

DISTRIBUTION LIST

B1800/B1700 SOFTWARE PRODUCT SPECIFICATIONS

DETROIT

F. White - Prod. Mgmt.
H. Woodrow - Int'l Prod Mgmt
C. Kunkelmann - BMG
J. McClintock - CSG

D. Dahm - Corp. Eng.
Dir., Pmg. - SSG
M. Dowers - Corp. TIO
D. Hill - TC, BM, & SS

U.S. AND EUROPE

D. Cikoski - (Plymouth)
J. H. Pedersen (Plymouth)
W. E. Feeser (Austin)
J. Berta (Downingtown)
G. Smolnik (Paoli)
M. E. Ryan (Tredyffrin)
T. Yama - F&SSG (McLean)
J. Poterack - F&SSG (McLean)
A. Kosla - F&SSG (McLean)
A. LaCivita - F&SSG (McLean)
L. Guell - F&SSG (McLean)
R. Sutton - F&SSG (McLean)
L. DeBartelo - WADC (Irvine)
R. Cole (Pasadena)
H. M. Townsend (Pasadena)
N. Cass - Pat. Atty. (Pasadena)
S. Samman (Mission Viejo)
J. Lowe (Mission Viejo)

J. C. Allan (Glenrothes)
W. McKee (Gumbernauld)
B. Higgins (Livingston)
Mgr, NPSGrp (Ruislip)
E. Norton (Middlesex)
J. Gerain (Pantin)
J. Cazanove (Villers)
J. C. Wery (Liege)
R. Bouvier (Liege)
G. LeBlanc (Liege)
C. J. Tooth - SSG (London)
J. Dreystadt (Wayne)

K. Iwasawa (Tokyo, Japan)

SANTA BARBARA PLANT

R. Shobe
K. Meyers
R. Bauerle

A. van der Linden - 12
J. Alajoki - 2

Distribution list current as of 3/10/82

Burroughs Corporation



COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

P.S. 2212 5561

B1000 CANDE

PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
H	3/9/82	<i>PHB</i>	<p>Changes for the Mark 11.0 Release</p> <p>3-6 Added "JOB" File type. Added "File type JOB..." sentence to "The underlined letters..." paragraph.</p> <p>3-7 Added "Note: CANDE uses..." paragraph.</p> <p>3-9 Added "If any text..." paragraph and example of page format.</p> <p>4-12 Added "The terminal is always..." sentence to "CRT-TYPE DEVICES" paragraph.</p> <p>5-15 Updated "If a <filename>..." paragraph.</p> <p>5-20 Updated "The <filename> may..." paragraph.</p> <p>5-21 Updated "GET AFILE" example and "If a user..." paragraph.</p> <p>5-22 Updated "GET *AFILE" example.</p> <p>5-25 Updated "Inserting into a file..." paragraph.</p> <p>5-26 Updated "The contents of the workfile..." paragraph.</p> <p>5-43 Added "For COBOL and COBOL74..." paragraph.</p> <p>5-65 Updated "WRITE A AS B" and "WRITE A TO CARDS" examples.</p>

"THE INFORMATION CONTAINED IN THIS DOCUMENT IS CONFIDENTIAL AND PROPRIETARY TO BURROUGHS CORPORATION AND IS NOT TO BE DISCLOSED TO ANYONE OUTSIDE OF BURROUGHS CORPORATION WITHOUT THE PRIOR WRITTEN RELEASE FROM THE PATENT DIVISION OF BURROUGHS CORPORATION"



PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
F	10/1/79	<i>J. Hall</i>	<p>MARK9.0 RELEASE</p> <p>1-1 Inserted "and, if privileged, may access any file ..." to the third paragraph of the INTRODUCTION.</p> <p>3-1 Inserted sentence, "For TD830 screen ..." to first paragraph of the OPERATING PROCEDURES section.</p> <p>3-2 Added sentence, "For TD830s, a secure video field is displayed at ...", to part a. of the LOG-ON.</p> <p>3-4 Added, (see SINGLE-LINE ENTRY) to RESPONSES. FILENAME section now begins 3-5.</p> <p>3-5 Deleted and inserted new material into the FILENAME section and also added CANDE and the MCP to the first paragraph.</p> <p>3-6 Inserted a new section entitled, FILE ACCESS PRIVILEGES. Added COBOL74, and FORTRAN77 to the FILE TYPE section.</p> <p>3-7 Deleted, "Even if the lines are input ...", in the first paragraph of the SEQUENCE NUMBERS section.</p> <p>4-1 Added "with program switch 5 set to a nonzero value," to the beginning paragraph of USERCODES AND SECURITY section.</p> <p>4-2 Added "with file security" to part e. of USERCODES AND SECURITY section, and also to STRUCTURE OF THE USERCODE FILE. Added B1800/B1700 FILE SECURITY to the last sentence of the first paragraph to STRUCTURE OF THE USERCODE FILE.</p> <p>4-3 Added "or ?EX SWSTEM/MAKEUSER; ..." to the diagram of SYSTEM/MAKEUSER EXECUTION section and also added B1800/B1700 FILE SECURITY to the last paragraph. Deleted material in the CANDE EXECUTION.</p> <p>4-4 Deleted and inserted new material into the CANDE EXECUTION section and replaced SPO with ODT.</p>

"THE INFORMATION CONTAINED IN THIS DOCUMENT IS CONFIDENTIAL AND PROPRIETARY TO BURROUGHS CORPORATION AND IS NOT TO BE DISCLOSED TO ANYONE OUTSIDE OF BURROUGHS CORPORATION WITHOUT THE PRIOR WRITTEN RELEASE FROM THE PATENT DIVISION OF BURROUGHS CORPORATION"

123



PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
			MARK 9.0 RELEASE (cont.)
			4-5 Deleted, "except for save", at end of first paragraph under DISK PACK DEFAULTS section and added DEF.PACK to the PACK.ID column of the table.
			4-10 Replaced RECVRY80<AB> with RECVRY90<AB> in the RECOVERY section. Added "with file security." to the note of the RECOVERY.
			5-10 Replaced "refers to an object ..." with "indicates that the actual filename of the ..." in the semantics' first paragraph of the EXECUTE section.
			5-16 Deleted, "labeled <usercode>/<filename>" and the two following sentences with, "by that name." to the first paragraph of page 5-16. Added FIND LIT /X/ : FILE * X to the FIND section.
			5-20 Deleted second sentence of the first paragraph in the semantics of the GET section.
			5-21 Inserted "without specifying the AS option ..." of the last paragraph in the semantics of the GET section.
			5-24 Deleted "data" from the first sentence of the first paragraph in the semantics of the INSERT section.
			5-25 Made a new paragraph "Inserting into a file of type data is presently not allowed." for the semantics of the INSERT section.
			5-26 Deleted a sentence and replaced with "filename is taken "as is"." in the first paragraph of the semantics of the LIST section.
			5-27 Replaced the last sentence of the first paragraph in the semantics of the MAKE section with "Only a <file.id> may be specified with the MAKE command."
			5-30 Deleted and replaced with "not to expand the <filename>." in the first paragraph of the semantics of the MERGE/RMERGE section. Also added "If the

"THE INFORMATION CONTAINED IN THIS DOCUMENT IS CONFIDENTIAL AND PROPRIETARY TO BURROUGHS CORPORATION AND IS NOT TO BE DISCLOSED TO ANYONE OUTSIDE OF BURROUGHS CORPORATION WITHOUT THE PRIOR WRITTEN RELEASE FROM THE PATENT DIVISION OF BURROUGHS CORPORATION"

**PRODUCT SPECIFICATION**

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
			Mark 9.0 Release (cont.)
			5-30 workfile is of type data, these commands may not (cont.) be used."
			5-34 Added END line to the Syntax diagram for PAGE section.
			5-35 Added END definition to the syntax defines for PAGE section.
			5-38 Deleted "on" from the beginning paragraph of the RECOVER section.
			5-39 Replaced "<file-id>" with "<filename>" in the syntax for the REMOVE section.
			5-40 Added REMOVE filename definition to the semantics of the REMOVE section. Added REMOVE DSOONER/DFASTER ON DPACK definition to the semantics of the REMOVE section.
			5-44 Omitted ":" from the RESEQ section.
			5-47 Replaced "<file-id>" with "<filename>" in the SAVE section. Deleted and replaced last sentence in the first paragraph of the semantics with "cause the file to be saved with the ..."
			5-48 Replaced PATCHFILE with "<default pack>/<usercode> / PATCHFILE." in the SAVE AS PATCHFILE :PATCH example.
			5-49 Added SA AS FEE/FEE ON LARUE and SAVE AS *X to the semantics of the SAVE section.
			5-55 Replaced SPO with ODT in the SS section.
			5-59 Changed <filename> to <file.id> in the syntax for the TITLE section.
			5-61 Replaced the semantics "USER:" portion of the WHAT section with new material.
			5-63 Added more underlining to the ?WHERE for the syntax of the WHERE section.
			5-65 Updated the first paragraph.

Burroughs Corporation



COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

B1800/B1700 CANDE
P.S. 2212 5561

PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
			<p>MARK 9.0 (cont.)</p> <p>5-65 Replaced last sentence of the note with "with file security."</p> <p>5-66 Replaced "under a privileged usercode/password," with "with file security".</p> <p>6-2 Replaced SPO with ODT in the EXECUTION OF CANDE. Added SW5 to the PROGRAM SWITCH SETTINGS.</p> <p>6-3 Deleted and inserted new material for the FILENAMES section and replaced SPO with ODT.</p> <p>6-6 Replaced SPO with ODT in the STOP section.</p> <p>6-7 Replaced SPO with ODT in the STOP section.</p> <p>6-10 Replaced SPO with ODT in the TERMINAL SECTION.</p> <p>6-12 Added third paragraph to the CANDE/ANALYZER section.</p> <p>A-2 Replaced SPO with ODT in the third paragraph of the Operation of the NETWORK CONTROLLER section.</p>

"THE INFORMATION CONTAINED IN THIS DOCUMENT IS CONFIDENTIAL AND PROPRIETARY TO BURROUGHS CORPORATION AND IS NOT TO BE DISCLOSED TO ANYONE OUTSIDE OF BURROUGHS CORPORATION WITHOUT THE PRIOR WRITTEN RELEASE FROM THE PATENT DIVISION OF BURROUGHS CORPORATION"

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

TABLE OF CONTENTS

INTRODUCTION	1-1
RELATED DOCUMENTATION	1-1
SYNTAX SPECIFICATIONS	2-1
SYNTAX DIAGRAMS	2-1
SYNTAX CONVENTIONS	2-4
SYNTACTIC VARIABLES	2-5
OPERATING PROCEDURES	3-1
ENTERING DATA	3-3
SPECIAL CONTROL CHARACTERS	3-3
RESPONSES	3-4
FILES	3-4
SEQUENCE NUMBERS	3-7
ERROR MESSAGES	3-8
DATA FILES	3-8
CANDE MECHANISMS	4-1
USERCODES AND SECURITY	4-1
STRUCTURE OF THE USERCODE FILE	4-2
SYSTEM/MAKEUSER EXECUTION	4-3
CANDE EXECUTION	4-3
DISK PACK DEFAULTS	4-5
WORKFILE	4-5
PATCH MODE	4-6
RECORD MODIFICATION	4-7
LINE DELETION	4-8
FILE POSITIONING	4-8
RECOVERY	4-9
DISPLAYS AND ERRORS	4-10
CRT-TYPE DEVICES	4-12
SCROLLING	4-12
COMMANDS	5-1
BREAK	5-2
BYE	5-3
COMPILE	5-4
CLEAR QUEUE	5-6
DCSTATUS	5-7
DELETE	5-8
DS	5-9
EXECUTE	5-10
RUN	5-10
FILES	5-12
FIND	5-14
FIX	5-17
GET	5-20
HELLO/USER	5-23

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

INSERT	5-24
LIST	5-26
MAKE	5-27
MARGIN	5-28
MERGE/RMERGE	5-30
MOVE	5-32
PAGE	5-34
PASSWORD	5-37
RECOVER	5-38
REMOVE	5-39
REPLACE	5-41
RESEQ	5-44
SAVE	5-47
SEQ	5-50
SINGLE-LINE ENTRY	5-52
SPATCH	5-53
SS	5-55
TEACH	5-56
TERMINAL	5-57
TITLE	5-59
WHAT	5-61
WHERE	5-63
WRITE	5-64
?<MCP control string>	5-66
OPERATOR INSTRUCTIONS	6-1
EXECUTION OF CANDE	6-1
PROGRAM SWITCH SETTINGS	6-2
FILENAMES	6-3
OPERATOR COMMANDS	6-3
MAKE	6-4
AUDIT	6-4
STOP	6-6
CANDE/HANDLER	6-8
CANDE/ANALYZER	6-12
APPENDIX A	A-1
NETWORK CONTROLLER	A-1
CANDE	A-9

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

INTRODUCTION

The B1000 CANDE program provides generalized file preparation and updating capabilities in an interactive, terminal oriented environment.

