A Program Control System
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For The IBM Personal Computer
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Makes a PC Easier to Use and More Productive
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by
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Selecting and Running Programs
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The purpose of the  following procedure is to run the  PC with no
exits to  the operating system or  BASIC.  I would like  to think
that no  more than  5 minutes  of instruction  are needed  to let
someone run this computer the first  time they see it.  That five
minutes  would be  spent pointing  out the  on-off switches,  and
describing the diskette file.  It  would include some precautions
on  the  handling of  diskettes  and  the  explanation  that  they
contained programs  and data.  Some discussion  of the  diskette
filing system would  be in order as  well as the function  of the
DOS diskette.  But when  the DOS  diskette is  inserted and  the
power turned on, it should be possible  to run any program in the
diskette file by following the instructions  on the screen and in
the documentation.

Finding the  diskettes containing  the programs  to be  run is  a
function of how well they are filed and labeled, and is discussed
in the  next section.  This section  will describe  a method  of
chaining programs,  to keep  the machine  under constant  program
control.

This Program  Control System, (PCS), is  for a two  drive system.
The DOS diskette normally stays in drive "A" and program and data
diskettes are swapped in drive "B".  PCS uses information on each
diskette in drive "B" to determine which program to run.  Between
programs,  a message  is  displayed on  the  screen  to tell  the
operator  what options  are available,  including  the option  to
change  diskettes.  When  an  option  is  chosen,  control  is
transferred to the program selected.  When that program ends, the
option message is redisplayed and the cycle repeats.


    Normal Operation Using PCS

    From power-on, you will be requested to:

1.  Type in the date and time.

2.  Insert the next program diskette and type <SPACE> to
    continue.

    At this point you may select any PCS program diskette from
    your library and insert it in drive "B". When you type
    <SPACE> the program, menu or program chain on the diskette
    will be run automatically.

3.  When the program ends, step 2 will be repeated.

4.  The <F2> key will cause an immediate exit from all BASIC
    programs.
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Detailed Description

The programs that are run under control of PCS fall into two
categories:

1.  Machine language programs such as visicalc and other
    compiled or assembled programs.

2.  BASIC programs, which run under the control of the BASIC
    interpreter.

PCS requires that a program diskette contain programs of one type
or the other, so that it knows whether to give control to the
program diskette or to the BASIC interpreter.

The program control cycle starts when a batch file named
SYSTEM.BAT gets control. It is so named to let the same command
be used in DOS to get to BASIC as is used in BASIC to get to DOS.
SYSTEM.BAT gets control initially from the AUTOEXEC.BAT file.
SYSTEM.BAT loads the BASIC interpreter and instructs it to run a
BASIC program named TRANSFER.BAS. TRANSFER.BAS displays a
message on the screen that requests a program diskette in drive
"B" and waits for a keystroke. If the diskette inserted is not a
BASIC program diskette, TRANSFER.BAS exits back to SYSTEM.BAT
which passes control to CONTROL.BAT on the program diskette.

Machine language program diskettes contain a batch file named
CONTROL.BAT, that gives control to a RUN.BAT file on the DOS
diskette, passing it a parameter to tell it which program to run.
The batch file on the DOS diskette will regain control when the
program ends. RUN.BAT then passes control to the SYSTEM.BAT file
on the DOS diskette, which loads the BASIC interpreter and
runs TRANSFER.BAS.

Each BASIC program diskette contains a BASIC program named
CONTROL.BAS, which chains to the primary program on the diskette.
If TRANSFER.BAS finds a CONTROL.BAS program on a diskette, it
knows it is a BASIC program diskette and chains to CONTROL.BAS
instead of exiting back to SYSTEM.BAT. If a series of BASIC
programs are run in succession, the BASIC interpreter will remain
resident for all of them. All BASIC programs have an immediate
exit function key that gives control back to a menu, the first

program in a chain of programs, or back to TRANSFER.BAS.
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PCS Components
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PCS consists of:

    Three batch files and a BASIC file on the DOS diskette.

    A one line batch file on each program or data diskette.

    A one line BASIC program on each BASIC program diskette.

In addition, two files are provided to "MERGE" with BASIC
programs to give them cover pages, a soft key exit and an exit
hierarchy. A model menu program is also provided, which can be
edited and added to BASIC diskettes.


PCS Files
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 1.  AUTOEXEC.BAT - Gets control on BOOT or power on, requests
     the date and time and passes control to SYSTEM.BAT.

 2.  SYSTEM.BAT - Makes drive "B" the default drive, loads the
     BASIC interpreter and runs TRANSFER.BAS. When it regains
     control, it passes control to CONTROL.BAT on drive "B".

 3.  RUN.BAT - Runs the machine language program passed to it as
     a parameter. When it regains control, it passes control to
     SYSTEM.BAT.

 4.  TRANSFER.BAS - Instructs the operator to insert a program
     diskette and waits for a keystroke. It then chains to
     CONTROL.BAS or exits back to SYSTEM.BAT.

