

MTC AIDS - II

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M E T A T E C H N O L O G I E S C O R P O R A T I O N , I N C .

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Use of this program will require the
purchase of Radio Shack's TRSDOS
Disk Operating System.

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Congratulations! You are the owner of one of the most powerful data management tools available on a small computer. AIDS-II has been designed as a "total" package. By using the documentation, the demonstration program (AIDSDEMO), and the sample AIDS2-based address system (ADDRSYST), you will become proficient in the use of this critically acclaimed system in a short time. AIDS-II is a thinking-person's data manager. As with any non-trivial computer product, you will have to expend some effort to become thoroughly familiar with the system . . . for which you will be richly rewarded. Below is an excerpt from MTC's March, 1980 ad in 80 MICROCOMPUTING magazine.

MTC AIDS-II represents the essence of MTC's product development philosophy. Below are "testimonials" from four owners of the package. These are absolutely authentic statements and are typical of the comments we receive.

"The AIDS-II package is the most powerful data manager we've ever seen. The most complete and easiest to use!"
David Johnson, President, John-Tronics Security Co.
(Uses AIDS-II for client and prospect mailing lists, A/R, gun registration and alarm systems logs)

"It will do everything it's advertised to do plus whatever else your imagination allows. It is the best software value on the market today. AIDS-II is the most significant software development I've seen, and will have as large an impact on the marketplace as the Radio Shack TRS-80 did on the microcomputing market."
Vern Hall, V. Hall Insurance Agency (Nationwide Insurance)
(Uses AIDS-II for client and prospect mailing lists & follow-up systems, A/P, A/R)

"...the best system for the non-programmer I've ever used. It has an unlimited number of uses. I might have to buy another system just to have it on-line at all times..."
Robert I. Gross, CPA
(Uses AIDS-II for mailing labels, client reference system, for providing an audit trail to disburse funds to general ledger)

"...the most flexible and powerful system I've seen, especially with modules such as MAPS. The weakest part of the AIDS system is the Radio Shack Computer!"
L.G. Payne, Media Specialist, Strongsville High School
(Uses AIDS-II for mailing lists, tracking of audio-visual materials, experimenting with student attendance records)

To get started, familiarize yourself with this manual. When the "mood" is right, load BASIC, specifying 3 files and setting user memory at the maximum for your particular machine. (If you have trouble doing this, refer to your Disk Operating System reference manual). After inserting your diskette with your AIDS-II system, type in:

RUN "AIDSDEMO"

Section 9.0 of this manual contains a facsimile of the text of this program.

(Cont'd)

This manual has been written in the form of a quick reference guide, not a tutorial. Once having studied the text of AIDSDEMO, spend some time "experimenting" with each of the MAIN OPTIONS of the sample address system, ADDRSYST. For example, try adding data records from the keyboard. Open this manual to Section 2.0 (the section number corresponds to the MAIN OPTION number), so that you may readily see the control options available. By spending a few minutes learning about each function, you will quickly grasp the fundamental concepts of AIDS2. To create an AIDS2 system for your specific needs, refer to Section 9.6. You will find that defining a system takes about a minute. Section 0.8 contains a brief discussion of the concepts of AIDS2. In Section 10.0 you will find a discussion of the MTC AIDS-II PRINT SUBSYSTEM (MAPS), which is capable of producing a wide variety of formatted output from your AIDS-II disk data files.

It is natural to be overwhelmed at first by the apparent complexity of the AIDS-II system. It is very similar to learning to drive a car. Initially the controls are unfamiliar, but with practice, the operations become very natural . . . almost second nature. Be patient and take it one step at a time. With a little effort up front, you'll be able to address your information requirements better than you may have thought possible.

AIDS-II/MAPS

DOCUMENTATION FORMAT

0.3

TOPIC

SUBJECT PERTAINS TO
SYSTEM(S) SPECIFIED HERE

SUBJECT

SUBJECT

VIDEO DISPLAY (CRT)

LINE PRINTER OUTPUT

THIS SYMBOL IS
USED TO REPRESENT
INFORMATION APPEARING
ON THE TRS-80
VIDEO DISPLAY
INFORMATION TYPED IN
BY USER IS UNDERLINED.

THIS SYMBOL IS
USED TO REPRESENT
INFORMATION THAT
HAS BEEN OUTPUT
ON A LINE
PRINTER

LABEL-TYPE OUTPUT

THIS SYMBOL IS
USED TO REPRESENT
LABEL-TYPE, PRINTED
OUTPUT

Sections 1 through 8
correspond to the
respective functions
as seen on the MAIN
OPTION screen.

MODEL I

MODEL II



...

Example of same key being used for identical
function on Models I & II.



Example of different keys used on Models I & II
for same function.



Example of the use of a SHIFTED or upper-case
key (Model I).

- o Configure BASIC for 3 files and maximum user memory before running programs.
- o AIDS2 features minimal error messages. Some to be concerned with are:
 - OUT OF MEMORY before MAIN OPTION SELECTION screen appears: Memory configured too small.
 - SYNTAX ERROR IN 10XX or OUT OF DATA before MAIN OPTION SELECTION screen appears: Data statements are improper.
 - TYPE MISMATCH before MAIN OPTION SELECTION screen appears: Probable missing data statement.
 - BAD FILE = XXXXX: Something wrong with a disk operation in file XXXXX including:
 - o Diskette Full - No more Room for data records.
 - o Not a FORMATTED Diskette.
 - o Not an AIDS2-compatible disk data file.
 - o Data file for another AIDS2-based program.
 - o Incorrect filename format.
 - o Misspelled filename.
 - o Disk Drive not turned on.
 - o Diskette is write-protected.
 - o No diskette in disk drive.
 - o Disk Read/Write Error.
 - FILE = XXXXX IN USE: Attempt to use ACTIVE file XXXXX in a way that is not compatible with its original purpose.
- o "SELECT" options will degrade in speed if more than 3/4 of total records are being "USED" or if more than 200 records are being "USED."
- o Use the following technique to sort more disk data records than can be held in memory at one time:
 - Break up file into logical groups, using a group size that will fit in memory. For example, NAME fields can be thought of as belonging in groups with beginning letters A-H, I-Q, R-Z.
 - Use SELECT & LOAD in conjunction with SELECT & DELETE to load and sort and save individual groups. For Example:
 - o DELETE all records, SELECT & LOAD NAME < I, SORT NAME, SAVE "SAVEFILE/DAT".
 - o DELETE all records, SELECT & LOAD NAME < R, SELECT & DELETE NAME < I, SORT NAME, SAVE into ACTIVE file.
 - o SELECT & LOAD NAME > Q, SORT NAME, SAVE into ACTIVE file.
 - o Deactivate ACTIVE save file.
- o Use the following "windowing" technique to update or add records to large disk data files.
 - 1) Delete all records from memory.
 - 2) Add records from the keyboard.
 - 3) Load some records from file to be updated (use the same ACTIVE file after starting process).
 - 4) Change any records requiring updates in memory.
 - 5) Save records from memory into disk data file (use the same ACTIVE file after starting process).
 - 6) Repeat 1-5 until entire LOAD file has been updated and saved.