The B1000 CANDE program runs in conjunction with the B1000 NDL system. The NDL-generated network controller performs all the data communication related functions, while CANDE performs file updating and text editing functions. CANDE can support a maximum of 64 concurrent users. The number of stations defined in the network controller may be any number limited only by NDL constraints. CANDE's remote file ("CANDEQUEUE") is opened by default with 'number of stations' ('NST')=70 but this value may be modified or file-equated in the usual manner.

A basic usercode-password type of security is available with the system. The user logs on with a usercode and password and, if privileged, may access any file. If the user is nonprivileged he may access any file with his own usercode as the multifile-id.

RELATED DOCUMENTATION

NUMBER -----	TITLE -----
P.S. 2212 5223	Network Definition Language
P.S. 2212 5215	NDL/LIBRARY
P.S. 2219 0482	Supervisory MCS
P.S. 2212 5412	DC/AUDIT
P.S. 2219 0185	CANDE/ANALYZER
P.S. 2219 0136	HOST/RJE
P.S. 2219 0102	SYSTEM/MAKEUSER
1073715	B1000 NDL Reference Manual
1068731	B1000 Software Operations Guide

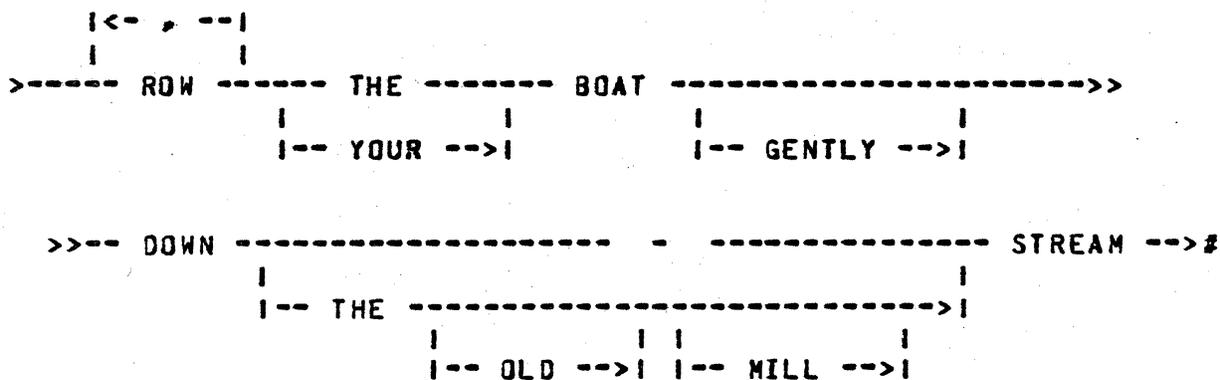
BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

SYNTAX SPECIFICATIONS

SYNTAX DIAGRAMS

The principle means of displaying CANDE command syntax is the syntax diagram. This method has been chosen because it affords a very concise and lucid exposition of syntax involving defaults, alternatives, and iterations; it is rigorous without being cumbersome. There are few formal rules to remember: The basic rule is that any path traced along the forward directions of the arrows will produce a syntactically valid command. Vertical tracks are traced downward on the left and upward on the right. The following examples illustrate the technique:



Valid productions of this diagram are:

ROW THE BOAT DOWN-STREAM
 ROW, ROW, ROW, YOUR BOAT GENTLY DOWN THE STREAM
 ROW, ROW, ROW, ROW THE BOAT GENTLY DOWN THE OLD STREAM
 ROW YOUR BOAT DOWN THE MILL STREAM
 ROW THE BOAT DOWN THE OLD MILL STREAM

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The following convention is used to control the number of iterations:

```

>--- ACROSS THE ----- MISSOURI ----->#
      |
      |<----- , ----- /1\ -----|
      |
      |----- BIG ----->|
      |
      |----- WIDE ----->|
      |
      |----- MUDDY ----->|

```

The "bridge" over the "1" can be crossed only one time, so a maximum of one comma may appear. Valid productions are:

- ACROSS THE MISSOURI
- ACROSS THE WIDE MISSOURI
- ACROSS THE BIG, MUDDY MISSOURI
- ACROSS THE MUDDY, WIDE MISSOURI
- ACROSS THE BIG, BIG MISSOURI

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

An "*" associated with the bridge number indicates that the path must be crossed at least one time. If the previous example is changed to the following:

```

      |<----- , -----|
      |                     |
>--- ACROSS THE ---/1*\ --- BIG ----- MISSOURI ----->#
      |                     |
      |----- WIDE ----->|
      |----- DEEP ----->|
      |----- MUDDY ----->|
  
```

Then proper syntax is obtained by crossing the bridge exactly one time. Valid productions are:

```

ACROSS THE BIG MISSOURI
ACROSS THE BIG, WIDE MISSOURI
ACROSS THE BIG, WIDE, DEEP MISSOURI
ACROSS THE BIG, WIDE, DEEP, MUDDY MISSOURI
  
```

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

SYNTAX CONVENTIONS

CANDE commands are constructed of letters, digits, special characters, and blanks. Letters and digits are alphanumeric characters; all other non-blanks are delimiters. Alphanumeric characters may be separated into such items as integers, keywords and identifiers. All integers, keywords and identifiers may be entered in either upper-case or lower-case characters, or any mixture of these.

Keywords

Upper-case letters in syntax diagrams indicate keywords which appear literally in the command. In many cases it is permissible to abbreviate the keyword by its initial or first few letters. In the syntax presentation herein, underlining marks the letters which must appear; the rest are optional.

Blanks

Blanks in CANDE commands serve to separate syntactic items and may appear freely except within certain text fields, where they become significant characters. Blanks are optional on either side of a delimiter. Whenever one alphanumeric item (keyword, identifier, integer, etc.) follows another with no separating delimiter, they must be separated by at least one blank.

End of statement

The end of a statement is indicated by the following notation:

>----->

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
8100 CANDE
P.S. 2212 5561 (H)

SYNTACTIC VARIABLES

Lower-case letters, words, and phrases within angle brackets (<>) in the syntax diagrams are syntactic variables, which represent information to be supplied by the user. A particular variable may represent a single character, a simple construct such as an integer or text string, or a relatively complicated construct. Most variables are defined where used. Several variables and types of variables which are frequently encountered are defined here.

Identifier

An identifier is a string of characters used to represent some entity, such as a file, or a usercode. Identifiers in CANDE may vary in length from one to ten characters, and are composed of characters and digits only, with the first character being a non-integer.

Integer

An integer is specified by a string of digits which represent the decimal value of the integer. Syntactic variables of this type occur frequently in CANDE. Some common examples are <s> (sequence number), <col> (column number), and <base> and <inc> (sequence base and increment).

Delimiters

The delimiters may be any character, other than alphanumerics, periods (".") or underscores ("_"), which do not occur in the delimited field or have some other special meaning in the current context. These instances are detailed with each use of <delim>.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Text Fields

A text field, denoted by <text> or <newtext>, is a sequence of characters to be sought or placed in a file. In most text fields, all characters are significant and any character may appear except a specific delimiter. A maximum of 30 characters may be referenced in a text string.

Sequence Range

A <sequence range> specifies an inclusive range of sequence numbers which define a line or lines to be included in (or excluded from) a particular operation.

Syntax:

```
>----- <s1> ----->#
      |
      |----- <s2> -----|
      |
      |----- END -----|
```

Semantics:

The integers <s1> and <s2> represent sequence numbers. If both <s1> and <s2> appear, the sequence range includes both those values and all values between; <s2> must exceed <s1>. If <s1> appears alone, it usually defines a range comprising that single number. For exceptions, see the individual command description. The keyword "END", when used in syntax in place of <s2>, represents the largest sequence number in the file.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Column Range

A column range specifies an inclusive range of columns, defining a portion of a line.

Syntax:

```
>----- <col 1> ----->#
                |                               |
                |----- <col 2> ----->|
```

Semantics:

The integers <col 1> and <col 2> represent positions on a line. If both appear, <col 2> must exceed <col 1>, and they define the group of columns including both and all between. If <col 1> appears alone, it defines a range comprising that single column. A column range may not refer to the sequence field part of a line.

Logical Station Number

The logical station number <lsn> is a unique integer reference assigned by the datacomm system to each station in the datacomm network. This value is normally used when CANDE commands pertain to stations.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

OPERATING PROCEDURES

Before a user can make use of the system capabilities, he must first present to the system his usercode and password. If the user is using a hardcopy device such as a teletype, the password may be typed into an area that the teletype has blacked out. For TD830 screen devices, a secure field is displayed for typing in the password.

CANDE checks the user's identification against the system's file of authorized users. If the usercode/password entered is not correct, the user is informed and asked to re-enter the information. If the usercode/password is correct, CANDE responds with an appropriate message and considers the station to be a valid user. The user cannot use the system until a successful log-on has occurred.

LOG-ON

The user may log onto the system in any one of three ways. He may enter his usercode and password, or he may enter HELLO (or USER) <usercode><password> and be logged on or he may enter HELLO (or USER) and the system will lead the user through the log-on sequence.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The log-on sequence consists of the following steps:

- a. If the user enters a usercode but no password, the system then responds with:

ENTER PASSWORD PLEASE.

For hardcopy terminal devices, the system then blocks out 10 characters on the next line. For TD830s, a secure video field is displayed at the top of the screen. The user should enter his password in this field.

- b. If the system recognizes the usercode and password, it proceeds to Step c. If it does not recognize the usercode and password it displays:

SECURITY ERROR, ENTER USERCODE PLEASE.

and the log-on procedure begins again.

- c. On successful log-on, the system displays to the user the following:

B1000 CANDE MARK <RELEASE> VERSION
<PATCH LEVEL> (<COMPILE DATE & TIME>)
USER <usercode> LOGGED-ON AT <time><date>
YOU ARE AT STATION <LSN> (<TERMINAL TYPE>)

- d. After log-on verification, CANDE will try to determine whether the user's default pack, as defined in the (SYSTEM)/USERCODE file, is online. If the user's pack override is not set and the pack is not online, then the user is notified as follows:

YOUR DEFAULT PACK <PACK ID> IS NOT ONLINE

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

If the user's pack override is set, then CANDE cannot determine whether or not the default pack is online. In this case the user is notified as follows:

YOUR DEFAULT PACK OVERRIDE IS SET. ALL FILES WILL BE ON SYSTEM DISK.

- e. If the user's previous session had been aborted due to system failure or line disconnects, CANDE informs the user about his recovery file by displaying the following message:

RECOVERY DATA <workfile name> <date>

Where <workfile name> is the name of the recovered file and <date> is the date of the CANDE session recovered.

