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Name and Address System

Structured Systems Group

INCORPORATED

NAD

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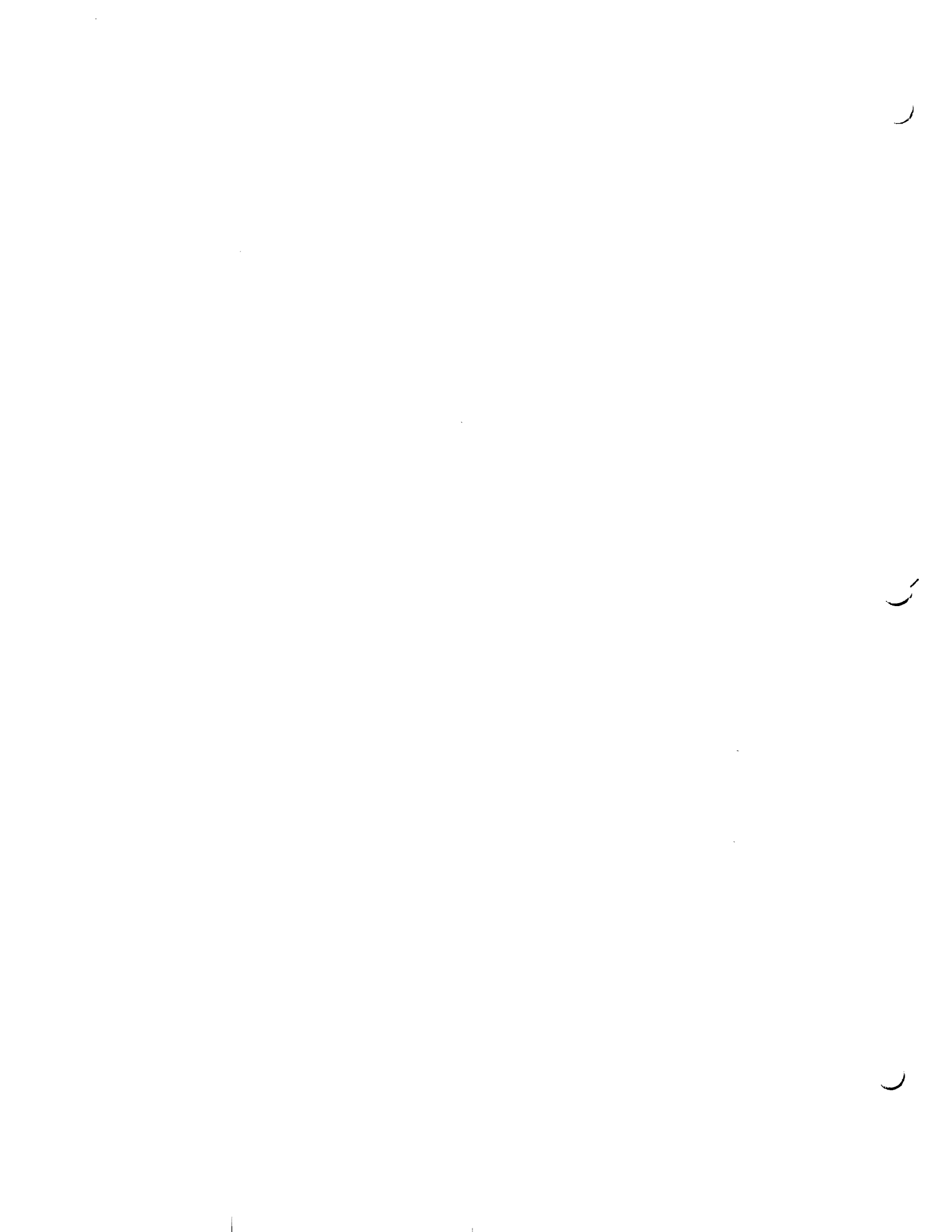February 1, 1980
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5204 Claremont   Oakland, California 94618   (415) 547-1567

TABLE OF CONTENTS

1. Introduction

For best results read this manual thoroughly at least once before operating the system. If you are unfamiliar with microcomputer operation, or wish to see the NAD system in action, you will probably find the Practice Run a worthwhile introduction. Chapter 2, Features and Facilities, and Chapter 3, System Overview, provide a general overview of what the NAD system will do and how it operates. The chapter on Background Information (Chapter 5) contains a section on NAD's hardware and software requirements. The Command Summary on the last page of the manual is a handy reference to the system's commands.

2. Features and Facilities

The Structured Systems Group NAD (tm) Name and Address System is designed to meet the need of small and medium businesses for flexible and efficient mail list handling. The NAD system creates and maintains lists of names, addresses, telephone numbers, and other information on floppy disks. These lists can be of suppliers, clients, correspondents, or customers. They may be searched for selected name and address records, or printed in their entirety. The system will create mailing labels, or list the record contents on plain 132 column paper.

Each record on a NAD name and address file consists of a name field, two street address fields, city, state, and phone number fields, and an optional reference/comment field of user-definable length. Two record formats are available: variable format, which means the name and address fields may vary in length to accomodate the length of the values entered, or fixed format, which means the name, address, and city fields are of fixed length. A postal code option allows you to combine the state and zipcode fields for use as a seven digit postal code, and a "name flipping" option makes it possible to enter data so it can be sorted by last name, yet printed first name first.

The reference field, which may vary between 0 and 127 characters at the user's option, can hold a wide range of useful information pertaining to the customer, client, or supplier. Cleverly coded, the information in the reference field can serve as the basis for sophisticated selection techniques that target a specific market or group.

The NAD Record Selection System can be used to select out name and address records for printing, or for inclusion on a new name and address file. Selection can be based on the information contained in any field if the fixed record format is used, or on the name, city, state, zip, phone, and reference fields if the variable field length format is used. Records are selected according to whether the information in the field matches a given pattern, or falls within a specified range of values (for example, you might print labels for all records with an occurance of "Dr." in the Name field, or print a list of all records with values in the zip code field between 91000 and 99000). Selection by range requires files in sorted order; QSORT, SSG's general pupose sorting program available at a modest additional cost, can do the job in a flash.

NOT RANGE and NOT MATCH selection criteria may also be specified. These select name and address records that would be rejected by the corresponding RANGE and MATCH criteria, and vice versa. Further control over selection is achieved by a "starting record number" command (e.g., "begin selection after record number 125"). NAD also permits "wild cards" in the matching pattern. See Chapter 11 for examples of NAD's Record Selection System at work.

Chapter 2: Features and Facilities

The NAD system's label printing program prints name and address information (one line for name, two for street address, one for city, state, and zip) on adhesive labels or envelopes. The program prints one across on standard 3.5" x 15/16" labels, or you can alter the format to print one to four labels across with user-defined vertical spacing between labels. You can print labels on continuous or non-continuous forms. One, two, three, or more labels per name and address record can be ordered.

You can display name and address records on the CRT screen for examination, or print them on plain 132 column paper for reference. The NAD file print program prints the complete contents of the NAD record on two lines of a neatly designed and dated report.

The NAD system includes an "extracting" program that creates subsets of files based on selection criteria, changes the reference field length, or makes more space on disk by removing deleted records from the file. You can use this program, for example, to build a new file that contains records covering only a selected geographical area. Additional selection criteria can be applied to this new file to print labels for records whose name fields contain an occurance of "Dr.", for example.

NAD can be used with other Structured Systems Group products, such as Letteright, Accounts Payable, Accounts Receivable, and Analyst. Used with Letteright, the information in any of the fields (including the reference field) can be inserted into the text of a letter or document automatically. This means you can send a customized letter to every name on a NAD list, each one different, each one personal no matter how large the list. NAD can read your Accounts Payable Vendor List and Accounts Receivable Customer List. And our Analyst system can read your NAD files, letting you apply Analyst's sophisticated selection facilities to NAD files, and reformat reports according to your needs. Send for more information on our complete line of quality business software, or ask your dealer about our products.

NAD is easy to learn and use. Many companies introduce their employees to the microcomputer with NAD. Programs are run by selecting them from a "menu" list, and data entered in response to straightforward requests. Input is edited for the correct length and format, and descriptive error messages issued when appropriate.

The number of name and address records NAD can handle depends on your disk storage capacity and the length you choose to make the reference field. A single density 8" IBM-standard format disk will hold about 2000 records with no reference field, and 1000 records with the reference field at its maximum length (127 characters).

3. System Overview

The NAD system consists of five programs. One program
(NAD.INT) controls the system menu from which the remaining four
are chosen. They are:

        Create or Modify a NAD File (NADENTRY.INT)
        Extract Names From One File to Another (NADXTRAK.INT)
        Print a Report (NADPRINT.INT)
        Pring Mailing Labels (NADLABEL.INT)

A sixth program, NADCONV.INT, is distributed in case you need to
convert NAD files created under CBASIC version one to run under
CBASIC2.

    The Create or Modify a NAD File program builds and maintains
the name and address files you create and name. The program lets
you ADD records, CHANGE records, EXAMINE records, and DELETE
records. A SAVE function saves to disk records added or changed
in the current run, as a precaution against perhaps hours of lost
labor in the even of a hardware failure (such as a pulled plug),
or operator error (such as a write-protected disk).

    The Extract Names From One File to Another program creates
new files that are a selected subset of the original file,
changes the length of the reference field, and physically removes
from the file records marked as deleted by the Create or Modify a
NAD File program.

    The Print a Report program produces a plain paper printout
of a NAD file. It can be made to include all records on the
file, or only selected records. The Print a Report program,
like the Extract Names From One File to Another program,
incorporates the NAD Record Selection System, which you can use
to select records for printing on the basis of RANGE, MATCH, NOT
RANGE, or NOT MATCH criteria.

    The Print Mailing Labels program prints name and address
information on ccntinuous form adhesive labels or non-continuous
envelopes. The number of labels printed across can vary from one
to four, the number of labels printed per name can also vary, and
the vertical spacing between labels is user-definable. The Print
Mailing Labels program also employs the Record Selection System.

THE NAD RECORD SELECTION SYSTEM

    The NAD Record Selection System is built into the extract,
print, and label programs. Though the requests are the same, the
purpose of the system is slightly different in each program. The
Record Selection System is used in conjunction with the Extract
program to build a new file containing records that meet the

selection criteria. It is used with the Print program to prepare a printed list of only records that meet the selection conditions. It is used with the Label program to create labels only for records that meet the selection criteria.

To use the Record Selection System you tell the program that you want to select records, give the record number to begin selection, enter the name of the field you want to select on, and state whether the selection is to be by RANGE, MATCH, NOT RANGE, or NOT MATCH. If you choose RANGE, the program asks for the low value and the high value. For example, to select records by RANGE on the zipcode field (the file must be sorted by zipcode), you might give the lowest valid value as 60600 and the highest valid value as 60699 to select residents of Chicago. A NOT RANGE selection with the same zipcodes would mean residents of Chicago would not be selected. If you choose selection by MATCH, the program asks for the selection field, the matching pattern, the first position in the field to begin testing for a match, and the last position in the field to test for a match with the first character in the pattern. A NOT MATCH rejects records a similar MATCH pattern would accept. Operation of the Record Selection System is treated in depth in Chapter 7.

DISK DRIVE ALLOCATION AND USE

Although NAD can run on systems with one to four disk drives, most users will need only one or two. The simplest configuration puts the programs and data files on one disk, which resides in drive A. If your disk storage capacity is limited or the number of NAD records large, this configuration may not be the best for you. The two disk configuration is equally simple; it places the NAD programs on one disk in drive A, and the NAD data files on a separate disk in drive B.

The name and address data files created by the system can be identified when you give the CP/M DIR (directory) command by their filetype of NAD (for example, CUSTOMER.NAD). The NAD programs are identified by the filetype of INT, which means they have been translated into INTermediate language form by the CBASIC2 compiler program (see the section on the CBASIC Programming Language, Chapter 6). If you have purchased SSG's QSORT for use with NAD, it should reside on drive A, or the currently logged drive if it is different than A (see the section on Logging On, Chapter 6). The sort parameter files (filetype SRT) created for use with QSORT by the QPARM program (part of the QSORT package), should be on the same disk as QSORT. Sort parameter files for sorting by name and zipcode can also be created through the NAD system (note, however, that QSORT is a separate product and is not sold as a part of the NAD package).