SYSTEM NAME GOES HERE

* RECORD(S) USED: 0 REMAINING: 222

RECORDS CONTAIN THE FOLLOWING INFORMATION:

A -1ST FIELD	D -4TH FIELD	G -7TH FIELD	J -10TH FIELD
B -2ND FIELD	E -5TH FIELD	H -8TH FIELD	K -11TH FIELD
C -3RD FIELD	F -6TH FIELD	I -9TH FIELD	L -12TH FIELD

- 1 - SELECT & LOAD RECORDS
- 2 - ADD RECORDS
- 3 - SORT RECORDS
- 4 - SELECT & UPDATE RECORDS
- 5 - SELECT & DELETE RECORDS
- 6 - SELECT & PRINT RECORDS
- 7 - SELECT & SAVE RECORDS
- 8 - WRITE DESCRIPTOR FILE

CHOOSE OPTION:

The name (title) of the AIDS-II system appears on the top of the screen. The number of data records (in memory) appear below the name. A description of the data fields follows the record counts. To select an option, hit one of the keys below (hitting <ENTER> is not required). Terminating the program deactivates any "ACTIVE" data files (appearing in parentheses after options 1 and 7).

Model I

Model II

1	...	Select and load data records from a disk file, adding records to those in memory (See Section 1).
2	...	Enter data records from keyboard, adding to those in memory (See Section 2).
3	...	Sort data records currently in memory (See Section 3).
4	...	Select data records in memory for updating (See Section 4).
5	...	Select data records in memory for deletion (See Section 5).
6	...	Select data records in memory for display/printing down the screen/page (See Section 6).
7	...	Select data records in memory to be saved in a disk file (See Section 7).
8	...	Create a disk file describing the format of the data records (See Section 8).
SHIFT ↑	F1	Terminate program operation.

NTC AIDS-II ADDRESS SYSTEM
 * RECORD(S) USED: 0 REMAINING: 216

NAME OF LOAD FILE: ADDRSYST/DAT

After specifying the criteria through the SELECTION SEQUENCE by which records will be loaded, the name of the disk data file is entered. Upon hitting the <ENTER> key, records will be loaded from the beginning of this file. Each record will be checked to see that it is of the expected length. Loading from the file is terminated under 3 conditions:

- 1) When all data records in the file have been loaded.
- 2) When all records in memory have been "USED".
- 3) If the <↑> key is hit.

If not all records in the file have been loaded, the file is considered to be "ACTIVE". If <SHIFT ↓> key is hit, instead of entering a file-name, loading records from the ACTIVE file will continue where the process left off. To "DEACTIVATE" a load file, enter an "*" instead of a file-name. Entering any filename automatically deactivates an ACTIVE file. The criteria defined in the SELECTION SEQUENCE applies to all records loaded from all files that are specified.

*** NOTE ***

It is very important not to remove the diskette containing an ACTIVE load file, if the loading process will be continued with that file. If another load file is to be specified, the diskette may be removed.

(Cont'd)

NTC AIDS-II ADDRESS SYSTEM
 * RECORD(S) USED: 11 REMAINING: 205

NAME OF LOAD FILE:

ACTIVE LOAD FILE=ADDRSYST/DAT

NTC AIDS-II ADDRESS SYSTEM
 * RECORD(S) USED: 11 REMAINING: 205

NAME OF LOAD FILE: *.....

ACTIVE LOAD FILE=ADDRSYST/DAT

Model I

Model II



...

When hit while loading data records from a file, terminates loading process. When hit in place of entering filename, returns to "SELECTION SEQUENCE".

SHIFT



F1

Returns to "MAIN OPTION SELECTION".

SHIFT



F2

Continue to load data records from "ACTIVE" file.



ENTER

...

Deactivates currently "ACTIVE" file.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 11  REMAINING: 285
  RECORDS CONTAIN THE FOLLOWING INFORMATION:
A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

      1 - SELECT & LOAD RECORDS (ADDRESS/DAT)
      2 - ADD RECORDS
      3 - SORT RECORDS
      4 - SELECT & UPDATE RECORDS
      5 - SELECT & DELETE RECORDS
      6 - SELECT & PRINT RECORDS
      7 - SELECT & SAVE RECORDS
      8 - WRITE DESCRIPTOR FILE

CHOOSE OPTION: —
  
```

Upon returning to the "MAIN OPTION SELECTION", the name of a currently ACTIVE file will be displayed in parentheses next to the "SELECT & LOAD" option, as shown in this example.

HTC AIDS-II ADDRESS SYSTEM

* RECORD(S) USED: 0 REMAINING: 216

NAME:
 STREET:
 CITY:
 STATE:
 ZIP:

MAXIMUM
FIELD
SIZE

THESE 5
FIELDS
MAKE UP
A RECORD

FIELD
NAMES

In this example from the "ADDRSYST" AIDS-II system, data may be entered into each of 5 fields. Input from the keyboard is limited to the number of character positions defined for each field. To change a data record after it has been saved, choose the "UPDATE" function in the "MAIN OPTION SELECTION".

Model I

Model II

	...	Enter data into field. When last field is "ENTER"ed, data appearing on screen is saved in new record.
	...	Skip up to previous field. Does not alter data previously "ENTER"ed in field.
	...	Skip down to next field. Does not alter data previously "ENTER"ed in field.
		Delete the last character in field.
		Right justify data within field. Use for typing in numbers.
		Cancel record additions and return to "MAIN OPTION SELECTION". Any data on screen is ignored.
		Save data appearing on screen into new record. Does not alter data previously "ENTER"ed in field. Does not perform "ENTER".
		Delete entire contents of field.
		Restore contents of field to that of data previously "ENTER"ed.

HTC AIDS-II ADDRESS SYSTEM

* RECORD(S) USED: 12 REMAINING: 204

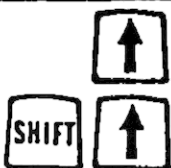
A -NAME C -CITY E -ZIP
B -STREET D -STATE

SORT RECORDS BY (A-E): DCR.

In this example from the "ADDRSYST" AIDS-II system, 5 fields may be sorted in any combination. Enter the field specifiers (e.g. A-E) in the order in which the data should appear sorted for a report. Hit <ENTER> to begin the sorting process (which will typically take only a few seconds).

Model I

Model II



...



Return to MAIN OPTION SELECTION.

PAGE 1




















STATE	CITY	NAME
NY	BIGTOWN	BLACK, BOB
NY	BIGTOWN	SMITH, JOHN
NY	SMALLVILLE	JONES, TON
OH	ANYTOWN	BLACK, BOB
OH	ANYTOWN	BROWN, TED
OH	ANYTOWN	JONES, TON
OH	ANYTOWN	SMITH, JOHN
OH	CURTOWN	BLACK, BOB
OH	CURTOWN	BROWN, TED
OH	CURTOWN	JONES, TON
OH	CURTOWN	SMITH, JOHN
OH	SMALLTOWN	BROWN, TED

This "MAPS" report shows how the data records would be rearranged in memory. The order of sorting specification (above) was STATE(D), CITY(C) and NAME(A). All sorting in AIDS-II is into ascending order (i.e. lowest to highest) using the ASCII collating sequence.

MTC AIDS-II ADDRESS SYSTEM
 * RECORD(S) USED: 12 REMAINING: 204

 NAME: SMITH, JOHN.....
 STREET: 123 EAST STREET
 CITY: CORTON
 STATE: OH
 ZIP: 44132

In this example from the "ADDRSYST" AIDS-II system, any of 5 fields may be altered within the data record being displayed. Records are chosen for updating through the "SELECTION SEQUENCE". Input from the keyboard is limited to the number of character positions defined for each field.

Model I	Model II	
	...	Enter data into field. When last field is "ENTER"ed, data appearing on screen is saved in old record. Next record meeting selection criteria is displayed.
	...	Skip up to previous field. Does not alter data previously "ENTER"ed in field.
	...	Skip down to next field. Does not alter data previously "ENTER"ed in field.
		Delete the last character in field.
		Right justify data within field. Use for typing in numbers.
 		Save data appearing on screen into old record. Does not alter data previously "ENTER"ed in field. Does not perform "ENTER". If first record "SELECTED", returns to "SELECTION" screen, otherwise displays previous record meeting selection criteria.
 		Save data appearing on screen into old record. Does not alter data previously "ENTER"ed in field. Does not perform "ENTER". If all records have been "SELECTED", returns to "SELECTION" screen, otherwise displays next record meeting selection criteria.
 		Delete entire contents of field.
 		Restore contents of field to that of data previously "ENTER"ed.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

SELECT & DELETE RECORDS BY (A-E)  _