Recovery of the indicated workfile is achieved by responding with the RECOVER command.

ENTERING DATA

Data and commands are entered in the form of messages from the keyboard of the terminal.

SPECIAL CONTROL CHARACTERS

The following special characters are supported by CANDE:

FOR

end-of-message (ETX)
 backspace
 line delete

USE

control-C or carriage return
 left-arrow
 rubout or control-E

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Data Identification

If a message begins with N or fewer decimal digits, where N is the sequence field length of the workfile, it is assumed to be a data record and is added to the workfile; otherwise it is treated as a command.

CANDE Commands

The commands used to create and save files, to enter data and to perform editing functions are B6700 CANDE compatible commands. These inputs are processed in serial order, and are queued if they cannot be immediately executed.

Control Commands

Control commands are a separate class of input messages preceded by the control command character, a question mark ("?"). These commands allow control and interrogation of the user's operating environment as explained in a later chapter. Note that these commands are processed immediately and are not queued behind other commands from the terminal.

RESPONSES

CANDE will respond to every command input by the user. All commands will receive appropriate textual output as a response except for single-line entries (see SINGLE-LINE ENTRY), which will receive only a crosshatch ("#") as acknowledgement.

FILES

A file is a collection of records of information. It is the primary means by which the user establishes continuity between one CANDE session and the next or between CANDE and other programs.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Filename

Syntax:

```
>-----<file.id>----->#
  |                               |                               |
  |-- <multifile.id>/ -->|       |-- ON -- <pack.id> -->|
  --
```

A filename is used to identify a file in the B1000 system. To access a file through CANDE the user specifies a filename, using the syntax of a CANDE command. This filename may be expanded by CANDE and the MCP if the <multifile.id> and/or <pack.id> fields are not specified. For example, if only the <file.id> is specified, and CANDE tries to access the file, CANDE expands the filename to "<usercode>/<file.id>" (i.e. the <multifile.id> is set to the usercode of the logged-on user). The MCP then checks the SYSTEM/USERCODE file (see STRUCTURE OF THE USERCODE FILE) and applies any default <pack-id>. Specifying an * as the first character of the filename will cause CANDE and the MCP to take the filename as it is and no expansion will occur.

A filename field must be an alphanumeric identifier of 10 or fewer characters (with the first character alphabetic) or a string delimited by quotes. If the user wishes to refer to a filename (or packname) beginning with a numeral or containing any special characters, he must do so by entering the name as a string delimited by quotes. Imbedded quotes and blanks, however, are not allowed by CANDE. The user must keep in mind that certain special characters, such as /, *, \$, #, (, and), may be treated as syntactical "flags" by CANDE. If the user wishes to use these to convey their special meanings, he must place them outside the quotes. For example, SAVE AS *"I&THOU" will save a file named (usercode)/I&THOU on system disk; SAVE AS "I&THOU" will save a file named (usercode)/*I&THOU on the user's default pack.

While filenames are generally allowed to contain as many as 10 characters, certain command variations may have to add on an additional character in order to create a unique name, and thus must impose a nine-character limit (see COMPILE, for example).

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

File Access Privileges

Any user may access a file under his usercode by simply specifying the <file-id> of the file. Depending on access privileges determined by the MCP, the user may also access files belonging to another user.

For Mark level VI.1 and higher releases of CANDE, the user should refer to the FILE SECURITY product specification regarding greater detail in file naming and access privileges.

A user backup print file is named <usercode>/<#number> by default. This file may be accessed by LIST, REMOVE and FILE commands; e.g., LIST #5 will display at the terminal the user's backup file named <usercode>/#5. This form of the LIST command can only be interrupted via the ?BRK command.

File Types

Possible types which may be specified for a workfile are:

<u>BASIC</u>	<u>COBOL</u>	<u>COBOL74</u>	<u>DASDL</u>	<u>DATA</u>
-	-	- --	---	-
<u>FORTRAN</u>	<u>FORTRAN77</u>	<u>JOB</u>	<u>PASCAL</u>	<u>MIL</u>
-	- --	-	-	-
<u>NDL</u>	<u>RPG</u>	<u>SDL</u>	<u>SDL2</u>	<u>SEQ</u>
-	-	--	----	-
<u>UPL</u>				
-				

The underlined letters indicate the valid abbreviation for the file type. The BASIC, COBOL, COBOL74, FORTRAN, FORTRAN77, MIL, NDL, SDL, UPL, PASCAL and DASDL types denote files for the respective compilers. A type SEQ is an arbitrary data file with sequence numbers. A type DATA file is a file without sequence numbers. File type JOB is used for the creation of WFL files. Columns 1-80 are for text, and columns 82-90 are for sequence numbers (columns 81-82 are unused). If text exists in columns 73-80, it is handled in the same manner as DATA files.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

CANDE uses file type (as supplied by the user) to describe:

- where CANDE can expect to find valid sequence numbers and what size they are. For example, SDL files have eight-digit sequence numbers in columns 73 through 80 and COBOL files have six-digit sequence numbers in columns 1 through 6.
- the valid variable "connector" special character, to be accepted as part of the variable when scanning in token mode. For example, in the token "A_B" in an SDL file, "_" is the connector.

Assumed connector characters are:

- "." (period) for UPL, SEQ and MIL file types
- "-" (hyphen) for COBOL, COBOL74 and DASDL file type
- "_" (underscore) for SDL, SDL2 and PASCAL file types

NOTE: CANDE uses the file type as specified in the disk file header for the file, unless a type is specified in the command syntax.

SEQUENCE NUMBERS

Files to be edited by CANDE must contain sequence numbers. A sequence number is defined as a positive integer containing a maximum of eight digits which must appear in the input data record. The sequence number may be no longer than the sequence field width of that file. The sequence number is used to identify the line for editing and to specify the position of the line in the file. Except for BASIC files, the sequence numbers are not considered to be a part of the data in the file. In BASIC, the sequence numbers are also statement numbers and may be used in GO TO and other branch and loop statements. COBOL file sequence numbers are limited to six digits and are found in the first six columns. BASIC file sequence numbers are five digits, located in the first five columns.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

RPG also has five digits, located in the first five columns. All other file types except DATA (see DATA files) have eight digits, found in columns 73 through 80. If in doubt, the user should perform a RESEQ command immediately after the GET to insure that the file is properly sequenced. Unsequenced files may be sequenced by CANDE (see SEQ command).

Sequence Number Zero

In either auto sequence and single-line entry mode, a sequence number zero is accepted and will be the first record of that file.

ERROR MESSAGES

Error messages output by CANDE will be one or two lines in length and will be self-explanatory. Unrecognized CANDE commands are answered by "ERROR: NO SUCH VERB: '<input token>'"

DATA FILES

Files of type DATA are assumed to be 80 characters long, with no sequence field. When GETting a file of type DATA, CANDE automatically performs a RESEQ using default sequence numbers (base and increment of 100). RESEQ creates "pseudo-sequence numbers" in columns 83 through 90 of the file. The file may then be edited in a normal fashion. The SAVE command will remove the "pseudo-sequence numbers", restoring the file to its original unsequenced state.

Note: Data files (which are, by definition, unsequenced) cannot be inserted into a workfile. CANDE will prohibit such an action by the user.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

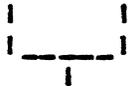
If any text happens to be in columns 73-80, CANDE will show it in a page (and will accept it back in a transmission of an edited page). The page format will be as follows:

```
00000100[ columns 1-72 of text ]
&      [ col 73-80 ]
00000200[ columns 1-72 of text ]
&      [ col 73-80 ]
etc.
```

If columns 73-80 have no text (are blank), they will not be shown. Here is a legitimate sample page:

NEXT

```
00000100 This      line      has      80      full      characters      of
&      ....text
00000200This line is shorter
00000300(So is this line)
00000400This line is long.....
&      again.
00000500etc.
&      etc.
```



-----anything appearing here will be flagged as an error when transmitted.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

CANDE MECHANISMS

USERCODES AND SECURITY

If executed with program switch 5 set to a nonzero value, CANDE uses the file security mechanisms implemented by the MCP. As a result, users must be aware of the following items:

- a. Usercodes are enclosed by parentheses, and in CANDE's case are limited to seven characters in length. Log-on is accomplished by entering the usercode without parentheses.
- b. A usercode-password may have a pack associated with it. If a pack has been defined, the MCP treats the pack as the default pack for files. Consequently, all files will be read or written from this pack. The default may be overridden by specifying a pack with the "ON" attribute in CANDE, or by prefacing the file name with an asterisk (*) to indicate system disk.
- c. All files saved through CANDE are saved as private or public files according to the user's default protection specified in the system usercode file. Private files can be accessed only by a program running under the same usercode the file was saved with, or by running with a privileged usercode password. To make a file public one must transmit the following message: ?MH <file-id> PTN PUBLIC.
- d. CANDE has a two-way communication with the MCP. Messages are zipped to the MCP; responses come back to CANDE and are then routed to the requesting user.

EXAMPLE:

?WY - gives status of only that user's job(s).
 ?TD - gives time and date.
 ?MX - gives mix for only that user's job(s).
 ?RE (UC)/<filename> - removes the file only if the user-codes match; i.e., the signed-on owner is removing one of his own files.
 ?MO - modifies only files belonging to that owner.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

- e. CANDE displays, on the terminal, printer backup files which have been created by jobs executed through CANDE. Backup files are locked in the disk directory with a name of the form <default pack>/(usercode)/#<number>. The command LIST #<number> brings the backup file to the screen for review. If CANDE is not executed with file security, then RJE FILE NAMING, FILE SECURITY, and MCP communication are not provided. This means that backup files will not be created automatically nor will they be named as above.

STRUCTURE OF THE USERCODE FILE

The 6.1 and later releases of the MCP support a file security mechanism for disk files. This means that disk files created by CANDE when it is running with file security, have security restrictions enforced on them. Usercodes and passwords are maintained in the (SYSTEM)/USERCODE file created by SYSTEM/MAKEUSER. For a more complete discussion of the usercode file and the SYSTEM/MAKEUSER program, see P. S. 2219 0102, B1000 FILE SECURITY.

SYSTEM/MAKEUSER is a utility program used to create, access or modify (SYSTEM)/USERCODE, the system usercode file of allowable usercode and password combinations. The information for each usercode is described below. The fields are called "usercode password entry attributes" and are used to control the jobs and files of users.

Field -----	Description -----	Sample Input -----
Usercode	7 characters	US=<7 characters>
Password	10 characters	PW=<10 characters>
Pack.id	10 characters	PACK=<10 characters>
Charge number	24 bits	CHG=<6 digits>
User priority	4 bits	PRI=<2 digits>
Protection	2 bits	PUBLIC
Privileged bit	1 bit	*PRIV

In the preceding table, all descriptions indicate a maximum length for the input. *PRIV will set the privilege bit in the "on" position.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Each card should contain one unique usercode-password pair, a pack.id (blank defaults to system disk), a charge number, a priority number, and a privilege status indication. The card is in free format, with blanks delimiting each item. The maximum number of usercode-password combinations is 1024. A blank pack.id is denoted by PACK = "".