 5.  MENU.PCS - A sample menu to be edited and placed on BASIC
     diskettes containing more than one basic program.

 6.  COVER.PCS - An ASCII file to be "MERGED" with a BASIC
     program to give it a cover page and exit hierarchy.

 7.  EXIT.PCS - An ASCII file to be "MERGED" with a BASIC program
     to give it an exit hierarchy.

 8.  CONTROLB.PCS - Copy this file to CONTROL.BAT on each BASIC
     program diskette.

 9.  CONTROLD.PCs - Copy this file to CONTROL.BAT on each data
     diskette.

10.  CONTROLM.PCS - Copy this file to CONTROL.BAT on each machine
     language program diskette. (after copying, the CONTROL.BAT
     file must be edited with the name of the program to be run).
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# INSTALLING PCS

On the DOS diskette

- Make a working copy of DOS by copying it to an unused diskette.

- Store the original copy of DOS and label the work copy as "D O S". Consider all future references to DOS as referring to the work copy.

- Insert the DOS diskette in drive "A". You will not have to remove the DOS diskette from drive "A" for the rest of this procedure, nor will you have to remove it for most programs run under PCS.

- Erase the sample basic programs from the DOS diskette to free up some space.

- Copy all ten PCS files to the DOS diskette. Actually, files 1-4 are the only ones required for PCS operation, it's just handy to have the others always available in drive "A".

  No other changes will be made on DOS. Put a write-protect sticker on it to prevent inadvertent erasures.

On Machine Language Program Diskettes

- insert a Machine Language Program Diskette in drive "B".

- Copy A:CONTROLM.BAT to B:CONTROL.BAT

  B:CONTROL.BAT contains "A:RUN VC80". Change VC80 to the name of the program to be run. You can either use an editor to do this or type the command in directly using COPY CON: B:CONTROL.BAT.

On Data Diskettes

- insert a DATA diskette in drive "B"

- Copy A:CONTROLD.BAT to B:CONTROL.BAT

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Installing PCS on BASIC Program Diskettes

- insert a BASIC program diskette in drive "B"

- Copy A:CONTROLB.BAT to B:CONTROL.BAT

- Create a CONTROL.BAS file using COPY CON: B:CONTROL.BAS, containing the record '10 RUN"program name"'. "Program name" should be the name of the first program on the diskette that you want to get

control.

- If there is more than one  program on the diskette a
  menu should  be the  first program  to get  control.
  You can  copy A:MENU.PCS to  B:MENU.BAS and  edit it
  from BASIC, with  the names of the  programs on this
  diskette.

- Load the  BASIC interpreter  with  the  "BASICA"
  command.  The following steps  assume that the BASIC
  interpreter is in control.

- Merge A:COVER.PCS with each  program on the diskette
  that  is either  the  first program  in  a chain  of
  programs or a  program that does not  chain to other
  programs.  The line numbers in COVER.PCS are 0-1 and
  65000-65170.   If  the  program  contains  any  line
  numbers  in  these  ranges,  it   will  have  to  be
  renumbered with  the RENUM command before  doing the
  merge.

  Edit line  65040, replacing  654321+123456 with  the
  program name.

  Edit line 65060 with the version number and date.

  Edit line 65080 with the source or authors name.

- Merge  A:EXIT.PCS with  each program  that does  not
  qualify for  A:COVER.PCS.  EXIT.PCS uses line  1 and
  lines  65130-65170.  If  the  program  has any  line
  numbers that overlap those numbers,  it will have to
  be renumbered before EXIT.PCS can be merged.

- The following instructions apply if either COVER.PCS
  or EXIT.PCS is merged with the program.

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  Remove any CLEAR instructions other  than in line 1,
  because it will reset the ON KEY(2) interrupt set up
  in line 1.

  Scan the source  for any END statements  and replace
  them with "GOTO 65140".

  Scan  the  source  for  any  SYSTEM  statements  and
  replace them with "GOTO 65140".

  Scan the source for any  STOP statements and replace
  them with "GOTO 65140".

  If this program is not  run from MENU.BAS, edit line
  65140  and replace  'menu' with  the proper  program
  name.

- SAVE  the  PCS  version  of  the  program  using  its
  original name.

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Reviewing and Organizing new BASIC Programs
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A Quick Access and Review Method

The IBM PC Club diskette, ADX0004, contains a very short but useful program called "BASMENU.BAS". BASMENU reads the names of all the BASIC files on the current drive and displays them in menu form. You then select and run a program by entering its number. If you copy BASMENU.BAS to the diskette being reviewed, you can:

- RUN"BASMENU to list the BASIC programs

- Select a program for review & modification by entering its number.

- CNTL BREAK the program to make the required changes (cover page etc.)

- SAVE the program.

- Function Key 1 will rerun BASMENU to repeat the cycle.

Creating a Menu Program

If there is more than one BASIC program on a diskette, a menu should be the first program to get control. You can copy A:MENU.PCS to B:MENU.BAS and edit it from BASIC.

- Edit line 200, replacing 'FINANCE PROGRAMS' with the title of your menu.