Those with three or four drive systems may find the additional drives useful when using the extracting program to create new files, or when sorting large NAD files. Because

extracting records from a file leaves the original file
unchanged, if the original file is large there may not be room on
the same disk for the new file. If only two drives are available
the effective size limit of a NAD file may be one-half disk
(unless the new file will fit on drive A with the NAD programs).
Sorting, like extracting, also leaves the original unsorted file
intact, which means there must be room somewhere for the sorted
version (which is the same size as the unsorted version), and any
temporary workfiles thay may be required for sorting (see your
QSORT manual). The advantage of a three or four drive system
lies in the fact that the new files created by extracting or
sorting can be assigned to different disk drive locations,
effectively increasing the size of the NAD files that may be
handled by the system.

THE NAD MENU

Version 3.0 of the NAD system includes a menu program that
previous versions do not have. This means that once the menu
program has been called up (by the command A>CRUN2 NAD), the
other programs in the system may be run by entering the number of
the menu choice. Figure 3.1 reproduces the NAD menu. Menu items
1 through 4 correspond to the NAD processing programs (NADENTRY,
NADXTRAK, NADPRINT, and NADLABEL), while items 5 through 8
pertain to sorting NAD files. If you have QSORT and the
appropriate sort parameter file on the currently logged drive,
sorts by name and zipcode may be run directly from the menu. If
your CP/M compatible operating system does not have the SUBMIT
feature (most do), sorting may not be done from the menu.
Instead, follow the directions for sorting provided in the QSORT
User's Manual.

```
***************          N   A   D        ***************
             N A D    S Y S T E M    M E N U

        1      CREATE OR MODIFY A NAD FILE
        2      EXTRACT NAMES FROM ONE FILE TO ANOTHER
        3      PRINT A REPORT
        4      PRINT MAILING LABELS
        5      SORT BY LAST NAME
        6      SORT BY ZIP CODE
        7      CREATE NAME SRT FILES
        8      CREATE ZIP SRT FILE
        9      CHANGE SYSTEM DATE
        ESC       STOP PROGRAM
        CR        REFRESH MENU

        ENTER NUMBER OF FUNCTION DESIRED:

        (Figure 3.1: The NAD System Menu)
```

CREATING AND MAINTAINING NAD FILES

The same set of NAD programs can be used to create an unlimited number of name and address files. One NAD file is distinguished from another by the (up to) eight character filename you give it at the time of its creation. NAD files are nothing but a collection of "records" you create by answering the requests for data (name, address, etc.) asked by the system. Each answer you give is stored on a NAD record (according to a magnetic code) in the "field" on the record reserved especially for that data item.

To create a NAD file you insert your disks, "boot" up (see the section on Logging On, Chapter 6), and when the CP/M prompt character appears, call up the menu by typing the command CRUN2 NAD. Next you tell the system on which drive you want to create the NAD files, enter the day's date, and when the menu appears, select the Create or Modify a NAD File program. The program asks you to name the NAD file you're creating (or want to modify, if it's already been created), and gives you the opportunity to change the drive location. NAD then looks for the file you named on the drive you entered. If the file does not exist the program asks you to confirm that you want to create it (in case you misspelled the filename or inserted the wrong disk). The next request is for the length of the reference/comment field, which can be any number of characters between zero and 127. After displaying the total length of the record, NAD asks you if you want to use the fixed or variable length field format. The variable length format makes it easier to fit name and address information, but you cannot sort or select by RANGE on the two street address fields or the city field.

Next, NAD asks you to ENTER A FUNCTION (A,C,D,E,S or ESC). To begin adding records you type "a" to add one record, or "adding" to add more than one, then answer the requests for the name and address information. To change records already created you type "c" to change on record, or "changing" to change more than one. To change a record you tell the system what record number you want, then type in the new information you want. To delete one record you type "d" at the FUNCTION request, to delete more than one you type "deleting". To examine records (the data is shown in a compact form) you would type "e" and give the number of the record or records. The "s" (save) command updates the disk with the changes or additions made in the current run (the disk is updated automatically when you end the entry program; the save command is a safety measure in case the program ends abnormally). To return to the ENTER A FUNCTION request while in the "adding", "changing", or "deleting" mode you press the ESCAPE key (the request returns automatically if you entered "a", "c", or "d"). To return to the NAD menu you press ESCAPE once more at the ENTER A FUNCTION request. To end the NAD system altogether you press ESCAPE at the menu.

EXTRACTING RECORDS AND COMPRESSING FILES

The Extract program creates new NAD files made up of records extracted from existing NAD files. How you respond to the requests of the Record Selection System determine which records are extracted to the new file. If you run the Extract program before you run the print or label program, the combination of selection criteria permit more complex selection procedures. For example, if you want to select all doctors in Oregon, the extract program could be run to create a new file consisting only of the records for Oregon addresses. The Print a Report program could then be run with a match pattern specified for the name field for any occurance of "DR." (or, you could run the extract program again).

The extract program never copies deleted records from one file to another. If you do not request record selection the program will compress the file (i.e., physically remove the records from the file).

A further function of the extract program is to change the length of the reference/comment field. It can be increased or shortened. When shortened, data in the field is truncated on the right.

To run the extract program, you call up the menu as described above, tell the system the name of the file you want to extract from and where it is located. Tell it the name of the file you want to create and its location, state whether you want to select records, compress the file, or change the reference field length, and go. If you choose to select records you're asked to answer the Record Selection System's requests.

PRINTING REPORTS

All or only selected records can be printed out on 132 column paper by choosing the Print a Report program from the menu. Reports show the contents of each field on two lines across the page. Each report is dated, and displays the name of the file used for printing.

To print a report you choose the program from the menu, tell it which file you want to print, where it can be found, and whether you want to print only selected records. If you choose to print selected records you also answer the requests of the Record Selection System.

PRINTING LABELS

The Print Mailing Labels program prints names and addresses on adhesive mailing labels, or on plain paper to be cut up for labels. You can print one across on standard 3.5" x 15/16" labels, or order a non-standard format. The program lets you print more than one label per name, and if you want, can be ordered to print one across on non-continuous forms, such as envelopes.

To print labels, you select the program from the menu, tell it which file you want to use, where it can be found, and whether you want to select records. If you choose to print selected records you also answer the requests of the Record Selection System. If you choose to print on standard labels, the next step is to print a dummy label until they are aligned properly in the printer. If you want non-standard labels, you tell the program how many labels you want to print per name, the starting column of each of the from one to four labels across the page, and the vertical spacing between labels.

SORTING NAD FILES

Sorting involves ordering the records in a file according to a "key" or data item common to all records in the file. Until sorted, NAD records remain on the file in the order entered. While sorting is not necessary, it does increase the usefulness of the NAD system. Many people need printouts of their files in name or zipcode order for easy reference. Those who expect to use the RANGE or NOT RANGE option of the Record Selection System will also want to sort their files, since they must be in sorted order for meaningful results. Sorting is also useful when you merge files. To merge two sorted NAD files you PIP them together (see you CP/M Features and Facilities manual), then sort the new file.

While any sorting routine may be used, sorting NAD files is easiest with Structured Systems' QSORT, available separately at additional cost. The QSORT package includes a program named QPARM that builds what is called a "sort parameter file" used by QSORT to control the sorting process. The sort parameter file tells QSORT the name of the file to sort, where it can be found, the name to give the sorted file it creates, where to put it, and where to build any temporary work files it needs. It also tells QSORT the length of the records on the file (very important information), the starting position of the sort "key" (or keys), the length of the sort key, and whether to sort in ascending or descending order.

To run the sort you need QSORT, a sort parameter file, and disk space for the sorted output (equal to the size of the input file) and temporary workfiles. Sort parameter files can be identified by their file type of SRT. For example ZIPCODE.SRT

might be the name of the sort parameter file used to put your files in zipcode order. Sort parameter files are usually created with the QPARM program, but for convenience SSG has built into NAD the ability to create sort parameter files for sorting by name and zipcode. Just choose the Create Name SRT File or Create Zip SRT File program from the menu and answer the questions. You can even run the sort from the menu (as opposed to sorting outside the NAD system) for zip and name sorts. All you need is QSORT and the SRT file on the currently logged drive, and space on disk for the sort.

NAD AND OTHER SSG SYSTEMS

NAD enjoys a close working relationship with several Structured Systems packages. Used with our Letteright system, a word processing program designed for office correspondence and business documents, NAD's usefulness as a marketing and organizing tool reaches its fullest potential. Letteright can insert information from your NAD files into the text of letters or documents wherever you want, and even address the envelopes for you. After a simple renaming (to the filetype NAD), the Structured Systems Accounts Payable vendor file can be processed by NAD. The SSG Accounts Receivable system is distributed with a utility program for converting NAD files into customer files. And, if highly sophisticated selection techniques or the ability to custom design reports on NAD files are what you seek, our Analyst system can be used to read and manipulate NAD files.

4. Practice Run

This Practice Run is intended as a hands-on introduction to the NAD system for those wishing to see the system in action, and especially for those with little or no experience operating a microcomputer. The detailed instructions take you through the steps of copying the distribution disk, calling up the menu, building a NAD file, selecting records with the MATCH facility of the Record Selection System, and printing a report.

If you have not yet created a backup copy of the original NAD distribution disk you received from your distributor, you will need two disks, properly formatted to run on your machine. Make sure they are not "write-protected"; for some disks this means the disks should have an adhesive tab over the little notch on the edge of the protective sleeve, for others it means they should not have the tab. Both disks should have an operating system on them (use the CP/M SYSGEN program; see the CP/M Features and Facilities manual for instructions), and contain the CBASIC2 interpreter program CRUN2.COM and PIP. Get help from an experienced person if you don't know how to prepare these disks. Your printer should be turned on, loaded with 132 column paper, and in the REMOTE mode if it has a LOCAL/REMOTE switch (set the top of form about three lines from the top of the page).

COPY THE DISTRIBUTION DISK

To copy the distribution disk, insert one of the disks with CRUN2 and PIP in drive A, and the (write-protected) distribution disk with the NAD programs on drive B. Press the RESET button on your computer, and when the CP/M prompt character ("A>") appears, type:

A>PIP A:=B:*.*[ov]

and hit RETURN. This copies all the files on B onto A and verifies that they were copied correctly. When the PIP is over and the prompt character returns, remove the distribution disk from B and insert in its place the other disk containing CRUN2 and PIP. Press RESET again (or give the command CTRL-C), and when the prompt appears, type:

A>PIP B:=A:*.INT[ov]

to copy the NAD programs onto the disk in B. When the prompt character appears again, remove both disks (do not touch the exposed magnetic material showing through the protective sleeve) and label one of them the "NAD MASTER DISK" and the other the "NAD WORK DISK". Copy the serial number from the original distribution disk onto the labels of both, then store the original in a dry, safe location. If you have not filled out and mailed the registration card, do so now. The MASTER disk should only be used to make additional copies of the NAD programs. The

Chapter 4: Practice Run

WORK disk is the disk you should use for actual processing.
NEVER use the original distribution disk for processing.

BEGIN THE PRACTICE RUN

Turn on your computer, insert the WORK disk in drive A, and
hit RESET. When the prompt character appears, type:

A>CRUN2 NAD

and press RETURN. After the CRUN version number, the SSG
copyright message, the NAD version number, and the serial number
of your package appear, hit RETURN at the request for the NAD
FILE DRIVE.

At the request for the SYSTEM DATE, type the current date in
MM/DD/YY form (including the slash marks), and hit RETURN.

The menu should appear next. At the request to ENTER NUMBER
OF FUNCTION DESIRED, type 1 (one) to indicate you want to Create
or Modify a NAD File.

At the ENTER FILE NAME request, type "PRACTICE", then press
RETURN. Press RETURN at the ENTER DRIVE request. Because the
file does not yet exist, the program will tell you it can't find
PRACTICE.NAD on that drive and ask you to confirm that you want
to create it. Type the word "create", then press RETURN.

The next request is for the length of the referece field.
Type 15, then press RETURN.

After the program calculates the total record length it asks
if you want the to use the variable field length option. Answer
that you do not by typing "N" for No.

Next, the program asks you to,

ENTER A FUNCTION (A,C,D,E,S, OR ESC)

Type the word "adding", then press RETURN. The program tells you
the number of the record you are adding (which corresponds to the
position of the record on the file), and next asks you to ENTER
NAME. Type in the name and address information in the table
below, hitting RETURN after each entry. If you hit the wrong key
while typing in the data, give the command SHIFT-DELETE as many
times as necessary to back up to the erroneous character (hold
down the SHIFT key while pressing the DELETE key; on some
machines you use the BACKSPACE key). Type in the correct data
and continue. If you need to go back one request for any reason,
press the up arrow key (^), followed by RETURN (except at the
first request of a new record). Type in the data exactly as
shown below. Press RETURN at the request for the phone number.