SYSTEM/MAKEUSER EXECUTION

To create the system usercode file a card deck in the following form must be presented to the system:

```
? EX SYSTEM/MAKEUSER;
? DATA NEW/USER.CODES
  <usercode entries as defined above>
? END;
```

or

```
? EX SYSTEM/MAKEUSER;
? FI CARD NAM X DSK;
  where X is a CANDE-created file of
  type DATA.
```

The file will be automatically created, listed, and placed in the appropriate name table slot. For more information see P. S. 2219 0102, B1000 FILE SECURITY

CANDE EXECUTION

The B1000 CANDE program runs in conjunction with an NDL-generated network controller. The network controller can be running while CANDE is executed, initiated during the CANDE execution, or starting with VI.1 release, initiated after the CANDE execution during the first remote file open. To use the current network handler, the user executes CANDE as shown previously. To invoke a network controller while executing CANDE the user must enter:

```
EX CANDE SW0=1
```

This causes a network controller named CANDE/HANDLER to be zip-executed. To invoke the network controller at the first remote

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

file open, the name of the desired controller is placed in the name table by the MCP option:

CM C<network-controller-name>

If the controller was executed by the MCP from the 'C' slot in the name table, and the last remote file close has been processed, the MCP will queue a 'QC' for the network controller after 3 times through 'N.SECOND' (about 1 minute with a mix of 1) with no intervening remote file opens occurring. If the controller was locked (executed with 'PT' or 'PROTECTED' or modified thus or <MIX>LP was entered) the 'QC' queued by the MCP will be performed. Any attempt to QC or DS from the ODT while the handler is 'locked' will be denied.

Since the Mark level IX.0 release, running CANDE under a usercode has no effect on file security. The one remaining advantage of running CANDE under a usercode is so that all of CANDE's workfiles will be on the default pack for that usercode. This is particularly useful for installations that have problems with running out of space on system disk.

CANDE's workfiles may also be file-equated to any user pack.

Note: If CANDE/ANALYZER is used and any of the CANDE files WORK, RECOVERY or AUDIT are not on system disk, then CANDE/ANALYZER must be executed in the same manner as CANDE (executed under the same usercode as CANDE or with the workfiles file-equated to the same user pack as CANDE's were).

CANDE FILE INTERNAL NAME -----	FUNCTION -----
CONTROL	MCP ZIP COMMUNICATION
WORK	MASTER WORK FILE (see WORKFILE)
TEACH_FILE	TEACH INFORMATION
CMO_Q_FILE	QUEUED COMMANDS (during "SAVE", "INSERT", etc.)
PAGE_FILE	COPY OF EACH USER'S LAST PAGE OUTPUT
RECOVERY	MASTER RECOVERY INFORMATION (see WORKFILE)
AUDIT	AUDIT FILE (only in use if "ME" is greater than or equal to 5760)
MCSQUEUE	REMOTE FILE

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

DISK PACK DEFAULTS

Since the MCP will force files to a default pack associated with the usercode-password, syntax has been implemented to access files on system disk if a pack was specified in the usercode-password table. The following table applies to all commands allowing filenames.

<u>ENTER</u> -----	<u>PACK.ID</u> -----	<u>FAMILY.ID</u> -----	<u>FILE.ID</u> -----
A	DEF.PACK	(UC)	A
A/B	DEF.PACK	A	B
A/B ON C	C	A	B
(UC)/A	DEF.PACK	(UC)	A
(UC)/A ON C	C	(UC)	A
*(UC)/A		(UC)	A
*A		A	

An asterisk entered preceding a filename denotes that the file is on system disk, and CANDE looks for a literal name following the asterisk.

WORKFILE

CANDE can be directed to read any file which the user may access, however, changes may be made only to the one file which is called the "workfile". The user gets a new workfile by doing a MAKE, or he may recall an existing workfile by doing a GET. Additions and corrections may be performed on the workfile by single-line entries or by using the editing commands.

A CANDE workfile may consist of one or two parts. The first is the user's original source file, present only if a GET is done. This file is never modified by user-editing. It will be removed and replaced by a complete, edited file when the user enters a "SAVE".

The second part of the user's workfile consists of portions of CANDE's master workfile (named "CANDE/WORK.FILE") assigned to the user. This contains added and changed records which modify the

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

user's workfile. This master workfile is organized in a random fashion, access being directed by a set of tables for each user contained in the RECOVERY file. These tables also note deleted workfile records.

A SAVE is required to make the workfile a permanent file on disk in the user's library. When this is done, the master workfile entries and tables are flushed.

PATCH MODE

Because a SAVE of large files is time-consuming and because most compilers will merge source and patch files at compile time, CANDE has mechanisms to encourage SAVEing only those records actually edited as a "patch" file separate from the source file.

If CANDE is given indication that the user intends to end his editing session by entering a "SAVE AS <filename> :PATCH", the user is prohibited from entering certain commands which would flush his portion of the master workfile. These commands include SAVE (without :PATCH specified), RESEQ and also MERGE, RMERGE and INSERT if a large number of master workfile records will result. As a cue to prohibition of these commands, CANDE looks at the user's patch-id field which it maintains. If this field is not null, the user is assumed to be in "patch mode". By default this field is null unless:

- The SPATCH command is used (without a sequence range) to set the field.
- The :PATCH option of GET is used, in which case CANDE sets the patch-id field to "blank", which is distinct from "null".

A "prohibited" command may be forced by setting the patch-id field to null. This is done by entering "SPATCH <delimiter><delimiter>". However, the user should not then use the :PATCH option of SAVE as he will not obtain the desired result.

For other details on "PATCH MODE", see GET, SAVE and SPATCH commands.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

RECORD MODIFICATION

If a file is present (a GET, MAKE, or RECOVER has been processed), the user is assumed to be in a state of editing the file. Any input consisting only of records having valid sequence numbers with no sequence errors will be treated as records to be entered into the file. After the input is processed, a NEXT will be performed automatically, meaning that the next page will be displayed, beginning with the record that follows the last one input.

PAGE, LIST (except from an external file), BACK, SAME, NEXT, -, and + explicitly request a page to be displayed. For CRT devices, records may then be edited and the page (or partial page) transmitted back. For non-CRT devices, the records must be retyped.

For recovery purposes, CANDE will not clear the screen at log-on time. The user may recover his file and transmit to the system any records left on the screen at failure time.

The 1,920-byte buffer used by the PAGE system has been moved from dynamic memory (if present) to static memory in CANDE's base-limit. It is used to "rollin" a user's last output in order to compare the current input against it. Comparison will allow the system to determine if a record has changed so that it will only add to the workfile those records which have changed. This is necessary to prevent writing unnecessary records to a file when the user initiates a SAVE :PATCH. It also makes input processing more efficient.

Comparison occurs record-by-record only when the sequence numbers are the same. If a sequence number is encountered in the input which does not exist in the last output copy, then comparison will cease and the record will be added. Processing will continue in this fashion until either the sequence number of an input record is greater than or equal to that of the last output record at which comparison ceases or all input records have been processed. This prevents the occurrence of unnecessary error reports or "advisories". Also, synchronization of record comparison will not be lost and no unchanged records will be added to the workfile. If the page of input returned to CANDE is missing any records initially displayed (user has performed a line delete locally) the missing records are not automatically deleted from the workfile.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

LINE DELETION

Single lines may be deleted through use of the void command. "V" must be the first character of the line and the line must contain a valid sequence number. Any number of blanks, or none at all, may separate the command and the sequence number. If the sequence number is in error, the record will be treated as a sequence error (see GENERAL CONSIDERATIONS).

FILE POSITIONING

CANDE allows the user to move backward and forward throughout the file, once PAGE or LIST is invoked. PAGE or LIST in any form cause the file "position" pointers (for BACK, SAME, NEXT, - or +) to be realigned to the requested position. For CRT devices, after displaying a page, NEXT will be written at the home position leaving the cursor immediately after it. Thus, transmission without moving the cursor will effect NEXT automatically. Any other string transmitted in the first line is treated as a command input. If transmission includes more than the first line, then it is assumed to be input records; the first line is ignored and the input is processed.

File positioning is controlled through the following commands:

BACK <n> : Display current -<n>th page.
SAME : Display current page again.
NEXT <n> : Display current +<n>th page.
- <n> : Display page at current - <n>th record.
+ <n> : Display page at current + <n>th record.

Note: A missing <n> implies <n> equals one.

Immediately after GET or MAKE or RECOVER, these commands (BACK, SAME, NEXT, -, and +) will be treated as if they were LIST.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Plus or minus $\langle n \rangle$ ($+\langle n \rangle$, $-\langle n \rangle$) shift exactly $\langle n \rangle$ records in the direction requested. BACK $\langle n \rangle$ and NEXT $\langle n \rangle$ shift approximately $\langle n \rangle$ pages in the direction requested. In this way, BACK and NEXT may be used to position the file approximately to the desired area quickly without reading through each record on the way from the current position to the requested one. Once in the approximate area, the user may adjust the position accurately by using $+\langle n \rangle$ and $-\langle n \rangle$. The range of records shifted is $1 \leq r \leq 131071$ where $r=n$ for plus and minus and $r=n \cdot \text{current pagesize}$ for BACK and NEXT.

To effect "approximate" shifting, a factor indicating an estimate of the increment between successive sequence numbers is computed at GET time or upon entry of SEQ or RESEQ command and dynamically adjusted for local variation during accumulation of records for a display. The initial computation of the factor at GET time will be more accurate if :CHECK is specified. A moving average is computed during sequence checking on the file. If :NOCHECK is specified, the factor is computed by dividing the difference between the source ending sequence number and the source beginning sequence number by the file size. At SEQ or RESEQ time, the INC (default or specified) is used unless a sequence range is specified indicating local activity. If so, the factor is not modified.

RECOVERY

Recovery of a user's workfile occurs when CANDE is executed after an abnormal termination or when the user's terminal incurs consecutive retry timeouts. The recovery procedure involves creation of the recovery file and communication of this fact to the user when the user logs on. The recovery file is named $\langle \text{usercode} \rangle / \text{RECVRY90} \langle \text{AB} \rangle$. $\langle \text{AB} \rangle$ is a unique two-character sequence computed as follows:

A = (usercode index/36)th character of ATOM (see below)
 B = (usercode index mod 36)th character of ATOM

ATOM = ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789
 Character 'A' is character 0 of ATOM;
 Character '9' is character 35 of ATOM;

This scheme produces a unique recovery file for each usercode/ password pair. To avoid loss of the file upon recovery, users should not intentionally create files named in this manner.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

After log-on each user that was on the system when it aborted has the option of recovering his workfile. The user enters RECOVER if he wishes to get his previous workfile. If the user does not wish to recover, he merely starts another session. When a system goes down, it is possible to lose a few of the most recently entered workfile records.

Note: The CANDE system must always be executed in the same way every time if recovery information is to be preserved and accessible. This only applies to file equates and whether or not CANDE is executed with file security.

In order for a recovery file to be found at LOG-ON, the user's usercode index must be the same as it was at the time the failure occurred. To ensure this condition, do not create or delete the (SYSTEM)/USERCODE file when there are users which need to recover.

DISPLAYS AND ERRORS

TERMINAL PAGE will correctly set page size as requested. See the TERMINAL command section for default page sizes depending on terminal type.

All displays to a device having a page size greater than one will begin on the second line of the screen and end with the column indicator on the last line.

Any line whose first token is a valid CANDE command will be taken as a new command and executed after the records to that point have been processed. (See LINE DELETION for exceptions.)

All numerics in sequence fields indicate to CANDE that after input is processed, the next page should be displayed.

Sequence errors are defined as: a) numeric but out of sequence or b) beginning with a non-numeric which is 1) not a valid CANDE verb and 2) not V (See LINE DELETION). The action taken is to leave the screen alone and notify the user on the top line of the screen.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The message "NOTE: SOME MESSAGE(S) WERE LOST BECAUSE THE QUEUE TO YOUR TERMINAL WAS FULL" will be given to the terminal whose pending output is enough to overflow CANDE's remote file MCSQUEUE. Overflowing messages are discarded by CANDE. The message appears one command late (it refers to the next to the last command executed).

Inserts are defined as: numbers in sequence but not put on the screen by CANDE. The action taken is to add the record(s) to the workfile and discontinue comparison against the copy until the next copy sequence number is encountered.

