT"ITEM NOT FOUND,";HK$
3026 GETA$:IFA$=""GOTO3026
3027 RETURN
3030 GOSUB9000:PRINT:PRINT:PRINT" DELETE (
D) OR CHANGE (C)";:INPUTA$
3035 IFA$="C"GOTO3100
3040 IFA$<>"D"GOTO3030
3050 RC$="3":GOSUB9500:RETURN
3100 PRINT"■":GOSUB7120:PRINT:PRINT"CORREC
T (Y/N)";:INPUTA$:IFA$<>"Y"GOTO3100
3110 GOSUB9500:RETURN
4000 PRINT"■":OPEN1,8,3,"@0:CHECKS,S,W":RB
=BA:SW=0
4002 PRINT:PRINT"DELETE RECONCILED ITEMS (
Y/N)";:INPUTA$:IFA$="Y"THENSW=1
4005 IFSW<>1GOTO4010
4006 PRINT"FINAL RECONCILED TAPE FOR MONTH
(Y/N)";:INPUTZ$:IFZ$="Y"THENBA=BA-MC
4010 FORI=1TO99:IFRE$(I)=""GOTO4095
4020 GOSUB9600:IFRC$="3"GOTO4090
4030 GOSUB8500:IFSW=0GOTO4060
4035 IFRC$<>"1"GOTO4060
4040 BA=BA+AM:IF(TP$="CK")OR(TP$="CM")THEN
BA=BA-PC
4050 VP=BA:GOSUB8400:BA$=VP$
```

```
4055 GOTO4090
4060 IT$=RE$(I):GOSUB10000
4090 NEXTI
4095 IT$=EC$:GOSUB10000
4100 IT$=BA$:GOSUB10000:IT$=MC$:GOSUB10000
:IT$=PC$:GOSUB10000:IT$=BI$
4110 GOSUB10000:IT$=RB$:GOSUB10000:CLOSE1:
RETURN
5000 PRINT"■";TAB(9)"LISTING SELECTOR":PRI
NT:PRINT:SU=0:TL=0:AS=0
5005 PRINTTAB(9)"1. LIST ALL TRANSACTIONS"
:PRINT:PRINTTAB(9)"2. LIST BY ACCOUNT
5020 X=12:Y=10:MS$="LINE NO.":GOSUB8000
5030 IFLEFT$(VA$,1)="1"GOTO5100
5040 IFLEFT$(VA$,1)<>"2"GOTO5000
5050 PRINT"■ACCOUNT";:INPUTTC$:IFLEN(TC$)<
>2GOTO5050
5060 SU=1:AS=1
5100 N=0:RB=BA:FORI=1TO200
5105 IFRE$(I)=""GOTO5130
5110 GOSUB9600:IFRC$="3"GOTO5125
5112 IFAS=0GOTO5116
5113 IFRC$="2"GOTO5125
5114 IFAC$<>TC$GOTO5125
5115 TL=TL-AM:GOTO5117
5116 GOSUB8500
5117 N=N+1:GOSUB9000:IFNN<>6GOTO5125
5118 IFRE$(I+1)=""GOTO5125
5119 PRINTHK$
5120 GETA$:IFA$=""GOTO5120
5125 NEXTI
5130 IFSU=0GOTO5150
5140 VP=TL:GOSUB8400:TL$=VP$
5145 X=2:Y=22:VP$="TOTAL DEBITS THIS ACCOU
NT ="+TL$:GOSUB8100
5150 PRINTHK$
5155 GETA$:IFA$=""GOTO5155
5160 RETURN
6000 PRINT"■REVIEW RECONCILED ITEMS (Y/N)"
;:INPUTA$:SW=0:N=0:IFA$="Y"THENSW=1
6010 RB=BA:SU=1:FORI=1TO99:IFRE$(I)=""GOTO
6100
6020 GOSUB9600:IF(SW=0)AND(RC$="1")GOTO606
```

```
0
6030 N=N+1:GOSUB9000:X=2:Y=22:MS$="ON STAT
EMENT (Y/N)
6040 GOSUB8000:IFVA$="N"GOTO6070
6050 IFVA$<>"Y"GOTO6040
6055 RC$="1":GOSUB9500
6060 GOSUB8500:GOTO6090
6070 RC$="2":GOSUB9500
6090 NEXTI
6100 VP$=SP$:GOSUB8100:RB=RB-MC:VP=RB:GOSU
B8400:RB$=VP$
6110 VP$="STATEMENT BALANCE SHOULD BE "+RB
$:GOSUB8100:PRINTHK$
6120 GETA$:IFA$=""GOTO6120
6130 RETURN
7120 PRINT"■TYPE (CK, DP, CM, DB, CR)";:IN
PUTTP$:T0$="":CN=0:CN$=""
7130 IF(TP$="DP")OR(TP$="CM")GOTO7200
7140 IF(TP$="DB")OR(TP$="CR")GOTO7200
7150 IFTP$<>"CK"GOTO7120
7160 PRINT"■CHECK NUMBER";:INPUTCN:VP$=STR
$(CN):GOSUB8300:CN$=VP$
7170 PRINT"■TO";:INPUTT0$:IFLEN(T0$)>19GOT
07170
7200 PRINT"■MONTH";:INPUTMO:IF(MO<1)OR(MO>
12)GOTO7200
7210 VP$=STR$(MO):GOSUB8300:MO$=VP$
7220 PRINT"DAY  ";:INPUTDA:IF(DA<1)OR(DA>3
1)GOTO7220
7230 VP$=STR$(DA):GOSUB8300:DA$=VP$
7240 PRINT"YEAR ";:INPUTYR$:IF(YR$<"00")OR
(YR$>"99")GOTO7240
7250 REM WHAT???.....PRINT"■FOR (OR FROM)"
;:INPUTAC$:IFLEN(AC$)<>2GOTO7250
7260 PRINT"■AMOUNT";:INPUTAM:IF(TP$="CK")O
R(TP$="CM")THENAM=-AM
7270 IFTP$="DB"THENAM=-AM
7280 VP=AM:GOSUB8400:AM$=VP$:RC$="0":RETUR
N
8000 PRINT"■":FORK=1TO(Y-2):PRINT:NEXTK:PR
INTSP$
8010 PRINTTAB(X-1)"┐";MS$;:INPUTVA$:RETURN
```

```
8100 PRINT"■";:FORK=1TO(Y-2):PRINT:NEXTK:PR
INTTAB(X-1)VP$:RETURN
8200 CI$=STR$(CI):LN=LEN(CI$):CI$=RIGHT$(C
I$,LN-1):CI$="00"+CI$
8290 CI$=RIGHT$(CI$,3):RETURN
8300 LN=LEN(VP$):VP$=RIGHT$(VP$,LN-1):RETU
RN
8400 VT=100*VP:VT=INT(VT):TM$=STR$(VT):LN=
LEN(TM$)-1:LB$=LEFT$(TM$,1)
8410 TM$=RIGHT$(TM$,LN):IFLN>2GOTO8430
8420 ZF$="":FORK=1TO(3-LN):ZF$=ZF$+"0":NEX
TK:TM$=ZF$+TM$:LN=3
8430 VP$=LB$+LEFT$(TM$,LN-2)+"."+RIGHT$(TM
$,2):RETURN
8500 RB=RB+AM:IF(TP$="CK")OR(TP$="CM")THEN
RB=RB-PC
8510 VP=RB:GOSUB8400:RB$=VP$:RETURN
9000 IN=INT((N-1)/6):NN=N-(6*IN):IFNN<>1GO
TO9100
9010 PRINT"■ ITEM CHK#  DATE      TYPE  FOR
  AMOUNT":VT$="BALANCE
9015 IFSU=1THENVT$=""
9020 PRINTTAB(12)"TO";TAB(32)VT$
9100 Y=4+((NN-1)*3):X=2:VP$=BI$:GOSUB8100:
X=7:VP$=CN$:GOSUB8100
9120 X=13:VP$=MO$+"/"+DA$+"/"+YR$:GOSUB810
0:X=23:VP$=TP$:GOSUB8100
9130 X=28:VP$=AC$:GOSUB8100:AZ$=AM$:GOSUB9
200
9150 Y=Y+1:X=13:VP$=T0$:GOSUB8100:AZ$=RB$:
IFSU=1THENAZ$="-  "
9155 GOSUB9200:RETURN
9200 LN=LEN(AZ$):IFLEFT$(AZ$,1)<>"-"GOTO92
20
9210 VP$=RIGHT$(AZ$,LN-1):X=33:GOSUB8100:R
ETURN
9220 VP$="":FORK=2TOLN:VP$=VP$+"■"+MID$(AZ
$,K,1):NEXTK:X=33:GOSUB8100:RETURN
9240 PRINTHK$
9500 RE$(I)=BI$+"↑"+CN$+"↑"+MO$+"↑"+DA$+"↑
"+YR$+"↑"
9510 RE$(I)=RE$(I)+TP$+"↑"+AC$+"↑"+AM$+"↑"
+T0$+"↑"+RC$+"↑":RETURN
```

```
9600 KS=1:GOSUB9800:BI$=LEFT$(RE$(I),K-1):
KS=K+1:GOSUB9800:GOSUB9900:CN$=TV$
9610 CN=VAL(CN$):GOSUB9800:GOSUB9900:MO$=T
V$:MO=VAL(MO$):GOSUB9800:GOSUB9900
9620 DA$=TV$:DA=VAL(DA$):GOSUB9800:GOSUB99
00:YR$=TV$:YR=VAL(YR$):GOSUB9800
9630 GOSUB9900:TP$=TV$:GOSUB9800:GOSUB9900
:AC$=TV$:GOSUB9800:GOSUB9900:AM$=TV$
9640 AM=VAL(AM$):GOSUB9800:GOSUB9900:T0$=T
V$:GOSUB9800:GOSUB9900:RC$=TV$
9650 RETURN
9800 FORK=KSTO80:IFMID$(RE$(I),K,1)="↑"GOT
09820
9815 NEXTK
9820 RETURN
9900 TV$="":IF(K-KS)=0GOTO9920
9910 TV$=MID$(RE$(I),KS,K-KS)
9920 KS=K+1:RETURN
10000 IFFF=0THENLC=193
10010 IFFF=0THENFF=1
10020 IL=LEN(IT$):LC=LC+IL+1:PRINT#1,IT$:I
FLC<193GOTO10090
10030 TH=TI:POKE59411,53
10040 IF(TI-TH)<5GOTO10040
10050 POKE59411,61:LC=IL+1
10090 RETURN
```

NOTES

Decimal Align

3

In nearly every business program you need to print dollar amounts. The following program (subroutine) aligns the decimal and adds "0" or ".00" to your figures, if necessary. All you have to do is to assign the variable you want to print to JJ and then do a GOSUB 10000. When the program returns from the subroutine, your number is in the string J$, and the length of the string is in LL. Make sure that the variables used in this subroutine are not used anywhere else in the program !

```
100 INPUT"ENTER NUMBER ";JJ
105 GOSUB10000
110 PRINTTAB(25-LL);J$
120 GOTO100
10000 K1$="0":K2$=".00"
10010 CC=INT(JJ*100+.5)/100
10020 J1$=STR$(CC)
10030 J1=CC*10
10040 J2=INT(J1)
10050 J3=J1-J2
10060 IFJ3<.09THEN10090
10070 J$=J1$:LL=LEN(J$)
10080 RETURN
10090 J4=INT(CC)
10100 J5=CC-J4
10110 IFJ5<.09THEN10140
10120 J$=J1$+K1$:LL=LEN(J$)
10130 RETURN
10140 J$=J1$+K2$:LL=LEN(J$)
10150 RETURN
```

NOTES

Break-Even Analysis

4

The break-even point is the volume of sales a firm must achieve to neither earn profits or incur losses. Fixed costs such as rent remain costant regardless of the level of output. Variable costs increase in direct proportion to sales. The break-even point will be achieved when sales revenue is just above the combined costs. Fixed cost, maximum number of units at full production, sale price per unit, and variable cost for full production are entered in the computer. The program calculates the break-even point by sales in dollars, percentage of maximum sales, and units. Then it prints a table showing profits for each 10% increment in sales. The analysis can be extended to allow for a profit goal and allows you to consider changes required in the business to increase sales volume.

The program was run twice with the same cost variables. The first output shows figures for a product unit price of $9. Sales in units must be 5600 for a $4800 profit. The second output with a unit price of $10 requires 4200 units to be sold for the same profit. The firm must study the demand : can they sell enough units, if the price is raised.

```
100 REM BREAK EVEN ANALYSIS
110 PRINT"□"
120 INPUT"FIXED COST OF OPERATION ";F
130 PRINT"MAX NUMBER OF UNITS AT FULL PROD
UCTION":INPUTU1
```

```
140 INPUT"SALE PRICE PER UNIT ";U2
150 PRINT"VARIABLE COST FOR FULL PRODUCTIO
N":INPUTV
160 PRINT
170 OPEN1,4
175 JJ=F:GOSUB10000
180 PRINT#1,"FIXED COSTS=     ";J$
190 PRINT#1,"MAX NO. UNITS=   ";U1
195 JJ=U2:GOSUB10000
200 PRINT#1,"PRICE PER UNIT= ";J$
205 JJ=V:GOSUB10000
210 PRINT#1,"VARIABLE COSTS= ";J$
220 PRINT#1
230 M=U1*U2
240 FORX=1TO100
250 S=X*(M/100)
260 E=(X*(V/100))+F
270 IFE<STHEN285
280 NEXTX
285 JJ=S:GOSUB10000
290 PRINT#1,"THE BREAK EVEN POINT IS $";J$

300 PRINT#1,X;" PERCENT MAX SALES OR ";S/U
2;" UNITS"
310 PRINT#1
320 M=M/10:V=V/10:M1=M:V1=V
330 PRINT#1,"NO. UNITS ";TAB(8);"SALES";TA
B(9);"COSTS";TAB(10);"PROFIT"
340 PRINT#1
350 FORX=1TO10
360 PRINT#1,TAB(7-LEN(STR$(M1/U2)));M1/U2;

365 JJ=INT(M1):GOSUB10000
370 PRINT#1,TAB(15-L);J$;
375 JJ=(((V1/M1)*M1)+F):GOSUB10000
380 PRINT#1,TAB(15-L);J$;
385 JJ=INT(M1)-(((V1/M1)*M1)+F):GOSUB10000

390 PRINT#1,TAB(15-L);J$
400 M1=M1+M:V1=V1+V
410 NEXTX
420 PRINT
430 CLOSE1
```

```
440 GOTO110
10000 K1$="0":K2$=".00"
10010 CC=INT(JJ*100+.5)/100
10020 J1$=STR$(CC)
10030 J1=10*CC
10040 J2=INT(J1)
10050 J3=J1-J2
10060 IFJ3<.09THEN10090
10070 J$=J1$:L=LEN(J$)
10080 RETURN
10090 J4=INT(CC)
10100 J5=CC-J4
10110 IFJ5<.09THEN10140
10120 J$=J1$+K1$:L=LEN(J$)
10130 RETURN
10140 J$=J1$+K2$:L=LEN(J$)
10150 RETURN
```

```
FIXED COSTS=      12000
MAX NO. UNITS=    14000
PRICE PER UNIT=   9
FIXED COSTS=      12000.00
MAX NO. UNITS=    14000
PRICE PER UNIT=   9.00
VARIABLE COSTS=   84000.00

THE BREAK EVEN POINT IS $ 84000.00
 29  PERCENT MAX SALES OR  4060  UNITS

NO. UNITS          SALES          COSTS          PROFIT

   1400            12600          20400.00       -7800.00
   2800            25200          28800.00       -3600.00
   4200            37800          37200.00         600.00
   5600            50400          45600.00        4800.00
   7000            63000          54000.00        9000.00
   8400            75600          62400.00       13200.00
   9800            88200          70800.00       17400.00
  11200           100800          79200.00       21600.00
  12600           113400          87600.00       25800.00
  14000           126000          96000.00       30000.00
FIXED COSTS=      12000.00
MAX NO. UNITS=    14000
PRICE PER UNIT=   9.00
VARIABLE COSTS=   84000.00

THE BREAK EVEN POINT IS $ 84000.00
 29  PERCENT MAX SALES OR  4060  UNITS

NO. UNITS          SALES          COSTS          PROFIT

   1400         12600.00       20400.00       -7800.00
   2800         25200.00       28800.00       -3600.00
   4200         37800.00       37200.00         600.00
   5600         50400.00       45600.00        4800.00
   7000         63000.00       54000.00        9000.00
   8400         75600.00       62400.00       13200.00
   9800         88200.00       70800.00       17400.00
  11200        100800.00       79200.00       21600.00
  12600        113400.00       87600.00       25800.00
  14000        126000.00       96000.00       30000.00
```

NOTES

Compare Strings

5

This program will compare an entered string with the list of strings contained in the DATA statements. It will select strings with the percentage of similarity you desire. Enter the word CADILLAC for strings to be matched and 20 for the percentage of similarity. The selected strings will be Cadelle and Piccadilly. Now enter 5 for the percentage of similarity and more strings will be selected.

```
100 REM COMPARE STRINGS
110 PRINT"□"
120 DIMB$(25),X(25)
130 INPUT"ENTER STRING TO BE MATCHED ";A$
140 PRINT"ENTER DESIRED SIMILARITY"
150 INPUT"ON A SCALE OF 0 TO 100% ";P
160 PRINT
170 A=LEN(A$)
180 FORJ=1TO25
190 READB$(J)
200 IFB$(J)="*"THEN460
210 B=LEN(B$(J))
220 IFA>BTHENB=A
230 FORM=1TOB
240 C=0
250 FORI=1TOM
260 K$=MID$(A$,B-M+I,1)
270 L$=MID$(B$(J),I,1)
280 IFK$=L$THENC=C+1
290 NEXTI
300 C=C+D
```

```
310 T=T+C
320 NEXTM
330 FORM=B+1TO2*B-1
340 C=0
350 FORI=1TO2*B-M
360 K$=MID$(A$,I,1)
370 L$=MID$(B$(J),M-B+I,1)
380 IFK$=L$THENC=C+1
390 NEXTI
400 C=C+D
410 T=T+C
420 NEXTM
430 X(J)=100*T/B+D
440 T=0
450 NEXTJ
460 FORK=1TOJ-1
470 IFX(K)>PTHENPRINTB$(K)
480 NEXTK
490 DATA"CADELLE","CADET","PICCADILLY"
500 DATA"DILL PICKLE","LADLE","LILAC"
510 DATA"ACADEMY","DILL","ACCLAIM","*"
520 END
```

Bargraph

6

With this program you enter the sales for each month. The program will then display the values in bargraph format.

```
100 REM BAR GRAPH
110 DIMD$(13),S(13)
120 PRINT"□"
130 DATAJAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SE
P,OCT,NOV,DEC
140 FORI=1TO12
150 READD$(I)
160 NEXTI
170 PRINT"ENTER NUMBER OF ITEMS SOLD"
180 PRINT"EACH MONTH !":PRINT
190 FORI=1TO12
200 PRINTD$(I);
210 INPUTE
220 GOTO400
230 S(I)=E
240 NEXTI
250 PRINT"□"
260 PRINT"            ITEMS SOLD IN 1984"
270 PRINT:PRINT
280 FORI=1TO12
290 PRINTD$(I);" ";
300 IFS(I)=0THEN340
310 FORJ=1TOS(I)
320 PRINT"*";
330 NEXTJ
340 PRINT
350 NEXTI
```

```
360 PRINT"     ------------------------------
-------"
370 PRINT"     I    I     I     I     I     I
 I     I"
380 PRINT"     1    5    10    15    20    25
30    35"
390 END
400 IFE>35THENPRINT"ONLY NUMBERS UP TO 35
!":GOTO200
410 GOTO230
```

Invoice Writing

7

The program listed below allows you to write invoices with your COMMODORE 64 computer.

The program is written for a special invoice sheet that contains a shipping label at the bottom. You have to enter the date, the first invoice number (which will be incremented automatically by the program with each invoice), the account number, the terms, and the customer's address. When it comes to entering the items sold, you only have to enter the item number. The program then will search for this item number and the matching description and the price. When you want to finish the invoice, the program will add up the prices, add the shipping cost, and deduct the discount (if so desire). The invoice will then be printed, including the shipping label. Your companys address has to be entered into lines 530 through 550 and 1300 through 1320 (we used our address for demonstration).

The products have to be stored in DATA statements at the end of the program, with item number, description, and price.

The discount (variable D) and the shipping cost (variable V) are calculated depending on the number of items sold. You may adjust that to your own needs by changing the numbers in lines 710 through 790.

ORIGINAL INVOICE

ELCOMP PUBLISHING INC.
53 REDROCK LN.
POMONA CA 91766

DATE: 12.12.1983

INVOICE NUMBER: 5679

5678 ACCOUNT NUMBER

SOLD TO:
MAGICOMP INC
65 SOUTH STREET
CHINO CA 91755

SHIP TO:
MAGICOMP INC
65 SOUTH STREET
CHINO CA 91755

OUR ORDER NO.	YOUR ORDER NO.	SLSMN.	TERMS	SHIPPED VIA	P	C	DATE SHIPPED
	3456	XX	PREPAID	FORWARDER			12.12.1983

QUANTITY ORDERED	QUANTITY SHIPPED		ITEM DESCRIPTION	UNIT PRICE	ITEM TOTAL
200	200	100	PRODUCT NO.1	9.95	1990.00
80	50	200	PRODUCT NO.2	19.80	990.00
20	20	400	PRODUCT NO.4	29.80	596.00
50	40	300	PRODUCT NO.3	49.00	1960.00
			40 %DISCOUNT= -		2214.40

THANK YOU FOR YOUR ORDER

NET AMOUNT	SALES TAX	FREIGHT	INVOICE TOTAL
3321.60	216.07	2.50	3540.17

REMARKS

From:

ELCOMP PUBLISHING, INC.
53 REDROCK LANE
POMONA CA 91766

To:

MAGICOMP INC
65 SOUTH STREET
CHINO CA 91755