NAME	ADDR1	ADDR2	CITY	STATE	ZIP	REF
Forge*Otis	Forge Travel Co.	3707 Century Dr.	San Jose	CA	95110	UAL,PSA
Land*Agnes	Land's End Tours	1831 Amelia Way	San Jose	CA	95113	UAL,TWA
Miller*Tom	World Travel Co.	876 Bird Avenue	Campbell	CA	95008	PSA,JAL
March*Alan	Pack and Paddle	1258 Mudpot Way	Fremont	CA	95037	TWA,UAL

When you finish entering the data, press ESCAPE followed by RETURN at the first request of the next record. When the ENTER A FUNCTION request returns, press ESCAPE followed by RETURN once more. When the menu appears, select program number three, Print a Report (remember to press RETURN after every response).

At the request for the file name type "PRACTICE", then hit RETURN.

At the request DO YOU WANT TO SELECT RECORDS, type Y, for Yes. Follow with RETURN. The STARTING RECORD NUMBER is 1 (one).

Type "REF" at the request to ENTER NAME OF SELECTION FIELD. This tells the program you want to select records based on the contents of the Reference field.

At the RANGE OR MATCH request type "M" for match.

The program next asks you to ENTER MATCHING PATTERN. Type "UAL" to select travel agencies that handle reservations for United Airlines. You do want UPPER CASE TRANSLATION, so answer Y for Yes to that request.

At the request for the FIRST STARTING LOCATION type 1. At the request for the LAST STARTING LOCATION type 13. Before you hit RETURN after answering the LAST STARTING LOCATION request, be sure your printer is turned on and the paper properly aligned. After RETURN is hit, the program begins the printout. If your paper should jam, or if you wish to abort the printout for some other reason, press any key on the keyboard. When the printout is finished, the program asks if you want to print another file. Answer No.

When the menu returns, press ESCAPE followed by RETURN. This ends the NAD system. When the CP/M prompt character appears, you may remove the disks and turn off the machine. Nothing to it. Happy computing.

5. Background Information

The SSG NAD Name and Address System runs on any 8080 or Z-80 based microcomputer under the control of the CP/M operating system or a CP/M compatible operating system. Your microcomputer system must have the following minimum hardware and software components:

1.   45K (kilobytes) of Random Access Memory (RAM), CP/M configured.

2.   One floppy disk drive with a minimum capacity of 70K, although additional disk capacity is recommended.

3.   A 132 column wide printer capable of skipping to the top of the next form in response to the ASCII form-feed character.

4.   For a console device, a CRT (Cathode Ray Tube) and keyboard.

5.   System software including an operating system and the CBASIC2 language (version 2.04 or earlier).

Many microcomputers can be expanded or adapted to meet these requirements. Your local dealer can give you specific information about the hardware and software currently available.

THE CBASIC PROGRAMMING LANGUAGE

The programs that make up the NAD System are written in a dialect of the BASIC programming language, called CBASIC2. CBASIC2 is a product of Software Systems; questions relating to the CBASIC2 language should be referred to Software Systems.

Structured Systems Group distributes its programs in an intermediate file format (with the filetype INT), which must be further translated at run time by a facility of the CBASIC2 language called the "interpreter". The interpreter's program name CRUN2 must precede any INT program for it to run. For example, to run the NAD System you would enter CRUN2 NAD. This run time interpreter comes as a part of the CBASIC2 language package. With the CBASIC2 language you can also write programs yourself to extend the capabilities of the NAD System, or to perform other data processing tasks.

THE CP/M OPERATING SYSTEM

An operating system is a set of instructions that enables the computer to, among other things, read and write information on floppy disks, move and maintain files, and provide for console communication. The NAD System employs the CP/M operating system, or one compatible with CP/M. CP/M (TM) is a product of the Digital Research Company. Questions concerning the CP/M system specifically should be referred to that company directly.

CP/M comes documented by a series of six manuals. The first of the six, "Features and Facilities", contains useful and important information relating to your operation of the NAD System. Be particularly careful to read and understand the DIR, ERA, REN, PIP, SYSGEN, TYPE, and STAT commands before using the NAD System.

LOGGING ON

When you first turn your computer on, its random access memory (RAM) is empty. Since in this state the computer can do nothing, a feature has been built into the microcomputer hardware that directs it to look on a predetermined section of a certain disk drive to find what to do next. If everything is working normally, your computer should look on the outer two tracks of the A disk, find the CP/M operating system (if it has been SYSGEN'ed onto the disk; see the CP/M "Features and Facilities" manual for details on how this is done), load it into the RAM, and then display "A>" on the CRT, indicating it is ready to go to work. This process is called "booting" since the computer is, in effect, lifting itself up by its own bootstraps.

The "A>" character is called a "prompt". When the A> prompt appears on the screen, the operating system is said to be "logged on" to the A disk drive. While logged on to the A drive, you can call up programs or data files on that disk by typing the program name. To request a file on another disk (unless this is done automatically by the program you are using, or through somewhat more advanced uses of features in the CP/M system), first log on to that disk by keying in the drive name (the letter B on a two disk drive system), followed by a colon (:) and a carriage return, and then type the program name. (The carriage return is simply the RETURN key as it is on a typewriter.)

Chapter 5: Background Information

For example,

```
A>              [system prompt]
A>B:            [user enters B:, then RETURN]
B>              [B is now the currently logged drive]
```

To return to the A drive, enter:

```
B>A:            [user enters A:, then RETURN]
A>              [A is now the currently logged drive]
```

Whenever the prompt appears you are operating under the CP/M environment. It goes away when you enter the NAD System, and returns when you leave it.

FULL-DISK BACKUP

Caution and common sense dictate that whenever you purchase or receive a new program or system on a floppy disk, you immediately copy it onto a fresh disk and store the original in a fire-proof, moisture-proof box to protect it against inevitable human error and unpredictable system failure. With the original SSG distribution disk tucked safely away from the ravages of dirt, grease, magnet, and mangle, you avoid the cost and inconvenience of unnecessary replacement. This warning applies doubly for disks containing data crucial to your operation. Do not make the mistake of being "penny wise and pound foolish"; the disk itself is almost always worth far less than the information residing on it.

The manufacturer of your disk drives should have provided a full-disk copy program with the disk hardware. If this program is not available, use the PIP command that comes with the CP/M operating system. To do so, place a properly formatted disk containing an operating system and the PIP program on drive A, and the write-protected NAD distribution disk (the disk you received from your distributor, or Structured Systems Group) on drive B. Hit the RESET switch on your machine and then type

    A>PIP A:=B:*.*[OV]

This command copies all the programs and files on B onto the A disk and verifies that they were copied correctly. See the CP/M documentation for a complete description of the PIP program.

CHANGING DISKS BETWEEN PROGRAMS

Whenever you change disks between programs it is of the utmost importance that you enter a CONTROL-C character immediately after inserting the new disk. The CTRL-C character, which appears on your screen as ^C, informs the computer that a new disk with different data has been inserted. This

Chapter 5: Background Information

"re-booting" causes the CP/M system to reset its internal maps of disk usage, and prevents it from writing over (thus destroying) files which exist on the new disk.

To enter CTRL-C, or any CONTROL character, hold down the CONTROL key (CTRL or CTL on some machines), while at the same time pressing the letter C (either upper or lower case). Never key in a CTRL-C character unless the CP/M prompt is showing. Doing so may end the NAD system, with a probable loss of data.

HOW TO CALL UP THE NAD SYSTEM

To call up the NAD system when the CP/M prompt is showing, type the command,

                    A>CRUN2 NAD

and then hit RETURN. You can give the command in either upper or lower case characters (all requests may be answered in either upper or lower case). If you wish, instead of answering the request for the day's date later, you can give the date on the command line with the command to call up the NAD menu. Use the MM/DD/YY form. For Example,

                    A>CRUN2 NAD 3/14/80

Be sure that CRUN2.COM is on whichever is the currently logged drive, in this case drive A.

HOW TO ANSWER A REQUEST

When the system presents you with a request, type in the answer just like you would on a typewriter. You must press the RETURN key after each response. This tells the program you are finished entering your response and it is okay to continue. Be careful not to press RETURN twice. Give it one sharp tap. Don't let your finger linger near the key, since additional RETURN's are stored and then executed after the original command has been executed.

Many requests present the current value and give you the opportunity to change it. To do so, just type in the new value and hit RETURN. The new value now becomes the current value. If you only want to change part of the current value (for example, the first name of a customer), you must type in the entire value, not just the part you want to change (except when changing information in the reference field).

Many requests present in parentheses the number of characters allowed in your answer. Responses over that length are not accepted.

HOW TO BACK UP ONE REQUEST

To back up one request, press the "up arrow" key. It looks
like this: ^ . Some keyboards have keys that look somewhat like
the up arrow key. Be sure you don't confuse it with another key.
Ask an experienced person if your're not certain.

Some requests do not let you back up, though most do. You
cannot back up from the first request of a name and address
record (Name) to the last request of the previous record
(Reference).

HOW TO FIX A TYPOGRAPHICAL ERROR

If you hit the wrong key by accident at any time while
operating NAD, you can back up to fix it by giving the
SHIFT-DELETE command. To give this command, hold down the SHIFT
key as you would on a typewriter, and while holding it down,
press the DELETE key (marked DEL on some keyboards) as many times
as necessary. Type in the new characters and continue.

Some machines do not have a SHIFT-DELETE key, but use the
BACKSPACE key instead.

HOW TO ABORT A PRINTOUT

If your printer should jam, or if you want to end a long
printout immediately, press any key on the keyboard. Printing
will stop and the program will tell you to press RETURN if you
want to continue, or ESCAPE if you want to end the program.

HOW TO HANDLE THE FLOPPY DISKS

NEVER touch the magnetic material exposed through the
protective sleeve.

NEVER let the disk come within the force of a magnetc field
(such as the tip of a magnetized screwdriver).

NEVER remove a disk from a disk drive while the "access"
light is on. Wait until the CP/M prompt character is showing.

NEVER turn the power on or off while a disk is inserted in
the machine.

ALWAYS insert the disk into the drive with the exposed
"slot" pointing toward the rear of the machine. The direction in
which the label should face depends on your equipment.

ALWAYS put the disk back in its protective sleeve and store
it safely away when you are done using it.

6. Creating or Modifying a NAD File

        Creating a file of name and address records is easy. Just
insert your disks, press the RESET button on your machine, answer
some preliminary requests, and choose the Create or Modify a NAD
File program from the menu. Give your new file a name, tell the
computer on which disk to create it, how long you want the
reference field to be, and whether you want to use the variable
length field option (explained below). Next, tell the computer
you want to add records, then type in the name and address
information for each individual or company.

        Modifying, examining, or deleting information on name and
address files is also an easy task. Insert the disks and call up
the menu like you would to create a file, choose the Create or
Modify a NAD File program, tell the computer what file you want
to work on, tell it whether you want to change, examine, or
delete, then give the record number or numbers. To change
information you type in the new response. To examine records you
just tell the program which ones. To delete a record you say
which one, and confirm that you want it deleted.

                            GETTING STARTED

        To add, change, examine, or delete records on a NAD file,
put a disk with the NAD programs and an operating system on drive
A (or whichever is the currently logged drive, usually A), and a
disk with the name and address file or files on drive B. If your
data files are on the same disk as the programs, put that disk in
drive A. After inserting the correct disks, press the RESET
button on your machine. When the CP/M prompt character appears
(A>), type the command:

                        A>CRUN2 NAD

then press RETURN (press RETURN after answering any request). At
your option you may also type in the current date when calling up
the system:

                        A>CRUN2 NAD MM/DD/YY

You must enter the slashes, but need not type in leading zeros
(i.e., "4/1/80", not "04/01/80").

ENTER NAD FILE DRIVE (@,A-D;RET=CURLOG): After the CRUN version
        number, SSG copyright message, NAD version number, and NAD
        serial number appear, answer the request for the NAD FILE
        DRIVE. This is the disk drive where you want NAD to create
        the name and address files, or where it can expect to find
        files that have already been created. The program gives you
        the opportunity to change your mind later if you want.
        Answer the request by typing A, B, C, or D, or RETURN.
        RETURN means the NAD FILE DRIVE will be the currently logged

drive (see Chapter 6 for an explanation of Logging On). An "@" (at-sign) also means the currently logged drive.