```

In this example from the "ADDRSYST" AIDS-II system, data records in memory may be deleted by selecting records by the contents of any 5 fields by hitting a key corresponding to the respective field specifier (A-E). Hitting <ENTER> is not required. Refer to "SELECTION SEQUENCE" for further information.

Model I

Model II



...

Return to "MAIN OPTION SELECTION".



***** CAUTION *****

Delete all data records in memory and return to "MAIN OPTION SELECTION".

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

SELECT & DELETE RECORDS BY
CITY= SMALL

(C)OUNT OR (D)ELETE:  _

```

In this example, all data records having the first 5 letters of the CITY field equal to "SMALL" will be deleted, if the <D> key is hit. Only data records in memory meeting the specified criteria may be counted or deleted.

Model I

Model II



...

Count data records in memory meeting specified selection criteria.



...

Delete data records in memory meeting specified selection criteria.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

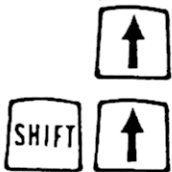
SELECT & PRINT RECORDS BY (A-E): _

```

In this example from the "ADDRSYST" AIDS-II system, data records in memory may be displayed/printed by selecting records by the contents of any of 5 fields by hitting a key corresponding to the respective field specifier (A-E). Hitting <ENTER> is not required. Refer to "SELECTION SEQUENCE" for further information.

Model I

Model II



...

Return to "MAIN OPTION SELECTION".



Display/Print all data records in memory.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

SELECT & PRINT RECORDS BY
CITY= SMALL

(C)OUNT OR (P)RINT: _

```

In this example, all data records having the first 5 letters of the CITY field equal to "SMALL" will be displayed/printed, if the <P> key is hit. Only data records in memory, meeting the specified criteria, may be counted or displayed/printed.

(Cont'd)

Model I

Model II



...

Count data records in memory meeting specified selection criteria.



...

Display/Print data records in memory meeting specified selection criteria.

JONES, TOM
345 NORTH STREET
SMALLVILLE
NY
10110

BROWN, TED
567 SOUTH STREET
SMALLTOWN
OH
44119

In this example, all data records in memory meeting the specified criteria (CITY=SMALL) are displayed on the Video Display. After all selected records are displayed, control is returned to the "SELECT & PRINT" sequence.

JONES, TOM
345 NORTH STREET
SMALLVILLE
NY
10110

BROWN, TED
567 SOUTH STREET
SMALLTOWN
OH
44119

To obtain printed output on the Model I, simply turn on the printer (and the printer's "SELECT" switch) before completing the "SELECT & PRINT" selection sequence. On the Model II, respond by hitting the <Y> key to the query regarding whether the printer is turned on.

Model I

Model II



... Return to "SELECT & PRINT" sequence.

SHIFT



HOLD

Hold display/printing of data records. Hitting this key again will continue display/printing.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

NAME OF SAVE FILE: SAVE/DAT.....

```

After specifying the criteria through the SELECTION SEQUENCE by which records in memory will be saved, the name of the disk data file is entered. Upon hitting the <ENTER> key, records will be saved from memory into this file. Saving of the file is terminated when all records SELECTED have been saved.

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

NAME OF SAVE FILE: .....

ACTIVE SAVE FILE=SAVE/DAT

```

Upon termination, the file is considered to be "ACTIVE". If the <SHIFT↓> key is hit, instead of entering a filename, SELECTED records will be added to the end of (i.e., appended to) the ACTIVE file. To "DEACTIVATE" a save file, enter an "*" instead of a filename. Entering any filename automatically deactivates an ACTIVE file. The criteria defined in the SELECTION SEQUENCE applies to all records saved into all files that are specified.

*** NOTE ***

It is very important not to remove the diskette containing an ACTIVE save file. All data records that have been saved will be IRRETRIEVABLY LOST if the diskette is removed from the disk drive. DEACTIVATING a file performs a CLOSE operation, after which the diskette may be removed. All ACTIVE files are DEACTIVATED upon normal program termination. (TURNING THE COMPUTER OFF DESTROYS THE DATA RECORDS IN MEMORY).

(Cont'd)

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

NAME OF SAVE FILE: *.....

ACTIVE SAVE FILE=SAVE/DAT

```

Model I

Model II

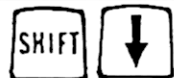


...

Return to "SELECTION SEQUENCE".



Return to "MAIN OPTION SELECTION".



Append SELECTED data records to the end of the "ACTIVE" file.



...

Deactivate (CLOSE) currently "ACTIVE" file.