```
100 REM C BY ELCOMP PUBLISHING INC. 1983
110 OPEN 1,4
180 PRINT"□"
```

```
190 INPUT"ENTER TAX RATE (%)";TR:TR=TR/100

200 INPUT"ENTER DATE";RD$
220 INPUT"ENTER FIRST INVOICE NO.";I1
250 INPUT"ENTER ACCOUNT NO. (0=END)";C1
260 IF C1=0 THEN 1600
270 SC=1:DC=1:D=0:V=0
280 INPUT"DISCOUNT YES(1) NO(0)";DC
290 INPUT"SHIPPING AUTOM. ADDED YES(1) NO(
0)";SC
300 IF SC=0 THEN INPUT"HOW MUCH";V
310 INPUT"CUSTOMERS ORDER NO.";CO$
320 INPUT"NAME OF CUSTOMER";S1$
340 INPUT"NUMBER AND STREET";S2$
360 INPUT"CITY,STATE,ZIP-CODE";S3$
370 PRINT
380 INPUT"1=30 DAYS NET,2=COD,3=PREPAID";T
E
390 IF TE=1 THEN TE$="30 DAYS NET"
400 IF TE=2 THEN TE$="C O D"
410 IF TE=3 THEN TE$="PREPAID"
420 PRINT:PRINT"1=FORWARDER,2=PARCEL SERVI
CE":INPUT"3=PARCEL POST";SV
430 IF SV=1 THEN SV$="FORWARDER"
440 IF SV=2 THEN SV$="PARCEL SERVICE"
450 IF SV=3 THEN SV$="PARCEL POST"
460 PRINT"□":PRINTS1$:PRINTS2$:PRINTS3$
470 PRINT:INPUT"SHIP TO SAME ADDRESS";Q$
480 IF Q$="Y" THEN 510
490 PRINT:INPUT"NAME";H1$:INPUT"NO.AND STR
.";H2$:INPUT"C.,ST.,ZIP";H3$
500 GOTO520
510 H1$=S1$:H2$=S2$:H3$=S3$
520 FOR Q=1 TO 9:PRINT#1:NEXT Q
530 PRINT#1,SPC(4);"ELCOMP PUBLISHING INC.
"
540 PRINT#1,SPC(4);"53 REDROCK LN.";SPC(41
);RD$
550 PRINT#1,SPC(4);"POMONA CA 91766"
560 PRINT#1:PRINT#1
570 PRINT#1,SPC(6);C1;SPC(50);I1
580 PRINT#1:PRINT#1
590 PRINT#1,SPC(6);S1$;SPC(41-LEN(S1$));H1
$
```

```
600 PRINT#1,SPC(6);S2$;SPC(41-LEN(S2$));H2
$
610 PRINT#1,SPC(6);S3$;SPC(41-LEN(S3$));H3
$
620 PRINT#1:PRINT#1:PRINT#1
630 PRINT#1:PRINT#1
640 PRINT#1,SPC(10);CO$;SPC(12-LEN(CO$));"
XX";SPC(3);TE$;
645 PRINT#1,SPC(17-LEN(TE$));SV$;SPC(20-LE
N(SV$));RD$
650 PRINT#1:PRINT#1:PRINT#1
660 PRINT"□":GOSUB 1130
670 GOSUB 830
680 GOTO 660
690 S1=I
700 IF DC=0 THEN 740
710 IF (S1>0) AND (S1<6) THEN D=.25
720 IF (S1>5) AND (S1<11) THEN D=.33
730 IF S1>10 THEN D=.4
740 IF V<>0 THEN 800
750 IF S1<15 THEN V=2
760 IF (S1>14) AND (S1<30) THEN V=1.25
770 IF (S1>29) AND (S1<50) THEN V=1.5
780 IF (S1>49) AND (S1<100) THEN V=2
790 IF S1>99 THEN V=2.5
800 I1=I1+1
810 R=INT(D*100+.5):R$=STR$(R)
820 GOTO 940
830 A=0:GOSUB 1410
840 G$=D$:L1=L
850 C=S1*0
860 A=C:GOSUB 1410
870 J$=STR$(N1):K$=STR$(S1):KK$=STR$(Z1)
880 J=LEN(J$):K=LEN(K$):KK=LEN(KK$)
890 PRINT#1,SPC(4-KK);Z1;
900 PRINT#1,SPC(6-K);S1;SPC(8);N1;SPC(6-J)
;E$;
910 PRINT#1,SPC(30-LEN(E$)-L1);G$;SPC(17-L
);D$
920 C=S1*0:T=T+C
930 RETURN
940 D1=D*T
950 D1=INT(D1*100+.5)/100
```

```
960 PRINT#1
970 A=D1:GOSUB 1410
980 PRINT#1,SPC(45-LEN(R$));R;SPC(2);"%DIS
COUNT= -";SPC(14-L);D$
990 FOR P=1 TO (18-ZS):PRINT#1:NEXT P
1000 PRINT#1,SPC(23);"THANK YOU FOR YOUR O
RDER"
1010 PRINT#1:PRINT#1:PRINT#1
1020 A=T-D1:GOSUB 1410
1030 G$=D$:L1=L
1040 A=V:GOSUB 1410
1050 H$=D$
1060 M1=(T-D1+V)*TR
1070 A=T-D1+M1+V:GOSUB 1410
1080 J$=D$:L2=L
1090 A=M1:GOSUB 1410
1100 PRINT#1,SPC(8-L1);G$;SPC(7-L);D$;SPC(
3);H$;SPC(50-L2);J$
1110 PRINT#1:PRINT#1:PRINT#1
1120 GOSUB 1290:I=0:T=0:GOTO 250
1130 INPUT"WHICH ITEM NO.";N1
1150 IF N1=0 THEN 690
1160 RESTORE
1170 READ N,E$,O
1180 IF N=0 THEN 1210
1190 IF N=N1 THEN 1230
1200 GOTO 1170
1210 PRINT"ITEM NO. NOT FOUND !"
1220 PRINT:PRINT:PRINT:GOTO 1130
1230 INPUT"ENTER QUANTITY ORDERED ";Z1
1250 INPUT"ENTER QUANTITY SHIPPED ";S1
1270 I=I+S1:ZS=ZS+1
1280 RETURN
1290 PRINT#1:PRINT#1:PRINT#1:PRINT#1
1300 PRINT#1,SPC(5);"ELCOMP PUBLISHING, IN
C."
1310 PRINT#1,SPC(5);"53 REDROCK LANE"
1320 PRINT#1,SPC(5);"POMONA CA 91766"
1330 FOR ZV=1 TO 8:PRINT#1
1340 NEXT ZV
1350 PRINT#1,SPC(5);H1$
1360 PRINT#1,SPC(5);H2$
1370 PRINT#1,SPC(5);H3$
```

```
1380 PRINT"□"
1390 Z8=0:S1=0:T=0:I=0
1400 RETURN
1410 K1$="0"
1420 K2$=".00"
1430 B=INT(A*100+.5)/100
1440 D1$=STR$(B)
1450 D0=B*10
1460 D2=INT(D0)
1470 D3=D0-D2
1480 IF D3<.09 THEN 1510
1490 D$=D1$
1500 GOTO 1570
1510 D4=INT(B)
1520 D5=B-D4
1530 IF D5<.09 THEN 1560
1540 D$=D1$+K1$
1550 GOTO 1570
1560 D$=D1$+K2$
1570 L=LEN(D$)
1580 RETURN
1600 CLOSE1:END
2000 REM DATA STATEMENTS START HERE
2010 DATA 100,PRODUCT NO.1,9.95
2020 DATA 200,PRODUCT NO.2,19.8
2030 DATA 300,PRODUCT NO.3,49
2040 DATA 400,PRODUCT NO.4,29.80
2050 DATA 0,0,0
2060 REM LAST STATEMENT HAS TO CONTAIN 0,0
,0
```

USEFUL HINT

Do not use any punctuation during input of customers addresses.

This version of INVOICE WRITING was tested with the following hardware:

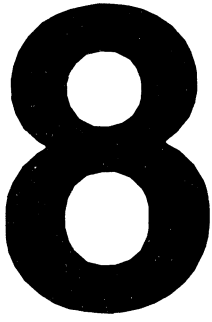
1 Commodore 64

1 VC 1525 printer (10 characters per inch)

To change the program to work with another printer(other than 10 characters per inch) please check the following line numbers:

line 910-980 and line 530-645

Dateblock



The following program allows you to use your computer as a dateblock. The dates can be saved on disk or cassette. When you want to check for dates, you may by month or by a certain period of time. You also may check for a date by entering a certain text to be searched for. The text for each date can be up to 32 characters long. The name of the sequential data file where the dates are stored is 'DATES'.

The program also has a calendar option which allows you to determine the day of the week and the number in the year for any date.

```
50 PRINT "■"
52 REM "*** COPYRIGHT ELCOMP PUBLISHING, I
NC., ***"
54 REM "*** ALL RIGHTS RESERVED ***"
90 PRINT:PRINT:POKE53281,15
100 PRINT "■THIS PROGRAM SAVES IMPORTANT D
ATES."
102 PRINT
105 PRINT "YOU CAN CHECK FOR DATES BY A PE
RIOD"
110 PRINT "OF TIME, OR BY TEXT"
115 PRINT
140 PRINT "IMPLEMENTED IN THE PROGRAM IS A
 CALENDAR"
146 PRINT:PRINT "PRESS ANY KEY TO CONTINUE
 !"
```

```
148 GET TT$:IF TT$="" GOTO 148
1000 DIM SS$(100),MD(12),MN$(12),WT$(6),GD
$(2)
1002 DIM ZA$(2),D$(2)
1010 FOR I=1 TO 12:READ MN$(I):READ MD(I):
NEXT
1012 FOR I=0 TO 6:READ WT$(I):NEXT
1014 READ GD$(1):READ GD$(2)
1100 PRINT "█"
1102 PRINT "████***** DATE BLOCK *****"

1140 PRINT:PRINT
1142 PRINT "███1██ - CALENDAR"
1160 PRINT:PRINT "███2██ - READ DATES FROM
 DISK OR TAPE"
1180 PRINT:PRINT "███3██ - ENTER/DELETE DA
TES"
1200 PRINT:PRINT "███4██ - CHECK DATES"
1220 PRINT:PRINT "███5██ - SAVE DATES ON D
ISK OR TAPE"
1240 PRINT:PRINT:PRINT
1242 PRINT "█(!!! DON'T FORGET TO SAVE DAT
ES, BEFORE"
1244 PRINT "TURNING OFF THE COMPUTER !!!)█
"
1300 GOSUB 50100
1301 IF A=0 THEN PRINT "█DON'T ENTER '0' H
ERE":GOTO 1300
1302 ON A GOTO 5000,10000,20000,30000,4000
0
5000 PRINT "█"
5002 PRINT "██***** CALENDAR *****█"
5040 PRINT:PRINT:PRINT
5042 PRINT "MONTH,DAY,YEAR":PRINT "FOR EXA
MPLE  -->? 11,3,1982"
5043 PRINT:PRINT "(0,0,0 TO QUIT)":PRINT
5044 GOSUB 53000
5046 ON A GOTO 5040,1100
6240 PRINT"█":PRINT
6242 PRINT "█DATE:█";STR$(T);"TH ";MN$(M);
J
6260 PRINT
6262 PRINT STR$(TN);"█TH DAY OF THE YEAR"
```

```
6280 PRINT
6282 PRINT "DAY OF THE WEEK: ";WT$(QT)
6300 PRINT"■":GOSUB56000:PRINT"■":GOTO 504
0
10000 PRINT "■":PRINT
10002 PRINT "■***** READ DATES FROM TAPE O
R DISK *****"
10010 PRINT:PRINT:INPUT"TAPE OR DISK (T/D)
?";IN$
10012 IFIN$="T"THEN10021
10014 IFIN$<>"D"THEN10010
10015 PRINT:PRINT:GOSUB50000:IFA$="X"THEN1
100
10016 OPEN1,8,2,"DATES,S,R"
10018 FORI=1TO100:INPUT#1,SS$(I)
10019 IFSS$(I)=""THENI=100
10020 NEXTI:CLOSE1:GOTO10240
10021 PRINT:PRINT
10022 PRINT "PLACE DATA TAPE IN RECORDER"
10100 PRINT
10102 GOSUB 50000:IF A$="X" THEN 1100
10180 OPEN1,1,0,"DATES"
10182 FOR I=1 TO 100
10184 INPUT#1,SS$(I)
10186 IF SS$(I)="" THEN I=100
10188 NEXT I
10190 CLOSE1
10240 PRINT
10242 PRINT "■READY■"
10244 GOSUB 56000:GOTO 1100
20000 PRINT "■"
20002 PRINT "■***** ENTER/DELETE DATES ***
**"
20140 PRINT:PRINT
20142 PRINT "■■1■ - ENTER DATES"
20150 PRINT:PRINT "■■2■ - DELETE DATES"
20152 PRINT:PRINT "(QUIT WITH 0)"
20160 IF SS$(100)="" THEN 20180
20162 PRINT:PRINT "■    *** MEMORY FULL ***
*"
20180 GOSUB 50100:IF A=0 GOTO 1100
20200 ON A GOTO 25000,28000
20220 GOTO 20160
```

```
22406 GOTO 33000
25000 IF SS$(100)="" GOTO 25050
25002 GOTO 20000
25050 TX$="":PRINT "":PRINT
25052 PRINT TAB(9);"- ENTER DATES -"
25100 PRINT
25102 PRINT "MONTH,DAY,YEAR":PRINT "FOR EX
AMPLE -->? 11,3,1982"
25103 PRINT:PRINT "(QUIT WITH 0,0,0)"
25104 GOSUB 53000
25106 ON A GOTO 25100,20000
25200 PRINT ""
25202 PRINT "CURRENT DATES FOR :"
25204 PRINT "(";TN;"> ";WT$(QT);" ";STR
$(T);"/";MN$(M);J
25238 PRINT
25240 PRINT " - NONE -";
25300 FOR I=1 TO 100
25302 IF SS$(I)="" THEN I=100:GOTO 25360
25340 IF LEFT$(SS$(I),8)=D$ THEN HH$=SS$(I
):GOSUB 52000
25360 NEXT
25500 PRINT:PRINT:PRINT "NEW DATE :"
25502 PRINT:PRINT "SEPARATE HOURS AND MINU
TES BY DECIMAL!"
25504 PRINT "(EXAMPLE: -->? 7.14)"
25509 PRINT:PRINT "QUIT WITH 99"
25520 FOR I1=1 TO 2
25540 IF I1=1 THEN PRINT:PRINT"FROM -->";
25542 IF I1=2 THEN PRINT"TO   -->";
25550 INPUTZA:IF(ZA=99)AND(I1=1)THEN25000
25555 IF(ZA=99)AND(I1=2)THENZA$(2)="....":
GOTO 25600
25560 IFZA<00RZA>24THEN25568
25562 IFINT(100*(ZA-INT(ZA)))>59THEN25568
25564 GOTO25570
25568 GOSUB50200:PRINT:GOTO 25540
25570 ZA$(I1)="000"+RIGHT$(STR$(ZA*100),LE
N(STR$(ZA*100))-1)
25580 IF LEN(ZA$(I1))>7 THEN GOSUB 50200:P
RINT:GOTO 25540
25590 ZA$(I1)=RIGHT$(ZA$(I1),4)
25592 NEXT I1
```

```
25594 IF VAL(ZA$(2))<=VAL(ZA$(1)) THEN GOS
UB 50200:PRINT:GOTO 25520
25600 T$="":PRINT:PRINT "TEXT (32 CHARACTE
RS MAX.):"
25602 INPUT "-->";TX$
25604 IF TX$="" THEN TX$=" - NO TEXT -"
25640 TX$=TX$+"
     ":TX$=LEFT$(TX$,32)
25700 HH$=D$+ZA$(1)+ZA$(2)+TX$
25702 PRINT "■NEW DATE :":PRINT
25704 GOSUB 52000:PRINT:PRINT "■CORRECT ?"

25706 GOSUB 50000:IF A$="X" GOTO 25200
25960 FOR I=100 TO 1 STEP -1
25962 IF SS$(I)="" THEN NEXT I:GOTO 26000
25980 IF VAL(LEFT$(SS$(I),8))>VAL(LEFT$(HH
$,8)) THEN SS$(I+1)=SS$(I):NEXT I
26000 SS$(I+1)=HH$:GOTO 25000
28000 IF SS$(1)="" THEN 20000
28020 PRINT "■":PRINT
28022 PRINT TAB(9);"■ DELETE DATES -"
28040 ZZ=0:PRINT:FOR I=1 TO 100:IF SS$(I)=
"" THEN 29000
28060 PRINT STR$(I);") ";
28062 HH$=SS$(I):GOSUB 51900
28064 IF I/10=INT(I/10) THEN 29000
28100 NEXT I:GOTO 20000
29000 PRINT
29002 PRINT "■■■1■■■ - ONE DATE"
29004 PRINT:PRINT "■■■2■■■ - EVERYTHING UP
TO ONE DATE"
29006 PRINT:PRINT"'X' QUITS !":PRINT
29010 PRINT:INPUTA$:IF A$="X" THEN 20000
29020 IF A$="2" THEN 29500
29022 IF A$="1" THEN 29040
29024 GOTO 28100
29040 LL=0:PRINT:PRINT"ENTER NUMBER OF DAT
E !"
29042 INPUT "-->";LL
29044 IF LL=0ORSS$(LL)="" THEN 28100
29060 HH$=SS$(LL):PRINT "■":GOSUB 51900:SS
$(LL)=""
29070 FOR I1=LL+1 TO 100
```

```
29072 SS$(I1-1)=SS$(I1)
29074 NEXT I1
29080 PRINT
29082 PRINT "DATE ERASED"
29084 GOSUB50000:IFA$="X"THEN20000
29100 PRINT:GOTO 28100
29500 PRINT
29502 PRINT "DELETE UP TO WHERE (INCL.)"
29504 GOSUB 53000
29506 ON A GOTO 29900,28100
29600 PRINT
29602 PRINT "DELETE UP TO AND INCLUDING"
29604 PRINT WT$(QT);",";STR$(T);"/";MN$(M)
;J
29606 GOSUB 50000:IF A$="X" GOTO 29000
29640 I1=0:FOR I=1 TO 100
29642 IF SS$(I)="" GOTO 29690
29660 IF VAL(LEFT$(SS$(I),8))<=VAL(D$)THEN
 SS$(I)="":I1=I1+1
29680 NEXT
29690 IF I1=0 GOTO 20000
29700 FOR I=I1+1 TO 100
29702 SS$(I-I1)=SS$(I)
29704 NEXT
29720 FOR I=100-I1+1 TO 100
29722 SS$(I)=""
29724 NEXT:GOTO 20000
29900 GOTO 29500
30000 IF SS$(1)="" GOTO 30004
30002 GOTO 30040
30004 PRINT:PRINT
30006 PRINT "■NO DATES EXISTING !■"
30008 PRINT:PRINT "PRESS ANY KEY !"
30010 GET TS$:IF TS$="" GOTO 30010
30012 GOTO 1100
30040 PRINT "■"
30042 PRINT "■****** CHECK DATES ******■"
30100 PRINT
30102 PRINT "■■■1■■ - MONTHLY SURVEY"
30120 PRINT:PRINT "■■■2■■ - CALENDAR DATES
"
30140 PRINT:PRINT "■■■3■■ - TEXT"
30142 PRINT:PRINT "(ENTER '0' TO QUIT !"
```

```
30200 A=0:GOSUB 50100:IF A=0 GOTO 1100
30240 ON A GOTO 30300,31000,33000
30260 GOTO 30000
30300 PRINT "■"
30302 PRINT TAB(8);"■← MONTHLY SURVEY -■"
30310 T$="1":M$=""
30312 PRINT:PRINT "ENTER MONTH AND YEAR !"