ENTER SYSTEM DATE (MM/DD/YY): If you did not enter the date when you called up the system, type it in now. The program makes sure you enter a valid date, and does not permit a date such as 11/31/80, since November only has 30 days. You must type in the slash marks. You need not type leading zeros for single digit days or months. This date appears on each NAD printout. After you press RETURN, the NAD system menu should appear.

```
***************          N   A   D          ***************
              N A D       S Y S T E M      M E N U

              1      CREATE OR MODIFY A NAD FILE
              2      EXTRACT NAMES FROM ONE FILE TO ANOTHER
              3      PRINT A REPORT
              4      PRINT MAILING LABELS
              5      SORT BY LAST NAME
              6      SORT BY ZIP CODE
              7      CREATE NAME SRT FILES
              8      CREATE ZIP SRT FILE
              9      CHANGE SYSTEM DATE
              ESC       STOP PROGRAM
              CR        REFRESH MENU

          ENTER NUMBER OF FUNCTION DESIRED:
```

ENTER NUMBER OF FUNCTION DESIRED: To ADD, CHANGE, EXAMINE, or DELETE records on a NAD file select menu choice number 1, Create or Modify a NAD File by typing "1" and then press RETURN.

CREATING OR MODIFYING A NAD FILE

ENTER FILE NAME: Enter the name of the file you want to create, or the name of the file you want to modify if it has already been created. The name may be no more than 8 characters long. It must be a valid CP/M filename (see the CP/M Features and Facilities Manual), which means it may not contain periods (.), double quotation marks ("), colons (:), asterisks (*), question marks (?), or imbedded blanks. An "imbedded" blank is a blank within the file name (for instance, "LIST B" is an invalid name since it contains an imbedded blank). The program adds the filetype of NAD to the filename you enter here (for example, "CUSTOMER.NAD"; CUSTOMER is the "filename", and NAD is the "filetype"). If the file has already been created, the program expects it to have the filetype of NAD.

Chapter 6: Creating or Modifying a NAD File

ENTER DRIVE (@, A-D; RET=CURLOG): This is the drive where NAD
    should create or can expect to find the file you named at
    the previous request. RETURN means the currently logged
    drive. The "@" (at-sign) also means the currently logged
    drive. After you answer this request, NAD looks on the
    drive you entered for the file you named. If it finds the
    file it moves on to the next request. If it does not find
    the file (which is the case when you create a file for the
    first time), the program displays the following message:

    I CAN'T FIND ANY FILE BY THE NAME OF: filename ON DISK d:

        I WILL CREATE A NEW FILE BY THIS NAME IF YOU
        WILL TYPE "CREATE".
        IF THERE HAS BEEN A MISTAKE, HIT RETURN AND YOU
        CAN RETYPE THE FILE NAME AND DRIVE.

    Type the word "create" (NAD accepts entries in either upper
    or lower case) and press RETURN to create the file. If NAD
    did not find the file because you misspelled the name or
    inserted the wrong disk, type in the correct name or end the
    program (by pressing the ESCAPE key until the CP/M prompt
    appears) and insert the correct disk.

ENTER THE DESIRED REFERENCE FIELD LENGTH FOR THIS FILE. THE
    REFERENCE FIELD CAN BE FROM 1 TO 127 CHARACTERS LONG. ENTER
    A ZERO (OR HIT RETURN) IF NO REFERENCE FIELD IS DESIRED:
    The program issues this request only if you are creating the
    file for the first time. The longer the reference field,
    the fewer records you can fit on one disk, although for most
    applications the difference is inconsequential. The
    reference field length you give here applies only to this
    file. After you answer this request, the program displays
    the reference field length and the total length of the
    record in bytes (one character per byte). The total record
    length figure is important when creating sort parameter
    files for sorting NAD files.

VARIABLE LENGTH? (Y OR N): This request asks if you want the NAD
    file you are creating to have the "fixed field length
    format" or the "variable field length format". It is only
    asked when you create a new file. The terms fixed and
    variable refer to the structure of the first four fields on
    the record only. In fixed format the first four fields are
    written to disk with a fixed, unvarying field length. The
    lengths of each field are always:

                    NAME   25
                    ADDR1   25
                    ADDR2   18
                    CITY   15

    If you enter information that exceeds these lengths, it is
    rejected. If it is shorter, the data is padded with blanks

on the right. For example, if the following information were entered:

            "John Jones"
            "ABC Co."
            "1441 W. Elbow Dr."
            "Happydale"

it would be stored on disk as:

            "John Jones   "
            "ABC Co.   "
            "1441 W. Elbow Dr. "
            "Happydale   "

Note that each field is padded out to the correct length and that the total space consumed by the data in the four fields is 83 characters.

        In the second format, Variable length, the total space available for the contents of the four fields is still 83 characters. In this format, however, the space left unused in one field can be used in another field. This means that if a record contains a short name, the space left over will be available for a longer address or city. For name and address information to fit on standard mailing labels, nominal field lengths are placed on the four fields as follows:

            NAME   30
            ADDR1   30
            ADDR2   30
            CITY   24

Note that although the combined total of all of the nominal lengths is 114, the actual space available never exceeds 83. If the total number of characters used is less than 83, the excess characters are made up by padding the name field with spaces. For example, if the following information were entered:

            "Johnny West"
            "International Order of Carhops"
            "44 E. 97th St. Suite 140"
            "Albuquerque"

it would be stored on disk as:

            "Johnny West   "
            "International Order of Carhops"
            "44 E. 97th St. Suite 140"
            "Albuquerque"

Note that the data entered totaled 76 characters and the

name field was padded on the right with 7 spaces to bring the total for the first four fields up to 83 characters. No padding is added to the other three fields.

The variable length format is a more flexible method of entering and storing data than the fixed length format. When it is in use, however, the sorting options available become limited. With variable format the starting positions of the address one, address two, and city fields on the disk file are not in the same fixed position from record to record. This means that sorting using any of these three fields as a sort key would not give valid results. If sorting on one or more of these fields is necessary, the fixed length format should be used.

ENTER A FUNCTION (A,C,D,E,S, OR ESC): The ENTER A FUNCTION request is the heart of the Create or Modify a NAD File program. It is at this request that you tell the program whether you want to add, change, examine, or delete NAD records. To add records to the file you would type:

"a"   or   "adding"

and hit RETURN. If you type "a" (don't include the quotes), the program lets you enter one record, then automatically returns to the ENTER A FUNCTION request. If you type "adding", the program lets you enter any number of records until you give the command to leave the add-records mode (ESCAPE at the first request of the next record).

The other valid responses to this request ("c", "changing", "e", "d", "deleting") are covered elsewhere in this chapter in the sections on changing, examining, and deleting records.

A SAVE command is also available at the ENTER A FUNCTION request. This command saves to disk records added or changed so far in the current run of the program. This prevents the loss of perhaps hours of work should the program end abnormally because of a hardware or other failure. Give this command every dozen records or so by typing "s". A rule of thumb is to give the SAVE command as soon as you have entered or changed more records than you would care to enter or change again. One or two hard lessons are usually required before the value of this command is truly appreciated.

HOW TO ADD RECORDS TO THE FILE

To begin adding records to the file, type "a" to add one record, or "adding" to add more than one at the ENTER A FUNCTION request. If you type "a", the ENTER A FUNCTION request returns after you enter the name and address information. If you type "adding", you must press ESCAPE (followed by RETURN) at the first request of the next record to return to the ENTER A FUNCTION request. To end the Create or Modify a NAD File program, press ESCAPE at the ENTER A FUNCTION request. This brings back the NAD system menu. To end the NAD system, press ESCAPE at the system menu.

To answer the requests, type in the information for each one and hit RETURN. If your response is too long, the program will not accept it and the request is reissued. If you press the wrong key you can give the command SHIFT-DELETE to back up one or more positions (press the DELETE or DEL key while holding the SHIFT key down; some machines use the BACKSPACE key). To back up one request press the up-arrow key (^). This command does not back up to the previous record and thus should not be used at the ENTER NAME request. When you back up to a previous request, the program displays the data as it would in the "changing" mode. Pressing RETURN at any field leaves the contents of that field unchanged and advances to the next request. To set a field to all blanks if the request has already been answered, type one or more blanks and press RETURN.

Listed below are the name and address requests issued by the system. Along with each request is a discussion of the length and format restrictions that apply, and the options available.

ENTER NAME: Accepts any combination of letters, numbers, or symbols (except double quotes) up to 25 characters in fixed field length files, and 30 characters in variable field length files.

Names may be "flipped" when you enter them so they print first name first, yet are stored on disk last name first. Names typed in reverse order print out on labels and reports in reverse order. For example:

Crenshaw, Susan

would print on labels and reports just as it was keyed in. If you want to be able to sort the file by last name, but do not want names printed last name first, names can be entered with an asterisk (*) separating the last and first names instead of a comma. For example:

Crenshaw*Susan

would print on labels and reports as:

Chapter 6: Creating or Modifying a NAD File

Susan Crenshaw

All of the NAD system programs show the name in "flipped" form. That is, the characters to the right of the asterisk are flipped around and printed in front of the characters to the left of the asterisk. The asterisk itself is replaced by a single space. The following chart shows how names are flipped:

ENTERED AS:	PRINTED AS:
John Jones	John Jones
Jones*John	John Jones
Jones*John A.	John A. Jones
Jones, Jr.*John Alfred	John Alfred Jones, Jr.
Jones*Dr. John	Dr. John Jones
Jones, MD*John	John Jones, MD
Jones, PhD*John A. T.	John A. T. Jones, PhD

ENTER LINE ONE OF ADDRESS: Accepts 25 characters in fixed format, maximum of 30 in variable format. The number in parentheses beside the request (not shown here) is the maximum number of characters allowed in the field. The number may vary depending on the data in the name, address 1, address2, and city fields when the variable length option is used.

ENTER LINE TWO OF ADDRESS: Accepts 18 characters in fixed format, maximum of 30 in variable format.

ENTER CITY: Accepts 15 characters in fixed format, maximum of 24 in variable format.

ENTER STATE: Accepts 2 alphabetic characters. Figure 6.1 lists the official Postal Service state abbreviations. Figure 6.2 presents a list of general purpose abbreviations accepted by the U.S. Postal Service that may be useful for fitting name and address information into the fields.

An INTERNATIONAL POSTAL CODE option lets you combine the 2 digit state field with the 5 digit zipcode field for use as a 7 digit international postal code. To use the option, type a period (.) at the STATE request and type in the 7 character code. The program accepts any combination of letters and numbers for the postal code.

ENTER ZIP: Accepts 5 digit numbers only, unless you use the postal code option described in the request above. Entries of less than 5 digits are rejected.

ENTER PHONE: Accepts 13 characters, enough for an area code and seven digit number. For example,

(712)446-0317

Chapter 6: Creating or Modifying a NAD File

ENTER REFERENCE: The number of characters accepted by the
    reference field depends on its length. You may enter any
    combination of letters, numbers, and symbols, but no control
    characters or double quotation marks. A guage for
    determining your position in the field is provided above the
    area where you type in the reference field contents. When
    you change the contents of the reference field, you need not
    retype the entire field, but only the characters that need
    changing (see the section on How to Change Records).