HTC AIDS-II ADDRESS SYSTEM

* RECORD(S) USED: 12 REMAINING: 204

RECORDS CONTAIN THE FOLLOWING INFORMATION:

A -NAME C -CITY E -ZIP
B -STREET D -STATE

- 1 - SELECT & LOAD RECORDS
- 2 - ADD RECORDS
- 3 - SORT RECORDS
- 4 - SELECT & UPDATE RECORDS
- 5 - SELECT & DELETE RECORDS
- 6 - SELECT & PRINT RECORDS
- 7 - SELECT & SAVE RECORDS (SAVE/DAT)
- 8 - WRITE DESCRIPTOR FILE

CHOOSE OPTION: _

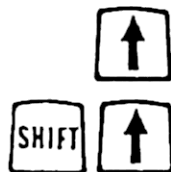
Upon returning to the "MAIN OPTION SELECTION", the name of a currently ACTIVE file will be displayed in parentheses next to the "SELECT & SAVE" option, as shown in this example. DO NOT REMOVE THE DISKETTE FROM THE DISK DRIVE IF AN ACTIVE FILE IS DISPLAYED!

HTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 8 REMAINING: 216
NAME OF DESCRIPTOR FILE: ADDRSYST/DSC.

In order to communicate information such as the names and lengths of the data fields within the records, an AIDS2-based program (e.g. "ADDRSYST") can produce a "DESCRIPTOR" disk file. This file is required to run AIDS-II subsystems (e.g. MAPS, which is included in the AIDS-II package). This file need only be created once for each individual AIDS2-based program that is defined. (See "DESCRIPTOR FILE FORMAT" for more information).

Model I

Model II



...



Return to "MAIN OPTION SELECTION".

CONGRATULATIONS! YOU ARE THE OWNER OF ONE OF THE MOST POWERFUL DATA MANAGEMENT TOOLS AVAILABLE ON A SMALL COMPUTER, AIDS-II.

SO THAT YOU MAY LEARN HOW TO USE AIDS-II AS QUICKLY AS POSSIBLE, A SAMPLE ADDRESS SYSTEM ('ADDRSYST') HAS BEEN INCLUDED AS PART OF THIS PACKAGE. AT THE END OF THIS DEMONSTRATION PROGRAM A SAMPLE DATA FILE WILL BE GENERATED AND THE AIDS-II BASED 'ADDRSYST' WILL BE RUN AUTOMATICALLY. THIS WILL ALLOW YOU TO GAIN EXPERIENCE WITHOUT RISKING ANY 'LIVE' DATA.

YOUR AIDS-II PACKAGE CONTAINS THE FOLLOWING PROGRAMS:

AIDSDEMO - DEMONSTRATION/DOCUMENTATION PROGRAM

AIDS2 - USER-DEFINED DATA MANAGEMENT PROGRAM

MAPS - MTC AIDS-II PRINT SUBSYSTEM

ADDRSYST - SAMPLE AIDS2-BASED ADDRESS SYSTEM

CERTAIN ASSUMPTIONS HAVE BEEN MADE REGARDING YOUR KNOWLEDGE OF THE COMPUTER. FIRST, THAT YOU KNOW HOW TO 'LOAD' AND 'RUN' A * BASIC * PROGRAM. IF YOU DO NOT, REFER TO YOUR DISK OPERATING SYSTEM MANUAL. SECOND, THAT YOU KNOW WHAT A DISK FILE IS, AND THAT DISK FILE NAMES TAKE THE FORM, FILENAME/EXT:D. NO KNOWLEDGE OF PROGRAMMING WITH DISK FILES IS REQUIRED, ONLY THAT YOU CAN ENTER PROPER FILE NAMES. YOUR D. O. S. MANUAL CONTAINS THIS INFORMATION. THIRD, THAT YOU UNDERSTAND WHAT IS MEANT BY THE TERM, 'IN MEMORY'. INFORMATION THAT IS 'IN MEMORY' RESIDES WITHIN THE RANDOM ACCESS MEMORY CIRCUITS, NOT IN A FILE ON A DISKETTE. THIS DATA IS LOST WHEN THE COMPUTER IS TURNED OFF. ADDITION, DELETION, UPDATING AND SORTING OF DATA IN AN AIDS-II SYSTEM IS DONE 'IN MEMORY'. DATA MAY BE SAVED IN A DISK FILE.

TO UNDERSTAND AIDS-II, YOU MUST UNDERSTAND THE CONCEPT OF A 'FIELD', A 'RECORD' AND A 'FILE'. A 'FIELD' IS THE SMALLEST UNIT OF INFORMATION IN AIDS-II. DATA FIELDS MAY CONTAIN THE NAME OF A PERSON, A ZIP CODE, AN INVENTORY COUNT, ALMOST ANYTHING. WITH AIDS-II, YOU DEFINE EACH DATA FIELD BY GIVING IT A NAME AND SPECIFYING THE NUMBER OF CHARACTERS OF DATA IT MAY CONTAIN.

A 'RECORD' IS MADE UP OF ONE OR MORE FIELDS. IN MEMORY AND ON DISK, EACH RECORD'S LENGTH IS THE SAME AND IS EQUAL TO THE SUM OF THE LENGTHS OF THE INDIVIDUAL FIELDS. THE NUMBER OF RECORDS CONTAINED WITHIN A DISK FILE ARE LIMITED BY AVAILABLE SPACE ON THE DISKETTE. AIDS-II WILL AUTOMATICALLY DETERMINE HOW MANY RECORDS MAY BE IN MEMORY AT ONE TIME.

(Cont'd)

BELOW IS AN EXAMPLE OF AN ACTUAL RECORD FROM THE SAMPLE ADDRESS SYSTEM ('ADDRSYST'), AS IT RESIDES IN MEMORY AND ON DISK.

```

      NAME(20)                                CITY(12)  ZIP(5)
#####-----#####-----#####
SMITH, JOHN          123 EAST STREET      OURTOWN      OH44132
-----#####-----#####
                        STREET(24)                STATE(2)

```

THE SHADED AREAS SHOW THE LIMITS OF THE INDIVIDUAL FIELDS. ONE OR MORE RECORDS MAKE UP A 'FILE'. ALL THE RECORDS IN A FILE HAVE THE SAME NUMBER AND TYPES OF FIELDS. THIS IS A SIMPLE, BUT VERY IMPORTANT CONCEPT. IT IS THIS COMMONALITY THAT GIVES AIDS-II ITS POWER AND FLEXIBILITY.

'AIDS2' FORMS THE CORE OF THE AIDS-II SYSTEM. IT PROVIDES THE ACTUAL DATA MANAGEMENT CAPABILITIES (ADD, DELETE, CHANGE, SORT, ETC.). AIDS2 WORKS WITH DATA IN MEMORY, WHILE OTHER 'SUBSYSTEMS' (SPECIAL PROGRAMS THAT EXPAND THE CAPABILITIES OF AIDS2) WORK WITH DISK DATA FILES CREATED BY AN AIDS2-BASED PROGRAM (E.G. 'ADDRSYST'). THESE SUBSYSTEMS NEED TO 'KNOW' THE FORMAT OF THE DISK FILES IN ORDER TO PERFORM THE TASKS FOR WHICH THEY WERE DESIGNED. TO COMMUNICATE INFORMATION SUCH AS THE NAMES AND LENGTHS OF THE DATA FIELDS WITHIN THE RECORDS IN THE DISK DATA FILES, AIDS2 CAN PRODUCE A 'DESCRIPTOR' DISK FILE. IN THIS WAY, A SINGLE SUBSYSTEM MAY BE USED WITH MANY AIDS2-BASED PROGRAMS.