30314 PRINT "(EXAMPLE -->?11,1982 )"
30315 PRINT:PRINT "0,0 TO QUIT"
30316 PRINT:INPUT "-->";M$,J$
30318 IF M$="0" THEN 30000
30320 GOSUB 53020
30322 IF A=1 THEN 30310
30340 JM$=J$+M$
30360 PRINT "■"
30362 PRINT "■   -";MN$(M);"  ";J;"-■"
30364 PRINT
30500 GS=0:ZZ=1:FOR I=1 TO 100
30502 IF SS$(I)="" THEN 30900
30540 IF LEFT$(SS$(I),6)=JM$ THEN 30560
30542 GOTO30900
30560 KK$=SS$(I):GS=GS+1
30562 PRINT"■";MID$(KK$,5,2);"/";MID$(KK$,
7,2);" ";LEFT$(KK$,4);
30564 PRINT " (";MID$(KK$,9,2);".";MID$(KK
$,11,2);"-";
30566 PRINT MID$(KK$,13,2);".";MID$(KK$,15
,2);")"
30568 PRINT TAB(5);MID$(KK$,17,32)
30569 ZZ=ZZ+1
30570 IF ZZ<>11 THEN 30900
30571 ZZ=0
30572 PRINT "■PRESS ANY KEY TO CONTINUE !"
;
30574 GET TS$:IF TS$="" THEN 30574
30900 NEXT I
30902 PRINT:IF GS=0 THEN PRINT:PRINT"■NO D
ATES FOR THIS MONTH !"
30904 PRINT:PRINT "■PRESS ANY KEY !";
30906 GET TS$:IF TS$="" GOTO 30906
30908 GOTO 30300
31000 PRINT
```

```
31002 PRINT "□PERIOD WISHED :"
31100 FOR I=1 TO 2
31140 PRINT GD$(I)
31141 PRINT "FOR EXAMPLE -->? 12,24,1982"
31142 GOSUB 53000
31240 ON A GOTO 31140,31320
31260 D$(I)=D$:GOTO 31400
31320 IF I=1 THEN D$(1)="00000000"
31322 IF I=2 THEN D$(2)="99999999"
31400 NEXT
31440 ZZ=1:GS=0:FOR I=1 TO 100
31442 IF SS$(I)="" GOTO 31520
31478 IF ZZ=1 THEN PRINT
31480 IF VAL(LEFT$(SS$(I),8))>=VAL(D$(1))
GOTO 31490
31482 GOTO 31500
31490 IF VAL(LEFT$(SS$(I),8))<=VAL(D$(2))
GOTO 31495
31492 GOTO 31500
31495 GOSUB 51900
31500 NEXT
31520 IF GS=0 THEN PRINT "■NO DATES FOR TH
IS PERIOD"
31521 PRINT:GOSUB 50000
31522 IF A$="X" GOTO 30000
31524 PRINT "□":GOTO 31000
33000 PRINT
33002 ZZ=0:PRINT "PLEASE ENTER WORD TO BE
SEARCHED FOR"
33004 INPUT "-->";TX$
33040 PRINT"□"
33042 FOR I=1 TO 100
33044 IF SS$(I)="" GOTO 33400
33100 FOR I1=1 TO 32-LEN(TX$)+1
33102 IF TX$=MID$(SS$(I),I1+16,LEN(TX$))TH
EN HH$=SS$(I):GOSUB 51900:GOTO 33160
33140 NEXT I1
33160 NEXT I
33400 PRINT
33402 GOSUB 50000
33404 IF A$="X" GOTO 30000
33406 GOTO 33000
40000 IF SS$(1)="" THEN 40004
```

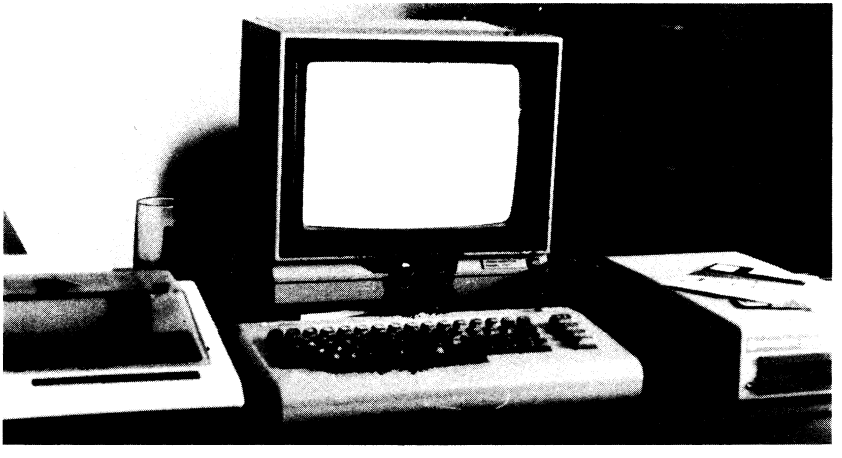
```
40002 GOTO 40060
40004 PRINT ■
40006 PRINT "■DOESN'T MAKE SENSE,"
40008 PRINT "NO DATA EXISTING■"
40010 GOSUB56000:GOTO 1100
40060 PRINT "□":PRINT
40062 PRINT "■***** SAVE DATES ON TAPE OR D
ISK ****"
40065 PRINT:PRINT:INPUT" TAPE OR DISK (T/D
) ";IN$
40070 IFIN$="T"THEN40100
40075 IFIN$<>"D"THEN40065
40080 PRINT:PRINT:GOSUB50000:IFA$="X"THEN1
100
40085 OPEN1,8,2,"@0:DATES,S,W"
40090 FORI=1TO100:IFSS$(I)=""THENI=100:GOT
O40095
40092 PRINT#1,SS$(I)
40095 NEXTI:CLOSE1:GOTO40500
40100 PRINT:PRINT
40102 PRINT "PLACE DATA TAPE IN RECORDER"
40300 PRINT
40302 GOSUB 50000:IF A$="X" THEN 1100
40460 OPEN1,1,1,"DATES"
40462 FOR I=1 TO 100
40464 PRINT#1,SS$(I)
40466 IF SS$(I)="" THEN I=100
40468 NEXT I
40470 CLOSE1
40500 PRINT:PRINT "■READY■"
40502 PRINT:GOSUB 56000:GOTO 1100
40504 PRINT
50000 GET A$
50010 PRINT "■PRESS ANY KEY TO CONTINUE !"

50012 PRINT " TO QUIT PRESS 'X'.■"
50020 GET A$:IF A$="" GOTO 50020
50040 RETURN
50100 A=0:PRINT
50102 INPUT "PLEASE SELECT OPTION  -->";A
50104 IF ABS(A)<>A THEN PRINT "■POSITIVE N
UMBERS PLEASE !!!":GOTO 50102
50106 IF INT(A)<>A THEN PRINT "■INTEGER NU
```

color magnenta type ⟨CTRL⟩–⟨3⟩

⟨Commodore key⟩–⟨4⟩

```
MBERS PLEASE !!!":GOTO 50102
50108 IF A<0ORA>5 THEN PRINT "■WRONG NUMBE
R !!!":GOTO 50102
50120 RETURN
50200 PRINT "■WRONG ENTRY - PLEASE REPEAT
!":RETURN
50500 MD(2)=28:IF J/400=INT(J/400) THEN MD
(2)=29:RETURN
50520 IF J/100=INT(J/100) THENRETURN
50540 IF J/4=INT(J/4) THEN MD(2)=29
50560 RETURN
51000 TN=T:FOR I2=0 TO M-1:TN=TN+MD(I2):NE
XT
51500 J0=J-1:QV=J+INT(J0/4)-INT(J0/100)+IN
T(J0/400)+TN-2
51520 QT=QV-7*INT(QV/7)
51522 RETURN
51900 KK$=SS$(I):GS=GS+1
51902 PRINT"■";MID$(KK$,5,2);"/";MID$(KK$,
7,2);" ";LEFT$(KK$,4);
51904 PRINT " (";MID$(KK$,9,2);".";MID$(KK
$,11,2);"-";
51906 PRINT MID$(KK$,13,2);".";MID$(KK$,15
,2);")"
51908 PRINT TAB(5);MID$(KK$,17,32)
51910 ZZ=ZZ+1
51912 IF ZZ<>11 THEN RETURN
51914 ZZ=0
51916 PRINT:PRINT "■PRESS ANY KEY !"
51918 GET TS$:IF TS$="" THEN 51918
51920 RETURN
52000 PRINT"■";MID$(HH$,9,2);".";MID$(HH$,
11,2);"-";
52002 PRINT MID$(HH$,13,2);".";MID$(HH$,15
,2);"  ";
52004 PRINT RIGHT$(HH$,32)
52010 RETURN
53000 A=2:PRINT
53002 INPUT "-->";M$,T$,J$
53004 IF T$="0" THEN RETURN
53020 A=1
53022 T$=RIGHT$("0"+T$,2):M$=RIGHT$("0"+M$
,2)
```

```
53024 D$=J$+M$+T$
53026 T=VAL(T$):M=VAL(M$):J=VAL(J$)
53028 IF M<1 OR M>12 THENGOSUB 50200:RETUR
N
53040 GOSUB 50500:GOSUB 51000
53042 IFT>MD(M)ORLEN(D$)<>8THENGOSUB50200:
RETURN
53080 A=0:RETURN
55000 DATA JANUARY,31,FEBRUARY,0,MARCH,31,
APRIL,30,MAY,31,JUNE,30
55001 DATA JULY,31,AUGUST,31,SEPTEMBER,30,
OCTOBER,31,NOVEMBER,30,DECEMBER,31
55020 DATA MONDAY,TUESDAY,WEDNESDAY,THURSD
AY
55021 DATAFRIDAY,SATURDAY,SUNDAY
55040 DATA"FIRST DATE (MONTH,DAY,YEAR)"
55041 DATA"LAST DATE  (MONTH,DAY,YEAR)"
56000 PRINT:PRINT"■■PRESS ANY KEY !■"
56010 GETTS$:IFTS$=""THEN56010
56020 RETURN
```



Commodore 64

NOTES

Economic Order Quantity

9

To determine the "EOQ", this program calculates the most economical amount of item that should be ordered based upon annual demand in units, cost of placing an order to include clerical preparation and production set-up and holding cost per unit to include storage, insurance and depreciation.

Reorder point :
When the number of units on hand gets down to this amount, it is time to reorder. It is calculated on weekly demand and the number of weeks required to receive an order.

```
100 REM ECONOMIC ORDER QUANTITY
110 PRINT"■■"
120 PRINT"  ***** ECONOMIC ORDER QUANTITY
*****":PRINT:PRINT
130 INPUT" ANNUAL DEMAND (UNITS)       ";D
140 INPUT" COST OF PLACING AN ORDER    ";S
150 INPUT" HOLDING COST PER UNIT       ";H
160 PRINT
170 INPUT" NO. WEEKS TO RECEIVE ORDER ";L
180 INPUT" CURRENT WEEKLY DEMAND       ";D1

190 Q=SQR(2*D*S/H)
200 R=D1*L
210 PRINT:PRINT:PRINT                    (CTRL)-(6)
220 PRINT" ECONOMIC ORDER QUANTITY : ■■";I
NT(Q+.5);"■■UNITS"
230 PRINT                (CTRL)-(2)
```

```
240 PRINT" REORDER LEVEL              : ■■";I
NT(R+.5);"■■UNITS"
250 PRINT:PRINT:PRINT:PRINT
260 PRINT"        ■■PRESS ANY KEY TO CONTINU
E"
270 GETA$:IFA$=""THEN270
280 GOTO110
```

Calendar 10

This program allows you to print a calendar for any month or year past 1582 on the screen or on the printer. You can get the calendar for a whole year (hit space bar after each month to continue), or for certain months (e. g. enter "1-3" if you want a calendar for the months of January through March).

```
2 POKE53281,3:PRINT"■■■■■■■"
5 PRINT"    ■ ***************************************
***
7 PRINT"      **
**
10 PRINT"      **        ■ C A L E N D A R■
   **
15 PRINT"      **
 **
25 PRINT"      ***************************************
***
30 FORI=1TO2000:NEXT:PRINT"■":POKE53281,15

40 PRINT"THIS PROGRAM PRINTS A CALENDAR  F
OR ANY YEAR PAST 1582"
45 PRINT:PRINT"THE PROGRAM STOPS AFTER EAC
H MONTH.
47 PRINT"PRESS ANY KEY TO CONTINUE"
50 PRINT:PRINT:PRINT"ENTER THE YEAR NOW "
52 PRINT:PRINT:PRINT
58 PRINT:PRINT:PRINT
60 INPUT"YEAR";JZ$
```

```
62 PRINT"■■■■■■FROM MONTH TO MONTH? (13=ALL
 MONTHS)
64 INPUTMO$
65 MA=VAL(MO$):IFMA=13THENMA=1:ME=12:GOTO7
0
66 FORI=1TOLEN(MO$):IFMID$(MO$,I,1)="-"THE
N68
67 NEXTI
68 ME=VAL(MID$(MO$,I+1,2))
70 JZ=VAL(JZ$)-1
72 IFMA>METHENS5=-1:GOTO75
73 S5=1
75 IFJZ<=1581THEN77
76 GOTO80
77 PRINT"■THIS PROGRAM ONLY WORK WITH DATE
S PAST  1582 !"
78 PRINT"PLEASE ENTER A DIFFERENT YEAR !":
PRINT:PRINT:PRINT:GOTO60
80 S=37+JZ+INT(JZ/4)-INT(JZ/100)+INT(JZ/40
0)
90 S=INT((S/7-INT(S/7))*7+0.5)-1
100 IFS=-1THENS=6
110 DIMT(126),M(12),M$(12)
115 S2=S
120 DATA31,28,31,30,31,30,31,31,30,31,30,3
1
130 FORI=1TO12:READM(I):NEXTI
135 FORI=1TO12:READM$(I):NEXTI
140 J=JZ+1:IFINT(J/4)-J/4<>0THEN190
145 IFINT(J/100)-J/100<>0ORINT(J/400)-J/40
0=0THENM(2)=29
190 IFMA=1THEN230
200 S4=0:FORI=1TOMA-1:S4=S4+M(I):NEXT
210 S4=S4+S:S3=S4-7*INT(S4/7)
220 S=S3
230 PRINT"ON SCREEN OR PRINTER  (S/P)?"
235 GETF$:IFF$=""THEN235
240 IFF$="P"THENOPEN4,4:CMD4
270 PRINT"■"
280 DATA"* ■JANUARY■ *","  ■EBRUARY■ *","*
* MARCH **","** APRIL **"
290 DATA"*** ■AY■ ***","** ■JUNE■ ***","*
* JULY ***","* AUGUST **"
```

```
300 DATA" ■SEPTEMBER■ ","* ■OCTOBER■ *","
NOVEMBER *"," DECEMBER *"
310 B$(1)="  ■■                          *":B$(2)=
"  ■SU MO TU WE TH FR SA"
320 B$(3)="  ■**********************":PRINT:
PRINT
330 FORK=MATOMESTEPS5:PRINT"■■■■■■■■■■■■■■■■":
IFF$="D"THENPRINT:PRINT
340 PRINT"  *****"; M$(K); "****";
350 PRINT:PRINT:PRINTTAB(10);JZ$
370 FORI=1TO3:PRINTB$(I)
400 NEXTI
410 FORJ=0TO0:MO=K:D=0:V=J*7
420 FORWT=1TO7
430 IFD>=M(MO)THENS=WT-1:NEXTJ:GOTO470
440 D=D+1:T(WT+S+V)=D
450 IFWT+S>=7THENS=0:V=V+21:GOTO420
460 NEXTWT
470 Z=1
480 FORI=1TO3:PRINT"  ";  :FORJ=1TO7
490 IFT(Z)=0THENPRINT"   ";  :GOTO510
500 PRINT"■";RIGHT$(STR$(T(Z)),2);" ■";
510 Z=Z+1
520 IFZ>126THEN550
530 NEXTJ:IFI=3THENPRINT:GOTO480
540 PRINT"      ";  :NEXTI
550 FORI=1TO126:T(I)=0:NEXTI
555 IFF$="D"THEN562
560 GETAA$:IFAA$=""THEN560
562 IFS5=-1THENGOSUB1000
570 NEXTK:CLOSE4,4
580 PRINT:PRINT:INPUT"ANOTHER YEAR ?  (Y/N
)";F$
590 IFF$="Y"THENCLR:PRINT"■":GOTO60
600 PRINT"■":PRINT"TILL NEXT TIME !"
610 PRINT"■■■■■■■■BYE !!!":END
1000 IFK=2THENS=S2:RETURN
1010 S4=0:FORI=1TOK-2:S4=S4+M(I):NEXT
1020 S4=S4+S2:S3=S4-7*INT(S4/7):S=S3:RETUR
N
```

NOTES

Bubblesort

11

The following is a program that brings strings in alphabetical order. The number of strings and the strings have to be entered. The program can easily be modified, so that the strings are read from DATA statements or from a sequential file.

```
10 REM BUBBLESORT FOR STRINGS
20 INPUT"■■■ENTER NUMBER OF ITEMS : ";AN
30 DIMA$(AN)
40 PRINT"■ENTER STRINGS :":PRINT
45 FORI=1TOAN
50 PRINTI:INPUT"■■■■";A$(I)
60 NEXTI
70 REM ******BUBBLESORT******
100 FORI=2TOAN
110 FORJ=AN TOISTEP-1
120 IFA$(J-1)<A$(J)THEN160
130 X$=A$(J-1)
140 A$(J-1)=A$(J)
150 A$(J)=X$
160 NEXTJ,I
200 REM ******OUTPUT*********
210 PRINT"■"
220 FORI=1TOAN
230 PRINTI;A$(I)
240 NEXT
```

NOTES

Keyword 12

With this program you have the following options :

1. Read data on disk or cassette.

2. Write data on disk or cassette.

3. New entry. First you have to enter the keyword (index, up to 30 characters). Next enter the text belonging with that keyword (up to 254 characters).

The number of characters used is displayed in the top left corner. To delete, use the DEL key. To delete the whole entry, press the CLR/HOME key. To terminate the entry press the left arrow key.

4. Delete entry. The keyword and the entry are erased (if existing).

5. Search for keyword. You can search for all keywords with "@", or for a certain keyword, by entering that particular word. After the keyword is found you have the following options :

M=back to menu
E=show entry belonging to that keyword
C=continue search
P=print key-word and entry on printer.

6. Go through indexes. Use the cursor up and cursor down keys to go forward or backward.

7. Print all keywords and text on printer.

```
2 REM KEY-WORD
4 REM BY ELCOMP PUBLISHING, INC.
10 PRINT"":POKE53281,12
20 PRINT"K E Y - W
O R D"
40 FORI=1TO2000:NEXT
50 DIMNA$(100),EI$(100),LI(100),RE(100),S(
50)
60 PRINT"":POKE53281,15
70 PRINT"MENUE:"
80 PRINT:PRINT"1 LOAD DATA"
90 PRINT" 2 STORE DATA"
100 PRINT" 3 NEW ENTRY"
110 PRINT" 4 DELETE ENTRY"
120 PRINT" 5 SEARCH FOR WORD"
130 PRINT" 6 GO THROUGH FILE"
140 PRINT" 7 PRINT DATA"
150 GETA$:IFA$=""THEN150
160 A=VAL(A$):IFA=0ORA>7THEN150
170 ONAGOTO500,1000,1500,2000,2500,3000,35
00
500 POKE55657,5
510 PRINT:INPUT"CASSETTE/DISKETTE (C/D) ";
SP$
520 PRINT:INPUT"FILENAME";N$
530 IFSP$="C"THENOPEN1,1,0,N$:GOTO560
540 IFSP$="D"THENOPEN1,8,2,N$+",S,R":GOTO5
60
550 GOTO510
560 INPUT#1,HI:INPUT#1,FR:INPUT#1,PO
570 IFFR=0THEN590
580 FORI=1TOFR:INPUT#1,S(I):NEXT
590 FORI=1TOHI:INPUT#1,NA$(I):INPUT#1,LE
592 IFLE=0THEN596
594 FORK=1TOLE:GET#1,A$:EI$(I)=EI$(I)+A$:N
EXTK
596 INPUT#1,LI(I):INPUT#1,RE(I):NEXTI
600 CLOSE1:POKE55657,2:GOTO60
1000 POKE55697,5
1010 PRINT:INPUT"CASSETTE/DISKETTE (C/D) "
;SP$
1020 PRINT:INPUT"FILENAME";N$
1030 IFSP$="C"THENOPEN1,1,1,N$:GOTO1060
```

```
1040 IFSP$="D"THENOPEN1,8,2,N$+",S,W":GOTO
1060
1050 GOTO1010
1060 PRINT#1,HI:PRINT#1,FR:PRINT#1,PO
1070 IFFR=0THEN1090
1080 FORI=1TOFR:PRINT#1,S(I):NEXT
1090 FORI=1TOHI:PRINT#1,NA$(I):PRINT#1,LEN
(EI$(I)):PRINT#1,EI$(I):PRINT#1,LI(I)
1095 PRINT#1,RE(I):NEXT
1100 CLOSE1:POKE55697,2:GOTO60
1500 IFFR=0THEN1508
1502 LA=S(FR):FR=FR-1:GOTO1510
1508 HI=HI+1:LA=HI
1510 EI$(LA)="":A$=""
1515 PRINT"■■■■■■■■■KEY-WORD :■"
1520 PRINT:INPUTNA$(LA)
1522 IFLEN(NA$(LA))>30THEN1515
1525 PRINT"■■■■■■■■■■■■■INTRAG:■":GOTO1573
1535 GETA$:IFA$=""THEN1535
1540 IFPEEK(203)=7ORPEEK(203)=2THEN1535
1545 IFPEEK(203)=57THEN1600
1550 IFA$<>CHR$(19)THEN1560
1555 EI$(LA)="":CR(LA)=0:GOTO1525
1560 IFA$<>CHR$(20)THEN1573
1570 IFEL>0THENPRINT"■■■"EI$(LA);"  ":EI$(
LA)=LEFT$(EI$(LA),EL-1)
1572 GOTO1577
1573 PRINT"■■■"EI$(LA);"  "
1575 EI$(LA)=EI$(LA)+A$
1577 EL=LEN(EI$(LA))
1580 PRINT"■    ■"EL:PRINT"■■■"EI$(LA);"■
  "
1590 IFEL>253THEN1570
1595 GOTO1535
1600 IFPO=0THENPO=1:LI(1)=1:RE(1)=1:GOTO60

1605 IFPO=0THENPO=1:LI(1)=1:RE(1)=1:GOTO60

1610 IFNA$(LA)>NA$(PO)THEN1630
1620 RE(LA)=PO:LI(LA)=LI(PO):RE(LI(PO))=LA
:LI(PO)=LA:PO=LA:GOTO60
1630 IFNA$(LA)<NA$(LI(PO))THEN1650
1640 RE(LA)=PO:LI(LA)=LI(PO):RE(LI(PO))=LA
```

```
:LI(PO)=LA:GOTO60
1650 SE=PO
1660 IF(NA$(SE)<NA$(LA))AND(NA$(LA)<NA$(RE
(SE)))THEN1680
1670 SE=RE(SE):GOTO1660
1680 LI(LA)=SE:RE(LA)=RE(SE):LI(RE(SE))=LA
:RE(SE)=LA:GOTO60
2000 PRINT"DELETE WHICH WORD ?"
2010 INPUTSE$
2050 SE=PO
2060 IFSE$=NA$(SE)THEN2100
2070 IFRE(SE)=POTHENPRINT"WORD NOT FO
UND!":GOTO70
2080 SE=RE(SE):GOTO2060
2100 LI(RE(SE))=LI(SE):RE(LI(SE))=RE(SE):I
FSE=POTHENPO=RE(SE)
2105 PRINT"OK ";SE$;" ERASED"
2110 FR=FR+1
2120 S(FR)=SE:GOTO70
2500 NA=0:PRINT"SEARCH FOR WHICH WOR
D ? "
2510 INPUTSE$
2520 SE=PO
2530 IFSE$="@"THEN2800
2535 IFSE$=MID$(NA$(SE),1,LEN(SE$))THENNA=
NA+1:GOTO2800
2540 IFRE(SE)=POTHEN2560
2550 SE=RE(SE):GOTO2530
2560 IFSE$<>"@"ANDNA=0THENPRINT"WORD NOT
 FOUND !":GOTO70
2570 GOTO60
2800 PRINT"":PRINT"";SE;NA$(SE)

2820 PRINT"CONTINUE
   ENTRY  MENUE  PRINT"
2830 GETA$:IFA$=""THEN2830
2840 IFA$="C"THEN2540
2850 IFA$="E"THENPRINT"";EI$(SE):GOT
O2830
2860 IFA$="M"THEN60
2865 IFA$="P"THENGOSUB3510:CLOSE1
2870 GOTO2830
3000 SE=PO
```

```
3010 PRINT"□"
3015 PRINT:PRINT
3017 PRINT"■■";TAB(2)"■";NA$(SE)
3020 GETA$:IFA$=""THEN3020
3021 GOTO3028
3022 IFSE=POTHENPRINT"■■";
3025 IFRE(SE)=POTHENPRINT"■■";
3026 PRINTTAB(2);"■";NA$(SE):RETURN
3028 IFA$="M"THENSE=RE(SE):GOSUB3022:GOTO3
020
3030 IFA$="□"THENSE=LI(SE):GOSUB3022:GOTO3
020
3040 IFA$="M"THEN60
3050 GOTO3020
3500 SE=PO:GOSUB3510
3502 SE=RE(SE):IFSE=POTHENCLOSE1:GOTO60
3504 GOSUB3530:GOTO3502
3510 OPEN1,4
3515 PRINT#1,CHR$(14)"  KEY-WORD"
3517 PRINT#1,"  ========="
3520 PRINT#1:PRINT#1:PRINT#1
3530 PRINT#1,CHR$(14)NA$(SE)CHR$(58)
3540 PRINT#1
3550 PRINT#1,CHR$(15)EI$(SE)
3560 PRINT#1:PRINT#1:PRINT#1
3580 RETURN
```

NOTES

Mortage 13

The following program calculates the monthly payment on a mortgage, based upon the mortgage amount, the interest rate, and the number of years. The program also calculates the accumulated interest (for tax purposes) and the accumulated principal for a certain period. Example : If you start your payments in July of a given year and you need to know the accumulated interest at the end of that year, answer the question "ENTER BEGINNING PMT. NO." with "1", and "ENTER ENDING PMT. NO." with "6". The corresponding numbers for the following year are "7" and "18".