T W O   L E T T E R   S T A T E

A N D   T E R R I T O R Y   A B B R E V I A T I O N S

Alabama	AL	Nebraska	NE
Alaska	AK	Nevada	NV
Arizona	AZ	New Hampshire	NH
Arkansas	AR	New Jersey	NJ
American Samoa	AS	New Mexico	NM
California	CA	New York	NY
Canal Zone	CZ	North Carolina	NC
Colorado	CO	North Dakota	ND
Connecticut	CT	Northern Mariana Is.	CM
Delaware	DE	Ohio	OH
District of Columbia	DC	Oklahoma	OK
Florida	FL	Oregon	OR
Georgia	GA	Pennsylvania	PA
Guam	GU	Puerto Rico	PR
Hawaii	HI	Rhode Island	RI
Idaho	ID	South Carolina	SC
Illinois	IL	South Dakota	SD
Indiana	IN	Tennessee	TN
Iowa	IA	Trust Territories	TT
Kansas	KA	Texas	TX
Kentucky	KY	Utah	UT
Louisiana	LA	Vermont	VT
Maine	ME	Virginia	VA
Maryland	MD	Virgin Islands	VI
Massachusetts	MA	Washington	WA
Michigan	MI	West Virginia	WV
Minnesota	MN	Wisconsin	WI
Mississippi	MS	Wyoming	WY
Missouri	MO		
Montana	MT		

Figure 6.1

ABBREVIATIONS FOR STREET DESIGNATORS AND FOR WORDS
THAT APPEAR FREQUENTLY IN PLACE NAMES

Academy	ACAD	Extension	EXT
Air Force Base	AFB	Fall	FL
Agency	AGNCY	Falls	FLS
Airport	ARPRT	Farms	FRMS
Alley	ALY	Ferry	FRY
Annex	ANX	Field	FLD
Arcade	ARC	Fields	FLDS
Arsenal	ARSL	Flats	FLT
Avenue	AVE	Ford	FRD
Bayou	BYU	Forest	FRST
Beach	BCH	Forge	FRG
Bend	BND	Fork	FRK
Big	BG	Forks	FRKS
Black	BLK	Fort	FT
Boulevard	BLVD	Fountain	FTN
Bluff	BLF	Freeway	FWY
Bottom	BTM	Furnace	FURN
Branch	BR	Gardens	GDNS
Bridge	BRG	Gateway	GTWY
Brook	BRK	Glen	GLN
Burg	BG	Grand	GRND
Bypass	BYP	Great	GR
Camp	CP	Green	GRN
Canyon	CYN	Ground	GRD
Cape	CPE	Grove	GRV
Causeway	CSWY	Harbor	HBR
Center	CTR	Haven	HVN
Central	CTL	Heights	HTS
Church	CHR	High	HI
Churches	CHRS	Highlands	HGLDS
Circle	CIR	Highway	HWY
City	CY	Hill	HL
Clear	CLR	Hills	HLS
Cliffs	CLFS	Hollow	HOLW
Club	CLB	Hospital	HOSP
College	CLG	Hot	H
Common	CMM	House	HSE
Corner	COR	Inlet	INLT
Corners	CORS	Institute	INST
Course	CRSE	Island	IS
Court	CT	Islands	IS
Courts	CTS	Isle	IS
Cove	CV	Junction	JCT
Creek	CRK	Key	KY
Crescent	CRES	Knolls	KNLS
Crossing	XING	Landing	LNDG
Dale	DL	Lake	LK
Dam	DM	Lakes	LKS
Depot	DPO	Lane	LN
Divide	DV	Light	LGT
Drive	DR	Little	LTL
East	E	Loaf	LF
Estates	EST	Locks	LCKS
Expressway	EXPY	Lodge	LDG
Extended	EXT	Loop	LOOP

Lower	LWR	School	SCH
Mall	MALL	Seminary	SMNRY
Manor	MNR	Shoal	SHL
Meadows	MDWS	Shoals	SHLS
Meeting	MTG	Shode	SHD
Memorial	MEM	Shore	SHR
Middle	MDL	Shores	SHRS
Mile	MLE	Siding	SDG
Mill	ML	South	S
Mills	MLS	Space Flight Ctr.	SFC
Mines	MNS	Speedway	SPDWY
Mission	MSN	Spring	SPG
Mound	MND	Springs	SPGS
Mount	MT	Spur	SPUR
Mountain	MTN	Square	SQ
National	NAT	State	ST
Naval Air Sta.	NAS	Station	STA
Neck	NCK	Street	ST
New	NW	Stream	STRM
North	N	Sulphur	SLPHR
Orchard	ORCH	Summit	SMT
Oval	OVAL	Switch	SWCH
Palms	PLMS	Tannery	TNRY
Park	PARK	Tavern	TVRN
Parkway	PKY	Terminal	TERM
Pass	PASS	Terrace	TER
Path	PATH	Ton	TN
Pike	PIKE	Tower	TWR
Pillar	PLR	Town	TWN
Pines	PNES	Trace	TRCE
Place	PL	Track	TRAK
Plain	PLN	Trail	TRL
Plains	PLNS	Trailer	TRLR
Plaza	PLZ	Tunnel	TUNL
Port	PRT	Turnpike	TPKE
Point			

Figure 6.2

29

HOW TO CHANGE RECORDS ON THE FILE

To change records on a NAD file, call up the menu as
described in the section of this chapter called Getting Started.
Select menu choice number 1, Create or Modify a NAD File. Tell
the program what file you want to change, and which drive it's
on. At the request to ENTER A FUNCTION, type "c" to change one
record, or "changing" to change more than one.

If you type "c", the program asks for the number of the
record you want to change (this is the position of the record
relative to the beginning of the file; record numbers can be
found on printouts of the NAD file). If you press ESCAPE
(followed by RETURN) at the RECORD NUMBER request, the ENTER A
FUNCTION request returns. After you make the desired changes,
press ESCAPE at any request to signal that you are done making
changes. The ENTER A FUNCTION request will return. If you type
"changing", the program lets you change as many records as you
want before it presents the ENTER A FUNCTION request again. To
bring back the ENTER A FUNCTION request, press ESCAPE at any
request, then press ESCAPE at the request for the record number.
Pressing ESCAPE at the ENTER A FUNCTION request brings back the
NAD system menu. ESCAPE at the menu ends the NAD system.

When you give the record number, the program presents the
requests described in the section on adding records. Above each
request is the current contents of the field (Figure 6.3). To
change any field other than the reference field the entire
contents must be re-typed. Remember to press RETURN after you
answer each request. If the contents are correct, you may press
RETURN to advance to the next request. RETURN leaves the current
contents of a field unchanged.

> 6435 Rain Street
> ENTER LINE ONE OF ADDRESS (25) 6435 Main Street

(Figure 6.3: Changing the Current Contents of a Field)

If you press the wrong key you can give the command
SHIFT-DELETE to back up one or more positions (press the DELETE
or DEL key while holding the SHIFT key down; some machines use
the BACKSPACE key). To back up one request press the up-arrow
key (^). This command does not back up to the previous record
and thus should not be used at the ENTER NAME request. To set a
field to all blanks if the request has already been answered,
type one or more blanks and press RETURN.

Chapter 6: Creating or Modifying a NAD File

CHANGING INFORMATION IN THE REFERENCE FIELD

When the reference field is up for changing, the current contents of the field are displayed farther to the right of the screen than for the other fields. The current value is lined up directly over the column in which the cursor is placed after the ENTER REFERENCE request. A guide appears above the current contents so you can tell easily which character in the reference field you are changing.

When changing the contents of the refernce field, the entire field does not have to be re-typed as for the other fields. Only the characters for which a change is desired need to be typed. A space causes the existing data to remain unchanged. For example, assume that a reference field of ten characters was defined and a record contained the following data:

"ABCDEF   "

and that it was desired to change the letter "C" in the third position to an "X". The entry would look like this:

                         ABCDEF
          ENTER REFERENCE   X

Note that only three characters would have to be keyed in: two spaces and the letter "X". The two leading spaces indicate that the first two characters of the existing reference field should be left unchanged.

If, using the same reference field as above, you wanted to add the letter "Y" in the seventh column, after the letter "F", the entry would look like this:

                         ABCDEF
          ENTER REFERENCE   Y

In this case, the six leading blanks allow the new character, "Y", to be added without disturbing the existing data.

If you want to change an existing character to a blank, a backslash (\) should be entered in its place. For example, if you wanted to change the letters "B" and "D" in the previous example to spaces, the entry would look like this:

                         ABCDEF
          ENTER REFERENCE   \ \

Chapter 6: Creating or Modifying a NAD File

HOW TO EXAMINE RECORDS ON THE FILE

To examine records on the file, call up the system menu as
described in the section of this chapter titled Getting Started.
Choose menu item number one, Create or Modify a NAD File, then
tell the program what file you want to examine, and which drive
it is on. When the ENTER A FUNCTION request appears, type "e" to
indicate you want to examine records on the CRT screen. To
return to the ENTER A FUNCTION request, press ESCAPE followed by
RETURN at any point.

To display a record, type the record number and press
RETURN. To display the NEXT record on the file, press RETURN.
To display a series of records, type the starting record number
followed by a single comma with no spaces, then the number of
records to display. For example, to display five records
starting with record number 33, type:

33,5

Pressing any key on the keyboard cancels long typeouts. The
message:

END OF FILE

appears when the file is completely read.

HOW TO DELETE RECORDS FROM THE FILE

Bring up the ENTER A FUNCTION request as you would to add,
change, or examine records. Type "d" to delete one record, or
"deleting" to delete more than one. When the program asks for
the RECORD NUMBER, type in the number of the record to be
deleted. If you respond to the RECORD NUMBER request by pressing
ESCAPE (followed by RETURN), the ENTER A FUNCTION request
reappears. ESCAPE at the ENTER A FUNCTION request brings back
the system menu. ESCAPE from there ends the NAD system.

Before it marks a record as deleted, the program presents
the current contents of the NAME field and requests confirmation
that the record should be deleted. If you type "d", the record
is permanently erased; if you type anything else, the record is
not deleted. The Extract Names From One File to Another must be
used to reclaim space taken by the deleted records.

HOW TO SAVE RECORDS TO DISK
TO PREVENT ACCIDENTAL LOSS OF DATA

A SAVE command is available at the ENTER A FUNCTION request that prevents the loss of data in the event of an equipment failure or operator error. While additions or changes to a NAD file are recorded on disk when you leave the Create or Modify a NAD File program, the SAVE command updates the disk before the end of the program to insure that, should it end prematurely, the loss of data is minimal. We strongly suggest you use this command whenever you have entered more records than you would care to enter again. One advantage of the habitual use of this command is that you will never be in the situation where after keying in hours worth of names and addresses, you find that your disk was write-protected.

To give the command, type the letter "s" followed by RETURN, at the ENTER A FUNCTION request. The program tells you how many records were saved.

7. Extracting NAD Records to Another File

The Extract program (Extract Names from One File to Another; menu option number two), should be run when you want to create a new NAD file that is a subset of another NAD file, when you want to change the length of the reference field, or when you simply want to remove deleted records from the file to save disk space.

GETTING STARTED

To run this program you select it from the NAD system menu. Read the section in Chapter 6 called Getting Started for an explanation of how to bring up the NAD menu. When the menu appears, choose option number 2, Extract Names from One File to Another.

PRELIMINARY REQUESTS

ENTER INPUT FILE NAME: This is the first request to appear after you select the Extract program from the menu. Type in the name of the file you want to extract records from, compress, or alter the reference field for. Give the (up to) 8 character filename, without the 3 character filetype of NAD, which the program expects the file to have.

ENTER DRIVE (@,A-D;RET=CURLOG): Enter the disk drive where the file named in the previous request can be found. Pressing RETURN or the "@" (at-sign) key tells the program the file is on whichever is the currently logged disk drive (see the section on Logging On, Chapter 5).

ENTER OUTPUT FILE NAME: Enter the name of the file you want to create. Whether you are extracting, compressing, or shortening the reference field, the Extract program creates a new file. If the Output File Name is the same as the Input File Name, as is usually the case when you are simply compressing the file or changing the reference field length, the Extract program leaves the input filename the same, but changes the filetype to BAK. The filetype of BAK (for example, CUSTOMER.BAK) indicates the file is the original, unextracted file.

ENTER DRIVE (@,A-D;RET=CURLOG): Enter the disk drive where the file named in the previous request should be created. Pressing RETURN or the "@" (at-sign) key tells the program to create the file on whichever is the currently logged disk drive. Be sure there is space on the drive you enter for the new file. Use the CP/M STAT command (for example, "STAT B:") to find out how much room is available.

Chapter 7: Extracting NAD Records to Another File

DO YOU WANT TO SELECT RECORDS (Y OR N)?: If you want to use the
    Record Selection System to extract records from the input
    file, answer Yes to this request. If you just want to
    compress the file, answer No. If you want to change the
    reference field length, answer No. If you answer Yes to
    this request the program presents you with the Record
    Selection System's requests, which are explained in the
    section of this chapter titled Using the Record Selection
    System.

HOW TO COMPRESS A NAD FILE

    To remove records marked as deleted from a NAD file, reply
to the SELECT RECORDS? request by typing "n" for No. After you
hit RETURN, the program gives you the opportunity to change the
reference field length. If you just want to compress the file,
press RETURN (or type the word "ok").

    When the extract is finished, the program states how many
records were written to the new file, and asks if you want to
extract another file? If you answer negatively, the Extract
program ends and the system menu returns. If you answer
affirmatively, the program begins over.