For devices whose page size equals one, the following operating characteristics are valid:

- Break key (teletype only) will clear the output queue and terminate.
- SEQ, when it displays an existing record, will CR, (CR=Carriage Return), LF, and re-type the sequence number, leaving the carriage immediately after the number to allow the line to be changed and re-entered. If only an ETX or CR is returned, the record will not be changed and the command will continue. If it was not an existing record (only a new sequence number) then returning only an ETX or CR will terminate the command.
- PAGE will treat displays as noted above in SEQ.
- LIST will not be paged but will be continual.
- BACK, SAME, NEXT, - , and + will be operative.
- V will not be operative.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

CRT-TYPE DEVICES

Pages output to a CRT-type device will be preceded by 'HOME AND CLEAR' and will have CR appended after the rightmost non-blank character in each line in order to decrease transmission time since the remaining blanks will be deleted. If the line is blank, it will consist of CR only (CR = carriage return). Single line output to a TD820/830 series device will have LC appended to it in order to clear the remainder of the line (LC = clear to end of line). The terminal is always left in receive mode after output except on a page to be edited.

SCROLLING

The NDL library requests CANDEPOLTD, CANDEFSLTD and CANDESELTD contain a scrolling capability available to users running under CANDE and those running an application program under CANDE. Scrolling is disabled by default. Enter "?+" to enable scrolling and "?-" to disable scrolling.

All output except full page output produced by LIST, PAGE, SEQ is written a single line at a time at the bottom of the screen after shifting the screen up one line (the top line is deleted). Any input except paged input is scrolled to the bottom of the screen.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

COMMANDS

In the table below, CANDE commands are grouped by function:

Control Commands:

BREAK
 DS
 SS
 WHERE

Input-Output Commands:

LIST
 WRITE

Editing Commands:

DELETE
 FIX
 INSERT
 MERGE/RMERGE
 MOVE
 PAGE
 RESEQ
 SINGLE-LINE ENTRY

Program Execution:

COMPILE
 EXECUTE/RUN

Editing Mode Commands:

MARGIN/3
 SEQ

Search Commands:

FIND
 REPLACE

Environment Commands:

BYE
 DCSTATUS
 FILES
 HELLO/USER
 PASSWORD
 TEACH
 TERMINAL

Workfile Commands:

GET
 MAKE
 RECOVER
 REMOVE
 SAVE
 SPATCH
 TITLE
 WHAT

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

BREAK

The BREAK command terminates the current command in process.

Syntax:

```
?BRK----->#
-----<break key>
```

Semantics:

All output queued for the terminal is "flushed" when the BREAK command is processed. Use of the break key (on a teletype) will terminate FIND, LIST, and REPLACE commands only.

Commands during which a break will be accepted:

FIND	PAGE	SPATCH
GET	RECOVER	WRITE
INSERT	REPLACE	
LIST	RESEQ	
MERGE/RMERGE	SAVE	
MOVE		

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

BYE

The BYE command terminates the user's current session.

Syntax:

```
BYE ----->#  
---
```

Semantics:

A CANDE session is terminated by the BYE command; switched lines may be disconnected. If the workfile has not been saved or removed, the user is notified of this condition. The workfile may then be removed or saved, and the BYE command re-entered.

When BYE is entered, CANDE checks if the station has a secondary file (an MCS) present to which it can be attached. If so, the station is automatically detached from CANDE.

Example:

BYE

USER <USERCODE> LOGGED-OFF CANDE AT <TIME & DATE> (TIME = <HH:MM:SS:T>)

Note: Time given is CANDE processor time (See Appendix A).

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

COMPILE

The COMPILE command invokes the standard system compilers or any non-standard version. Options provide the ability to use an existing file or workfile, to specify the object filename, to specify the compiler name, and to specify the label equation and other control statements for both the compile and resultant object program. The maximum length of the COMPILE command is 80 characters. If the user has a workfile present, any command entered larger than 80 characters is expected to be a page. Therefore a sequence error would be generated for the second and subsequent lines since it is not a valid sequence number or a CANDE command.

Syntax:

COMPILE ----->>

```
>>----->#
|                                     | |                                     |
|<-----| |<-----|
|                                     | |                                     |
|-/1\- <source filename> -----| |-- ; <modifier> -->|
|                                     | |                                     |
|-/1\- AS ----- <object filename> ->|
|                                     | |                                     |
|                                     | |                                     |
|                                     | |                                     |
|                                     | |                                     |
|-/1\- WITH <compilername> -----|
|                                     | |                                     |
|                                     | |                                     |
```

Semantics:

If <source filename> is not specified, then the workfile will be used as the source file. If the object filename is not provided, then the source filename will be used. In either case, an "O" will be attached to the end of the file.id to flag the file as an object file, unless "\$" is specified before the <object filename>.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

A compiler must be specified if the source filename given is not the current workfile. Also, a compiler should be given if the user's workfile is of a type DATA or SEQ. If no compiler is given, the UPL compiler will be the default.

Examples:

C
-

Compile the workfile using the default compiler type and associate the object file with the workfile.

COMPILE A/B AS D WITH SDL

Compile the source file A/B as object file <usercode>/DD with the SDL compiler.

C WITH MY/SPECIAL/COMPILER compiles the workfile using the specified compiler.

C as \$F compiles the workfile; object filename is literally <usercode>/F with no "0" concatenated.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

CLEAR QUEUE

Syntax:

?CQ ----->#
--

Causes all pending output to a terminal to be cleared to a maximum of 'MAX MESSAGES' as defined in the network controller declaration section.

NOTE: If CANDE's remote file MCSQUEUE gets filled to a maximum of 'MAX MESSAGES', and is unable to empty itself to the appropriate terminal, any remaining messages will be discarded. In addition, the user will get a message, "NOTE: SOME MESSAGE(S) WERE LOST BECAUSE THE QUEUE TO YOUR TERMINAL WAS FULL" upon the next command entered.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

DCSTATUS

The DCSTATUS command provides general information regarding the status of the user's station.

Syntax:

```
DCSTATUS ----->#  
--
```

Semantics:

DCSTATUS will return to the user a rundown of the user's station. The following are returned to the user:

LSN
NAME
TERMINAL TYPE
BUFFER SIZE
MAX RETRY
INPUT PRIORITY
OUTPUT PRIORITY
MESSAGE COUNT

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

DELETE

The DELETE command discards records from the workfile.

Syntax:

```
DELETE ----- <sequence range> ----->#
---          |                               |
              |----- ALL ----->|
```

Semantics:

Those lines specified in the sequence range list are deleted from the workfile. If "ALL" is specified, the entire contents of the workfile are deleted, but the name and other attributes are preserved.

Examples:

DEL ALL

Delete the entire contents of the workfile.

DELETE 100-500

Delete lines 100 through 500 from the workfile.

DEL 200-END

Delete lines 200 through the end of the workfile.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

DS

The DS command discontinues the current running user's remote program that was executed from CANDE.

The DS capability applies only to jobs which have successfully performed a remote file OPEN (see Appendix A). CANDE obtains the job-number of the user program; the job may be DSed by entering "?DS" from the terminal. Refer to the ?<MCP CONTROL STRING> command for DSing jobs which have not opened a remote file.

Syntax:

?DS ----->#

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

EXECUTE

RUN

The EXECUTE and RUN commands cause execution of an object program; the RUN command always provides for compilation of the source file before execution.

Syntax:

```

RUN ----->#
---          | |          | |<-----|
              | |-- <filename> -->| |-- ; -- <modifier> -->|
              |
EXECUTE-----|
-             | |
              | | $ ->|
              | | * ->|
  
```

Semantics:

The workfile is assumed if no filename is provided. A "*" is specified only with EXECUTE, and indicates that the actual filename of the object file is the filename following the "*".

An object file created by CANDE is named with the source file name suffixed with the letter O. If "\$" is specified, CANDE does not assume that the specified object file has the O suffix.

A <filename> in EXECUTE may refer to any file to which the user is permitted access, but a <filename> in RUN must refer only to the user's current workfile.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

Modifier specifications may be provided.

Examples:

EX

Execute the object program associated with the workfile.

RUN ; FI LINE = REMOTE;

Execute or compile-and-go on the workfile name and label equate the output to the user's remote terminal.

If a program executed by CANDE opens a remote file, CANDE will specify "?" as the signal or escape character in the approval of the open. This means that a "?" as the first character of input will be interpreted as a request to direct input to CANDE rather than to the executed program. For this reason, users should not run terminal programs which make use of the "?" as the first character of input under CANDE.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

FILES

The FILES command provides a method for determining if a file is on disk.

Syntax:

```
FILES ----- <filename> ----->#
---- | | |
      | |-- * -->|
      |
      |----- OBJECT ----->|
      --- | |
          |-- $ -->|
```

Semantics:

The FILES command will search disk for the specified filename and report whether or not the file is on disk. If the file is present, that fact is reported along with some general information about the file. The OBJECT parameter allows the user to search for object files created through the CANDE COMPILE or RUN commands. (i.e., the file.id of the specified filename is changed to <file.id> CAT "O"). System object files or object files not created through CANDE may be found by using the normal filename syntax and omitting the OBJECT parameter. The "*" allows for inquiries on files not created by CANDE. The "\$" indicates that the "O" suffix should not be added to an object file-id.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The following is returned to the users terminal when the specified file is found on disk:

```
FILE      <filename> PRESENT
USERS    = <integer>                (0-n)
TYPE     = <file.type>              (CODE, DATA,....etc.)
SIZE     = <integer>                (EOF pointer of file)
BLOCKING (RSZ/R.B/B.A/ARE) = <integer>/<integer>/<integer>/<integer>
                                           (RECORD SIZE{bytes)/
                                           RECORDS PER BLOCK/
                                           BLOCKS PER AREA/
                                           NUMBER OF AREAS)
CREATED  : <date>                    (month/day/year)
ACCESSED: <date>                    (month/day/year)
```

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

FIND

The FIND command searches a file for appearances of specific text. Output indicating the result of the search may be directed to the terminal. The output of a FIND is prompt driven, that is the command will fill a screen to its page size and then the user must transmit a character to get the next page of output. A "?BRK" will break the output as soon as possible.

Syntax:

```
FIND ----- <delim> -- <text> -- <delim> -->>
---- |<-----|
      |- /1\ -- <count> -->|
      |                               |
      |- /1\ -- LITERAL -->|
      ---

>>----->>#
      |<-----|
      |-- /1\ --- <filename> ----->|
      |                               |
      |                               |<type> -->|
      |                               |
      |-- /1\ --- <sequence range> ----->|
      |                               |
      |-- /1\ --- 2 <column range> ----->|
      |                               |
      |                               |<-----|
      |                               |
      |-- /1\ --- : --- /1\ -- TEXT ----->|
      |                               |
      |                               |<filename> -->|
      |                               |
      |                               |< * ->|
```

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Semantics:

Only one target may be sought with a FIND. The delimiters surrounding the target may be any delimiter. The text may contain any characters except the delimiter. The text field may not be empty. The text field is treated as a token string unless LITERAL is specified.

The search is successful whenever the string of characters in the text field is found in a line of the file.

If the integer <count> appears, the search for the associated text will be terminated after it has been found in the specified number of times in the file.

If a <filename> is not specified, the workfile is searched by default. Specification of <filename> causes searching of the specified file, which may be any file the user is allowed to read. A <type> may be specified to give the location of sequence numbers in relationship to the text. If no <type> is specified, the file type is as specified in the disk file header for the file. If a sequence range is specified, only records falling within that range are searched. A column range, if provided, indicates that only a specified part of each record is to be examined. Note that a column range cannot fall within sequence-number range (e.g., columns 73 through 80 for SDL files).