```
1 REM E. S. WOZNIAK, 8-12-80
3 REM "MORTGAGE BALANCE AND INTEREST PAYME
NTS"
5 PRINT "J"
6 PRINT "MORTGAGE BALANCE AND ACCUMULATED"

7 PRINT "INTEREST & PRINCIPAL AMOUNTS"
8 PRINT "**********************************
********"
10 PRINT
20 PRINT "MORTGAGE AMT. $";:INPUT P
30 PRINT "INTEREST RATE %";:INPUT R
40 PRINT "NO. OF YEARS   ";:INPUT T
50 R=R/1200
60 D=(P*R)/(1-(1+R)↑(-12*T))
70 D=INT (D*100+.5)/100
80 PRINT "MONTHLY PMT.    $";D
90 PRINT
```

```
100 PRINT "ENTER BEGINNING PMT. NO. ";:INP
UT N
104 PRINT "ENTER ENDING PMT. NO.    ";:INP
UT E
110 B=1/((R+1)↑-E)*((D*(((1+R)↑-E)-1))/R+P
)
120 PRINT
130 PRINT "BAL. AT PMT. NO.";E;"->$";INT (
B*100+.5)/100
140 AR=B-(1/((R+1)↑-(N-1))*((D*(((1+R)↑-(N
-1))-1))/R+P))+(E-N+1)*D
150 PRINT
160 PRINT "TOTAL ACCUMULATED INTEREST AT"
170 PRINT "END OF PMT. NO. ";E;"->$";INT (
AR*100+.5)/100
180 PRINT
190 PRINT "TOTAL ACCUMULATED PRINCIPAL AT"

200 PRINT "END OF PMT. NO. ";E"->$";INT ((
P-B)*100+.5)/100
210 PRINT:PRINT
220 PRINT"'E'=END  SPACE BAR=NEW CALCULAT
ION"
230 GET A$:IF A$="" THEN 230
240 IF A$="E" THEN END
250 GOTO 5
```

Business Package 14

The program described here turns your COMMODORE 64 home computer into a powerful business computer. The program is a combination of a mailing list program, an inventory control program, and an invoice writing program. The mailing list and the inventory control programs can be used as standalone programs. The invoice writing program needs the other two programs : the mailing list, to retrieve customers' addresses, and the inventory control, to retrieve description and prices for the different items. The most powerful feature of the business package is, that everytime you write invoices (i.e. sell items), the program automatically updates the inventory!

The program is completely written in BASIC so that it can be easily modified to serve special needs. The program employs four disk files on a separate DATA disk :

MANAGEADR.SEQ
MANAGEPRO.SEQ
ADDRESSES.REL
PRODUCTS.REL

The two files with extension "REL" are random access files, where each record can be read easily with one access to the disk. The file ADDRESSES.REL can hold 1000 records (addresses) at a length of 82 characters per record. The file PRODUCTS.REL

can hold 1800 records (information about the items) at a length of 44 characters per record.

The records are set up as follows :

1) addresses

```
name (first and last)          : 19 characters
street (number and name)       : 19 characters
city                           : 13 characters
zip-code (with state code)     :  8 characters
phone number (with area code) : 12 characters
parameter 1                    :  2 characters
parameter 2                    :  2 characters
```

2) items (products)

```
description        : 19 characters
reorder level      :  4 characters
retail price       :  6 characters
quantity on stock  :  4 characters
wholesale price    :  6 characters
```

If you add up the numbers of characters, you will get totals of 75 and 39 respectively, whereas the lenght of a record is 82 and 44 respectively. This is because the carriage return at the end of each line also count as a character.

When you start the program, the following question will appear on the screen :

ADDRESS-/PRODUCTFILE EXISTING (Y/N)

When you start the program the very first time, answer this question with "N". The reason for this question is, that a data disk has to be prepared and the four files mentioned above have to be named. Later on, skip this procedure by answering with "Y". The program will then remind you to place the data disk in the drive, after which the

main menu will appear on the screen :

MAIN MENUE

1. ADDRESS OPERATIONS

2. PRODUCT OPERATIONS

3. INVENTORY LIST

4. INVOICE WRITING

5. PRINT LABELS

6. LIST OF LOW ITEMS

PLEASE ENTER NUMBER (1-6) !

To select an option, just press the corresponding number. Option 1 allows you to add/delete/change addresses. Option 2 allows you to do the same things with items. Option 3 gives you a survey over your inventory with either wholesale or retail prices. Option 4 allows you to write invoices on a printer hooked up to your computer.

The customer's address and the descriptions and prices for the items are retrieved from the data files ADDRESSES and PRODUCTS. Option 5 allows you to print labels from addresses stored in the mailing list. Option 6 gives you a list of items with a quantity on stock which is below their reorder level.

The options in detail :

1. Address operations

If you select this option, you will hear the disk

drive working and the following menue should appear :

1) ENTER NEW CUSTOMER
2) CHANGE ENTRY
3) DELETE ENTRY
4) SEARCH/PRINT ENTRY

'X' FOR MAIN MENUE

As you can see you have four options here.

If you want to enter a new address, press "1". The computer will tell you the number of the last address entered and the number of the next address to be entered. Usually this will be the next higher number, unless you have deleted an address. In this case the computer will write the new address into the space of the deleted address.

If you want to change an address, select option 2. The computer will ask you for the number of the address to be changed. After you have entered this number, the computer will load the address from disk and will display it. If you answer the question "CORRECT ADDRESS (Y/N) with 'Y', then the cursor will jump to the line with the name. Now you can do your changes, or press RETURN, if this line in the address should not be changed. After finishing the last line in the address (PARAMETER 2), the computer will save the changed address on disk. Now you have a choice between changing another address, or returning to the menu.

If you want to delete an address, select option 3. The computer will ask you for the number of the address to be changed. After loading and displaying the address, the computer will ask you "CORRECT ADDRESS (Y/N)". If you answer with 'Y', the address will be deleted from the disk.

If you want to search for an address or print addresses (complete with phone numbers and

parameters) on a printer, select option 4. The computer will ask you for the criteria to be searched for. Enter the proper line number here (for example "2" if you want to search for a particular name). After you have entered the name you are looking for (first and last !) the computer will try to locate the address on the disk. After the address was found and displayed, you have a choice between continuing the search (for another address with the same name), or a return to the menu.

2. Product operations

With product operations, you can do exactly the same thing with the items stored in the product file, that you can do with addresses as described above under option 1.

3. Inventory list

This option allows you to get a survey over your inventory, with all the information stored in the product file. You can send the output to a printer or to the screen to include wholesale and retail prices with extensions.

4. Invoice writing

Select this option, if you want to write invoices on a printer hooked up to your computer. The program will ask you for the date of the invoice, the first invoice number, and the customer number. At this point the address with the number entered will be loaded and displayed. To avoid mistakes, the computer will ask you "CORRECT CUSTOMER (Y/N)". Enter "Y" if it is the customer you are looking for. Next the computer will ask for the tax rate (in %) and the number of different items you want to sell to that particular customer. Next you have

to enter the item number and the quantity to be sold. The computer will load the information for that item from the product file. If the quantity to be sold brings the quantity on stock for that particaular item below its reorder level, you will get a warning on the screen. If the quantity on stock is too little, or the item can not be found, then you will get the message "ITEM NOT IN STOCK". After you have entered all item numbers and quantities, the invoice will be printed on the printer. After completion, you have a choice of writing the next invoice (with invoice number incremented automatically) or returning to the menu.

5. Print labels

This option allows to print labels with your customers addresses (address without phone number and parameters). Two addresses are printed in one line. You must enter the numbers of the first and the last address to be printed.

6. List of low items

This option is helpful, if you want to decide what items you should order from your distributor. You have a choice of listing all items with a quantity on stock below the reorder level on the screen or on a printer.

Before you start writing invoices you need to have at least one address stored in the mailing list and one item stored in the inventory file, otherwise you will get an error message, "NO DATA". To get information into the mailing list and the inventory control, select option 1 for addresses and option 2 for items, while in the main menu. Then select option #1 from the menu (ENTER NEW CUSTOMER or ENTER NEW PRODUCT).

The computer keeps track of the addresses and items stored and will display the current highest number and the present number.

Once you have stored some addresses and some inventory items you can write your first invoice. Select option 4 while in the main menu to do so.

The program then will ask you for the date and the first invoice number (which will be incremented automatically). Next, enter the number under which your customers' addresses are stored in the file, "ADDRESSES". If you don't remember the numbers, you may jump to "ADDRESS OPERATIONS" and use the SEARCH option there. After entering the address number, you have to enter the number of different items, the item numbers and quantities. Next enter the discount in % and the shipping costs in $. The invoice will now be printed on the printer on standard paper.

The program will automatically update the inventory everytime you write an invoice, i.e. the quantity on stock will be lowered by the amount sold of a particular item. If you write an invoice to a customer whose address is not in the mailing list yet, enter the address and the address will be stored automatically in the mailing list.

Sometimes it will happen, that you need to update the inventory yourself. For example, when you receive a shipment, or you discover that parts of your inventory were damaged. In this case, select option 2 while in the main menu and option 5 (CHANGE INVENTORY) while in the menu for product operations. After you have found the correct entry, you must enter the change in stock. For example -5, if you found 5 damaged products, or 200 if you received a shipment from your distributor.

Before you write the first invoice, you must change the address in lines 30600 through 30620 to your own address. Lines 30500 and 30510 contain

information about the bank. These lines will need to be changed to reflect the needs of your business.

```
10 REM********************          BUSINESS
 PROGRAMS         ********************
20 REM********************
                  ********************
70 REM********************       BY ELCOMP PU
BLISHING INC.     ********************
80 FORI=0TO7:READMA$(I),KU(I):NEXT
90 FORI=0TO5:READMP$(I),PR(I):NEXT
95 DIMM1(30),N1(30),M1$(30,5)
100 PRINT"▮"
110 PRINT"▮▮▮ADDRESS-/PRODUCTFILE EXISTIN
G"
120 INPUT"▮▮▮(Y/N) ";AN$
130 IFAN$="Y"THEN500
140 IFAN$<>"N"THEN110
150 PRINT"▮▮▮▮PLACE BLANK DISK IN DRIVE"
160 PRINT"▮▮▮▮▮▮▮▮────────"
170 PRINT"▮▮▮DISKETTE WILL BE FORMATTED (E
RASED)     AND ";
175 PRINT"FILES NECESSARY WILL BE PREPARED
"
180 INPUT"▮▮▮READY ? (Y/N) ";AN$
190 IFAN$<>"Y"THEN100
200 PRINT"▮▮PLEASE WAIT ABOUT 7 1/2 MINUTE
S"
210 OPEN15,8,15
220 PRINT#15,"NEW0:INVENTORY,RH"
230 OPEN4,8,4,"0:MANAGEADR,S,W"
235 LA=0:FA=0:PRINT#4,LA:PRINT#4,FA
240 CLOSE4
245 OPEN5,8,5,"0:MANAGEPRO,S,W"
250 LP=0:FP=0:PRINT#5,LP:PRINT#5,FP
255 CLOSE5
260 OPEN2,8,2,"0:ADDRESSES,L,"+CHR$(82)
270 PRINT#15,"P"CHR$(2)CHR$(232)CHR$(3)CHR
$(1)
280 PRINT#2,"END"
290 CLOSE2
```

```
310 OPEN3,8,3,"0:PRODUCTS,L,"+CHR$(44)
320 PRINT#15,"P"CHR$(3)CHR$(58)CHR$(7)CHR$
(1)
330 PRINT#3,"END"
340 INPUT#15,A,B$,C,D:CLOSE3:CLOSE15
500 PRINT"■■■■ ********** BUSINESS PROGRAMS
 **********"
520 PRINT"■■■PLEASE INSERT DISK WITH ADDRE
SS-/"
525 PRINT" PRODUCT FILES"
530 GOSUB50000
550 PRINT"■■■■■■■■MAIN MENUE":PRINT"
──────"
560 PRINT:PRINT"■1. ADDRESS OPERATIONS"
570 PRINT:PRINT"■2. PRODUCT OPERATIONS"
580 PRINT:PRINT"■3. INVENTORY LIST"
590 PRINT:PRINT"■4. INVOICE WRITING"
600 PRINT:PRINT"■5. PRINT LABELS"
605 PRINT:PRINT"■6. LIST OF LOW ITEMS"
610 PRINT"■■■■PLEASE ENTER NUMBER (1-6)"
620 GETNR:IFNR=0ORNR>6THEN620
630 ONNRGOSUB900,9900,19900,30000,39900,44
900
640 GOTO550
900 GOSUB60000
1000 PRINT"■■■■********** ADDRESS OPERATIO
NS **********"
1010 PRINT"■■■■■MENUE:":PRINT"
──────"
1020 PRINT:PRINT"■1. ENTER NEW CUSTOMER"
1030 PRINT:PRINT"■2. CHANGE ENTRY"
1040 PRINT:PRINT"■3. DELETE ENTRY"
1050 PRINT:PRINT"■4. SEARCH/PRINT ENTRY"
1060 PRINT"■■■'X' FOR MAIN MENUE"
1070 GETAN$:IFAN$=""THEN1070
1080 IFAN$="X"THENRETURN
1090 A1=VAL(AN$):IFA1<1ORA1>4THEN1070
1100 ONA1GOSUB2000,4000,6000,8000
1110 GOTO1000
1120 OPEN4,8,4,"@0:MANAGEADR,S,W"
1130 PRINT#4,LA:PRINT#4,FA
1140 IFFA=0THEN1180
1150 FORI=1TOFA
1160 PRINT#4,FA(I)
```

```
1170 NEXT
1180 CLOSE4
1190 RETURN
2000 PRINT"■■■  ********** NEW ENTRY **
**********"
2005 FORI=1TO7:KU$(I)="----------------------
---":NEXT
2010 IFFA=0THENAK=LA+1:GOTO2030
2020 AK=FA(FA):FA=FA-1
2025 IFAK>1000THENPRINT"■■■■■FILE FULL !!!
":GOTO2280
2030 PRINT"■■HIGHEST CUSTOMER NUMBER:";LA
2040 PRINT"■■PRESENT CUSTOMER NUMBER:";AK
2050 PRINT:PRINTMA$(0);AK
2060 FORI=1TO7
2070 PRINTMA$(I):INPUT"■■■■■■■■■■■■■■■■■■";K
U$(I)
2080 NEXT
2130 PRINT"■■EVERYTHING OK (Y/N)"
2140 GETAN$:IFAN$=""THEN2140
2150 IFAN$="N"THEN2000
2160 IFAN$<>"Y"THEN2140
2170 PRINT"■■OK SAVING ADDRESS"
2180 HI=INT(AK/256):LO=AK-HI*256:PO=1
2190 OPEN15,8,15
2200 OPEN2,8,2,"ADDRESSES"
2210 FORI=1TO7
2220 KU$(I)=LEFT$(KU$(I),KU(I)-1)
2230 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(PO)
2240 PRINT#2,KU$(I)
2250 PO=PO+KU(I)
2260 NEXT:CLOSE2:CLOSE15:IFA1<>1THENRETURN

2270 IFAK>LATHENLA=LA+1
2275 GOSUB1120
2280 PRINT"■■■■■N■=NEW ENTRY                ■<■=
MENUE"
2290 GETAN$:IFAN$=""THEN2290
2300 IFAN$="N"THEN2000
2310 IFAN$<>"X"THEN2290
2320 RETURN
4000 PRINT"■■■  ********** CHANGE ENTRY *
```

```
**********"
4010 PRINT"■■■SEARCH FOR WHAT CRITERIA ?"
4020 PRINT:PRINT:FORI=0TO7
4030 PRINTI+1;MA$(I)
4040 NEXT
4050 GETAN:IFAN=0ORAN>8THEN4050
4055 AN=AN-1:PRINT
4060 PRINTMA$(AN):INPUT"■■■■■■■■■■■■■■■■■■■■";
KU$
4065 LE=LEN(KU$):IFLE=0THENPRINT"■■":GOTO4
060
4070 I1=1:F1=0:F2=0
4075 GOSUB9000
4080 I1=I+1
4090 IFF1=1THENIFF2=0THEN4200
4100 F3=1:IFF1=0THENZW$=" ":GOTO4120
4110 ZW$=" MORE "
4120 PRINT:PRINT" NO ";ZW$;" DATA !"
4130 PRINT"■■■■■N■=CHANGE NEXT          ■X■
=MENUE";
4140 GETAN$:IFAN$=""THEN4140
4150 IFAN$="N"THEN4000
4160 IFAN$<>"X"THEN4140
4170 RETURN
4200 PRINT"■■■■■■■■■■"
4205 FORI=0TO7:KU$(I)=KU$(I)+"
          ":KU$(I)=LEFT$(KU$(I),21)
4210 PRINT"■■■■■■■■■■■■■■■■■■■■";KU$(I):NEXT

4220 PRINT:INPUT"CORRECT ENTRY (Y/N)";AN$
4230 IFAN$="Y"THEN4250
4235 IFAN$<>"N"THENPRINT"■■■":GOTO4220
4240 IFAN=0THENF1=1:F2=1:GOTO4090
4245 GOTO4075
4250 PRINT"■■■■■■■■■■■■"
4260 FORI=1TO7:INPUT"■■■■■■■■■■■■■■■■■■■■";KU$
(I):NEXT
4265 PRINT"■■
          "
4270 AK=VAL(KU$(0)):GOSUB2170:GOTO4130
6000 PRINT"■■■■  ********** DELETE ENTRY *
**********"
6010 PRINT"■■■SEARCH FOR WHAT CRITERIA ?"
```

```
6020 PRINT:PRINT:FORI=0TO7
6030 PRINTI+1;MA$(I)
6040 NEXT
6050 GETAN:IFAN=0ORAN>8THEN6050
6055 AN=AN-1:PRINT
6060 PRINTMA$(AN):INPUT"■■■■■■■■■■■■■■■■";
KU$
6065 LE=LEN(KU$):IFLE=0THENPRINT"■■":GOTO6
060
6070 I1=1:F1=0:F2=0
6075 GOSUB9000
6080 I1=I+1
6090 IFF1=1THENIFF2=0THEN6200
6100 F3=1:IFF1=0THENZW$=" ":GOTO6120
6110 ZW$=" MORE "
6120 PRINT:PRINT" NO ";ZW$;" DATA !"
6130 PRINT"■■■■■N■=DELETE NEXT          ■X■
=MENUE";
6140 GETAN$:IFAN$=""THEN6140
6150 IFAN$="N"THEN6000
6160 IFAN$<>"X"THEN6140
6170 RETURN
6200 PRINT"■■■■■■■■■■"
6205 FORI=0TO7:KU$(I)=KU$(I)+"
     ":KU$(I)=LEFT$(KU$(I),21)
6210 PRINT"■■■■■■■■■■■■■■■■■■■■";KU$(I):NEXT

6220 PRINT:INPUT"CORRECT ENTRY (Y/N)";AN$
6230 IFAN$="Y"THEN6250
6235 IFAN$<>"N"THENPRINT"■■":GOTO6220
6240 IFAN=0THENF1=1:F2=1:GOTO6090
6245 GOTO6075
6250 PRINT"■ OK  DELETING ENTRY !
 "
6260 ZW=VAL(KU$(0)):HI=INT(ZW/256):LO=ZW-H
I*256
6270 OPEN15,8,15
6280 OPEN2,8,2,"ADDRESSES"
6290 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(1)
6300 PRINT#2,"π"
6310 CLOSE2:CLOSE15
6320 IFZW<LATHENFA=FA+1:FA(FA)=ZW:GOTO6350
```

```
6330 LA=LA-1:FORI=0TOFA:FORJ=FATO0STEP-1
6335 IFLA=FA(J)THENLA=LA-1:FORK=J+1TOFA:FA
(K-1)=FA(K):NEXTK:FA=FA-1:GOTO6345
6340 NEXTJ:GOTO6350
6345 NEXTI
6350 GOSUB1120:GOTO6130
8000 PRINT"■■■■■■■■■■■■ SEARCH FOR ENTRY
 ■■■■■■■■■■■■"
8003 INPUT"■OUTPUT TO PRINTER OR SCREEN (P
/S)";DR$
8009 IFDR$<>"P"THENDR$="S"
8010 PRINT"■■SEARCH BY WHAT CRITERIA ?"
8020 PRINT:PRINT:FORI=0TO7
8030 PRINTI+1;MA$(I)
8040 NEXT
8050 GETAN:IFAN=0ORAN>8THEN8050
8055 AN=AN-1:PRINT:IFAN=0THEN8500
8060 PRINTMA$(AN):INPUT"■■■■■■■■■■■■■■■■■■";
KU$
8065 LE=LEN(KU$):IFLE=0THENPRINT"■■":GOTO8
060
8070 I1=1:F1=0:F2=0
8075 GOSUB9000
8080 I1=I+1
8090 IFF1=1THENIFF2=0THENGOSUB8700:GOTO807
5
8100 F3=1:IFF1=0THENZW$="  ":PRINT:PRINT:PR
INT:PRINT:GOTO8120
8110 ZW$=" MORE "
8120 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■ NO ";ZW
$;" DATA !"
8130 PRINT"■■■■N■=CONTINUE SEARCH       ■X■
=MENUE";
8140 GETAN$:IFAN$=""THEN8140
8150 IFAN$="N"THEN8000
8160 IFAN$<>"X"THEN8140
8170 RETURN
8500 PRINT"FROM";MA$(0)
8510 INPUT"■■■■■■■■■■■■■■■■■■■■";K1
8515 IFK1>LATHENK1=LA
8517 IFK1<1THENK1=1
8520 PRINT"TO";MA$(0)
8530 INPUT"■■■■■■■■■■■■■■■■■■■";K2
```