HOW TO CHANGE THE REFERENCE FIELD LENGTH

    To change the length of the reference field, reply to the
SELECT RECORDS? request by typing "n" for No. After you press
RETURN, the following request appears:

            CURRENT REFERENCE FIELD LENGTH IS nnn
            TYPE RETURN IF OK, ENTER NEW LENGTH IF DESIRED

where "nnn" stands for the current length of the reference field.
Type in the new reference length between zero and 127, then press
RETURN. The Extract program will remove any deleted records it
finds on the input file. If the new length is longer than the old
length, the reference field is padded on the right with blanks.
If the new length is shorter than the old length, the reference
field is truncated on the right to bring it to the proper length.
If a zero is entered, the whole field is removed.

USING THE RECORD SELECTION SYSTEM

    The Record Selection System's requests are exactly the same
in the Extract program as they are in the Print and Label
programs. Selecting records with the Extract program results in
a new file that is a subset of the input file. Selecting records
with the Print a Report program produces reports on only selected
records of a NAD file. Selecting records with the Print Mailing
Labels program causes labels to be printed only for the companies

or individuals selected.

To use the Record Selection System, type "y" for Yes when asked, "DO YOU WANT TO SELECT RECORDS?" Answer the requests described below to tell the program on what basis to select records. Press RETURN after each response. To back up to the previous request, enter an up-arrow (^) followed by RETURN. To end the program, press ESCAPE followed by RETURN at any request. Miskeys can be corrected by the SHIFT-DELETE command (BACKSPACE on some machines).

ENTER STARTING RECORD NUMBER: Enter the record number where you want selection to begin. If you want to select from the entire file, enter the starting record number as "1" or press RETURN.

ENTER NAME OF SELECTION FIELD: The selection conditions are applied to the field or portion of the field you name here. Possible responses are:

> NAME
> ADDR1
> ADDR2
> CITY
> STATE
> ZIP
> PHONE
> REF

Only one field may be used for selection per run. Responses may be in upper or lower case.

RANGE OR MATCH (R OR M)?: If you want to select by RANGE, printing (or extracting) starts at the lowest valid value and stops at the lowest non-valid value. To exercise selection by RANGE, the NAD file must be sorted on the selection field (i.e., to select a range of zipcodes, the records on the file must be sorted in zipcode order). You may select by MATCH whether the file is ordered or unordered. To order selection by RANGE or MATCH, type "r" or "m" respectively.

Both the RANGE and MATCH selection conditions can be preceded by the word "NOT" to make the program select records on the opposite conditions. When you select NOT RANGE or NOT MATCH, any record that would normally be chosen is rejected, and any record that would normally be rejected is chosen. To order selection of NOT RANGE or NOT MATCH, type "not r" or "not m" respectively.

SELECTION BY RANGE

ENTER LOWEST VALID VALUE: Any string of characters may be entered
     in response. The length must be less than or equal to that
     of the selection field. No records will be printed or
     extracted until a record is read which contains data of a
     value equal to that of the selection field. If the NOT
     RANGE option is used, printing or extracting will stop when
     the program encounters a record with data equal to or
     greater than the lowest valid value.

ENTER HIGHEST VALID VALUE: Any string of characters may be
     entered. The length must be the same as the lowest valid
     value string. Printing or extracting will stop when a
     record is read whose value exceeds that of the given value.
     If the NOT RANGE option is used, printing or extracting will
     start when the program encounters a record containing data
     greater than the highest valid value.

ENTER STARTING LOCATION: If the length of the start and stop
     values is less than the length of the selection field
     specified, this request is issued. Respond with the
     character position in the selection field where the
     comparison is to begin (1 means the first postion in the
     field, 2 means the second, etc.). The number you enter must
     not exceed the difference between the field length and the
     start/stop string length.

SELECTION BY MATCH

ENTER MATCHING PATTERN: Enter the string of characters the data
     in the selection field must match for the record to be
     selected. The length of the match pattern must be less than
     or equal to the length of the selection field. Full use can
     be made of the "?", "#", and "!", special characters in
     addition to strings of literal data. A pound-sign (#) in
     the match pattern will match on any digit from 0 to 9. An
     exclamation mark (!) will match on any upper or lower case
     letter. And a question mark (?) will match with any
     character. If any of these special characters are preceded
     in the match pattern by a backslash (\), they will not
     function as "wild cards", but will only match on like
     special characters in the selection field. That is, the
     pattern "\?abc" will only select a record if the data in the
     selection field looks like this: "?abc". If escape
     characters are used in the match pattern, no editing of its
     validity is made; it is the user's responsibility to assure
     an accurate match pattern.

ENTER FIRST STARTING LOCATION: If the length of the match pattern
     is less than the length of the selection field (or if the
     match pattern contains escape characters) this request will
     be issued. The response must be the character position in

the selection field where the comparison is to begin.   The
specified match pattern will be compared to the selection
field repetitively moving one character position at a time
(in the manner of the CBASIC match function).   The
comparison will stop at the last starting location given.

ENTER LAST STARTING LOCATION: If the length of the match pattern
is less than the length of the selection field (or if the
match pattern contains escape characters) this request will
be issed.   The response must be the character position in
the selection field where the comparison is to stop.   Note
that this value specifies the last character location to be
matched against the first character in the match pattern.
For example:

> ENTER MATCHING PATTERN yes
> ENTER FIRST STARTING LOCATION 5
> ENTER LAST STARTING LOCATION   8

will accept records with the word "yes" starting in
character positions 5, 6, 7, or 8 of the selection field, as
shown below:

```
yes456789012345        is not selected
1yes56789012345        is not selected
12yes6789012345        is not selected
123yes789012345        is not selected
1234yes89012345        is selected
12345yes9012345        is selected
123456yes012345        is selected
1234567yes12345        is selected
12345678yes2345        is not selected
123456789yes345        is not selected
1234567890yes45        is not selected
12345678901yes5        is not selected
123456789012yes        is not selected
```

Selection with the MATCH facility does not require the
files to be in any particular order.

DO YOU WANT UPPER CASE TRANSLATION? (Y OR N): If the RANGE or
MATCH patterns specified contain no lower case ASCII
characters (any character of ASCII value greater than 60H
or 96D), the program will ask if you want upper case
translation.   If you answer Yes, the field or portion of the
field that is to be compared to the MATCH or RANGE value
will be temporarily translated to upper case.   All selected
records will be output in the original, untranslated format
as they were found on the input file.   For example, if a
match pattern of "CA" was specified for selection on the
state field and upper case translation requested, all
California records would be selected even if the values in
the state field were "Ca", "ca", or "cA".

8. Printing the NAD File

　　　　The Print a Report program prints a list of all or selected records on 132 column continuous form paper (66 lines per page). Version 3.0 of NAD requires a printer that can respond to the ASCII form feed character.

　　　　The printout shows the entire contents of each NAD record printed on two lines. Beside each record is the record number, which is the position of the record relative to the beginning of the file (i.e., the first record on the file is record number 1, the second record is record number 2, etc.). Each report is dated, and displays the name of the NAD file and its drive location.

GETTING STARTED

　　　　To run this program you select it from the NAD system menu. Read the section in Chatper 6 called Getting Started for an explanation of how to bring up the NAD menu. When the menu appears, choose option number 3, Print a Report.

PRINTING THE NAD FILE

ENTER FILE NAME: This is the first request to appear after you
　　　　select the Print a Report program from the menu. Type in
　　　　the name of the file you want to print. Give the (up to) 8
　　　　character filename, without the 3 character filetype of NAD,
　　　　which the program assumes.

DO YOU WANT TO SELECT RECORDS: If you want the report to cover
　　　　only certain records on the file you should answer that you
　　　　do want to select records. If you answer No, the program
　　　　will print every record. The Record Selection System's
　　　　requests are the same in the Print a Report program as they
　　　　are in the Extract program, where the requests are
　　　　explained. Refer to the section in Chapter 7 titled, Using
　　　　the Record Selection System.

HOW TO ABORT THE PRINTOUT

　　　　If you want to halt a printout of the NAD file for any reason, press any key on the keyboard. The printing will stop and the program will ask you to press ESCAPE to end the program, or RETURN to continue printing where you left off.

9. Printing NAD Labels

The Print Mailing Labels program prints labels for all or only selected records on a name and address file. Each label includes the name, two address lines, city, state, and zipcode (blank address lines do not print on the label). The Standard label option prints one label per record, one across, on 3.5" x 15/16" labels. By declining the Standard label option, you can order any number of labels printed per name, up to four across, with vertical spacing of your choice between labels. You can even instruct the program to pause between labels so you can insert an envelope or other non-continuous form. The program asks if you want to print a "dummy" label as an aid in aligning the labels in your printer.

GETTING STARTED

To run this program you select it from the NAD system menu. Read the section in Chapter 6 called Getting Started for an expanation of how to bring up the NAD menu. When the menu appears, choose option number 4, Print Mailing Labels.

PRINTING NAD LABELS

ENTER FILE NAME: This is the first request to appear after you select the Print Mailing Labels program from the menu. Type in the name of the file you want to print. Give the (up to) 8 character filename, without the 3 character filetype of NAD, which the program assumes.

DO YOU WANT TO SELECT RECORDS: If you want to print labels for only certain records on the file, you should answer that you do want to select records. The Record Selection System's requests are the same in the Print Mailing Labels program as they are in the Extract program, where they are explained. Refer to the section in Chapter 7 titled, Using the Record Selection System.

DO YOU WANT STANDARD LABELS? (Y,N,E=ENVELOPES): This request appears after you answer the questions on record selection. Answer "Y" for Yes if you want to print one label per name, one label across, with six lines (one inch) between the first line of one label and the first line of the next. Printing begins at column 1 of your printer. After you choose Standard Labels, the program asks if you want to print a dummy label, then begins printing.

If you do not want Standard Labels, or if you want to print on non-continuous forms, answer "N" for No to this request. The program then issues the requests described below.

REQUESTS YOU ANSWER IF YOU DO NOT WANT STANDARD LABELS

ENTER NUMBER OF LABELS PER NAME: Enter any number greater than
    zero. The program will print the contents of each name and
    address record the number of times you specify. Printing
    multiple labels can be useful when addressing several forms
    or packages at the same time. If you want to print labels
    in the standard format, but on non-continuous forms, order
    one label printed per name.

ENTER NUMBER OF LABELS ACROSS PAGE (RET=1): You may order from
    one to four labels printed across the page. Type in the
    number you want. If you want to print labels in the
    standard format, but on non-continuous forms, specify one
    label across the page by pressing RETURN.

ENTER STARTING PRINT LOCATION OF LABEL n: This request is issued
    once for each label you order printed across the page ("n"
    stands for the number of the label, counting from left to
    right). Enter the number of the leftmost column of the
    first label, then the leftmost column of additional labels.
    Allow at least 30 characters for each label.

ENTER LABEL VERTICAL SPACING IN LINES (3-50): Enter the number of
    lines between the top line of one label and the top line of
    the next. Three is the smallest acceptable value, 50 the
    largest.

WOULD YOU LIKE A DUMMY FORM PRINTED? (Y OR N;RET=N): This is the
    last request before printing begins. If you answer "Y" for
    Yes, the program prints a dummy label so you can adjust the
    alignment of the forms in your printer. The request is
    issued over and over until you reply with "N" for No, or
    RETURN. It is not issued if you have ordered printing on
    non-continuous forms.

INSERT NEXT ENVELOPE
HIT RETURN TO CONTINUE: If you order labels to be printed on
    non-continuous forms, usually envelopes, this request
    prompts you to insert and align the form. It is repeated
    for each label. After the last one is printed, the program
    tells you so, and asks if you want to print labels for
    another file.

HOW TO ABORT THE PRINTOUT

    If you want to halt a printout of a NAD file, press any key
on the keyboard. The printing will stop and the program will ask
you to press ESCAPE to end the program, or RETURN to continue
printing where you left off.

10. Sorting the NAD File

SSG's general purpose sorting program QSORT can be used to
sort any file created by the NAD system. A program named QPARM,
which is distributed with the QSORT package, builds what are
called "sort parameter files" through question and answer. Any
number of sort parameter files may be created, each one for a
different sorting task. For example, you might create a sort
parameter file named CITY.SRT for sorting a file named
CUSTOMER.NAD by city. Sort parameter files for sorting by name
or zipcode can also be created with the NAD system. To create
them you choose the Create Name SRT File or the Create Zip SRT
File from the NAD menu. Sorting by name or zipcode may also be
done from the NAD menu.