- Edit lines 201-209, replacing 'Description n' with a descriptive title for the programs you will chain to. and replacing 'Program Name n' with the corresponding program names.

- Edit line 10 to set C1, C2 and C3 to the foreground,background and border colors of your choice.

Running DOS Diskette Programs from Data Diskettes

If you have a utility that uses data diskettes, you can store a CONTROL.BAS file on each of them, that loads the utility from the DOS diskette. For example, if you had an editor named RV-EDIT that was used to create and modify documentation files on several data diskettes, you would store RV-EDIT on the DOS diskette and put the following

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CONTROL.BAS file on each data diskette.

10 RUN"A:RV-EDIT

This method requires only one copy of the utility. Upgrades of the utility need only be applied to one diskette. All data diskettes will automatically use the latest version and

you save the disk space you would have used if you put a copy
      on each data diskette.

   ORGANIZING A DISKETTE LIBRARY
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   1. Start a documentation looseleaf binder.  Every time you get a
      program with a documentation file, print the file and put it
      in this binder.  Keep the binder by the computer and it will
      provide a convenient "first place to look" to get info on any
      of your programs.  So far I have the DOC files for PDRAW,
      STARTREK, PC-TALK, RV-EDIT and PCS in mine.

   2. Start a diskette index.  A sheet of looseleaf paper as the
      first page in your documentation binder will do.  Each entry
      in the index should have the diskette number (001-nnn) and a
      general description of its contents.  The index will give you
      one place to look to see how many diskettes you actually have
      and give you a quick reference to what is on each.


   3. Copy programs from your current diskettes to a group of categ-
      orized diskettes.  Assign a number to each diskette (001-nnn).
      This number will be on the diskette label, the diskette jacket,
      the backup diskette and in your diskette log.


   4. Label each diskette by category (GAMES #1, DEMO #3, etc.).
      Put the diskette number in a common location on each diskette
      so you won't have to search for it.  Also write the number
      in a common location on the diskette jacket.

      You don't have to list each program name, your menu programs
      will print them for you.

   5. Put a CONTROL.BAT file on each and a CONTROL.BAS file on each
      BASIC diskette.

   6. Put a menu program on each diskette with multiple programs.

   7. Use the print option of the menu programs to list the diskette
      contents.

   8. Tape the printed menus to the diskette jackets.

   9. Label a set of backup diskettes with the numbers in your
      diskette index.  These diskettes will be filed numerically
      and need no other label.

  10. Put write protect stickers on each library diskette before copying
      them to the backup diskettes.  Leave the write protect stickers on.

  11. File the backup diskettes numerically and put them in a safe
      place like a metal box or filing cabinet.
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  12. File the library diskettes by category in a place handy to
      the computer.  I like the "Flip-Sort" file box.  It holds
      50 diskettes and makes it easy to peruse the diskettes.

This method makes it easy to browse through your library in search
of interesting programs, keeps a record of everything you have and
lets you recover any program inadvertently destroyed.

CLOSING REMARKS
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As you can see, it takes some administration to keep even a PC library
under control.  You will have to judge for yourself whether or not it
is worth the effort.  My personal experience indicates that the time
spent SYSOPing is much less with a formal organization than without it.
A well run system can be a source of pride to its administrator and
multiply the return on a PC investment.

My final thought on this subject is the same one that I end every
programming session with, "Is everything backed up?".  Accidents will
always happen, but it seems that the difference between a small problem
and a catastrophe is frequently a $3.00 diskette.  I feel that anything
that I've invested an hour of programming time in and anything that I've
spent money on should be backed up.  I don't back up or even keep PC
Club diskettes because the PC Club maintains my backups for me!  You
have to make that kind of judgement call.  You wouldn't have to back up
PC-TALK because you can always get another copy from a Club diskette,
unless you had modified it for PCS or customized it in some way.

I hope that all the foregoing doesn't present too complex a picture to
a novice computerist, because it really is an easy system to maintain.
My objective with PCS was to make my PC as operate like a phonograph.
If you think about it, there are definite similarities.  The diskette
file is a record collection.  You select what you want by browsing the
diskette jackets.  You put your selection in the drive and press a button
[SPACE] to play it.  If the world can play phonograph records, the world
can run computers.

You'll know you've succeeded when you have to schedule your SYSOP time
around your enthusiastic user community.

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(sample)
              DISKETTE INDEX
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NUMBER                          DESCRIPTION
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S 001  DOS 1.1 + RV-EDIT + PCS
  002  Menu driven Music and Graphics Programs
S 003  PC-TALK, Communications program from PC magazine.
  004  Games #1
  005  Demonstrator #3, Burlington Family Day demo diskette.
  006  DRAW, by David Morrill
  007  EDITOR (RV-EDIT) development diskette, with documentation files.
  008  Demonstrator #1, IBM SAMPLES + Computer Tutorial
  009  Demonstrator #2, PC Features + PC Graphics
  010  Finance #1, Multifunction program and Barchart program
  011  Visicalc Data #1, Visicalc files from ADX0004
  012  Games #2, ADX0006 SUPERTREK & CHESS
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