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

The option :TEXT, if specified, will output the entire line containing the string to the user's terminal, otherwise only the sequence numbers of those records containing the string are output. The option :FILE <filename> will direct output from the FIND to a disk file labeled by that name. If the option FILE * <filename> is used, the file is forced to the system disk and not allowed to go to the default pack associated with the usercode (refer to VI.I security implementation for CANDE). The defaults for sequence range and column range are the entire file and the entire record, respectively.

Examples:

FIND / FILEID / 100-900

Search the workfile for the occurrence of " FILEID " within the lines 100 through 900 and output any lines found with the text to the terminal.

FIND 10 / STUFF /

Find the first 10 occurrences of " STUFF " within the workfile and output the sequence numbers of the records containing the string to the terminal.

FIND LIT /X/ :FILE * X

Find all occurrences of the literal "X" in the workfile and put the records containing this string into a file named X on system disk. Also output the sequence numbers of the records containing this string to the terminal.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

FIX

The FIX command alters the contents of a line in the workfile, by inserting new text or replacing part of the line. The alteration may be controlled by specifying target text, column numbers, or a combination.

Syntax:

```
FIX ---- <s> ----->>
-          |                               |
          |--- <column range> --->|

>>--- <delim> <text> <delim> <newtext> ----->#
```

Semantics:

The variable <s> is the sequence number of the line to be modified. If there is no such line in the file, the command is disregarded.

The <column range> may indicate one column or more. If the range refers to more than one column, the beginning and the ending columns are separated by a hyphen, e.g., 1-5. If column range is unspecified, the whole record is taken as the target of the fix. When the change has been made, the changed record is displayed.

The semantics vary for several forms of this command, depending upon the presence of column numbers and text:

If <text> is given, the specified line is scanned from left to right for a literal appearance of the character string specified as text. If column(s) are specified, this scan is only performed on the column(s) indicated in that line. If the <text> is found

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANOE
P.S. 2212 5561 (H)

there, the target <text> is replaced by the character string specified as <newtext>. If the target is not found, the FIX is disregarded. Only one replacement is made on the line, per FIX.

If <text> is not given, then if no columns are specified, the <newtext> replaces the entire line, with zero fill at the right. If only one column is specified, the <newtext> replaces the character in that column. If a range is specified, the characters in <left column> through <right column> are replaced by the newtext.

The <text> and <newtext> must be delimited by a special character. The <text> may contain any characters except the delimiter. All characters, including blanks, are significant in the <text>; the <text> field is empty only if the two delimiters are in adjacent columns.

The <newtext> field begins after the second delimiter and runs to the end of the record. Blanks are significant; <newtext> is empty if the end of the record immediately follows the second delimiter.

If the size of <newtext> is greater than the size of the string being replaced, then the characters in the record to the right of the string being replaced are shifted right to make room for <newtext>. This may cause overflow. If the size of <newtext> is less than the string being replaced, the characters to the right in the string are shifted left.

There is considerable function overlap between the FIX and REPLACE commands. FIX is specialized for single replacements on single lines and has a very concise syntax. REPLACE is more general, with file-searching and output capability; its various options require a more elaborate syntax.

If a column number outside the <text> field is specified, or if the beginning column exceeds the ending column, the FIX command is rejected.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Examples:

FIX 398 1-39 /AB/ABB

This locates the target text "AB" within columns 1 through 39 of line 398 and replaces it with "ABB".

FIX 500 /END;/END ELSE

This locates the text "END;" within line 500 and replaces it with "END ELSE".

FIX 10 40 //Z ADJUST LINKAGE

This inserts new text, "Z ADJUST LINKAGE", replacing the character in column 40 of line 10.

FIX 2 1-5 // <end of statement>

This deletes the first five columns of line 2, shifting the rest of the image to the left.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The options NOCHECK and CHECK provide for performing sequence field checking during the get. NOCHECK is the default, in keeping with previous releases where NOCHECK is the only option. CHECK performs sequence checking on the file. Sequence checking may be terminated early by entering ?BRK (see the BREAK command). The file will be marked as loaded with no errors. Any errors beyond the BREAK will be detected during operation on the file if those records are accessed.

The PATCH option allows the user to reload a patch file created by terminating a prior session with "SAVE AS <file-id> :PATCH" back into his portion of the master workfile. He may then continue editing as though it had been one continuous session. Specifying PATCH with no filename simply modifies the patch-id field to blanks, thus signalling CANDE that the user intends eventually to "SAVE AS <file-name> :PATCH" (this is also done when a filename is specified).

If a user loads source files to system disk, and those files have only a single file-name, that user may edit those files using CANDE. The user enters on the terminal GET *<multifile-id><file-type> and CANDE will load the file for editing. When the file is saved without specifying the AS option of the SAVE command, it will be saved under that user's usercode as <usercode>/<name specified in the GET command>.

Examples:

GET AFILE

This loads an existing file named <usercode>/AFILE as the workfile. The type is the type as defined in the disk file header for the file.

GET AFILE FORTRAN

This loads an existing file named <usercode>/AFILE as the workfile. The type is FORTRAN.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

GET *AFILE

This loads an existing file named AFILE from the system disk. The type is the file type as defined in the disk file header.

GET USR/NEW UPL

Get a copy of a file named NEW that belongs to usercode USR and load it as a UPL file.

GET AFILE : PATCH PATCHFILE

This opens the source file AFILE, then loads records from PATCHFILE into the workfile as if they had been sent from the terminal.

GET AFILE : PATCH

AFILE is opened as the source file, and CANDE is signalled that edited records will be SAVEd with the PATCH option.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

HELLO/USER

The HELLO/USER command initiates a new user session without explicitly terminating the current session.

Syntax:

```
HELLO ----->#
-      | |
      | |-- <usercode> ----->|
USER -->|      |
--      |----- <password> ---->|
      |         |
      |-- / -->|
```

Semantics:

The current user's session is terminated by implicitly performing the BYE command and then invoking the normal log-on process to initiate the new user's session. As with the BYE command, this command is in error if the current user's workfile has not been saved or removed. If the station is not currently logged on, then only the normal log-on procedure is invoked.

Usercode and password may be included to complete the log-on procedure or this information will be requested in the normal log-on manner.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

INSERT

The **INSERT** command copies records from the workfile, or from a file on disk, and places the copies into the workfile with new sequence numbers.

Syntax:

```

INSERT ----->>
--      |      | |      | |      |
      |-- * ->| |-- <filename> -->| |-- <seq range> ->|

>>----- AT <base> ----->#
--              |              |
              |--- +<inc> --->|
  
```

Semantics:

INSERT copies records from any file to which the user has access or from the workfile by default, and enters them in the workfile as a contiguous block. The entire file will be copied if a <filename> is specified and the sequence range list is omitted.

New sequence numbers are determined by assigning an initial value to the first line and incrementing that value for each succeeding line. An integer <base> specifies the initial value. The increment <inc> for successive sequence numbers in the block may be specified as an explicit integer. If none appears, the default value of 100 is used.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

The range of new sequence numbers may not overlap any lines already in the file, nor may the numbers exceed the largest sequence number which may be expressed in the sequence number field. If the format *<filename> or *(usercode)/file-id is used, CANDE will look only on system disk for the file.

Inserting into a file of type DATA is not allowed. Also, DATA files cannot be inserted into a workfile.

Examples:

INSERT AT 3000+100

Insert the entire workfile into the workfile starting at 3000, in increments of 100.

INSERT AFILE 100-600 AT 4000

Insert the lines 100 through 600 from file AFILE into the workfile, starting at 4000 and incrementing using the default of 100.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANOE
 P.S. 2212 5561 (H)

MAKE

The MAKE command creates a new workfile. If an unSAVED workfile already exists, the MAKE command is in error.

Syntax:

```
MAKE ----- <file.id> ----->#
-                               |                               |
                               |----- <type> ----->|
```

Semantics:

The <file.id> must define a new file within the user's library; it becomes the name associated with the workfile. A type SEQ file is assumed by default. Only a <file.id> may be specified with the MAKE command.

Examples:

MAKE AFILE

Make a new workfile with the name AFILE and a default type SEQ.

M AFILE U

Make a new workfile with the name AFILE and a type of UPL.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANOE
 P.S. 2212 5561 (H)

MARGIN

The MARGIN command controls the entry of text at the left margin of a line by inserting a specified number of blanks in front of the data being entered. A margin specification may be in absolute column numbers or relative to the previous margin; it may be effective for all subsequent lines entered at the terminal, or for a single line.

Syntax:

```
MARGIN ----->#
---      |           |           |
          |           |           |
          |---+--->|--- <col> --->|
```

Semantics:

If an unsigned integer <col> appears, the margin is set to that column, relative to column one at the beginning of the line. The value of <col> must fall within the text field of the line, (e.g., should not exceed 72 for UPL files).

If a signed integer <col> appears, the margin is moved left (-) or right (+) by the number of columns specified; the resulting value must fall within the text field of the line.

MARGIN with no other parameters will elicit the response:
 CURRENT MARGIN=<integer>.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P-S. 2212 5561 (H)

The new margin specification applies to all subsequent entries from the terminal, until a new margin specification is entered or a GET or MAKE is performed.

MARGIN is only applied on records entered singly, from the top line of the terminal screen.

Examples:

MARGIN+5

Change the indentation position to the current starting position plus 5 columns and retain this indentation for all following input.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

MERGE/RMERGE

The MERGE and RMERGE commands cause a specified file, or portions thereof, to be merged with the workfile, with the result becoming the new workfile. The two commands differ in precedence considerations when a record in the merge file has the same sequence number as a record in the workfile: MERGE keeps the workfile record and discards the other; RMERGE does the reverse.

Syntax:

```

MERGE ----- <filename> ----->|
---      | |      |      |      |      |
          | |      |      |      |      |
RMERGE -->| |-- * -->|      |--- <sequence range> -->|
--
  
```

Semantics:

The <filename> specifies any data file the user is allowed to read and "*" indicates not to expand the <filename>. If a <sequence range> appears, only the selected records are merged and the rest of the file is ignored. The sequence numbers of records in the merge file remain unchanged as they enter the workfile. If the workfile is of type data, these commands may not be used.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Examples:

MERGE SYMBOL

This merges the workfile with the complete file SYMBOL, keeping the workfile copy of records with identical (i.e., duplicate) sequence numbers.

RN PATCHES 400-END

This merges the lines from 400 through the end of file PATCHES with the workfile, discarding the workfile copy of duplicate sequence numbers.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

MOVE

The MOVE command moves lines from one point to another within the workfile, and changes their sequence numbers.

Syntax:

```
MOVE --- <sequence range> ---- TO ---- <base> ----->#
--                                     |         |
--                                     |-- +<inc> ->|
```

Semantics:

The lines in the sequence range are deleted after being entered in the workfile as a continuous block.

New sequence numbers are determined by assigning an initial value <base> to the first line and incrementing that value for each succeeding line.

The increment <inc> for successive sequence numbers in the block may be specified as an explicit integer. If none appears, a default value of 100 is used.

The range of new sequence numbers may not overlap any lines already in the file, nor may the number exceed the largest sequence number which may be expressed in the sequence number field. The destination may not overlap any existing records in the workfile.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANOE
P.S. 2212 5561 (H)

Examples:

MOVE 100-600 to 900+5

This removes lines numbered 100 through 600 and reinserts them at 900, 905, 910 ...

MOVE 1000 to 6000.

This removes line 1000 and inserts it at 6000.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

PAGE

The PAGE command displays full screens of information at the terminal for editing, and accepts full screens of input from the terminal. Operations will continue until the command parameters have been satisfied or the user enters any command on the top line of the terminal.

Syntax:

```

PAGE ----->#
- |
|---- NEXT ----->|
| - |
|---- END ----->|
| - |
|<-----|
| |
|---- /*1\ -- <delim><text><delim> ----->|
| | |
| |---- /1\ ONLY ----->|
| | - |
| |---- /1\ LITERAL - ----->|
| | - |
| |---- /1\ 2 <column range> ----->|
| | |
|----- /1\ <sequence range> ----->|

```

<delim><text><delim> scan each record within the sequence range for the delimited text. Display page starting with the record in which text is found.