INCLUDED WITH YOUR AIDS-II PACKAGE IS A SUBSYSTEM CALLED 'MAPS' (MTC AIDS-II PRINT SUBSYSTEM). MAPS GREATLY EXPANDS AIDS-II'S PRINTED OUTPUT CAPABILITIES. IT CAN QUICKLY AND EASILY PRODUCE A WIDE VARIETY OF FORMATTED OUTPUT, INCLUDING REPORTS, LABELS, LISTS, ETC. IT IS WELL WORTH THE EFFORT TO BECOME FAMILIAR WITH ITS FEATURES.

IF YOU HAVE SPECIAL NEEDS, SUCH AS MAINTAINING COMPLEX MAILING LISTS OR PERFORMING NUMERIC CALCULATIONS ON YOUR DATA, MTC OFFERS SEVERAL ADDITIONAL SUBSYSTEMS THAT SIGNIFICANTLY ENHANCE YOUR AIDS-II PACKAGE. THEY ARE VERY MODERATELY PRICED.

CERTAIN NAMING CONVENTIONS HAVE BEEN ADOPTED FOR SPECIFYING DISK FILES. LISTED BELOW ARE THE RECOMMENDED CONVENTIONS.

- ADDRSYST - FOR AIDS2-BASED PROGRAMS, CHOOSE A FILENAME THAT READILY IDENTIFIES THE PURPOSE OF THE PROGRAM
- ADDRSYST/DAT - FOR DISK DATA FILES, USE A 'DAT' EXTENSION FOR THE FILENAME.
- ADDRSYST/DSC - FOR DESCRIPTOR FILES, USE A 'DSC' EXTENSION FOR THE FILENAME.

(Cont'd)

IT IS TIME TO GET YOUR FEET WET. IF YOU FEEL READY TO TRY YOUR HAND, HIT THE <A> KEY AND A SMALL DISK DATA FILE CALLED 'ADDSYST/DAT' WILL BE GENERATED AND 'ADDSYST' WILL AUTOMATICALLY BE 'RUN'. MAKE SURE YOU HAVE YOUR DOCUMENTATION NEAR BY. A GOOD FIRST SESSION SHOULD TAKE ABOUT 1/2-HOUR. IT WILL TAKE ABOUT 4-5 HOURS OF EXPERIENCE TO TRULY APPRECIATE THE MORE SUBTLE FEATURES OF THE AIDS-II SYSTEM.

IF YOU FEEL UNEASY AND WISH TO REVIEW THIS TEXT AGAIN, HIT THE <R> KEY.

IF YOU WISH TO TERMINATE THIS PROGRAM HIT THE <T> KEY.

WHICH DISK DRIVE (0-3) DO YOU WANT THE SAMPLE DISK DATA FILE
WRITTEN ON ? 1

HAVE YOU INSERTED A FORMATTED DISKETTE IN THIS DISK DRIVE ? Y

WRITING 'ADDSYST/DAT' ON DISK DRIVE 1

'ADDSYST/DAT' HAS BEEN WRITTEN ON DISK DRIVE 1

RUNNING 'ADDSYST'

SCREEN A

HTC AIDS-II ADDRESS SYSTEM

* RECORD(S) USED: 12 REMAINING: 284

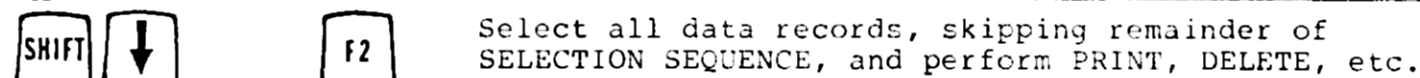
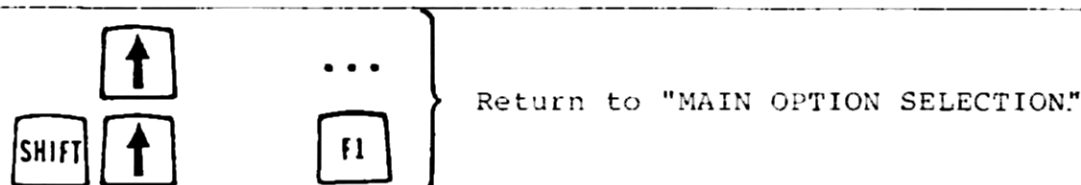
A -NAME C -CITY E -ZIP
B -STREET D -STATE

SELECT & PRINT RECORDS BY (A-E): ____

In this example from the "ADDRSYST" AIDS-II system, data records may be selected by the contents of any of 5 fields by hitting a key corresponding to the respective field specifier (A-E). Hitting <ENTER> is not required.

Model I

Model II



SCREEN B

HTC AIDS-II ADDRESS SYSTEM

* RECORD(S) USED: 12 REMAINING: 284

A -NAME C -CITY E -ZIP
B -STREET D -STATE

SELECT & PRINT RECORDS BY "NAME"

= EQUAL < LESS THAN - LESS OR EQUAL
NOT EQUAL > GTR THAN + GTR OR EQUAL

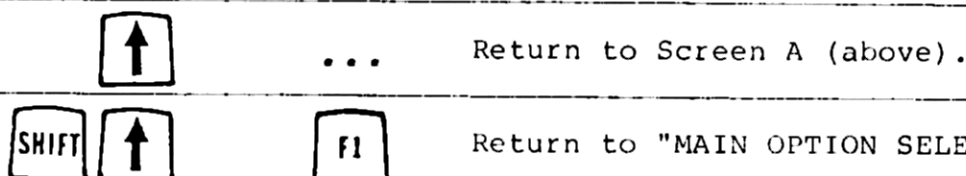
CHOOSE RELATION: ____

Selection of data records is performed with respect to a specified relation and field value. For example, STATE=NY or CITY#CLEVELAND. Specifying NAME <J would select all names beginning with letters A through I.

(Cont'd)

Model I

Model II



SCREEN C

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

SELECT & PRINT RECORDS BY
NAME= B.....

```

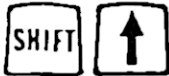
In this example, all data records having the first letter of the NAME field equal to a "B" will be selected. Selection is performed by examining each data record with respect to the specified relation and for the length of the specified field value. (NAME=BR would select all records having the first two letters of the NAME field equal to "BR").

Model I

Model II



... Return to SCREEN B (Previous Page).



Return to "MAIN OPTION SELECTION".

SCREEN D

```

      MTC AIDS-II ADDRESS SYSTEM
* RECORD(S) USED: 12  REMAINING: 204      COUNT: 6

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

SELECT & PRINT RECORDS BY
NAME= B

(C)OUNT OR (P)RINT: C

```

It is sometimes advantageous to count data records in memory meeting specified selection criteria. This provides a means of gauging the scope of a "selection" before taking action (i.e., PRINT, DELETE, etc.). Only data records in memory are counted ("SELECT & LOAD" does not allow a count). To take action, hit the key corresponding to the option selected (e.g. P=PRINT).

(Cont'd)

Model I

Model II



... Return to Screen C (above).



Return to "MAIN SELECTION OPTION".



...

Count data records in memory meeting specified selection criteria.

BLACK, BOB
123 WEST STREET
BIGTOWN
NY
10010

BROWN, TED
234 SOUTH STREET
OURTOWN
OH
44132

BROWN, TED
246 SOUTH STREET
OURTOWN
OH
44123

In the example shown in Screen D (previous page), a "SELECT & PRINT" was chosen for NAME=B. Shown is a sample partial output of such a selection.