CREATING SORT PARAMETER FILES

The requests issued by the NAD system for creating name and
zipcode sort parameter files are explained below. See your QSORT
manual for instructions on how to create sort parameter files for
sorting on other fields, or for more complex sorting procedures
(such as by name within city, or reference field information
within zipcode).

ENTER NAME OF FILE TO BE SORTED (1-8 CHARS): Enter the (up to)
    eight character filename of the file you want to sort. The
    filetype of NAD is assumed.

ENTER INPUT FILE DRIVE (@,A-D;RET=CURLOG): Enter the drive
    location where the file you named in the previous request
    can be found. The "@" (at-sign) means it can be found on
    the currently logged disk drive. RETURN means the same as
    an at-sign.

ENTER NAME OF SORTED OUTPUT FILE: This request is for the (up to)
    eight character filename of the new file of sorted name and
    address records that QSORT will create. If the name you
    enter is the same as the name of the input (unsorted) file,
    the input file is automatically renamed to the filetype of
    BAK.

ENTER SORTED OUTPUT FILE DRIVE (@,A-D;RET=CURLOG): Enter the
    drive where you want the file of sorted name and address
    records to be created. Be sure there is at least as much
    room on the disk in that drive as is occupied by the input
    file (the input and output files are always the same size).

ENTER LENGTH OF NAD FILE REFERENCE FIELD (0-127): If you don't
    know how long the reference field is, run the Create or
    Modify a NAD File program. The length of the reference
    field (and the total length of each NAD record) is displayed
    right before the program issues the ENTER A FUNCTION
    request. Press ESCAPE at the ENTER A FUNCTION request to
    return to the NAD menu.

SORTING FROM THE NAD MENU

To sort a NAD file by name or zipcode from the NAD menu, make sure QSORT and the sort parameter file created by NAD (ZIP.SRT or NAME.SRT) are on the currently logged disk drive, and that the currently logged drive is not write-protected. When you run the sort from the menu (as opposed to running it outside the NAD system by typing A>QSORT NAME) the NAD system is ended temporarily and the sort run under the CP/M environment (since QSORT is not written in the CBASIC programming language). When sorting is complete, the NAD menu returns. To accomplish this, NAD uses the CP/M SUBMIT facility. If your CP/M compatible operating system does not have the SUBMIT feature (most do), you must run the sort outside the system as document in the QSORT User's manual. Error messages are also explained in the QSORT manual.

SORTING OUTSIDE THE NAD SYSTEM

If you want to sort outside the NAD system, the following information will help you answer the requests issued by the QPARM program. The QPARM program will request the starting position and length of every sort key (up to 5 are permitted). The chart below shows the starting position and length of the fields on each fixed field length format NAD record. Although the starting position of the reference field is fixed, the length of the reference field is variable.

It is not required to sort on a full field. Any portion of any field, or any combination of fields can be used as a sort key. This is particularly useful for sorting portions of the reference field.

FIELD NAME	START	LENGTH
NAME	2	25
ADDR1	30	25
ADDR2	58	18
CITY	79	15
STATE	97	2
ZIP	102	5
PHONE	110	13
REF	126	--

(Figure 10.1: Fixed Format Record Structure)

If the variable length format is used, the starting positions of the ADDR1, ADDR2 and CITY fields will vary and thus cannot be used as sort keys. Although the length of the name field is variable, it may still be sorted on with satisfactory

results. This is especially true if name flipping is used. The
flipped names are entered last name first so the last name will
sort with a higher precedence than the first name. The starting
position remains at 2 and the length should be either 25 or 30
depending on whether the file is variable format or not.

The record length to give QPARM can be computed by adding
128 to th number of characters specified for the reference field.
For example, the record length to use for a 25 character
reference field is 153. The length of the reference field and
the total record length is displayed by the Create or Modify a
NAD File program before it issues the ENTER A FUNCTION request.

11. Using the Record Selection System—Examples

This chapter presents several examples of the Record
Selection System at work.

EXAMPLE 1: To select names and addresss of people who live in
    Florida, enter:

```
        DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
        ENTER STARTING RECORD NUMBER  1
        ENTER NAME OF SELECTION FIELD  state
        RANGE OR MATCH (R OR M)?  m
        ENTER MATCHING PATTERN  FL
        DO YOU WANT UPPER CASE TRANSLATION (Y OR N)?  y
```

EXAMPLE 2: To select records for everyone except residents of
    Illinois, enter:

```
        DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
        ENTER STARTING RECORD NUMBER  1
        ENTER NAME OF SELECTION FIELD  state
        RANGE OR MATCH (R OR M)?  not m
        ENTER MATCHING PATTERN  IL
        DO YOU WANT UPPER CASE TRANSLATION (Y OR N)?  y
```

EXAMPLE 3: To select only people who are apartment dwellers,
    enter:

```
        DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
        ENTER STARTING RECORD NUMBER  1
        ENTER NAME OF SELECTION FIELD  addr2
        RANGE OR MATCH (R OR M)?  m
        ENTER MATCHING PATTERN  apt
        ENTER FIRST STARTING LOCATION  1
        ENTER LAST STARTING LOCATION  15
```

EXAMPLE 4: To select only residents of the northern counties of
    California, sort the file by zipcode in ascending order,
    then enter:

```
        DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
        ENTER STARTING RECORD NUMBER  1
        ENTER NAME OF SELECTION FIELD  zip
        RANGE OR MATCH (R OR M)?  r
        ENTER LOWEST VALID VALUE  94000
        ENTER HIGHEST VALID VALUE  99000
```

EXAMPLE 5: To select residents of Tulsa, Oklahoma, enter:

```
           DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
           ENTER STARTING RECORD NUMBER  1
           ENTER NAME OF SELECTION FIELD  city
           RANGE OR MATCH (R OR M)?  m
           ENTER MATCHING PATTERN  Tulsa
           ENTER FIRST STARTING LOCATION  1
           ENTER LAST STARTING LOCATION  10
```

EXAMPLE 6: To select people with the name of Johnson, enter:

```
           DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
           ENTER STARTING RECORD NUMBER  1
           ENTER NAME OF SELECTION FIELD  name
           RANGE OR MATCH (R OR M)?  m
           ENTER MATCHING PATTERN  Johnson
           ENTER FIRST STARTING LOCATION  1
           ENTER LAST STARTING LOCATION  18
```

EXAMPLE 7: This example shows how the NAD system could serve an investment broker as a tool for communicating with his or her customers and keeping track of their interests and transactions.

For such a system, the NAD file is created with a 12 character reference field. The use of the reference field is defined by the following table:

```
       FIELD OF INTERST:
           character 1          stocks
           character 2          bonds
           character 3          tax shelters
           character 4          commodities
           character 5          options

       RANGE OF RISK:
           character 6          risk desired

       DATE OF LAST TRANSACTION:
           character 7,8        year
           character 9,10       month
           character 11,12      day
```

Each of the first five character positions will contain a blank, an "A", or a "B". A blank indicates the client has shown no interest in the investment type. An "A" indicates the client has shown interest. A "B" indicates the client currently has holdings of that type.

The sixth character shows the kind of risk the client is interested in: "H" stands for high risk, "M" for medium risk, and "L" for low risk. The last six characters in the reference field hold the date of the last transaction with the client. It is broken into three, two-byte fields for year, month, and day.

If a broker followed the procedure outlined above for all clients, he or she would have a very useful "data-base" for communicating investment opportunities to those who would be most inteersted. Assume an attractive but risky stock was offered. The broker could print the names and address of prospective clients by using the MATCH function as shown below:

```
DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
ENTER STARTING RECORD NUMBER  1
ENTER NAME OF SELECTION FIELD  ref
RANGE OR MATCH (R OR M)?  m
ENTER MATCHING PATTERN  !????H
ENTER FIRST STARTING LOCATION  1
ENTER LAST STARTING LOCATION  1
```

The program would extract clients who had shown an interest or had holdings in high risk stocks. A phone call or a letter to these people could result in a sale for the broker. (Refer to the section on Selection by Match, Chapter 7, for an explanation of how special characters in the match pattern work.)

If the broker wanted to know which clients had not made a transaction in the current year, 1980, he or she would enter:

```
DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
ENTER STARTING RECORD NUMBER  1
ENTER NAME OF SELECTION FIELD  ref
RANGE OR MATCH (R OR M)?  not m
ENTER MATCHING PATTERN  80
ENTER FIRST STARTING LOCATION  7
ENTER LAST STARTING LOCATION  7
```

If the broker used QSORT to order the client file, he or she could achieve a greater degree of selection sophistication. If the file was sorted by transaction date, it would be possible to select only clients who had not been involved in a transaction for the past 90 days. Assuming that the program was run on June 1, 1980, enter:

```
DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
ENTER STARTING RECORD NUMBER  1
ENTER NAME OF SELECTION FIELD  ref
RANGE OR MATCH (R OR M)?  not r
ENTER LOWEST VALID VALUE  800301
ENTER HIGHEST VALID VALUE  999999
ENTER FIRST STARTING LOCATION 7
ENTER LAST STARTING LOCATION 7
```

If the previous selection criteria were given to the Extract program, a NAD file would be created containing data on clients whose accounts had been inactive for the last 90

47

days. It would then be possible to print selected records
from that new file. For example, you might select to find
people who have been inactive and who want to buy Put and
Call options at any risk. This second set of selection
criteria would be those shown below:

```
DO YOU WANT TO SELECT RECORDS (Y OR N)?  y
ENTER STARTING RECORD NUMBER   1
ENTER NAME OF SELECTION FIELD  ref
RANGE OR MATCH (R OR M)?  m
ENTER MATCHING PATTERN  A
ENTER FIRST STARTING LOCATION  5
ENTER LAST STARTING LOCATION  5
```

EXAMPLE 8: This example demonstrates the use of the NAD system to
maintain a simple accounts receivable system. Such a system
would require a 20 character reference field. The use of
the field is shown in the table below:

INVOICE NUMBER:	characters	1	-	6
STATUS:	characters	7		
DATE:	characters	8	-	13
AMOUNT:	characters	14	-	20

The number of characters reserved for the invoice number can
be changed to conform to you invoice numbering system. The
"status" character is either a blank, an "A", or a "B". A
blank indicates that this receivable has not been billed.
An "A" indicates that it has been billed, but not paid. A
"B" indicates that the receivable has been paid. The date
is the date that the receivable became due, and the amount
field is the amount due.

Each record on the file holds a single receivable, or
open item. The name and address of the customer can be
maintained in the name and address fields or a customer
number can be used to cross reference to a different file.

A new NAD file can be extracted from the master file by
selecting all records with a status of "A". The new file
would hold records for all unpaid transactions. If the file
is then sorted on the date field in ascending order, a
printout of the file would result in an "aged receivables"
report; the oldest receivables would be listed first. A
more complete report can be made by sorting on customer name
and printing names extracted by certain ranges of dates,
such as: 91 or more days old, 61 through 90 days, and zero
to 30 days.

12. Error Messages

CBASIC ERROR MESSAGES

SSG software is designed to trap all error that can arise
under normal circumstances, but due to language limitations
and/or hardware problems, some errors may occur which the
programs themselves cannot handle. These errors are CBASIC
errors. They appear in the following form:

ERROR aa

where "aa" are two alphabetic characters issued by the CBASIC
runtime package CRUN2. The occurance of a CBASIC error message
usually indicates a serious problem in you INT or data files.

ERROR RE: This is caused by a record in a file which has too many
or too few file delimiter characters (quotes or
commas), or whose length is incorrect. When a program
attempts to read the record, what is on the disk does
not match the record description, and CRUN2 issues an
ERROR RE message.

This problem may result from hardware problems
like a bad write, a voltage surge, etc., but by far the
most common cause is a bad RAM location, which either
changes some character into a quote or a comma, or
changes one of these file delimiters into some other
character. This error is virtually never the result of
a program bug. Once a bad record is in the file, it
must be repaired or removed with the editor, or the
entire file must be rebuilt. Bad records can be
detected by TYPE'ing the file and manually searching
for the missing or extra quote or comma. If you are
not familiar with the use of the CP/M editor, read the
CP/M documentation before attempting to change the
file.

ERROR IV: This error occurs if you try to run a program compiled
by CBASIC version 1 with CRUN2, or if the INT file that
you are trying to run is null. If the latter is the
case, recopy the file from the original disk, using the
verify option [ov] of PIP (for example, PIP
A:=B:*.INT[ov]).

ERROR DZ: This error occurs if you try to divide by zero, or if
you try to run a program compiled under CBASIC2 with
CRUN version 1. Since none of the NAD programs allow
division with a denominator of zero, make sure your
runtime package is indeed CRUN2 (ideally version 2.04).