<sequence range> assumes <first record>-<last record> as the default. If only the first record is specified (e.g., PAGE 2500), the program assumes that the range requested is 2500-END and displays whatever records are in the file at the sequence range 2500 and

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

higher, as many as are required to display a full screen.

ONLY display only records with target text.

LITERAL as in REPLACE, FIND.

NEXT resume action requested by previous PAGE command.

END display the last page of the workfile.

Example: assume page size = 2 and file contains:

```

100 abcdef
200 ghijkk
300 lmnopq
400 rstuvw
500 xyzabcd
600 efghijkk
700 lmnopq

```

Command -----	Response -----
PAGE ONLY /KK/ LITERAL	Display records 200 and 600, then terminate.
PAGE 100	Display page beginning with record 100, then terminate.

Note that for CRT devices, NEXT is written at the home position as in FILE POSITIONING. For text searching, NEXT means begin searching with the next record after the first displayed (if ONLY is not specified) or last displayed (if ONLY is specified).

Note that the meaning of a single sequence number in a sequence range specification is now different for LIST than it is for PAGE.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

LIST <seq> will display the single record at
sequence number <seq>.

PAGE <seq> will display a page of records, the
first of which is the record at
sequence number <seq>.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

PASSWORD

The PASSWORD command allows the user to change his password.

Syntax:

```
PASSWORD -- <current password> -- <new password> ----->>
-----
```

```
>>----- <new password> ----->>#
```

Semantics:

To change passwords, a user must enter his current password, the new password, and for verification purposes, repeat the new password.

Passwords must contain no imbedded blanks. Other than this, each password may consist of any character sequence except ""(two double quotation marks), which is taken to mean a blank password.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

RECOVER

The RECOVER command recalls a recovery file as the workfile. After an abnormal termination of CANDE, those users who were logged on the system will have the option of recovering the workfile at that time.

Syntax:

```
RECOVER----->#
---          |          |
              | : PURGE ----->|
              -
```

Semantics:

By entering RECOVER after logging on, the user can recover his workfile. The PURGE option allows the user to remove a recovery file which he does not want to recover.

Examples:

REC

This recovers the user's previous workfile.

RECOVER :P

This removes the user's recovery file without loading it as a workfile.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

REMOVE OBJECT

Removes the user's object file <usercode>/<workfile name> CAT "0".

REMOVE OBJECT <file-name>

Removes the user's object file <usercode>/<file-name> CAT "0".

REMOVE OBJECT \$<file-name>

Removes the user's object file <usercode>/<file-name>.

REMOVE <filename>

Removes the file <filename>.

Examples:

REM

This removes the workfile.

REMOVE AFILE ON <pack-id>

This removes <usercode>/AFILE from pack <pack-id>.

REMOVE OBJECT AFILE

This removes <usercode>/AFILED if the file is of type "CODE".

REMOVE OBJECT \$AFILE

This removes <usercode>/AFILE if the file is of type "CODE".

REMOVE DSOONER/DFASTER ON DPACK

This removes DSOONER/DFASTER from pack DPACK.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

REPLACE

The REPLACE command scans line-by-line through the workfile or selected portions, replacing certain target text with new text. REPLACE is also a prompt driven command, output comes to the terminal after transmission of any character from the home position. A "?BRK" will break the output as soon as possible.

Syntax:

```
REPLACE ----- <delim><text><delim> ----->>
--- |<-----| | |
|-/1\ <count> ->| |- COLUMN <col 1> -----|
| | | |
|-/1\ FIRST --->| | -<col 2> ->|
| | | |
|-/1\ LITERAL ->|
|-----|
```

```
>>-- <delim><newtext><delim>----->>#
| |
|<-----|
|-/1\ -- <sequence range> ----->|
|-/1\ -- a <column range> ----->|
| | |<-----|
| | | |
|-/1\ -- : -|-/1\ - T(EXT) -----|
| | |
|-/1\ - TRUNCATE) -|
```

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Semantics:

Only one replacement may be specified in each REPLACE; the replacement is defined by a target and a substitution. The target specification may contain a text field or column numbers; the substitution specification always contains a newtext field, which can be blanks. The <text> and <newtext> fields are bracketed by delimiters. The <text> or <newtext> may contain any characters except the delimiter.

Using COLUMN <col 1> causes the <newtext> to be inserted at the column specified. Using COLUMN <col 1>-<col 2> means the characters in columns <col 1> through <col 2> are to be replaced by <newtext>.

For purposes of the search, all strings are considered to be token strings. Each line of the file is considered as an arbitrary string of tokens, excluding blanks. The search is successful whenever the string of characters in the text field is found in a line of the file. Literal strings must be searched for in LITERAL mode.

If the keyword FIRST appears, only the first appearance of the text on any line is sought and replaced. If an integer <count> appears, the replacement will be terminated after the program has replaced <text> with <newtext> the specified <count> of times.

The replacement may be restricted to a sequence range of the file or to a column range of the record. The defaults are the entire record length and the entire file.

If the option TEXT is specified, the entire record is output to the user's terminal. Otherwise only the sequence numbers of records affected by REPLACE are written to the terminal.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

Whenever a target is found, the <newtext> (which may be blanks) is substituted. Adjustment for different length <text> and <newtext> is made by shifting the right-hand end of the line (or column range) to the left or right, deleting or adding terminal blanks. A line overflow is detected whenever the adjustment would shift non blank characters off the end of the line (or column range). If the TRUNCATE option is specified, the REPLACE will be done even if an overflow occurs (and text is truncated). Otherwise, the REPLACE is not done. In any case, a message is given to the user concerning the overflow.

For COBOL and COBOL74 files, CANDE does not allow mixing between the text (col 7-72) and the identification (col 73-80) fields. This means that if a REPLACE is being done within columns 7-72, an overflow is flagged if this REPLACE would move into column 73 or further. It also means that you may REPLACE within columns 7-72 or columns 73-80, but never a mixture of the two ranges.

Examples:

```
REP "AB""ABB"
```

This searches the entire workfile for the string "AB" and replaces it with "ABB".

```
REPLACE COL 1-5 / / 130-180
```

This replaces the contents of columns 1 through 5 in lines 130 through 180 with empty newtext.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

RESEQ

The RESEQ command assigns new sequence numbers to lines in the workfile, without changing the order in which the lines appear. The default value for RESEQ is a base of 100 and an increment of 100 for all records in the workfile.

Syntax:

```
RESEQ ----->#
--- | | | |
| | | |--- <base> ----->|
|--- OVERRIDE --->| |--- +<inc> --->|
| ----
|
|--- <s1> ----- <s2> ----- <base> ----->#
|--- -END --->| |--- +<inc> --->|
```

Semantics:

The base value is assigned as the sequence number of the first line to be renumbered; each subsequent line's number is equal to its predecessor's number plus the increment value.

The variable `OVERRIDE` informs CANDE to disregard any sequence errors (e.g., a record with a blank sequence-number field) that it finds in the workfile and merely resequence it. If `OVERRIDE` is not set and CANDE discovers a sequence error in the original workfile, it will discontinue its resequencing operation at the point at which it finds the error and inform the user that it cannot continue processing the file. When CANDE fails during a resequencing operation, the `OVER` option should be used to recover; otherwise, it should not be used.

For example, if CANDE discovers a sequence error while it is

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

loading a file, RESEQ (with appropriate base and increment option) is all that the program requires in order to resequence the file properly.

If a range of sequence numbers is provided (s1 through s2), only the specified part of the workfile is renumbered; by default, the entire workfile is renumbered. When this range is provided, an initial value must be specified as the <base>. The increment (<inc>) for successive new sequence numbers may be specified but, if none appears, the default value of 100 is assumed.

When resequencing Basic files, sequence numbers in the text are modified to match the new sequence numbers on the appropriate records.

RESEQ will not change the apparent order of the lines. S1 must be less than or equal to <base> and the <base> plus the number of lines times the <inc> must not exceed s2 + <inc>.

Examples:

RESEQ 200

This renumbers the entire workfile, starting with an initial record number of 200 and proceeding in increments of 100.

RESEQ 100-700 100+10

This resequences lines 100 through 700, starting with an initial record number of 100 and incrementing by 10.

RESEQ +20

This resequences the entire workfile, with a base of 100 and incrementing by 20.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

RESEQ 1000-1500 1100+10

This resequences records 1000 through 1500, starting with an initial record number of 1100 and incrementing by 10.

RESEQ 2700-3000 2000

This is invalid, because the new base falls outside the sequencing range.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

SAVE

The SAVE command causes the current workfile to be saved.

Syntax: Format 1

```
SAVE ----->>
-- |
  |-- AS ----- <filename> -->|
      |      |
      |-- * --|

>>----->#
  |      |      |      |
  |-- ON <pack-id> --->|  |-- :RESEQ ----->|
                        --- |
                        |-- <params> -->|
```

Syntax: Format 2

```
SAVE --- AS ----- <filename> ----- :PATCH --->#
-- |      |      |      |
  |-- * --|      |      |      |
                |-- ON <pack-id> -->|
```

Semantics:

If no <filename> is specified, the workfile is saved under its workfile name. The workfile may be saved under a different name by using the "AS <filename>" option regardless of whether a file currently exists with that <filename>. Specifying "*" will cause the file to be saved with the actual name of <filename>.

The :PATCH option allows the user to create a "patch" file consisting of only those records from a source file which were changed during an editing session. Deleted records are saved in a patch file as "\$VOID" records. If this option is invoked, the user must also specify the "AS <filename>" option.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

To insure that the :PATCH option will yield the desired result, editing of the workfile should be preceded by setting the user's patch-id field. See the PATCH MODE section for a more complete discussion.

When SAVE with no options is entered, a SAVE ... :PATCH will be performed as a default if both the following conditions are in effect:

- 1) the user's patch-id field is set; and
- 2) CANDE is aware of a file name used previously in editing this file, indicated either by a GET ... :PATCH <patch-file-name> used to begin the session, or by a SAVE AS <patch-file-name> :PATCH having been done during the current editing session.

The :RESEQ option resequences all or part of the new file. Parameters may be specified as in the RESEQ command, except for the OVERRIDE parameter. This option is not allowed with workfiles of type DATA and BASIC, and cannot be used along with the :PATCH option.

Example:

SAVE

This saves the workfile.

SAVE AS AFILE

This saves the workfile under the name <default pack>/<usercode>/AFILE.

SAVE AS PATCHFILE :PATCH

Only added, changed or deleted records (the latter in the form of \$VOID records) are SAVED as <default pack>/<usercode>/PATCHFILE.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

SAVE :RESEQ 200-500 210+10

This saves the workfile, resequencing records with present sequence numbers between 200 and 500 inclusive, giving them new numbers beginning at 210 and incrementing by 10.

SA AS FEE/FEE ON LARUE

This saves the workfile under the name LARUE/FEE/FEE. This may only be done by privileged users.

SAVE AS *X

This saves the workfile under the name X on system disk. This, too, may only be done by privileged users.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

SEQ

The SEQ command invokes automatic sequence mode, causing the system to provide the sequence number for each new line. An initial value is assigned as the sequence number of the next line to be entered; the value is incremented for each subsequent line.

Syntax:

```

SEQ----->#
-   |-----<base>-----| |-----+<inc>-----|
   |-----NEXT----->|
   |-----END----->|

```

NEXT Begin sequence numbers with last output + INC from previous SEQ.

END Begin sequence numbers with that of the last record currently in the file.