```
8535 IFK2>LATHENK2=LA
8537 IFK2<1THENK2=1
8540 OPEN15,8,15
8550 OPEN2,8,2,"ADDRESSES"
8560 FORK=K1TOK2
8570 HI=INT(K/256):LO=K-HI*256
8580 PO=1:FORI=1TO7
8590 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(PO)
8600 INPUT#2,KU$(I):IFKU$(I)="π"THEN8630
8610 PO=PO+KU(I)
8620 NEXTI:KU$(0)=STR$(K):GOSUB8700
8630 NEXTK
8640 CLOSE2:CLOSE15
8650 GOTO8110
8700 PRINT"■■■■■■■■■■■■"
8720 IFDR$="P"THENOPEN7,4,7:CMD7
8730 FORI=0TO7:KU$(I)=KU$(I)+"
          ":KU$(I)=LEFT$(KU$(I),21)
8740 PRINT"■■■■■■■■■■■■■■■■■■■■";KU$(I):NEXT

8750 IFDR$<>"S"THEN8780
8760 PRINT"■■■■■■■■■■C■=CONTINUE";
8770 GETAN$:IFAN$<>"C"THEN8770
8775 RETURN
8780 PRINT#7:CLOSE7:RETURN
8999 STOP
9000 REM SEARCH
9010 ONANGOTO9100,9110,9120,9130,9140,9150
,9160
9020 ZW=VAL(KU$):HI=INT(ZW/256):LO=ZW-HI*2
56:IFZW<1ORZW>LATHENF2=1:RETURN
9030 OPEN15,8,15
9040 OPEN2,8,2,"ADDRESSES"
9050 PO=1:FORI=1TO7
9060 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(PO)
9070 INPUT#2,KU$(I):IFKU$(I)="π"THENF2=1:G
OTO9090
9075 PO=PO+KU(I)
9080 NEXT:F1=1
9090 CLOSE2:CLOSE15
9095 KU$(0)=STR$(ZW):RETURN
```

```
9100 PO=1:GOTO9200
9110 PO=21:GOTO9200
9120 PO=41:GOTO9200
9130 PO=55:GOTO9200
9140 PO=64:GOTO9200
9150 PO=77:GOTO9200
9160 PO=80
9200 IFI1>LATHENF2=1:RETURN
9205 OPEN15,8,15
9210 OPEN2,8,2,"ADDRESSES"
9220 FORI=I1TOLA
9230 HI=INT(I/256):LO=I-HI*256
9240 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(1)
9250 INPUT#2,K1$:IFK1$="π"THEN9310
9260 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(PO)
9270 INPUT#2,K1$:IFLEFT$(K1$,LE)<>KU$THEN9
310
9280 PO=1:FORK=1TO7
9285 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)CH
R$(PO)
9290 INPUT#2,KU$(K)
9295 PO=PO+KU(K):NEXTK
9300 CLOSE2:CLOSE15:F1=1:KU$(0)=STR$(I):RE
TURN
9310 NEXTI
9320 CLOSE2:CLOSE15
9330 F2=1:RETURN
9900 GOSUB60100
10000 PRINT"■■■■■■■■■■■■ PRODUCT OPERATI
ONS ■■■■■■■■■■■■"
10010 PRINT"■■■■■ENUE:":PRINT"    ■■■■■■■■"
10020 PRINT:PRINT"■1. ENTER NEW PRODUCT"
10030 PRINT:PRINT"■2. CHANGE ENTRY"
10040 PRINT:PRINT"■3. DELETE ENTRY"
10050 PRINT:PRINT"■4. SEARCH/PRINT ENTRY"
10055 PRINT:PRINT"■5. CHANGE INVENTORY"
10060 PRINT"■■■'X' FOR MAIN MENUE"
10070 GETAN$:IFAN$=""THEN10070
10080 IFAN$="X"THENRETURN
10090 A1=VAL(AN$):IFA1<1ORA1>5THEN10070
10100 ONA1GOSUB12000,14000,16000,18000,140
```

```
00
10110 GOTO10000
10120 OPEN5,8,5,"@0:MANAGEPRO.S,W"
10130 PRINT#5,LA:PRINT#5,FA
10140 IFFA=0THEN10180
10150 FORI=1TOFA
10160 PRINT#5,FA(I)
10170 NEXT
10180 CLOSE5
10190 RETURN
12000 PRINT"■■■  ********** NEW ENTRY **
**********"
12005 FORI=1TO5:KU$(I)="----------------
----":NEXT
12010 IFFA=0THENAK=LA+1:GOTO12030
12020 AK=FA(FA):FA=FA-1
12025 IFAK>1800THENPRINT"■■■■■FILE FULL !!
!":GOTO12280
12030 PRINT"■■HIGHEST PRODUCT NUMBER:";LA
12040 PRINT"■■PRESENT PRODUCT NUMBER:";AK
12050 PRINT:PRINTMP$(0);AK
12060 FORI=1TO5
12070 PRINTMP$(I):INPUT"■■■■■■■■■■■■■■■■■■";
KU$(I)
12080 NEXT
12130 PRINT"■■EVERYTHING OK (Y/N)"
12140 GETAN$:IFAN$=""THEN12140
12150 IFAN$="N"THEN12000
12160 IFAN$<>"Y"THEN12140
12170 PRINT"■■■■■OK SAVING PRODUCT"
12180 HI=INT(AK/256):LO=AK-HI*256:PO=1
12190 OPEN15,8,15
12200 OPEN3,8,3,"PRODUCTS"
12210 FORI=1TO5
12220 KU$(I)=LEFT$(KU$(I),PR(I)-1)
12230 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
12240 PRINT#3,KU$(I)
12250 PO=PO+PR(I)
12260 NEXT:CLOSE3:CLOSE15:IFA1<>1THENRETUR
N
12270 IFAK>LATHENLA=LA+1
12275 GOSUB10120
```

```
12280 PRINT"N=NEXT ENTRY                    X
=MENUE"
12290 GETAN$:IFAN$=""THEN12290
12300 IFAN$="N"THEN12000
12310 IFAN$<>"X"THEN12290
12320 RETURN
14000 PRINT"  *********** CHANGE ENTRY
***********"
14010 PRINT"SEARCH BY WHAT CRITERIA ?"
14020 PRINT:PRINT:FORI=0TO5
14030 PRINTI+1;MP$(I)
14040 NEXT
14050 GETAN:IFAN=0ORAN>6THEN14050
14055 AN=AN-1:PRINT
14060 PRINTMP$(AN):INPUT""
;KU$
14065 LE=LEN(KU$):IFLE=0THENPRINT"":GOTO
14060
14070 I1=1:F1=0:F2=0
14075 GOSUB19000
14080 I1=I+1
14090 IFF1=1THENIFF2=0THEN14200
14100 F3=1:IFF1=0THENZW$=" ":GOTO14120
14110 ZW$=" MORE "
14120 PRINT:PRINT" NO ";ZW$;" DATA !"
14130 PRINT"N
=NEXT CHANGE                X=MENUE"
14140 GETAN$:IFAN$=""THEN14140
14150 IFAN$="N"THEN14000
14160 IFAN$<>"X"THEN14140
14170 RETURN
14200 PRINT""
14205 FORI=0TO5:KU$(I)=KU$(I)+"
             ":KU$(I)=LEFT$(KU$(I),21)
14210 PRINT"";KU$(I):NEX
T
14220 PRINT:INPUT"CORRECT ENTRY (Y/N)";AN$

14230 IFAN$="Y"THEN14250
14235 IFAN$<>"N"THENPRINT"":GOTO14220
14240 IFAN=0THENF1=1:F2=1:GOTO14090
14245 GOTO14075
14250 IFA1=5THEN15000
```

```
14255 PRINT"■■■■■■■■■■"
14260 FORI=1TO5:INPUT"■■■■■■■■■■■■■■■■■■■■";KU
$(I):NEXT
14265 PRINT"■ ←————————————————(37 spaces)————————
————→"
14270 AK=VAL(KU$(0)):GOSUB12170:GOTO14130
15000 PRINT"□
          "
15005 INPUT"□ENTER CHANGE IN STOCK :";BE
15010 BE=VAL(KU$(4))+BE:KU$(4)=STR$(BE)+"
  ":KU$(4)=LEFT$(KU$(4),4)
15015 PRINT"□
          "
15020 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
";KU$(4)
15030 GOTO14270
16000 PRINT"□■■■  ********** DELETE ENTRY
**********"
16010 PRINT"■■■SELECT BY WHAT CRITERIA ?"
16020 PRINT:PRINT:FORI=0TO5
16030 PRINTI+1;MP$(I)
16040 NEXT
16050 GETAN:IFAN=0ORAN>6THEN16050
16055 AN=AN-1:PRINT
16060 PRINTMP$(AN):INPUT"□■■■■■■■■■■■■■■■■■■■■"
;KU$
16065 LE=LEN(KU$):IFLE=0THENPRINT"□I]":GOTO
16060
16070 I1=1:F1=0:F2=0
16075 GOSUB19000
16080 I1=I+1
16090 IFF1=1THENIFF2=0THEN16200
16100 F3=1:IFF1=0THENZW$=" ":GOTO16120
16110 ZW$=" MORE "
16120 PRINT:PRINT" NO ";ZW$;" DATA !"
16130 PRINT"■■■■■N■=NEXT DELETE                ■
X=MENUE";
16140 GETAN$:IFAN$=""THEN16140
16150 IFAN$="N"THEN16000
16160 IFAN$<>"X"THEN16140
16170 RETURN
16200 PRINT"■■■■■■■■■■"                continue on next page
16205 FORI=0TO5:KU$(I)=KU$(I)+" ←——(22 spaces)—
```

```
————————→ ":KU$(I)=LEFT$(KU$(I),21)
16210 PRINT"■■■■■■■■■■■■■■■■■■■■■";KU$(I):NEX
T
16220 PRINT:INPUT"CORRECT ENTRY (Y/N)";AN$

16230 IFAN$="Y"THEN16250
16235 IFAN$<>"N"THENPRINT"■■■":GOTO16220
16240 IFAN=0THENF1=1:F2=1:GOTO16090
16245 GOTO16075
16250 PRINT"■ OK  DELETING ENTRY !"
16260 ZW=VAL(KU$(0)):HI=INT(ZW/256):LO=ZW-
HI*256
16270 OPEN15,8,15
16280 OPEN3,8,3,"PRODUCTS"
16290 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(1)
16300 PRINT#3,"π"
16310 CLOSE3:CLOSE15
16320 IFZW<LATHENFA=FA+1:FA(FA)=ZW:GOTO163
50
16330 LA=LA-1:FORI=0TOFA:FORJ=FATO0STEP-1
16335 IFLA=FA(J)THENLA=LA-1:FORK=J+1TOFA:F
A(K-1)=FA(K):NEXTK:FA=FA-1:GOTO16345
16340 NEXTJ:GOTO16350
16345 NEXTI
16350 GOSUB10120:GOTO16130
18000 PRINT"■■■■■■■■■■■■■■ SEARCH FOR ENTR
Y ■■■■■■■■■■■■■"
18003 INPUT"■■UTPUT TO PRINTER OR SCREEN (
P/S)";DR$
18009 IFDR$<>"P"THENDR$="S"
18010 PRINT"■■SELECT BY WHAT CRITERIA ?"
18020 PRINT:PRINT:FORI=0TO5
18030 PRINTI+1;MP$(I)
18040 NEXT
18050 GETAN:IFAN=0ORAN>6THEN18050
18055 AN=AN-1:PRINT:IFAN=0THEN18500
18060 PRINT:PRINTMP$(AN):INPUT"■■■■■■■■■■■■
";KU$
18065 LE=LEN(KU$):IFLE=0THENPRINT"■■":GOTO
18060   ← This is not a line number ! It belongs to line 18065 !
18070 I1=1:F1=0:F2=0
18075 GOSUB19000
```

```
18080 I1=I+1
18090 IFF1=1THENIFF2=0THENGOSUB18700:GOTO1
8075  <----- This is not a line number !
18100 F3=1:IFF1=0THENZW$=" ":PRINT:PRINT:P
RINT:PRINT:GOTO18120
18110 ZW$=" MORE "
18120 PRINT" NO ";Z
W$;" DATA !"
18130 PRINT"N=NEXT SEARCH X
=MENUE";
18140 GETAN$:IFAN$=""THEN18140
18150 IFAN$="N"THEN18000
18160 IFAN$<>"X"THEN18140
18170 RETURN
18500 PRINT"FROM ";MP$(0)
18510 INPUT"";K1
18515 IFK1>LATHENK1=LA
18517 IFK1<1THENK1=1
18520 PRINT"TO   ";MP$(0)
18530 INPUT"";K2
18535 IFK2>LATHENK2=LA
18537 IFK2<1THENK2=1
18540 OPEN15,8,15
18550 OPEN3,8,3,"PRODUCTS"
18560 FORK=K1TOK2
18570 HI=INT(K/256):LO=K-HI*256
18580 PO=1:FORI=1TO5
18590 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
18600 INPUT#3,KU$(I):IFKU$(I)="π"THEN18630

18610 PO=PO+PR(I)
18620 NEXTI:KU$(0)=STR$(K):GOSUB18700
18630 NEXTK
18640 CLOSE3:CLOSE15
18650 GOTO18110
18700 PRINT""
18720 IFDR$="P"THENOPEN7,4,7:CMD7
18730 FORI=0TO5:KU$(I)=KU$(I)+"
           ":KU$(I)=LEFT$(KU$(I),21)
18740 PRINT"";KU$(I):NEX
T
18750 IFDR$<>"S"THEN18780
```

```
18760 PRINT"▮▮▮▮▮▮▮▮▮▮▮C▬=CONTINUE";
18770 GETAN$:IFAN$<>"C"THEN18770
18775 RETURN
18780 PRINT#7:CLOSE7:RETURN
19000 REM SEARCH
19010 ONANGOTO19100,19110,19120,19130,1914
0
19020 ZW=VAL(KU$):HI=INT(ZW/256):LO=ZW-HI*
256:IFZW<1ORZW>LATHENF2=1:RETURN
19030 OPEN15,8,15
19040 OPEN3,8,3,"PRODUCTS"
19050 PO=1:FORI=1TO5
19060 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
19070 INPUT#3,KU$(I):IFKU$(I)="π"THENF2=1:
GOTO19090
19075 PO=PO+PR(I)
19080 NEXT:F1=1
19090 CLOSE3:CLOSE15
19095 KU$(0)=STR$(ZW):RETURN
19100 PO=1:GOTO19200
19110 PO=21:GOTO19200
19120 PO=26:GOTO19200
19130 PO=33:GOTO19200
19140 PO=38
19200 IFI1>LATHENF2=1:RETURN
19205 OPEN15,8,15
19210 OPEN3,8,3,"PRODUCTS"
19220 FORI=I1TOLA
19230 HI=INT(I/256):LO=I-HI*256
19240 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(1)
19250 INPUT#3,K1$:IFK1$="π"THEN19310
19260 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
19270 INPUT#3,K1$:IFLEFT$(K1$,LE)<>KU$THEN
19310
19280 PO=1:FORK=1TO5
19285 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
19290 INPUT#3,KU$(K)
19295 PO=PO+PR(K):NEXTK
19300 CLOSE3:CLOSE15:F1=1:KU$(0)=STR$(I):R
```

```
ETURN
19310 NEXTI
19320 CLOSE3:CLOSE15
19330 F2=1:RETURN
19900 GOSUB60100
20000 PRINT"**************** INVENTORY LIST
 *************"
20005 INPUT"WHOLESALE-/RETAIL PRICE  (W/
R)";AN$
20010 Z3=0:INPUT"OUTPUT TO PRINTER OR SCR
EEN (P/S)";DR$
20020 IFDR$="P"THENOPEN7,4:PRINT#7,CHR$(15
);:CMD7
20030 PRINT:PRINT"NO. DESCRIPT. REOL PRICE
  QUAN TTL":PRINT
20035 IFDR$="P"THENPRINT#7:CLOSE7
20540 OPEN15,8,15
20550 OPEN3,8,3,"PRODUCTS"
20560 FORK=1TOLA
20570 HI=INT(K/256):LO=K-HI*256
20580 PO=1:FORI=1TO5
20590 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
20600 INPUT#3,KU$(I):IFKU$(I)="π"THEN20630

20610 PO=PO+PR(I)
20620 NEXTI:KU$(0)=MID$(STR$(K),2):GOSUB20
700
20630 NEXTK
20640 CLOSE3:CLOSE15
20650 IFDR$="P"THENOPEN7,4:PRINT#7,CHR$(15
):CMD7
20655 PRINT"
 ————————"
20660 PRINT"                              TOTAL
";Z3
20670 IFDR$="P"THENPRINT#7:CLOSE7
20680 PRINT:PRINT"
=MENUE"
20690 GETAN$:IFAN$<>"X"THEN20690
20695 RETURN
20700 IFAN$="W"THENKU$(3)=KU$(5)
20701 Z1=VAL(KU$(4)):Z2=VAL(KU$(3)):Z1=Z1*
```

Cursor home   23 Cursor down

```
Z2:Z3=Z3+Z1
20702 FORM=0TO4:KU$(M)=KU$(M)+" ←(12 spaces)→
 ":NEXTM
20704 KU$(0)=LEFT$(KU$(0),4):KU$(1)=LEFT$(
KU$(1),9):KU$(2)=LEFT$(KU$(2),3)
20706 KU$(3)=LEFT$(KU$(3),6):KU$(4)=LEFT$(
KU$(4),4)
20708 IFDR$="P"THENOPEN7,4:PRINT#7,CHR$(15
);:CMD7
20710 FORL=0TO4
20720 PRINTKU$(L)+" ";
20730 NEXTL
20740 PRINT"■"Z1;
20750 IFDR$="P"THENPRINT#7,CHR$(8);:CLOSE7
:RETURN
20760 PRINT:RETURN
30000 PRINT"■■■ ********** INVOICE WRITING
 **********"
30010 INPUT"■■ENTER DATE OF INVOICE ";DA$
30020 INPUT"■■ENTER FIRST INVOICE NUMBER "
;RN$
30030 INPUT"■■■ENTER CUSTOMER NUMBER ";ZW
30040 HI=INT(ZW/256):LO=ZW-HI*256:IFZW<1TH
EN30200
30050 OPEN15,8,15
30060 OPEN2,8,2,"ADDRESSES"
30070 PO=1:FORI=1TO7
30080 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)C
HR$(PO)
30090 INPUT#2,KU$(I):IFKU$(I)="π"THEN30120

30100 PO=PO+KU(I)
30110 NEXT
30120 CLOSE2:CLOSE15
30130 KU$(0)=STR$(ZW)
30140 IFKU$(I)<>"π"THEN30250
30200 PRINT"■■NO CUSTOMER WITH THESE DATA
!":PRINT:PRINT:GOTO32000
30250 PRINT"■←(31 spaces)──────────────
→"
30260 FORI=0TO7:PRINTMA$(I);KU$(I):NEXT
30270 INPUT"■CORRECT CUSTOMER (Y/N) ";AN$
30280 IFAN$="N"THENPRINT"■":GOTO30030
```

```
30290 IFAN$<>"Y"THENPRINT"■■■":GOTO30270
30295 PRINT:INPUT"ENTER TAX RATE IN % ";MW

30300 PRINT"■":INPUT"■■■HOW MANY DIFFERENT
ITEMS ";I2
30310 FORI=1TOI2
30320 PRINT:INPUT" ITEM NO. ";N1(I):INPUT"
 QUANTITY  ";M1(I)
30330 HI=INT(N1(I)/256):LO=N1(I)-256*HI
30335 OPEN15,8,15:OPEN3,8,3,"PRODUCTS"
30337 PO=1:FORJ=1TO5
30340 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
30350 INPUT#3,M1$(I,J):IFM1$(I,J)="■"THENC
LOSE3:CLOSE15:GOTO30400
30360 PO=PO+PR(J)
30370 NEXTJ
30380 CLOSE3:CLOSE15
30385 M1$(I,4)=STR$(VAL(M1$(I,4))-M1(I)):I
FVAL(M1$(I,4))>VAL(M1$(I,2))THEN30405
30388 IFVAL(M1$(I,4))<=0THEN30400
30390 PRINT:PRINT"■■WARNING!!!: REORDER LEV
EL PASSED":GOTO30405
30400 PRINT:PRINT"ITEM NOT IN STOCK !!":PR
INT:PRINT:GOTO32000
30405 PRINT"■■OK: ";M1(I);" ";M1$(I,1)
30410 NEXTI
30420 INPUT"■■■DISCOUNT IN %: ";RA$:RA$=LE
FT$(RA$+"          ",3)
30425 INPUT"■■SHIPPING COST IN $: ";VS$
30430 OPEN4,4:PRINT#4,CHR$(15)
30440 PRINT#4:PRINT#4:PRINT#4
30450 PRINT#4,TAB(25);"*****  INVOICE  ***
**"
30460 PRINT#4:PRINT#4:PRINT#4:PRINT#4
30470 PRINT#4,"    INVOICE NUMBER : ";RN$;T
AB(45);DA$
30480 RN$=MID$(STR$(VAL(RN$)+1),2)
30490 PRINT#4,"      CUSTOMER NO. : ";KU$(0
):PRINT#4:PRINT#4
30500 PRINT#4,TAB(40);"BANK OF AMERICA"
30510 PRINT#4,TAB(40);"ACCOUNT NO. 4444777
7"
```