```

XLOAD "AIDS2"
READY
XLIST 999-1100
999 ' SYSTEM DESCRIPTORS ( IN "DATA" STATEMENTS )
1000 DATA "SYSTEM NAME GOES HERE": ' NAME OF MTC AIDS-II SYSTEM
1010 DATA 12: ' NUMBER OF FIELDS ( UP TO 12 )
1020 DATA "1ST FIELD",5: ' FIELD NAME, LENGTH OF DATA FIELD
1030 DATA "2ND FIELD",5, "3RD FIELD",5, "4TH FIELD",4
1040 DATA "5TH FIELD",5, "6TH FIELD",6
1050 DATA "7TH FIELD",7
1060 DATA "8TH FIELD",8, "9TH FIELD",9, "10TH FIELD",1
1070 DATA "11TH FIELD",3, "12TH FIELD",2
1100 ' FIELD NAMES UP TO 12 CHARS. / SUM OF LENGTHS UP TO 254
READY
).

```

While in BASIC (configured for 3 files), load "AIDS2". Listing lines 999 through 1100 shows the format for defining an AIDS-II system. The information is entered into DATA statements and the program is saved under any legal filename.

```

READY
XLOAD "AIDS2"
READY
XDELETE 1000-1100
READY
X1000 DATA "MTC AIDS-II ADDRESS SYSTEM"
X1010 DATA 5
X1020 DATA "NAME", 20
X1030 DATA "STREET", 24
X1040 DATA "CITY", 12
X1050 DATA "STATE", 2
X1060 DATA "ZIP", 5
XSAVE "ADDSSYST"
READY
).

```

After "LOAD"ing AIDS2, delete lines 1000 through 1100, as shown. Starting with line number 1000, type in DATA statements for the system name (title) and the number of fields. For each field, type the name and the number of character positions in the field. After this is done, "SAVE" the program under any legal file name.

The Descriptor File is an ASCII-format, sequential file.

HTCNDIS2	. . . . .	Identifies file as an AIDS-II descriptor file.
SYSTEM NAME GOES HERE	. . . . .	Name (title) of AIDS-II system.
60	. . . . .	Length of data records.
12	. . . . .	Number of data fields in each record.
1ST FIELD	. . . . .	Name of first data field.
5	. . . . .	Number of character positions in first data field.
1	. . . . .	Starting position of first data field in record.
2ND FIELD		
5		
6		
3RD FIELD		
5		
11		
4TH FIELD		
4		
16		
5TH FIELD		
5		
20		
6TH FIELD		
6		
25		
7TH FIELD		
7		
31		
8TH FIELD		
8		
38		
9TH FIELD		
9		
46		
10TH FIELD		
1		
55		
11TH FIELD		
3		
56		
12TH FIELD		
2		
59		

Specifications for each data field are in the same format as for the first data field.

The following are useful notes and observations regarding the use of AIDS2-based disk data files with MAPS:

- o Configure BASIC for 3 files and maximum user memory before running program.
- o MAPS features minimal error messages. Some to be concerned with are:
 - OUT OF MEMORY before MAIN OPTION SELECTION screen appears: Memory configured too small.
 - BAD FILE = XXXXX: Something wrong with a disk operation in file XXXXX including:
 - o Not a FORMATTED Diskette.
 - o Not an AIDS2-compatible disk data file.
 - o Data file for another AIDS2-based program.
 - o Incorrect filename format.
 - o Misspelled filename.
 - o Disk drive not turned on.
 - o Improper DESCRIPTOR file.
 - o No diskette in disk drive.
 - o Disk Read Error.
 - FILE = XXXXX IN USE: Attempt to use ACTIVE file XXXXX in a way that is not compatible with its original purpose.
- o MAPS has no sorting capabilities. Data files should be sorted, if required, using an AIDS2-based program.
- o MAPS has only simple selection capabilities (i.e., MAPS cannot SELECT CITY=CLEVELAND and STATE=OH, simultaneously). Use AIDS2-based program's selection functions (LOAD, DELETE, SAVE) to produce appropriate disk data file(s).
- o MAPS will not right-justify numbers. This must be done using the function available when adding data records from the keyboard in an AIDS2-based program.

NTC AIDS-II PRINT SUBSYSTEM (MAPS)

NAME OF DESCRIPTOR FILE: ADDRSYST/DESC...

In order to communicate information such as the names and lengths of the data fields within the records in a disk data file, an AIDS2-based program (e.g. "ADDRSYST") can produce a "DESCRIPTOR" disk file. This file is required to run MAPS (an AIDS-II subsystem). Type in the name of the descriptor file associated with the disk data file(s) to be printed.

Model I

Model II

SHIFT



F1

Terminate program operation.