ERROR OM or GARBAGE ON SCREEN DURING AN ENTRY PROGRAM: This means
that the program has run out of memory--should not
occur if you have at least 48K of RAM and a

49

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CRUN version 1. Since none of the NAD programs allow
division with a denominator of zero, make sure your
runtime package is indeed CRUN2 (ideally version 2.04).

ERROR OM or GARBAGE ON SCREEN DURING AN ENTRY PROGRAM: This means
that the program has run out of memory--should not
occur if you have at least 48K of RAM and a

standard-sized version of CP/M.

ERROR SB: Your program files (INT files) may be damaged. Make
          new copies using the CP/M PIP program [vo] option. For
          example,

               PIP A:=B:*.INT[ov]

                    NAD ERROR MESSAGES

NAD101 SUBPROGRAM NOT FOUND: Make sure the program is on your
       disk, or that the correct disk is inserted.

NAD102 NOT NUMERIC: The response you gave was not numeric.

NAD103 NOT ON MENU: The number you entered is not on the menu.

NAD104 INVALID DATE: Enter dates in MM/DD/YY form only. Dates
       must be valid dates only.

NAD105 INVALID RESPONSE: Not used.

NAD106 QSORT.COM NOT ON DISK: QSORT must be on the currently
       logged disk drive in order to sort from the menu.

NAD107 CORRECT .SRT FILE NOT ON DISK: Either locate the SRT file,
       or create a new one.

NAD108 UNEXPECTED EOF ON nnnnnnnn FILE: Where "nnnnnnnn" stands
       for an (up to) eight character filename. This message
       should not occur. Contact your distributor.

NAD109 UNEXPECTED EOF ON nnnnnnnn FILE: Where "nnnnnnnn" stands
       for an (up to) eight character filename. This message
       should not occur. Contact your distributor.

NAD110 INCORRECT LENGTH: The name you enter must correspond to
       the CP/M file naming conventions, which do not allow
       filenames over 8 characters long.

NAD111 INVALID CHARACTERS: The name you enter must correspond to
       the CP/M file naming conventions. See your CP/M Features
       and Facilities Manual for the restrictions on file naming.

NAD112 TOO LONG: The disk drive name must be one character long.

NAD113 INVALID DRIVE: Valid drives are A through D. An @
       (at-sign) of RETURN are also accepted.

NAD114 INCORRECT LENGTH: See NAD110.

NAD115 INVALID CHARACTERS: See NAD111.

                            50

Chapter 12: Error Messages

NAD116 TOO LONG: See NAD112.

NAD117 INVALID DRIVE: See NAD113.

NAD118 NOT NUMERIC: Enter the reference field length between zero and 127.

NAD119 OUT OF RANGE: Valid responses are 0 through 127.

NAD120 EOF ON CREATE: This error message should not occur. Contact your distributor.

NAD121 EOF ON WRITE: This error message should not occur. Contact your distributor.

Create or Modify a NAD File (NADENTRY.INT)

NAD121 INVALID FUNCTION: A, C, D, E, S, Adding, Changing, Deleting, and ESCAPE are the only acceptable responses.

NAD122 RECORD NUMBER OUT OF RANGE: The record number you entered was higher than the number of records on the file.

NAD123 RECORD HAS BEEN DELETED: You cannot access records that have been marked as deleted.

NAD124 REFERENCE IS TOO LONG: You response the the ENTER REFERENCE request exceeded the number of characters allowed in the field. See the section in Chapter 7 called "How to Change the Reference Field Length" if you need to make it longer.

NAD125 UNEXPECTED EOF ON NAD FILE: This message should not occur. If it does, contact your distributor.

NAD126 EMBEDDED QUOTES NOT ALLOWED: Double quotation marks (") are not allowed in response to any request. Use two single quotes ('') if necessary.

NAD127 RECORD NUMBER OUT OF RANGE: See NAD122.

NAD128 TRY AGAIN, THE LENGTH YOU ENTERED EXCEEDS THE MAXIMUM: See the documentation for the allowable length.

NAD129 INPUT TOO LONG: See the documentation for the allowable length.

NAD130 RECORD HAS BEEN DELETED: See NAD123.

NAD131 INVALID ZIP CODE: This field accepts 5 digit numeric values only. Valid zipcodes entries range from 00000 to 99999. If you need more digits or want to enter other types of characters into the field, see the explanation of the INTERNATIONAL POSTAL CODE option in Chapter 6 under

the ENTER ZIPCODE request.

NAD132 EMBEDDED CONTROL-Z NOT ALLOWED: A CONTROL-Z character is
       not an acceptable entry.

NAD133 EMBEDDED LINE FEED NOT ALLOWED: A LINE FEED character is
       not an acceptable entry.

NAD134 TRY AGAIN, A FILE NAME CAN'T CONTAIN A .:*? OR SPACE:
       Periods, colons, asterisks, question marks, and blanks are
       not allowed in any filenames.

NAD135 TRY AGAIN, A DRIVE MUST BE AN A, B, C, D, OR @: These (and
       RETURN) are the only acceptable entries. The @ (at-sign)
       means the currently logged drive.

NAD136 SORRY, CAN'T GO BACK AT FIRST REQUEST: An up-arrow is not
       accepted at this request. If you must go back to the
       previous record, specify "c" or "changing" at the ENTER A
       FUNCTION request, and then give the number of the record
       you want to access.

                    Print a Report (NADPRINT.INT)

NAD300 FILE NOT FOUND: Make sure you spelled the filename
       correctly, be sure the filetype is NAD (for example,
       CUSTOMER.NAD), and check to see if you inserted the
       correct disk.

NAD301 INVALID FIELD SPECIFIED: Valid responses to this request
       are: NAME, STATE, ADDR1, ADDR2, ZIP, CITY, PHONE, and REF
       (either upper or lower case).

NAD302 FIELD LENGTHS NOT EQUAL: When selecting by RANGE, the
       highest valid value and the lowest valid value must have
       the same number of characters.

NAD303 STARTING LOCATION + LENGTH OF PATTERN OVERFLOWS FIELD
       LENGTH: The starting position in the field, plus the
       number of characters in the high and low values (which
       should be the same) must not exceed the number of
       characters allowed in the selection field. This is simply
       to say that if the selection field is 20 characters long
       and the highest valid value (and therefore the lowest
       valid value) is 10 characters long, you cannot make the
       starting location 11 or greater.

NAD304 FIRST STARTING LOCATION GREATER THAN LAST STARTING
       LOCATION: The first starting location is the first
       position in the selection field to be tested against the
       first character in the match pattern. The last starting
       location is the last position in the selection field that
       to be tested against the first character in the match

                               52

pattern. The first starting location must logically be a lower number than the last starting location. Re-enter the proper data. See the section in Chapter 7 called "Using the Record Selection System" for more information.

NAD305 LAST STARTING LOCATION VALUE TOO LARGE:

NAD306 VALUE LESS THAN ONE: The starting location must be one or greater.

NAD307 LOW VALUE GREATER THAN HIGH VALUE: The lowest valid value cannot be higher than the highest valid value when selecting by RANGE. Re-enter appropriate data. Refer the to documention for more information.

NAD308 RECORD NUMBER SPECIFIED OUT OF RANGE: The record number you entered was higher than the number of records on the file.

NAD311 RECORD NUMBER SPECIFIED OUT OF RANGE: See NAD308.

Print Mailing Labels (NADLABEL.INT)

NAD300 FILE NOT FOUND: See NAD300 under Print a Report.

NAD301 INVALID FIELD SPECIFIED: See NAD301 under Printing a Report.

NAD302 FIELD LENGTHS NOT EQUAL: See NAD302 under Printing a Report.

NAD303 STARTING LOCATION + LENGTH OF PATTERN OVERFLOWS FIELD LENGTH: See NAD303 under Printing a Report.

NAD304 FIRST STARTING LOCATION GREATER THAN LAST STARTING LOCATION: See NAD304 under Printing a Report.

NAD305 LAST STARTING LOCATION VALUE TOO LARGE: See NAD305 under Printing a Report.

NAD306 VALUE LESS THAN ONE: See NAD306 under Printing a Report.

NAD307 LOW VALUE GREATER THAN HIGH VALUE: See NAD307 under Printing a Report.

NAD311 RECORD NUMBER SPECIFIED OUT OF RANGE: See NAD311 under Printing a Report.

NAD312 TRY AGAIN, ONLY 1 THROUGH 25 DUPLICATIONS ALLOWED: Enter a value between 1 and 25.

NAD313 TRY AGAIN, YOUR ANSWER WAS NOT A NUMBER:

Chapter 12: Error Messages

NAD314 TRY AGAIN, I CAN ONLY PRINT 1 THROUGH 4 LABELS ACROSS:

NAD315 TRY AGAIN, YOUR ANSWER WAS NOT A NUMBER:

NAD316 TRY AGAIN, YOUR ANSWER WAS NOT A NUMBER:

NAD317 RECORD NUMBER SPECIFIED OUT OF RANGE:

NAD318 RECORD NUMBER SPECIFIED OUT OF RANGE:

NAD320 INVALID LOCATION SPECIFIED: If the location you entered
       was accepted the label on the left would overlap the label
       to the right. Re-enter data that will not cause this to
       happen.

NAD321 TRY AGAIN, I CAN ONLY SKIP 3 THROUGH 50 LINES BETWEEN
       LABELS: Make sure the data you enter does not case the
       labels to overlap.

       Extract Names From One File to Another (NADXTRAK.INT)

NAD300 FILE NOT FOUND: See NAD300 under Print a Report.

NAD301 INVALID FIELD SPECIFIED: See NAD301 under Print a Report.

NAD302 FIELD LENGTHS NOT EQUAL: See NAD302 under Print a Report.

NAD303 STARTING LOCATION + LENGTH OF PATTERN OVERFLOWS FIELD
       LENGTH: See NAD303 under Print a Report.

NAD304 FIRST STARTING LOCATION GREATER THAN LAST STARTING
       LOCATION: See NAD304 under Print a Report.

NAD305 LAST STARTING LOCATION VALUE TOO LARGE: See NAD305 under
       Print a Report.

NAD306 VALUE LESS THAN ONE: See NAD306 under Print a Report.

NAD307 LOW VALUE GREATER THAN HIGH VALUE: See NAD307 under Print
       a Report.

NAD310 OUTPUT FILE EXISTS: A file by that name already exists.
       Use another filename, or remove the file from your disk.

NAD311 RECORD NUMBER SPECIFIED OUT OF RANGE:

NAD312 INVALID REFERENCE LENGTH SPECIFIED: The only acceptable
       entries are numbers between zero and 127.

                        (NADCONV.INT)

NAD01 INVALID INPUT FILE NAME: See the CP/M Features and

Chapter 12: Error Messages

        Facilties Manual for valid file nameing conventions.

NAD02   INVALID INPUT FILE DRIVE: The only acceptable entries are
          the letters A to Z, in either upper or lower case.

NAD03   INVALID OUTPUT FILE DRIVE: See NAD02.

NAD04   INPUT FILE NOT FOUND: Make sure you spelled the filename
          correctly, be sure the filetype is NAD (for example,
          CUSTOMER.NAD), and check to see if you inserted the
          correct disk.

NAD05   UNEXPECTED EOF ON INPUT FILE: The program is unable to
          open the file. Make sure it is not null (the CP/M prompt
          would return immediately when you TYPE the file), or the
          disk is not write-protected.

NAD06   ALL OPTIONS DECLINED. EXECUTION POINTLESS: Informational
          message.

13. Command Summary

RETURN: Depress after every response to signal that program
          may continue; accept current value and move forward
          to next request.

ESCAPE: End the current function or program. Must be followed
          by RETURN. Appears on screen as ^[.

SHIFT/DELETE: Back cursor up one position and erase character
          in that position. Some machines may use BACKSPACE.

^ (UP-ARROW): Go back to previous request. Must be followed
          by RETURN. Not accepted at all requests.

\ (BACKSLASH): Insert a blank into the Reference field above
          the cursor.

AT ENTER A FUNCTION REQUEST:

    A = Add one record to the file.
    Adding = Add more than one record to the file.
    C = Change one record on the file.
    Changing = Change more than one record on the file.
    E = Examine one or more records on the file.
    D = Delete one record from the file.
    Deleting = Delete more than one record from the file.

TO CALL UP THE NAD SYSTEM:

        CRUN2 NAD MM/DD/YY [date optional]