```
30530 PRINT#4
30560 PRINT#4:PRINT#4:PRINT#4
30570 PRINT#4," FROM :"
30590 PRINT#4
30600 PRINT#4,TAB(5);"ELCOMP PUBLISHING, I
NC."
30610 PRINT#4,TAB(5);"53 REDROCK LANE"
30620 PRINT#4,TAB(5);"POMONA CA 91766"
30630 PRINT#4:PRINT#4:PRINT#4
30640 PRINT#4," TO :"
30650 PRINT#4
30660 PRINT#4,TAB(5);KU$(1)
30670 PRINT#4,TAB(5);KU$(2)
30680 PRINT#4,TAB(5);KU$(3)+" "+KU$(4)
30690 PRINT#4:PRINT#4
30700 FORI=1TOI2:S1(I)=INT((VAL(M1$(I,3))*
M1(I))*100+.5)/100
30702 M5$(I)=LEFT$(STR$(M1(I))+"  ←(16 spaces)-
——————→",8)
30704 M1$(I,1)=LEFT$(M1$(I,1)+"←————(24 spaces)-
——————→      ",20)
30710 PRINT#4,M5$(I);
30720 PRINT#4,TAB(5);M1$(I,1);
30725 JJ=VAL(M1$(I,3)):GOSUB48000
30730 PRINT#4,TAB(10-L);J$;
30740 PRINT#4,"  EACH  =";
30745 JJ=S1(I):GOSUB48000
30750 PRINT#4,TAB(20-L);J$
30760 NEXTI
30770 SU=0:FORI=1TOI2:SU=SU+S1(I):NEXT
30780 PRINT#4:SU=INT(SU*100+.5)/100
30790 IFVAL(RA$)=0THEN30820
30795 S2=INT(((VAL(RA$)/100)*SU)*100+.5)/1
00:SU=INT((SU-S2)*100+.5)/100
30798 JJ=S2:GOSUB48000
30800 PRINT#4,TAB(44);RA$;" % DISCOUNT = -
";TAB(10-L);J$
30820 PRINT#4,TAB(63);"----------"
30825 JJ=SU:GOSUB48000
30830 PRINT#4,TAB(52);"NET AMOUNT:";TAB(9-
L);J$
30840 IFVAL(VS$)=0THEN30920
30845 JJ=VAL(VS$):GOSUB48000
```

```
30850 PRINT#4:PRINT#4,TAB(55);"FREIGHT: ";
TAB(8-L);J$
30860 PRINT#4,TAB(63);"---------"
30870 SU=SU+VAL(VS$)
30875 JJ=SU:GOSUB48000
30880 PRINT#4,TAB(72-L);J$
30910 MW$=LEFT$(STR$(MW)+"      ",5)
30920 S1=INT(SU*(MW/100)*100+.5)/100:SU=SU
+S1
30925 JJ=S1:GOSUB48000
30930 PRINT#4:PRINT#4,TAB(47);"+";MW$;" %
 TAX    ";TAB(9-L);J$
30940 PRINT#4,TAB(63);"========="
30945 JJ=SU:GOSUB48000
30950 PRINT#4,TAB(56);"TOTAL: ";TAB(9-L);J
$
30960 CLOSE4
31300 OPEN15,8,15:OPEN3,8,3,"PRODUCTS"
31400 FORI=1TOI2
31410 HI=INT(N1(I)/256):LO=N1(I)-256*HI
31415 PO=1:FORJ=1TO5
31420 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
31425 M1$(I,J)=LEFT$(M1$(I,J),PR(J)-1)
31430 PRINT#3,M1$(I,J)
31440 PO=PO+PR(J):NEXTJ
31450 NEXTI
31460 CLOSE3:CLOSE15
32000 PRINT"{25 CURSOR DOWN}{RVS}P{OFF}=
PRODUCTS NEW  {RVS}C{OFF}=CUSTOMER NEW"
32005 PRINT"{RVS}MENUE"
32010 GETAN$:IFAN$=""THEN32010
32020 IFAN$="X"THEN RETURN
32030 IFAN$="C"THEN30030
32040 IFAN$="P"THEN30300
32050 GOTO32010
39900 GOSUB60000
40000 PRINT"{CLR}{DOWN}   ********** MAILING LIST
**********"
40010 INPUT"{DOWN}{DOWN}ENTER FROM #, TO # ";ZA,ZE
40015 PRINT:INPUT" ENTER TABS (LEFT,RIGHT
LABEL) ";LT,RT
40020 K1=1:K2=0:IFZE>LATHENZE=LA:PRINT
```

25 Cursor down

Continue on next page

Cursor home   7 Cursor down   18 Cursor right

```
"■■■■■■■■■■■■■■■■■■■■■■■■■■";LA;"■       "
40030 FORZW=ZATOZE:KO$(2,1)="*************
*****"
40040 HI=INT(ZW/256):LO=ZW-HI*256:IFZW<1OR
ZW>LATHEN40200
40050 OPEN15,8,15
40060 OPEN2,8,2,"ADDRESSES"
40070 PO=1:FORI=1TO6
40080 PRINT#15,"P"CHR$(2)CHR$(LO)CHR$(HI)C
HR$(PO)
40090 INPUT#2,KO$(K1,I):IFKO$(K1,I)<>"π"TH
EN40100
40095 PRINT"■■■■■■■■■■■NO ADDRESS NO.";ZW
:GOTO40150
40100 PO=PO+KU(I):NEXTI
40110 K1=K1+1:K2=1:IFK1=3ORZW=ZETHENK1=1:C
LOSE2:CLOSE15:GOTO40250
40150 CLOSE2:CLOSE15:NEXTZW
40160 IFK2<>0THEN42000
40200 PRINT"■■NO CUSTOMER WITH THESE DATA
!":PRINT:PRINT:GOTO42000
40250 OPEN4,4
40260 FORI=1TO2:FORJ=1TO2
40270 KO$(J,I)=LEFT$(KO$(J,I)+" ←⟨16 spaces⟩——
——→",20)
40280 NEXTJ:NEXTI
40320 PRINT#4,TAB(LT);KO$(1,1);TAB(RT);KO$
(2,1)
40330 PRINT#4
40340 PRINT#4,TAB(LT);KO$(1,2);TAB(RT);KO$
(2,2)
40350 PRINT#4
40360 PRINT#4,TAB(LT);KO$(1,3);" ";KO$(1,4
);
40365 PRINT#4,TAB(RT+11-LEN(KO$(1,3)));KO$
(2,3);" ";KO$(2,4)
40370 PRINT#4:PRINT#4:PRINT#4:PRINT#4
40380 CLOSE4
40390 NEXTZW
42000 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■ ← 5 spaces
→ ■N■=NEXT CUSTOMER   ■X■=MENUE";
42010 GETAN$:IFAN$=""THEN42010
42020 IFAN$="X"THEN RETURN
```

```
42030 IFAN$="N"THENPRINT"▯":GOTO40010
42050 GOTO42010
44900 GOSUB60100
45000 PRINT"▯▯▯   ********** LOW ITEMS ***
*******"
45010 Z3=0:INPUT"▯OUTPUT TO PRINTER OR SCR
EEN (P/S)";DR$
45020 IFDR$="P"THENOPEN7,4:PRINT#7,CHR$(15
);:CMD7
45030 PRINT:PRINT"NO.   DESCRIPT.
      QUAN         ":PRINT
45035 IFDR$="D"THENPRINT#7:CLOSE7
45540 OPEN15,8,15
45550 OPEN3,8,3,"PRODUCTS"
45560 FORK=1TOLA
45570 HI=INT(K/256):LO=K-HI*256
45580 PO=1:FORI=1TO4
45590 PRINT#15,"P"CHR$(3)CHR$(LO)CHR$(HI)C
HR$(PO)
45600 INPUT#3,KU$(I):IFKU$(I)="π"THEN45630

45610 PO=PO+PR(I)
45620 NEXTI:KU$(0)=MID$(STR$(K),2)
45625 IFVAL(KU$(4))<VAL(KU$(2))THENGOSUB45
700
45630 NEXTK
45640 CLOSE3:CLOSE15
45650 IFDR$="P"THENOPEN7,4:PRINT#7:CLOSE7
45680 PRINT:PRINT"▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯
▯←MENUE"
45690 GETAN$:IFAN$<>"X"THEN45690
45695 RETURN
45700 KU$(2)="     ":KU$(3)="         "
45702 FORM=0TO4:KU$(M)=KU$(M)+"
 ":NEXTM
45704 KU$(0)=LEFT$(KU$(0),4):KU$(1)=LEFT$(
KU$(1),12):KU$(2)=LEFT$(KU$(2),3)
45706 KU$(3)=LEFT$(KU$(3),6):KU$(4)=LEFT$(
KU$(4),4)
45708 IFDR$="P"THENOPEN7,4:PRINT#7,CHR$(15
);:CMD7
45710 FORL=0TO4
45720 PRINTKU$(L)+" ";
```

```
45730 NEXTL
45740 PRINT;
45750 IFDR$="P"THENPRINT#7,CHR$(8);:CLOSE7
:RETURN
45760 PRINT:RETURN
48000 K1$="0":K2$=".00"
48010 CC=INT(JJ*100+.5)/100
48020 J1$=STR$(CC)
48030 J1=10*CC
48040 J2=INT(J1)
48050 J3=J1-J2
48060 IFJ3<.09THEN48090
48070 J$=J1$:L=LEN(J$)
48080 RETURN
48090 J4=INT(CC)
48100 J5=CC-J4
48110 IFJ5<.09THEN48140
48120 J$=J1$+K1$:L=LEN(J$)
48130 RETURN
48140 J$=J1$+K2$:L=LEN(J$)
48150 RETURN
50000 PRINT"■■PRESS ANY KEY"
50010 GETAN$:IFAN$=""THEN50010
50020 RETURN
55000 DATA" CUSTOMER NO.:",5
55005 DATA"          NAME:",20,"       STRE
ET:",20,"          CITY:",14
55010 DATA"           ZIP:",9,"       PHON
E:",13,"  PARAMETER 1:",3
55020 DATA"  PARAMETER 2:",3
55100 DATA"      ITEM NO.:",5
55110 DATA"  DESCRIPTION:",20,"REORDER LEV
EL:",5," RETAIL PRICE:",7
55120 DATA"      ON STOCK:",5,"WHOLESALE PR
.:",7
60000 REM READ MANAGER
60010 OPEN4,8,4,"MANAGEADR,S,R"
60020 INPUT#4,LA:INPUT#4,FA
60030 IFFA=0THEN60070
60040 FORI=1TOFA
60050 INPUT#4,FA(I)
60060 NEXT
60070 CLOSE4
```

```
60080 RETURN
60100 REM READ MANAGER
60110 OPEN5,8,5,"MANAGEPRO,S,R"
60120 INPUT#5,LA:INPUT#5,FA
60130 IFFA=0THEN60170
60140 FORI=1TOFA
60150 INPUT#5,FA(I)
60160 NEXT
60170 CLOSE5
60180 RETURN
```

```
                         *****  INVOICE  *****


     INVOICE NUMBER  :  1                                      1-17-84
       CUSTOMER NO.  :   2


                                          BANK OF AMERICA
                                          ACCOUNT NO. 44447777


   FROM :

       ELCOMP PUBLISHING, INC.
       53 REDROCK LANE
       POMONA CA 91766


   TO :

       JOHN NEALLY
       55 GOLDEN AVE.
       JOSHUA TREE CA 92710

   2          ITEM 1                    29.95  EACH  =        59.90
   5          ITEM 2                    19.95  EACH  =        99.75

                                             10  % DISCOUNT = -      15.97
                                                                 ---------
                                                      NET AMOUNT:   143.68

                                                         FREIGHT:     3.50
                                                                 ---------
                                                                    147.18

                                              + 6.5  %  TAX           9.57
                                                                 =========
                                                           TOTAL:   156.75
```

Some useful hints:

This version of the Business Package uses the device 4 for the printer. It was tested with the Commodore 1525 printer. To modify the program for another printer (device) you have to change all line numbers containing an OPEN, CMD or CLOSE statement using device 4.
For instance line # : 8720, 8780, 20020, 20650, 20708, 20430 a. following,
→30960, 40320, 40425, 40440, 45020, 45035, 45650, 45708, 45750.
After changing the program please test and debug it completly.

Application Notes

Very interesting applications of the Bliztext wordprocessor from Hofacker.

1. How to connect a serial printer or typewriter with an RS232 interface to your C-64

2. How to transfer textfiles from a portable computer into a wordprocessor with built in terminal facilities. This application uses BLIZTEXT, the wordprocessor from Hofacker.

3. Tranfer of text files between portable computers and the Commodore 64 in both directions.

NOTES

RS 232 KIT for the Commodore-64

The Commodore 64 is a very inexpensive computer, if you compare what you get for your money. But when you want to connect a printer to your C-64 the situation becomes different. In many cases, you only can connect a printer to the serial IEEE port of the C-64. You are limited to a few printers on the market.

In this construction article we will show you how to connect a serial printer or an inexpensive typewriter with an RS232 port to your C-64. You don't have to buy an expensive cable. You only have to know how to use a soldering iron and how to solder a few components and two or three wires. Your C-64 is completely equipped with the hardware and the software to drive a serial printer, however the manual does not tell you how to connect it and use it.

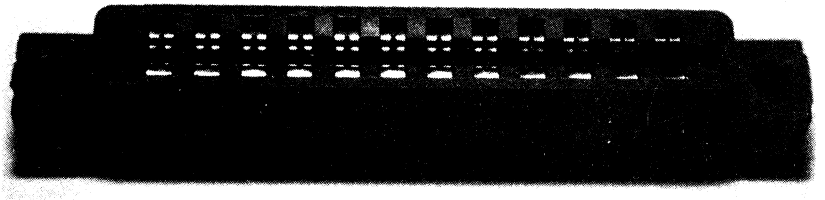
The RS232 interface, which is implemented through the user port, is not a real RS232 with the +-12V levels.

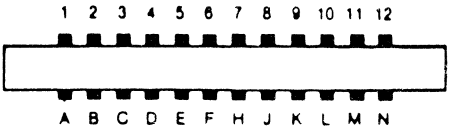
There is only a TTL-level as a transmitted data line available. We used those TTL-level RS232 interfaces with a variety of printers like the DECWRITER, QUME Sprint9, the BROTHER HR15, and the NEC Spinwriter. On all these printers, and even with the Smartmodem from Hayes, the TTL-level RS232 worked fine. The RS232 interface software is

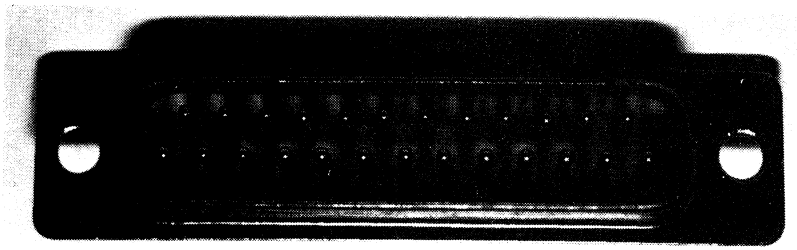
built in and the transmission specifications can be set up via certain register settings.

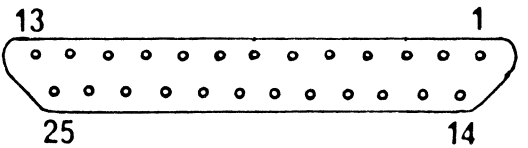
To hook up your RS232 printer all you need is the following:

1. A user port connector 24 pin from TRW CINCH 251-12-50-170/50-24sn-98124 available from your local computerstore or from a distributor that specializes in connectors.







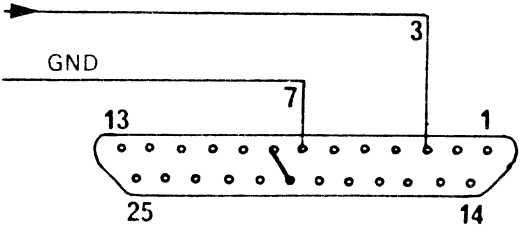


3. Two or three wires

It turned out that a 3 line interface, without any

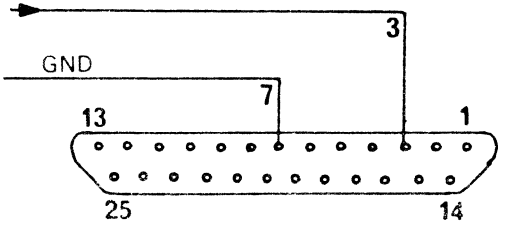
handshaking, was the easiest to connect to our C-64 with a Qume Sprint9 letter quality printer. To wire a 3 line interface you only need to connect:

Receive data on Qume Sprint 9

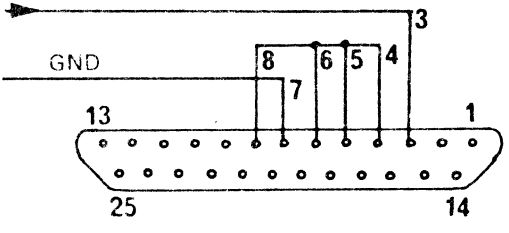


If you want to connect a RS232 printer, you only need to wire the two lines GND and transmitted data.

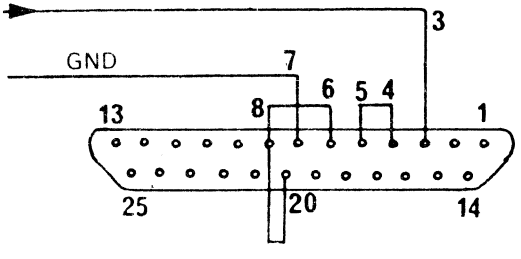
Receive data on DEC-writer



Receive data on Brother HR-15

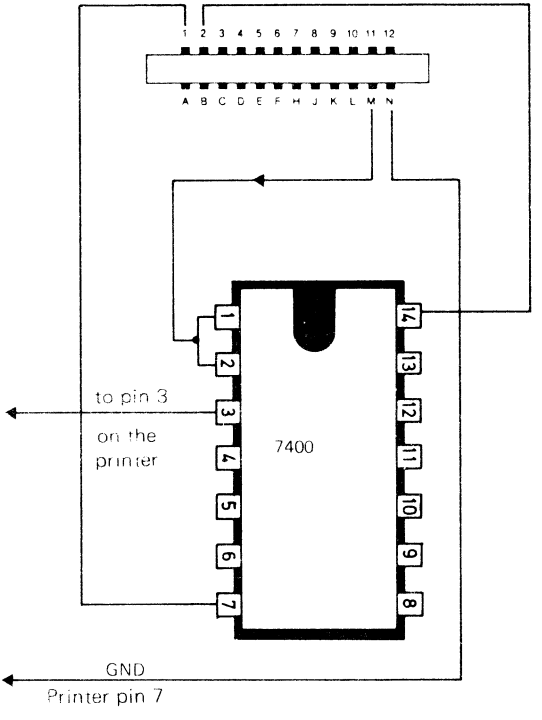


Receive DATA on NEC Spinwriter



We found out that the transmit data line, comming out of pin M, must be inverted before feeding into the printer. You can connect a 7400 NAND gate directly to the user port connector using Pin 1 and Pin 2 as power supply lines.

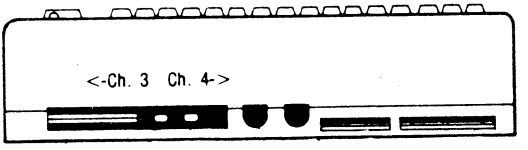
If you need more than 4 lines to be inverted, use a 7404 inverter chip containing 6 inverters. A lot of printers with RS232 interface need some handshaking. Therefore you have to wire the printer input connector according to the following schematics.



Comments: Because we operate the C-64 in the 3-wire-mode, no handshaking provided. We must set the jumpers on our printer so that it does not need any handshaking signals. We must also study the manuals carefully and find out which pin must be GND and which must be high (+5V) to receive

only data via the lines "Receive Data" and "GND". It usually is pin 3 and 7 at the 25 pin connector on your serial printer or typewriter. Sometimes the line "Receive Data" has to be inverted.

The user port is located on the backside of the C-64, on the left side as seen from the keyboard:



One of the two CIA6526 (Complex Interface Adapters) are used for the RS232 interface. Port lines PB0-PB7 plus one portline from port A (PA2) and one flag pin are used for the RS232 interface.

The pinout of the C-64 user port looks as follows:

PB0	Receive Data Pin C	(Input)
PB1	Request to send	(Output)
PB2	Terminal Ready Pin E	(Output)
PB3	Incoming Call Pin F	(for modem only)
PB4	Input Signal Pin M	(Input)
PB5	NC Pin J	
PB6	Clear to Send Pin K	(Input)
PB7	Data Set Ready Pin L	(Input)
FLAG2	Receive Data Flag,Pin B	(Input)
PA2	Transmit Data, Pin M	(Output)
GND	Pin A	
GND	Pin N	

Construction of the cable and inverter.

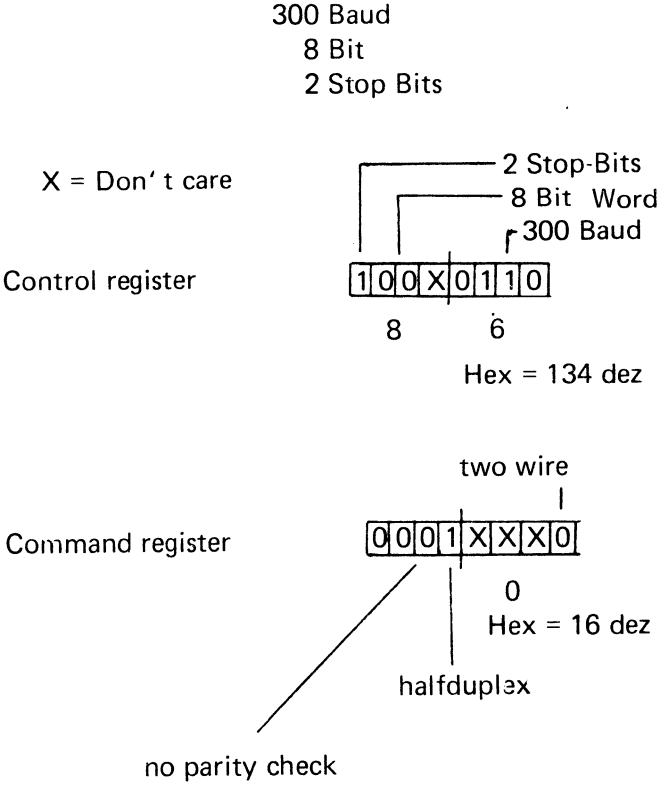
To construct a cable for RS232 +5V operation we need the following parts:

1 User port connector
TRW CINCH 251-12-50-170/24su-98124 or similar

1 RS232 25 pin connector (male)
1 7400 or 7404 TTL IC
4-7 feet of wires.

How to program the RS232 interface? The built in RS232 interface can be programmed by an OPEN command. In our case we will set the following conditions:

Baud rate: 300 baud
Data bits: 8 data bits
Stop bits: 2 stop bits
The control register now looks as follows:



This comes up to a content of decimal 134 or hex 86. We must set the Command Register for

halfduplex and two resp. three wire operations.

After you have wired everything correctly and connected the C-64 to your serial printer you can test the cable and the connection with the following program:

```
10 OPEN 1,2,0,CHR$(134)+CHR$(16)
20 PRINT #1,"U; : GOTO20
```

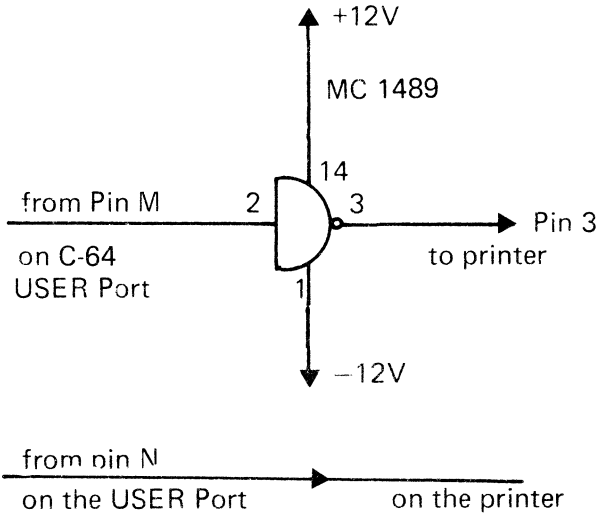
After typing RUN, the printer should start printing. If you want to list a BASIC program to a a printer you have to type in the following:

In the direct mode:

```
OPEN 1,2,0,CHR$(134)+CHR$(16)
CMD 1
LIST
```

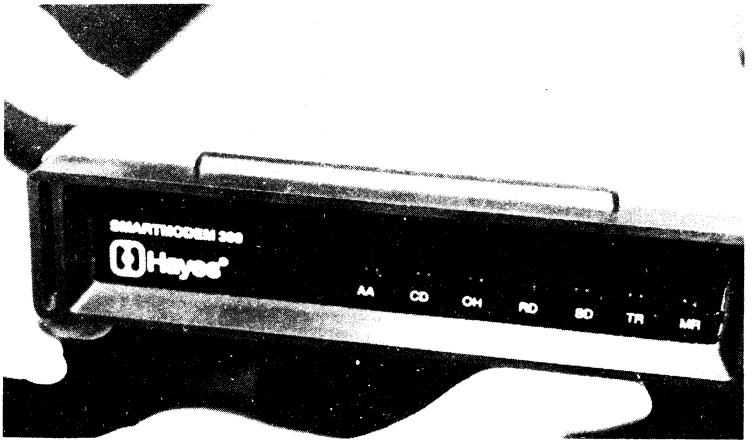
How to convert your +5V RS232 into a real RS232?

As mentioned earlier our RS232 interface described above is not a real RS232 interface because the signal level is only +5V (TTL). Working with many RS232 printers, we found out that a +5V level is sufficient in 90% of all cases. For those who are in the remaining 10% we will show you how to implement a real RS232. For that you need an extra +-12V power supply. A MC1489 integrated circuit has to be added into our project. Because the MC1489 inverts the signal itself, we don't need the inverter circuit anymore. The schematic now looks like this:



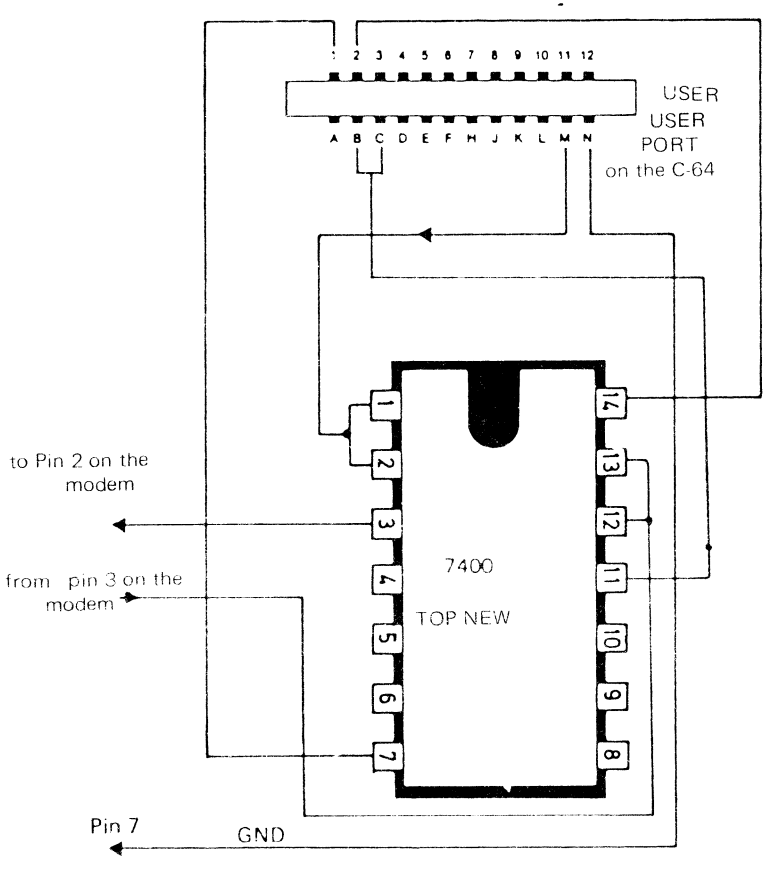
How to connect a modem to your Commodore-64 ?

BLIZTEXT allows you to go from the editor directly into a terminal mode. This gives BLIZTEXT an outstanding feature never seen before on a wordprocessor : You can type your text, format it, save it on disk or cassette or even send it via the Smartmodem into a network or to another computer. You also can download incoming text from a modem into your C -64 and save it for later on cassette or disk.

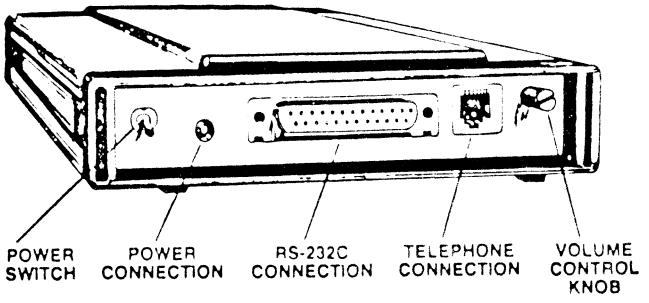


To connect the Smartmodem 300 to your C -64 you need the following:

1. 25 pin RS232 connector (male)
2. 24 pin user port connector for your C-64 user port
3. Three wires approx. 5 feet long



Do not change the factory setting for the configuration switches. You can connect a Smartmodem to your C-64 using the schematic shown above. After wiring the cable and hooking up the phone and power supply, switch on the smartmodem. Jump into the terminal mode from the editor using the command line command T.

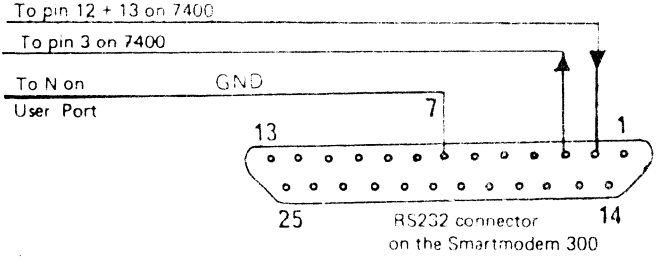


Then type once or twice RETURN, because the first character is always wrong. Type in for instance:

ATF0
OK
ATD5033434352

which dials a phone number in Oregon with a smart modem hooked up. You should use the telephone number from your network here. When you get double characters stop and switch to full duplex and enter ATF1 at the beginning. For more details and on how to program the Smartmodem, please refer to your Smartmodem 300 Owner's Manual.

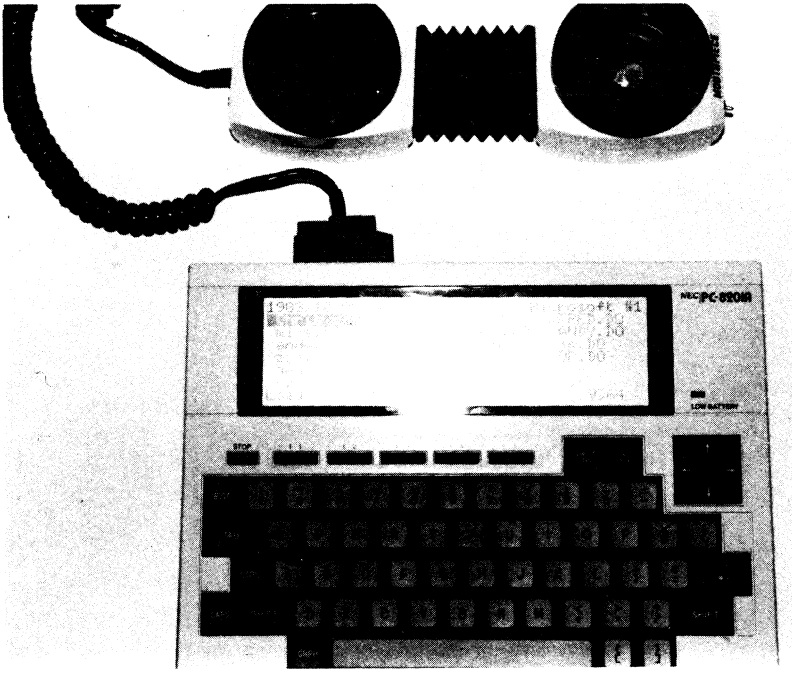
How to wire the connector on the Smartmoden:



We found that the TTL-Level 5V connection to the Smartmodem worked fine. If you use an accustically coupled modem, you may run into problems with the 5V level. Then you have to build the +-12V RS232 cable as described before.

Some Interesting Applications for the use of BLIZTEXT

Because of its unique feature which allows you to send and rceive text with BLIZTEXT on your Commodore-64 there now are many useful application hints. The ones discussed below will help you get the most out of your Commodore-64. Introduction of the real portable computers like the TRS-80 Model 100, the NEC 800, the CASIO P200 or the NEC portable has opened a variety of new applications in which BLIZTEXT may be used.

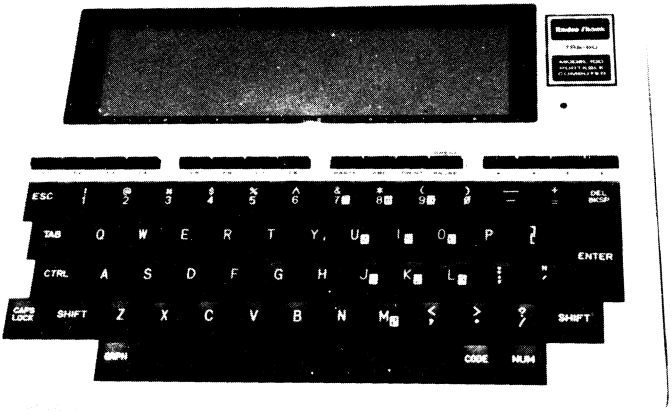


External text aquisition using a lap computer and BLIZTEXT

The TRS-80 Model 100 is one of the first truly portable computers. It has a built-in simple textprocessing program, which allows you to input and modify text and store this text as a DO file in memory. The information is retained even if the power is switched off.

The basic concept

You can use your Model 100 or a similar lap computer with an RS232 interface to type your text in while you are on a business trip. The Model 100 may then be connected into BLIZTEXT (with your Commodore-64). The text can be transferred from the Model-100 into the wordprocessor. There you can modify, insert and format the text and store it on cassette or disk or send it to the printer. You also can upload parts of the text and accumulate it in BLIZTEXT, because you can place the text in BLIZTEXT from the current cursor position on and so chain various parts of text.
How to connect your Model 100 into BLIZTEXT on your C-64 will be shown to you in the following chapters.



The UPLOAD function of the Model 100 in the telecommunication mode must be used to send text to BLIZTEXT.

UPLOADING from Model 100 into BLIZTEXT
Type in the text into the Model 100. Check the available memory and make sure that we have enough space for our textfile. If enough space is not available some current DO files must be killed to make room for our new file.

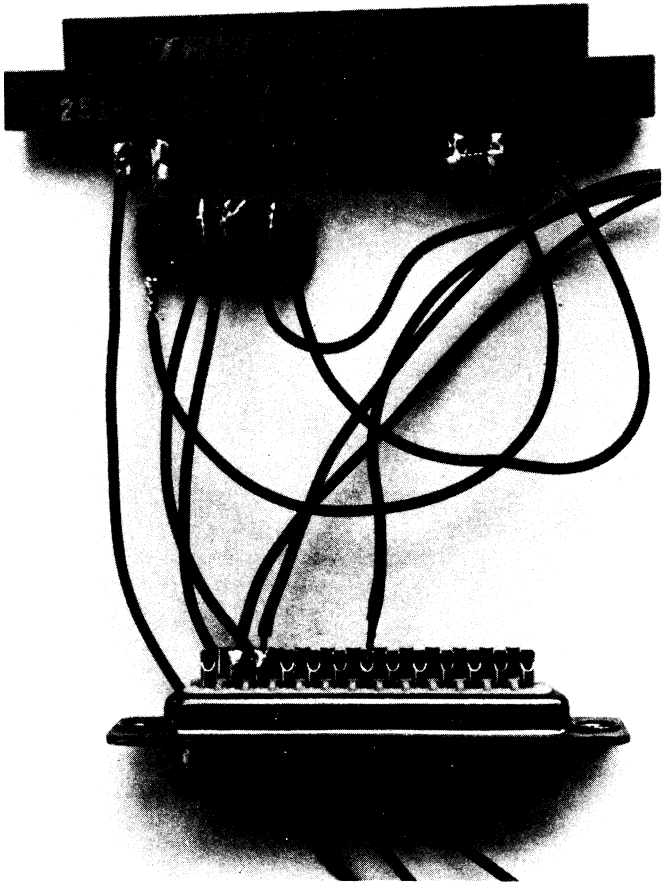
How to kill a file?

Go into BASIC and type KILL "NAME. DO" <RETURN>.
NAME = Name of the DO file already in the menu of the Model 100.
If enough space is available go to the menu and move the cursor of the text function. Type in the name of the file and type in your text using the text editor function of the Model 100. When you are finished, press the function key F8 and return to the menu.

The text can be saved and later sent into the wordprocessor BLIZTEXT on your Commodore-64.
In order for the right transmission characteristics to be set, the Model 100 must be prepared using the "STAT" function. For more information, refer to your Model 100 manual describing the setting procedures using the STAT function.

The Model 100 can now send text via the RS232 interface, so that BLIZTEXT can receive it properly. Proper connections must be made between the two computers.

You need the following parts:
1 connector TRW CINCH 251-12-50-170-50-24su-9824 1
1 RS232 25 pin standard connector 1 SN 7400 (4 NAND-gates TTL-chip) 3 wires approx. 3 feet long
Preparation of the C-64 and BLIZTEXT



Now that we have prepared the Model 100 and wired the connections between the C-64 and the Model 100 we can boot up the Commodore-64 and start BLIZTEXT. After the program has been started, clear the text buffer using the command K in the command line and enter the terminal modus as follows: <CTRL>-<AA> to <CTRL>-<A> <CTRL>-<A>. BLIZTEXT now shows on top of the screen that you are in the terminal facilities. Depress the F1 key. Depress the F1 key only once. It works as a flip-flop and if depressed a second time, it will disconnect the BLIZTEXT terminal facilities from the transmission

line. Thus you also can use the F1 key to receive only parts of text. The C-64 is now ready to receive text. The text must be now uploaded from the Model 100 into the C-64. The "Status" of the Model 100 has been set. Go into the main menu, select the TELECOM mode and depress the function F4 key. Then depress the F3 key for uploading text. The Model 100 will ask you for a filename (i.e. which file to upload). Type in the name of the DO file and the width of the text. This is the number of characters which will be placed after a carriage return by the Model 100. We recommend a width of 39 because this matches with the 40 characters per line on the C-64. BLIZTEXT should now receive the text and displays it on the screen. When the transmission is finished, type F1 (function key) on the Commodore-64, and then <SHIFT>-<F1> to return to BLIZTEXT. The text from the Model 100 is now in the wordprocessor and can be modified, formatted or even stored on disk or on cassette using the BLIZTEXT wordprocessor.

The transmission in the other direction (from BLIZTEXT into the Model 100) can be done the same way. The Model-100 must be prepared for downloading instead for UPLOADING.

Downloading text from BLIZTEXT into the Model-100

Text can be downloaded from the Commodore-64 into the Model 100. An example of this application would be if a businessman wants to take a textfile from BLIZTEXT on his business trip and print this out on printer at the customers office.

How to upload a textfile?

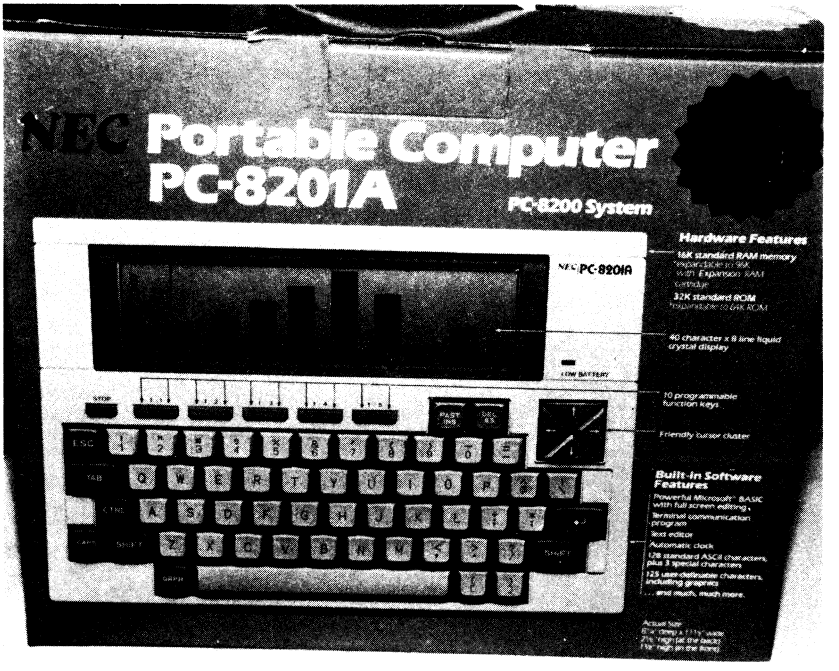
Prepare the C-64 in the same way as described for uploading. On the Model-100, select the terminal mode using the F4 function key. Then depress the F2 function key for downloading. You also have to input a filename,into which the text then will be stored.

NOTES

Transfer of Textfiles

The "BLIZTEXT" wordprocessor was developed by HOFACKER and allows you to send and receive informations with its built-in terminal mode.
The description for the BLIZTEXT word processor shows you how data (text) can be entered into a a portable tandy model 100 at a geographical remote location (e. g. at the beach or in an airplane) and later sent to the BLIZTEXT word processor.

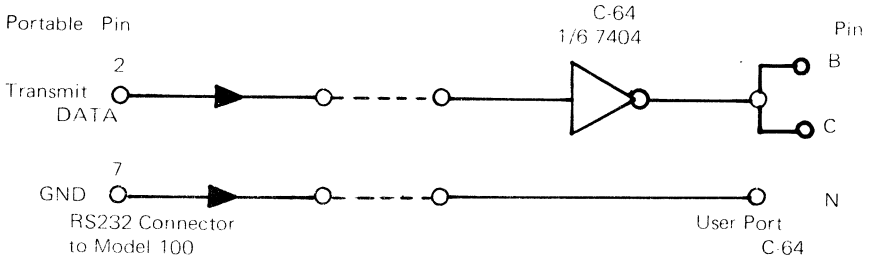
A lot of interest has been generated in this type of word-processing because it is more convenient for some business (e.g. tourism) to work in this way.
In addition to a model 100, you also may use one of these other popular portable computers:
Casio EP 200
NEC pc 8201A
Olivetti M10
PC 1500 (Sharp, with RS232)



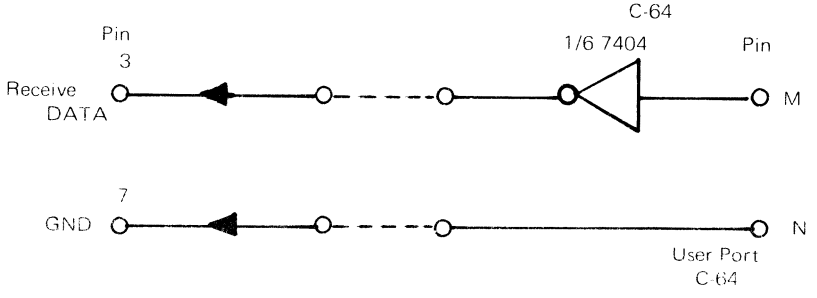
In order to be able to transfer data between a COMMODORE 64 with BLIZTEXT and a portable computer (or any other computer), you need an RS232 interface which works with TTL-level signals (5V), 300 Baud transfer rate, 7 bit wordlength, even parity, 1 stop bit, and two or three wires for transfer without handshaking.
What is the difference between a two and a three wire RS 232 connection? If we only want to send data in one direction, we only need two wires, SIGNAL and SIGNAL GROUND.

The following signals are needed from the RS232 interface:

1. For sending data from the portable computer to BLIZTEXT:

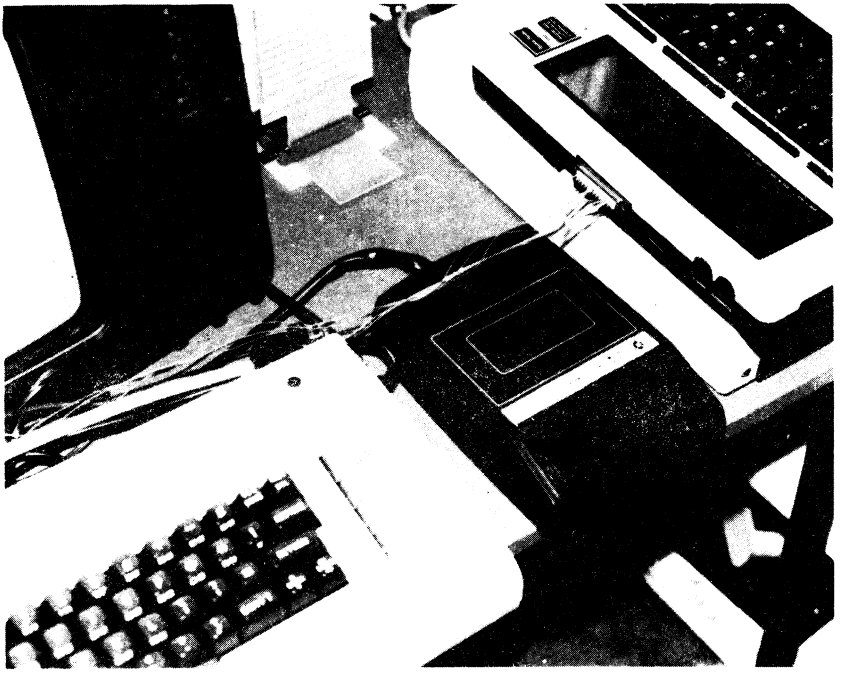


2. For sending data from BLIZTEXT to the portable computer:



When only two wires are used they must be connected to ground (GND) and RECEIVE DATA or SEND DATA.
If three wires are used, they must be connected to GND, SEND DATA, and RECEIVE DATA.
The following signals maybe used with the handshake mode:
1.) Data Terminal Ready
2.) Data Set Ready
3.) Request To Send
4.) Clear To Send
In our case you don't have to connect these. Text maybe entered into the model 100 (NEC and Olivetti are similar) in the following manner.
1.) Turn computer on and select text editing mode.

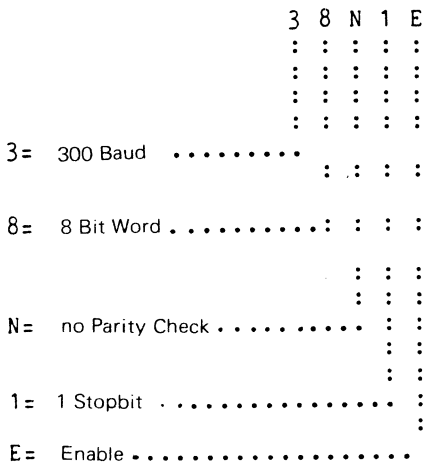
2.) Check that enough memory is available. If not, go to BASIC and use the "KILL" command to DELETE all unneeded files.
3.) After entering your text mode, enter the name of the text file. The name should be the file with the text to be saved. The Model 100 will add "DO" to that name automatically.
4.) Check the manual for further details.
5.) After text has been entered, press function key "F8" to terminate.
6.) This brings you back to "MENU" and the text is stored for future use.



This text can now be sent to your COMMODORE 64 via a cable (see instructions above) or via a modem and the phone line to another location.

1. Transfer of text from Model 100 into BLIZTEXT.

Select RS232 mode using the STAT function:



Select the terminal mode on the Commodore-64. This is done by placing the cursor at the beginning of the text with "HOME". Then go to the command line with "CTRL-A". Enter "TO" and "CTRL-A" twice to terminate the command line. You are now in the terminal mode of BLIZTEXT and a different cursor should appear on the screen.

Press RETURN and then the F1 key. Be sure that you depress the F1 key only once. This key works like a flip-flop. You would switch off if you would press it a second time. The function of this key is to allow you to store (keep) received information. If the switch is off, then the information received in the terminal mode is displayed on the screen but not stored. If the switch is in the on position, then the information received is displayed and stored, so that it can be edited, or printed, or saved later with the wordprocessor. This will allow you to save only parts of the information received while omitting out less important information. When you enter the

terminal mode this key is in the off position.

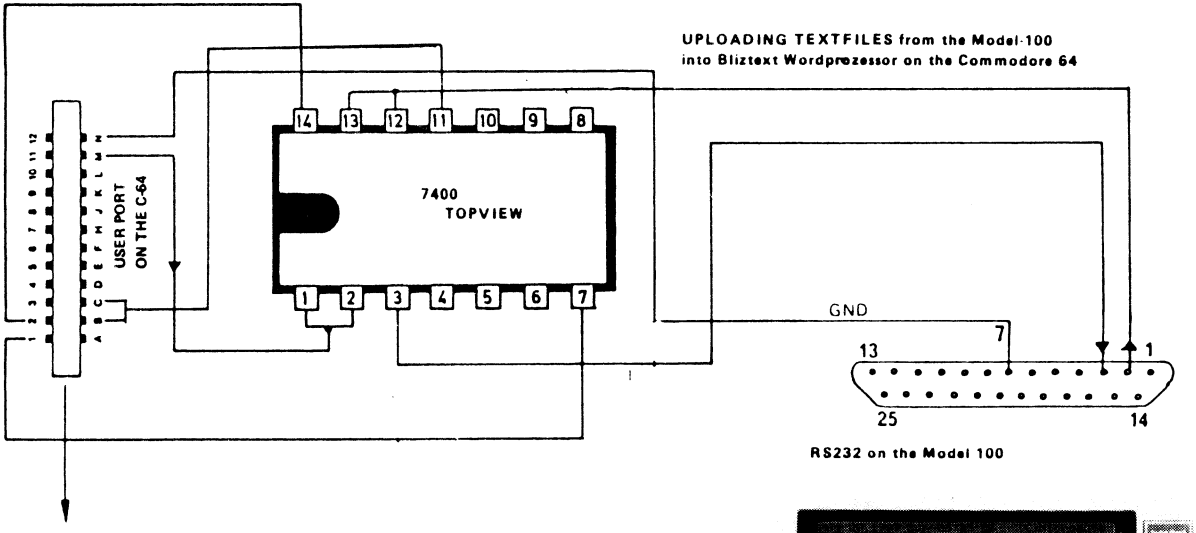
Now your C-64 is ready to receive text. To prepare the TRS-80 model 100 for sending, we select the TELECOM mode and press function key F4. Next, press F3 for upload. The file to be sent has to be in the computer as a DO file. Enter the name of the file with the width of the output. This maybe any value up to 254. The Model 100 will start sending information and we should be able to see the text received by the C-64 on its screen.

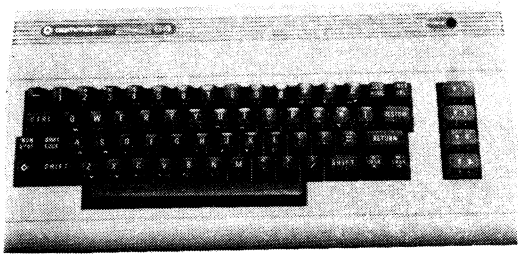
When the transfer is finished, press F8 on the Model 100 and DISCONNECT it. On the C-64, press F1 to terminate the storage and SHIFT-F1 (=F2) to return to the edit mode of BLIZTEXT. You should now see the text received.

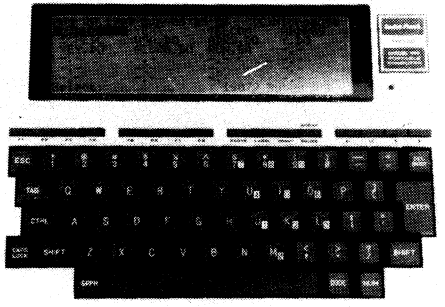
We have tested the procedure described above and found it to work very well. We also have done a transfer from an ATARI 800 via the RS232 interface. A transfer via a modem and the telephone system is also possible with the terminal mode of BLIZTEXT.

Since the terminal mode of BLIZTEXT allows you to upload and download, it is also possible to send information from the C-64 to the Model 100 or another computer.

The following figure shows how to connect Model 100 and C-64.


UPLOADING TEXTFILES from the Model-100
into Bliztext Wordprezessor on the Commodore 64
14 13 12 11 10 9 8
7400
TOPVIEW
1 2 3 4 5 6 7
USER PORT
ON THE C-64
GND
7
13
1
25
14
RS232 on the Model 100
USER PORT





2. Transfer of textfiles from C-64 to Model 100

If you have entered text into your C-64 with BLIZTEXT, we can send this text either formatted or unformatted to the Model 100.
The C-64 must be prepared first. Place the cursor at the position in the text that you want to send. If the entire text should be sent, press HOME. Next, go to the terminal mode by entering CTRL-A TO CTRL-A CTRL-A.(O=zero)
The Model 100 must be prepared to receive (download). Select the TELECOM mode from the menu and press F4 for terminal mode. Next, press F2 for download (send information into the Model 100). F4 allows you to switch between half and full duplex mode (we select half duplex). After F2 has been entered, enter the name under which we want the text received to be stored. If F2 is pressed again, the download will be terminated.
Once the Model 100 is ready to receive, press F3 on the C-64 to start the Model 100. After the download is finished, press F8 on the Model 100, after which you will get the display 'DISCONNECT ? '. Enter 'Y' here. Pressing F8 again brings us back to the menu, where we should be able to see the new file with the extension 'DO', which was added automatically.
Since the Model 100 contains a simple wordprocessor, we are able to edit the received text. To do so, select the textmode and enter the filename. The text is now available for editing. It may also be sent back to the C-64. If you want to print the text on a printer hooked up to the parallel interface, enter SHIFT-PRINT.

The following is an example of how these applications maybe used in the business world. A businessman could prepare his correspondence and price lists using his BLIZTEXT word-processor at home. This text could then be transferred to a portable Model 100 which he could take with him while calling on clients. This text could also be transferred to the client's printer. If the need

arose, he could alter the text by utilizing the mini-wordprocessor built-in to the Model 100. If new input text is required from his home or business, it can be sent via the modem and the telephone.

NOTES

Simple Wortprocessor for C-64

This program will turn your Commodore 64 computer into an inexpensive wordprocessor. It is simple, effective, and will meet any of your writing needs.

This program work with disk only.
After you have typed in the program, start it with RUN. To enter new text at the beginning, start with "n" for "new text input". Press the <SHIFT/LOCK> key for lower case. Text can now be entered.
Never hit RETURN while inputting text! - NEVER-
To delete text, use the <INST/DEL> key.Terminate the input mode by pressing the " £ " key. This key work only in the upper case mode.
To edit text, select the edit mode in the menu. For corrections or for inserting text use the cursor key. Move the cursor so that is over the word you want to change or delete and hit the up arrow key.<↑>
Enter your new text or the corrections. When finished type the < £ > (british pound sign). The new text or the corrections are now inserted.To delete text, insert spaces.
To get back to the menu, move the cursor to the end of the text. To enter new text, type "N", to return to menu, type "Y". The < £ > key will return to the menu also.
If you print from the screen, do not enter more than 20 lines per page.