```








MTC AIDS-II ADDRESS SYSTEM

1 - PRINT DOWN THE PAGE
2 - PRINT ACROSS THE PAGE
3 - PRINT USER-DEFINED FORMAT

CHOOSE OPTION: .

```

Upon entering the name of the descriptor file, the name (title) of AIDS2-based system, from which the file was generated, will appear at the top of the Video Display screen. Three display/print options will be presented. Option 1 is used for the production of lists or rosters. Printing is performed down the screen/page in much the same form as the "SELECT & PRINT" option in AIDS2. Option 2 is used for report-type output printed across the screen/page. Page numbers and columnar headings are automatically generated. Option 3 is used for custom labels and non-standard forms of output.

Model I	Model II	
	...	} Return to "NAMING THE DESCRIPTOR FILE".
 		
	...	Display/print selected data file records down the screen/page.
	...	Display/print selected data file records across the screen/page (report-type format).
	...	Display/print selected data file records on screen/page according to user-defined format.

MTC AIDS-II ADDRESS SYSTEM

A -NAME C -CITY E -ZIP
 B -STREET D -STATE

PRINT DOWN THE PAGE
 SPECIFY FIELDS (A-E) TO BE PRINTED: ACD

In this example, using a descriptor file generated by the AIDS2-based "ADDRSYST", selected disk data file records will be printed down the page in a manner similar to the AIDS2 "SELECT & PRINT" form. Only those fields specified will be displayed/printed, and will appear in the order defined. A blank line will separate each set of record fields.

Model I

Model II



} Return to "PRINT OPTION SELECTION".

BLACK, BOB
 BIGTOWN
 NY

SMITH, JOHN
 BIGTOWN
 NY

JONES, TOM
 SMALLVILLE
 NY

BLACK, BOB
 RAYTOWN
 OH

At left is shown a sample of printing down the page using the fields specified above. To obtain printed output, simply turn on the printer (and the printer's "SELECT" switch) before completing the MAPS PRINT SELECTION SEQUENCE.

NYC AIDS-II ADDRESS SYSTEM

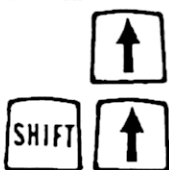
A -NAME C -CITY E -ZIP
B -STREET D -STATE

PRINT ACROSS THE PAGE
SPECIFY FIELDS (A-E) TO BE PRINTED: DCA

In this example, using a descriptor file generated by the AIDS2-based "ADDRSYST", selected disk data file records will be printed across the page in a report-like format. Only those fields specified will be displayed/printed, and will appear in the order defined. Page numbers are automatically generated, along with columnar headings.

Model I

Model II



...



Return to "PRINT OPTION SELECTION"

=====

STATE CITY NAME PAGE 1

=====

NY	BIGTOWN	BLACK, BOB
NY	BIGTOWN	SMITH, JOHN
NY	SMALLVILLE	JONES, TOM
OH	ANYTOWN	BLACK, BOB
OH	ANYTOWN	BROWN, TED
OH	ANYTOWN	JONES, TOM
OH	ANYTOWN	SMITH, JOHN
OH	OURTOWN	BLACK, BOB
OH	OURTOWN	BROWN, TED
OH	OURTOWN	JONES, TOM
OH	OURTOWN	SMITH, JOHN
OH	SMALLTOWN	BROWN, TED

=====

At left is shown a sample of printing across the page. The data file was sorted, using the fields specified above. Tear lines are printed on page boundaries (every 8½ inches). To obtain printed output, simply turn on the printer (and the printer's "SELECT" switch) before completing the MAPS PRINT SELECTION SEQUENCE.

MTC AIDS-II ADDRESS SYSTEM

A -NAME
B -STREET

C -CITY
D -STATE

E -ZIP

PRINT USER-DEFINED FORMAT
SPECIFY FIELDS (A-E) TO BE PRINTED:
A/B/C...D/E/Z

In this example, using a descriptor file generated by the AIDS2-based "ADDRSYST", selected disk data records will be displayed/printed according to the user-defined format entered (see left). This example will display/print field "A" on line 1, field "B" on line 2, field "C" on line 3 followed by 2 spaces, field "D", 5 spaces, field "E", and 4 blank lines. (See special character functions below).

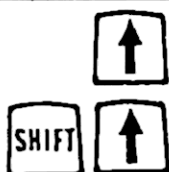
CHARACTER (Model I & II)

MEANING

A - L	PRINT RECORD FIELD SPECIFIED
.	PRINT 1 SPACE (BLANK)
;	PRINT 5 SPACES
:	PRINT 10 SPACES
!	PRINT 20 SPACES
/	SKIP DOWN 1 LINE
%	SKIP DOWN 5 LINES
#	SKIP DOWN 10 LINES
All other characters	IGNORED

Model I

Model II



...

...

} Return to "PRINT OPTION SELECTION".

(Cont'd)

```

      MTC AIDS-II ADDRESS SYSTEM

A -NAME      C -CITY      E -ZIP
B -STREET    D -STATE

PRINT USER-DEFINED FORMAT
SPECIFY FIELDS (A-E) TO BE PRINTED:
A/B/C. D/E/

(G)ENERATE SAMPLE OR (S)ELECT & PRINT: ____

```

MAPS features the ability to review a sample display/print of a user-specified format. This allows correction or alteration of the specified format before beginning the MAPS PRINT SELECTION SEQUENCE.

Model I

Model II



...

Return to user-defined format field specification.



Return to "PRINT OPTION SELECTION".



...

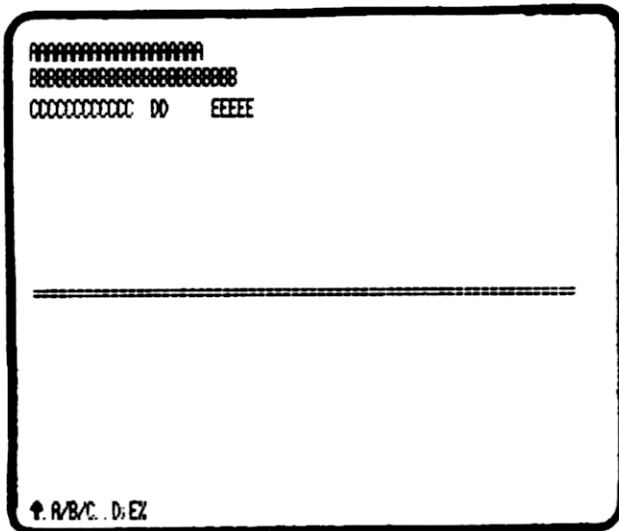
Generate a sample of the format specified on the Video Display (and printer).



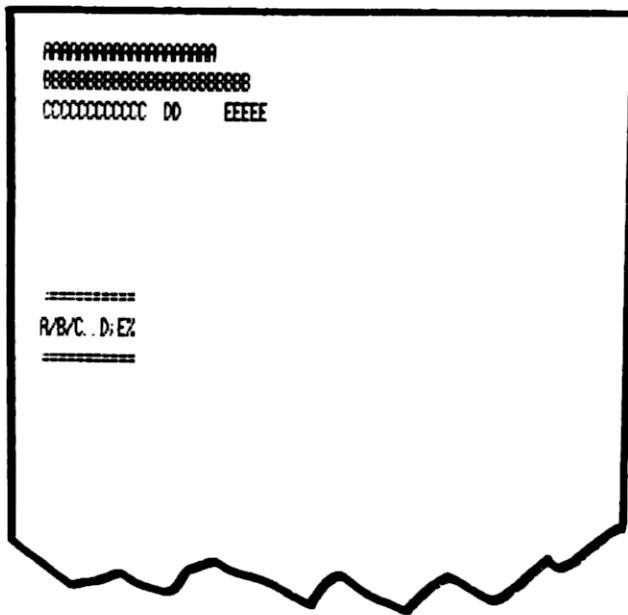
...

Proceed to MAPS SELECTION SEQUENCE.

(Cont'd)



A generated sample of a user-defined format is shown at left. The positions and maximum field sizes are represented by their respective field specifiers. The double dashed line (equal signs) indicates the first printed line of the next disk data record. To obtain printed output, simply turn on the printer (and the printer's "SELECT" switch) before generating sample.



Model I

Model II



...

Return to user-defined format field specification.

MTC AIDS-II ADDRESS SYSTEM

A -NAME C -CITY E -ZIP
 B -STREET D -STATE

SELECT & PRINT RECORDS BY (A-E): .

The MAPS SELECTION SEQUENCE is identical, in concept, to the AIDS2 SELECTION SEQUENCE (See Section 9.3). Selection of data records is not from memory, but from disk files. No count of records meeting selected criteria is provided.

Model I

Model II



... Return to previous screen.

SHIFT



F1

Return to "PRINT OPTION SELECTION".

SHIFT



F2

Select all disk data records, skipping remainder of SELECTION SEQUENCE.

HTC AIDS-II ADDRESS SYSTEM

NAME OF PRINT FILE: ADDRSYST/DAT_

HTC AIDS-II ADDRESS SYSTEM

NAME OF PRINT FILE: *.....

ACTIVE PRINT FILE=ADDRSYST/DAT

After specifying the criteria through MAPS SELECTION SEQUENCE by which records will be printed, the name of the disk data file is entered. Upon hitting the <ENTER> key, records will be displayed/printed from the beginning of this file. Printing from the file will be terminated if the <↑> key is hit or when all data records in the file have been printed. If not all records in the file have been printed, the file is considered to be "ACTIVE". Entering an "*" or any filename deactivates an ACTIVE file. The criteria specified in the MAPS SELECTION SEQUENCE applies to all records displayed/printed from all files that are specified.

Model I

Model II

↑	...	When hit while printing records from a file, terminates display/print process. When hit in place of entering filename, returns to "MAPS SELECTION SEQUENCE".
SHIFT ↑	F1	Returns to "PRINT OPTION SELECTION".
SHIFT ↓	F2	Continue to display/print data records from "ACTIVE" file.
* ENTER	...	Deactivates currently "ACTIVE" file.

CHOOSE OPTION:

10 WHEN CHOOSING EITHER THE FIRST OR SECOND OPTION, THE USER SPECIFIES THE FIELDS IN ORDER OF APPEARANCE. PRINTING ACROSS THE PAGE PRODUCES A REPORT-LIKE FORMAT.

AIDS2 ACCOUNTS PAYABLE SYSTEM

A -COMPANY D -STATE G -INVOICE DATE J -AMOUNT
B -STREET E -ZIP H -DUE DATE K -WRITTEN AMT.
C -CITY F -INVOICE NO. I -PROD./SERV. L -G/L ACCOUNT

PRINT ACROSS THE PAGE

SPECIFY FIELDS (A-L) TO BE PRINTED: AHJJ.....

COMPANY	DUE DATE	PROD./SERV.	PAGE 1 AMOUNT
ARROW OFFICE&SUPPLY	79-12-30	OFFICE SUPPLIES	34.21
ARROW OFFICE&SUPPLY	80-01-15	OFFICE SUPPLIES	41.32
BURNS MEDIA, INC.	79-12-30	DISKETTES	1200.00
BURNS MEDIA, INC.	80-01-22	PLASTIC CASES	150.25
BURNS MEDIA, INC.	80-01-28	DISKETTES	450.00
QUALITY PRINTING CO.	79-12-30	PRINTING - NATIONAL ADVERTISE	312.56
QUALITY PRINTING CO.	80-01-05	PRINTING - NEWSLETTER	245.31
QUALITY PRINTING CO.	80-01-27	PRINTING - STATIONARY	810.50
YOUNG OFFICE EQUIP.	79-12-30	FURNITURE - CONFERENCE TABLE	1501.42
YOUNG OFFICE EQUIP.	80-01-12	FURNITURE - DESK	352.21
YOUNG OFFICE EQUIP.	80-01-13	FURNITURE - CONFERENCE CHAIRS	832.05

11 CHOOSING THE THIRD OPTION ALLOWS THE USER TO DEFINE THE PRINT FORMAT. FIELD SPECIFIERS, SEPARATED BY SPECIAL HORIZONTAL AND VERTICAL SPACING INDICATORS, ALLOW UNIQUE FORMATS TO BE CREATED (LIKE THE CUSTOM LABEL BELOW).

AIDS2 ACCOUNTS PAYABLE SYSTEM

A -COMPANY D -STATE G -INVOICE DATE J -AMOUNT
B -STREET E -ZIP H -DUE DATE K -WRITTEN AMT.
C -CITY F -INVOICE NO. I -PROD./SERV. L -G/L ACCOUNT

PRINT USER-DEFINED FORMAT

SPECIFY FIELDS (A-L) TO BE PRINTED:

A/B/C...D;E///

(G)ENERATE SAMPLE OR (S)ELECT & PRINT: _

ARROW OFFICE&SUPPLY
4132 WINSLOW RD.
CLEVELAND OH 44111

BURNS MEDIA, INC.
25 FOREST RD.
WICKLIFFE OH 44094

12

PURCHASES, BY DATE

PURCHASES, BY PRODUCT

PURCHASES, BY ACCOUNT

DUE DATE	COMPANY	PAGE 1 AMOUNT
79-12-30	ARROW OFFICE&SUPPLY	34.21
79-12-30	BURNS MEDIA, INC.	1200.00
79-12-30	QUALITY PRINTING CO.	312.56
79-12-30	YOUNG OFFICE EQUIP.	1501.42
80-01-05	QUALITY PRINTING CO.	245.31
80-01-12	YOUNG OFFICE EQUIP.	352.21
80-01-13	YOUNG OFFICE EQUIP.	832.05
80-01-15	ARROW OFFICE&SUPPLY	41.32

PROD./SERV.	COMPANY	PAGE 1 AMOUNT
DISKETTES	BURNS MEDIA, INC.	1200.00
DISKETTES	BURNS MEDIA, INC.	450.00
FURNITURE - CONFERENCE CHAIRS	YOUNG OFFICE EQUIP.	832.05
FURNITURE - CONFERENCE TABLE	YOUNG OFFICE EQUIP.	1501.42
FURNITURE - DESK	YOUNG OFFICE EQUIP.	352.21
OFFICE SUPPLIES	ARROW OFFICE&SUPPLY	34.21
OFFICE SUPPLIES	ARROW OFFICE&SUPPLY	41.32

G/L ACCOUNT	DUE DATE	PAGE 1 AMOUNT
600-000	79-12-30	1200.00
600-000	80-01-22	150.25
600-000	80-01-28	450.00
705-000	79-12-30	312.56
705-000	80-01-05	245.31
705-000	80-01-27	810.50
815-000	79-12-30	34.21
815-000	80-01-15	41.32

SAMPLE CHECK

META TECHNOLOGIES CORPORATION, INC.

136

CLEVELAND, OHIO

PAY
TO THE
ORDER OF

ARROW OFFICE&SUPPLY

79-12-30 19

\$ 34.21

***** THIRTY-FOUR & 21/100 **

DOLLARS

CITY BANK

OFFICE SUPPLIES

SAMPLE * S A M P L E
NOT NEGOTIABLE * NOT NEGOTIABLE

I.M. Void