```
20 POKE53280,11:POKE53281,11:PRINTCHR$(5)C
HR$(14)CHR$(8)
100 DIM T$(32):POKE53272,23:Z$=" ←——20 spaces—
——————————→ :T$="        "
110 PRINT"▚▩ SIMPLE WORDPROC. ■    "FRE(0)
"BYTE FREE▩▩▩▩▩
120 PRINT"DO YOU WANT TO  ▩E■DIT TEXT? "
130 PRINTSPC(15)" ▩L■OAD FROM DISK.
140 PRINTSPC(15)" ▩S■AVE ON DISK.
150 PRINTSPC(15)" ▩P■RINT ON DEV.(4,4)
160 PRINTSPC(15)" ▩O■UTPUT ON SCREEN.
170 X$="                OR     ▩N■EW TEXT INPUT":
GOSUB240:IFC$="E"GOTO630
180 IFC$="L"GOTO955
190 IFC$="S"GOTO1040
200 IFC$="P"GOTO700
210 IFC$="N"GOTO670
220 IFC$<>"O"GOTO110
230 PT=0:LL=20:K=40:N=K:S$="":GOTO800
240 PRINTX$+"?":GOTO260
250 PRINT"▩▩ PRESS SPACEBAR  "
260 POKE198,0:WAIT198,1:GETC$:PRINT"▚";:RE
TURN
270 X$="":J=0:REM *CASE REVERSAL*
280 GETC$:IFC$=""THENPRINT"▒"CHR$(157)"  "C
HR$(157);:GOTO280
290 IFC$="£"THENRETURN
300 C=ASC(C$):IFC>64ANDC<91THENC=C+256
310 IFC>127THENC=C-128
320 L=LEN(X$):IFC=13ORC=17ORC=18ORC=29OR(C
=20ANDL=0)GOTO280
330 IFC=20GOTO370
340 C$=CHR$(C):PRINTC$;:X$=X$+C$:IFC=34THE
NPRINTC$"▮▮ ▮▮";
350 IFL<170GOTO280
360 RETURN
370 IFL=1THENX$="":GOTO390
380 X$=LEFT$(X$,L-1)
390 PRINTCHR$(C);:GOTO280
400 I=0:REM EDITLOGIC
410 PRINT"▚":IFKTHENPRINT"▚▩"RIGHT$(T$(K-1
),20)
420 PRINT:PRINTX$:LL=LEN(X$)-1
```

```
430 GETC$:L=1104+I:POKEL,PEEK(L)+128:IFC$=
"↑"GOTO570
440 IFC$="■"THENI=I+1
450 IFC$="■"ANDI>39THENI=I-40
460 IFC$="■"THENI=I+40
470 IFC$="■"THENI=0
480 IFC$=""GOTO520
490 U=ASC(C$):IFU=13THENI=191
500 IFU=20THENGOSUB540:GOTO410
510 IFC$="■"THENI=I-1:IFI<0THENI=0
520 POKEL,PEEK(L)-128:IFI>LLTHENRETURN
530 FORJ=0TO9:NEXTJ:GOTO430
540 L$="":IFITHENL$=LEFT$(X$,I)
550 R$="":IFI<LLTHENR$=RIGHT$(X$,LL-I)
560 X$=L$+R$:RETURN
570 GOSUB540:GOSUB270
580 IFLEN(L$)+LEN(X$)+LEN(R$)<171THENX$=L$
+X$+R$:GOTO410
590 FORJ=32TOK+2STEP-1:T$(J)=T$(J-1):NEXTJ

600 J=LEN(R$)+LEN(X$)-170:IFJ>0THENL$=L$+L
EFT$(X$,J):X$=RIGHT$(X$,LEN(X$)-J)
610 T$(K+1)=X$+R$:X$=L$:GOTO410
620 POKE1,23:POKE162,0:WAIT162,16:RETURN
630 REM ** EDITING PROGRAM  **
640 FORK=0TO31:IFT$(K)><""THENX$=T$(K):GOS
UB400:T$(K)=X$:NEXTK:GOTO110
650 PRINT"■■■THIS IS THE END .":X$="■READY
  ? ":GOSUB240:IFC$="Y"GOTO110
660 GOTO680
670 K=0:REM ** WRITE   PROGRAM  **
680 X$=T$(K):GOSUB270:T$(K)=X$:IFC$<>"£"AN
DK<31THENK=K+1:GOTO680
690 FORJ=K+1TO32:T$(J)="":NEXTJ:GOTO110
700 REM **PRINT LOGIC**
710 X$="NUMBER OF SPACES IN TAB":GOSUB240
720 T$=" ■":IFVAL(C$)THENT$=LEFT$(Z$,VAL(C
$))
730 PT=0:X$="ON  ■SCREEN  OR       ■PRINT
ER":GOSUB240:IFC$="P"THENPT=1
740 DS=0:X$="DOUBBLE LINE SPACE ":GOSUB240
:IFC$="Y"THENDS=1
750 N=40*(1+PT):IFPTTHENOPEN4,4:GOTO770
```

```
760 INPUT"LINES PER PAGE ";LL
770 INPUT"■CHARACTERS PER LINE ";K:PRINT"□
"
780 N=(PT+1)*40:IFK>NTHENPRINT"■TOO MANY C
HARACTERS":goto770
790 S$="":IFK<N-1THENS$=LEFT$(Z$,(N-K)/2)
800 TF=0:L=1:X$="":FORJ=0TO31:X$=X$+T$(J)
810 IFTFTHENX$=T$+X$:TF=0
820 M=LEN(X$):IFASC(X$)=32THENX$=MID$(X$,2
):GOTO820
830 IFJ<31ANDM<KTHENNEXTJ
840 FORU=1TOK:IFMID$(X$,U,1)="↑"THENTF=1:G
OTO870
850 NEXTU:IFJ=31ANDM<=KGOTO940
860 FORU=KTO1STEP-1:IFMID$(X$,U,1)<>" "THE
NNEXTU:PRINT"□■■TOO LITTLE":GOTO770
870 L$="":IFU>1THENL$=LEFT$(X$,U-1)
880 R$="":IFU<MTHENR$=RIGHT$(X$,M-U)
890 IFDSAND(PT=0)THENL$=L$+CHR$(13)
900 IFDSANDPTTHENL$=L$+CHR$(12)
910 X$=R$:IFPTTHENPRINT#4,CHR$(17),S$+L$:G
OTO810
920 PRINTS$+L$:L=L+1+DS:IFL>LLTHENL=1:GOSU
B250
930 GOTO810
940 IFPTTHENPRINT#4,CHR$(17),S$+X$:CLOSE4:
GOTO110
950 PRINTS$+X$:GOSUB250:GOTO110
955 REM
960 OPEN2,8,2,"@0:TEXT,S,R"
970 J=0
980 I=0:A$=""
990 GET#2,C$:IFC$="£"THEN C$="":GOTO1022
1000 A$=A$+C$:I=I+1
1010 IF I=32 THENT$(J)=A$:J=J+1:GOTO980
1020 GOTO 990
1022 A$=A$+C$:I=I+1
1024 T$(J)=A$
1030 CLOSE 2:GOTO 110
1035 REM     Z$=MID$(T$(J),Z,1)
1040 REM
1050 OPEN 2,8,2,"@0:TEXT,S,W"
1060 FOR I=0 TO 32
```

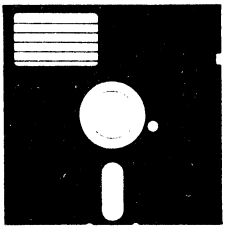
```
1070 IF T$(I)=""THEN GOTO 1100
1080 PRINT#2,T$(I)
1090 NEXT I
1100 PRINT#2,"£":CLOSE 2
1110 GOTO 110
```

Acknowledgements

I wish to thank R. Heigenmoser, Franz Ende and Edward Wozniak, who provided valuable source information.

I wish also to acknowledge the use of some programs by Jim Butterfield from the Folklife Terminal Club public domain program disks.

THE PROGRAMS FROM THIS BOOK ON A DISK.



Use this page as an orderform

☐ **All programs on disk** **US $29.95**

☐ **BLIZTEXT 1.1 – SUPER WORDPROCESSOR for the Commodore-64 US $89.00**

BLIZTEXT 1.1

- Fully screen-oriented, up/down, left an right scrolling – Upper and lower case.
- More than 70 commands.
- Full I/O compatibility with Commodore peripherals Upper and lower case.
- Works with practically every printer on the market, user definable printer control commands.
- INCLUDE command allows handling large files on up to 4 diskettes or on cassette.
- Build in terminal software for electronic mail an networking. Telecommunications mode, upload and download, save on disk or cassette.
- Dynamic formatting, Imbedded commands.
- Single keystroke for disk directory and error channel.
- Program comes on disk or cassette.
- Double line spacing, left and right margin justification, centering, page numbering, and practically everything one expects from a good wordprocessor.
- Calculation functions.

Order No. 4965 **$89.00**
Manual only (62 pages) **$29.95**

BLIZMERGE – program Order No. 4945 **$39.00**

Name: (please print) . . . . . .

Address: . . . . . .

City/State/Country/Code . . . . . .

Ask your local dealer or mail it to one of these addresses:

ELCOMP Publishing, Inc.
53 Redrock Lane
Pomona, CA 91766
USA
Phone: (714) 623-8314
Telex: 298191

ELCOMP Computer (S) Pte Ltd.
89 Short Street
Unit 03-07, Golden Wall Auto C.
Singapore 0718
Phone: 3382623, 3388228
Telex: 22456

Payment in US funds only. Check, money order, VISA, MASTER CARD, Eurocheck, ACCESS, Interbank.
Prepaid orders add $ 3.50 for shipping (USA), $ 5.00 handling for C.O.D.
All orders outside USA: add 15% shipping. California residents add 6.5% sales tax.

Prices are subject to change without further notice !

NOTES

Books & Software

HARDWARE ADD-ONs for your C-64

Parallel printer interface, driver
Order-No. 4990 **$19.95**

Universal Experimenter Board
Order-No. 4970 **$9.95**

Expansion Board (holds 4 exp. boards)
Order-No. 4992 **$29.95**

SOFTWARE for your C-64

MACROFIRE – Editor/Assembler for the Commodore-64
The best macroassembler you can buy !
Order-No. 4963 **$89.00**

BLIZTEXT 1.1 – Wordprocessor
Order-No. 4965 **$89.00**

BLIZMERGE
Mailing list program which merges testfiles form Bliztext.
Order-No. 4945 **$39.00**

SUPERBOOKS for your C-64

The Great Book of Games, Vol. I
64 programs for the Commodore-64.
Order-No. 182 **$9.95**
Programs form this book on disk **$19.95**

MORE ON THE SIXTYFOUR
Tips, tricks, hints, very important subroutines.
Order-No. 182 **$9.95**
Programs form this book on disk **$19.95**

HOW TO PROGRAMM YOUR C-64 in 6502/10 Machine Language
Introduction to Machine Language for the BASIC Programmer.
Order-No. 184 **$12.95**
Programs form this book on disk **$19.95**

Commodore-64 Tune-up, Vol. I
How to expand your C-64.
Order-No. 185 **$12.95**

Small Business Programs for the C-64
Order-No. 186 **$12.95**
Programs from this book on disk **$29.95**

MACROFIRE – Editor/Assembler for the Commodore-64

ON SALE NOW
AVAILABLE IMMEDIATELY

One outstanding tool, consisting of 3 powerful elements combined into one efficient program !

1. Fully screen-oriented Editor (more than 70 commands)
2. Very fast assembler with macro capability
3. Machine Language Monitor

Assembly can be started from the editor. Translates in 3 passes. More than 1,000 lables, screen oriented/no line numbers, scrolling, includes disk files. Practically everthing the serious machine language programmer needs every-day !

Manual only **$19.95**
Order-No. 4963 **$89.00**

NOTES

NOTES

HOFACKER

HOFACKER

HOFACKER

HOFACKER

HOFACKER

HOFACKER

HOFACKER

ISBN 3-88963-186-X

HOFACKER