Semantics:

The initial value is specified by an integer <base> or defaults to 100. The increment is specified by an integer <inc> or defaults to 100. If NEXT is specified, the sequence numbering begins with the last sequence number displayed for that user.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Sequence mode is terminated either by entering the EOT character immediately following the sequence number or by transmitting back only the sequence number. CANDE then displays a message at the terminal that the automatic sequence mode is terminated. BACK, SAME, NEXT, -, and + will also terminate the sequence mode and then display the requested page.

SEQ will display existing records in sequence with the new sequence numbers that have been created. Display will begin with the last record from the previous input if pagesize is greater than one.

SEQ allows records to be added to the file. The command does not support MARGIN since a full screen may be transmitted and MARGIN only applies to single records entered on the top line of the screen.

Example:

S 120+10

This begins automatic sequence mode, using an initial value of 120 and an increment value of 10.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

SINGLE-LINE ENTRY

Any line beginning with a digit whose size is at least the sequence field length for the current file type is a "command" either to enter a new line of text at the sequence number specified, or to replace or delete the line already at the sequence number.

Syntax:

```
----- <s> ----->#
                |                               |
                |----- <newtext> ----->|
```

Semantics:

The line consists of an integer <sequence number>, <s>, followed immediately by an optional <newtext> field supplying the contents of the new line. The sequence number begins in the first column of the input line and runs until a non-digit character is encountered or until the maximum number of digits for a sequence number have been entered; <newtext> begins in the column immediately following. If there is already a line of text at the specified sequence number, that line is replaced by the <newtext> or blanks.

Examples:

100 THIS IS A NEW LINE

215 AND SO IS THIS

300

This causes record 300 to be blanked out but not deleted, in addition to creating or replacing lines 100 and 215.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

SPATCH

The SPATCH command allows the user to insert up to 10 characters of patch identification information into columns 81-90 of the workfile records for all file types except "DATA". The command remains in effect until the user requests that the workfile be saved as a permanent file. Setting this command also flags CANDE to disallow any command (except REMOVE) which will flush records from the master workfile (see PATCH MODE section for complete explanation). For example, when SP is set, users must either save their workfiles as patch files or clear the patch designation before attempting a SAVE.

Syntax:

```
SPATCH --- <delim> <text> <delim> ----->#
--                                     |         |
                                     |-- <sequence range> -->|
```

Semantics:

A delimited text string of up to 10 characters is required with the SPATCH command. If the sequence range is omitted, then the delimited string is saved as a permanent patch identification string and is applied to future entries to the workfile. CANDE returns the message:

```
PATCH ID CHANGED FROM '<old-patch-id>' TO '<new-patch-id>'.
```

If the sequence range is included, then the patch identification string is treated as temporary and is immediately inserted into the workfile records specified by the sequence range. This latter form of the SPATCH command does not change any previous permanent setting of the patch identification.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Any existing patch identification string may be cleared by entering a null patch identification.

Examples:

SP /ABC/ 100-END

Places string "ABC" in records 100 to the end of the file.

SP /XYZ100/

Sets patch identification string to be included on all new records from this point.

SP //

Clears patch identification string.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

SS

The SS command provides the ability to send a message to another station or to the ODT.

Syntax:

```
?SS ----- <lsn> ----- <text> ----->#
--- |
   | ----- ODT ----->|
   | ----- <usercode> ----->|
   | ----- ALL ----->|
```

Semantics:

The receiving station may be referenced by <lsn> or by the <usercode> of a user who is logged on the system. The <text> may consist of any character string up to the maximum line size of the sending or receiving terminal.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

TEACH

The TEACH command provides the user with the capability of requesting an explanation of CANDE commands.

Syntax:

```
TEACH ----->#
--          |                               |
          |----- <command> ----->|
```

Semantics:

Entering TEACH, without any specific command specified, causes the system to return a complete list of valid CANDE commands and their valid abbreviations in the form:

<abbreviation> (<remaining letters>)

for instance, SPATCH will appear as SP(ATCH).

Entering TEACH <command> will cause the system to return three or more lines of text with a full description of the semantics and syntax of the requested command. Entering TEACH BYE, for example, returns:

COMMAND: BYE

SEMANTICS: TERMINATES THE USER'S CURRENT SESSION

SYNTAX: BYE*****>|

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

TERMINAL

The **TERMINAL** command will allow the user to specify or query the number of lines per page or per screen for his terminal, or to modify the output mode of the terminal.

Syntax:

```
>--- TERMINAL ----->#
| --- |
| PAGE----->|
-?-| | |--- <page length> ----->|
| | |
|--- CONTINUOUS----->|
| --- |
|--- WAIT----->|
```

Semantics:

PAGE specifies the number of lines per page or per screen, as an integer <page-length> between 1 and 22, inclusive.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Default page sizes are:

Device -----	Terminal Type -----	Page Size -----
B9350 Teletype	0	1
TC Series	21, 23, 24, 25, 26, 27	1
TD700	32	2
TD730	33	2
TD801	41	10
TD802	42	22
TD821	43	10
TD822	44	22
TD831	45	10
TD832	46	22

Default page sizes are also maximum possible values.

If no parameters are specified, then the current page size and current output mode are displayed. If PAGE is specified without the <page length>, then the current page size is displayed.

CONTINUOUS causes the terminal to be left in 'receive' mode unconditionally after each output (if scrolling is enabled).

WAIT, the default output mode, causes the terminal to go to local mode after most outputs.

TD730 terminals are treated as TD700s. TD830s are treated as TD820s except for the fastselect and stop highlight characters. TD830s running on two-wire direct connections should have their system adapters strapped for a 15ms write-delay.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

TITLE

The **TITLE** command changes the name of the workfile or a file on disk.

Syntax: Format 1 (Workfile Only)

```
TITLE ----- <file.id> ----->#
--      |               |
--      |--- TO --->|
```

Syntax: Format 2 (External Files)

```
TITLE ----- <filename 1> ----- <filename 2> ----->#
--      |               |               |               |
--      |               |--- TO --->|               |
--      |               |               |               |
-- * <filename 1> --- TO --- * <filename 2> ----->|
--      |               |               |               |
-- OBJECT ----- <file TO OBJECT ----- <file --->|
--      --- |   | name1> --- |   | name2>
--      |   |   |   |   |   |   |   |
--      |- $ ->|               |- $ ->|
```

Semantics:

The name of the workfile (Format 1) is changed for any subsequent **SAVE** command.

The name of <filename 1> is changed to <filename 2> (Format 2), which must be a new filename within the user's library.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

Examples:

TI ZAP

This changes the name of the workfile to ZAP.

TITLE A TO B

This renames the file named A as B.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 81000 CANDE
 P.S. 2212 5561 (H)

WHAT

The WHAT command indicates the state of the workfile.

Syntax:

```
WHAT ----->#
----
```

Semantics:

The amount of information provided varies depending on the current state of the workfile; as much information as is available is indicated. Output may include:

```
USER:          <usercode><(PRIVILEGED)if privileged
                user>. WORKFILE: <filename><filetype>,
                <saved status>, <integer> ENTRIES.
SOURCE FILE:   <filename> ON <pack.id>, <integer> RECORDS.
PATCH ID:     <character string>. DEFAULT SAVE
                PATCH-FILENAME: <filename>.
DISK REQUIRED FOR SAVE: <integer> AREAS, <integer>
                SECTORS EACH.
```

The "source file size" is the number of records present when the last GET or SAVE was completed.

The "number of workfile table entries" is the number of new, changed or deleted records (except that a deleted range of records will appear as two entries). This number will be zero immediately after a GET, SAVE, or RESEQ and sometimes after INSERT (from an external file), MERGE, or RMERGE. PATCH FIELD information does not appear if a patch field (SP) has not been

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

specified.

The "disk requirements" information is intended for user estimation of the amount of disk space he will need to have available when he enters SAVE. Currently, CANDE cannot recover from a "NO DISK SPACE" error on attempting to open a new area. Therefore, a user might initiate a SAVE which uses up all available space on the specified disk before completing, thus causing CANDE to "hang", waiting for the operator to clear the disk and then "OK" CANDE. If, under extreme situations, all disk space is dedicated to this file and thus disk cannot be cleared, the only way to resolve the situation is for the operator to "DS" CANDE.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

WHERE

The WHERE command provides the <lsn> of a user.

Syntax:

```
?WHERE ----- <usercode> ----->#
-----
      |             |
      |----- ALL ----->|
```

Semantics:

If the specified usercode is currently logged on, then his <lsn> is provided; otherwise, the user is so notified. The ALL option gives the <lsn>s of all users currently logged onto CANDE.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

?<MCP control string>

A question mark in column one, line one of input followed by any string whose first token is not a valid CANDE control command will be sent to the MCP. If CANDE is running with file security, the first 250 characters of the MCP response will return to the terminal of the initiating user. Otherwise, the user will only be notified whether or not the zipped string was accepted by the MCP.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

OPERATOR INSTRUCTIONS

This section is intended to provide the host system operator for CANDE with facts to help execute and maintain the CANDE system.

Topics discussed here are the execution of CANDE, the use of the network controller, and options available to the operator for the maintenance of the CANDE system.

The operator should have available for his use copies of these documents:

Burroughs B1000 Message Control System Information Manual
Burroughs B1000 Network Definition Language Manual
Burroughs B1000 Software Operational Guide
Burroughs B1000 CANDE Information Manual

EXECUTION OF CANDE

To use the CANDE system, the operator executes CANDE. CANDE will in turn execute the network controller if possible (see below). Both CANDE and the network controller should execute at a higher priority than other programs in the mix to insure adequate response times to the user. If an MCS is to be included in the mix, it should be at a higher priority than CANDE, but not higher than the network controller.

Upon execution CANDE will determine if recovery is appropriate, and if so will build individual user recovery files for the previous CANDE session. CANDE will then condition its working files for the new session.

Finally, CANDE will execute the network controller if the following conditions are true:

The network controller must be present, a valid code file, not currently executing, and named "CANDE/HANDLER" either on system disk or on the same user disk from which CANDE was executed.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Program Switch 0, in CANDE, must be set (i.e., greater than zero).

If the network controller cannot be found or was not executed due to any reason other than SW 0 equal to zero, the operator will be notified via the ODT. Any desired network controller can then be executed. Note that by resetting CANDE's program Switch 0 to zero, a file named "CANDE/HANDLER" can reside on disk and CANDE will not attempt to ZIP-execute it.

Note: If a handler exists in the name table and CANDE ZIP-executes a handler, a DS situation could occur because of more than one handler being executed.

PROGRAM SWITCH SETTINGS

The following program switches may affect CANDE's run processes:

- SW0 if not zero, CANDE will attempt to ZIP-execute CANDE/HANDLER.
- SW1 if not zero, CANDE will be "frozen" in memory, and not eligible to be rolled out.
- SW2 if equal to 1, CANDE will produce certain statistics regarding this run at EOJ (only functional when the program is compiled with the conditional option STATISTICS set).
- SW3 if equal to 1, CANDE will read from and write to special queues instead of its remote file (for debug purposes when the conditional option SIMULATE is set).
- SW4 if not zero, CANDE will wait on an ACCEPT at BOJ (for debug).
- SW5 if not zero, CANDE will enforce file security.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

FILENAMES

User files in CANDE may appear to the user to have but one filename of up to ten characters in length. This is purposely done so that a user can create and access files without knowing or specifying the file's full name.

There is, however, the capability (in Mark level IX.0 and later versions of CANDE) of explicitly specifying a full filename. CANDE informs the user if any security violations occur.

ODT Options

CANDE allows communication between terminals themselves and between terminals and the system ODT (or vice versa). Messages coming from the terminal will appear as:

USER = <lsn>:<textual message>

The operator can talk to the terminal by entering:

<CANDE mix-index> AX <usercode> <message>
 or
 <lsn of destination terminal> <message>

EXAMPLE:

1AX JOHN WHAT FILE ARE YOU USING?

OPERATOR COMMANDS

The system operator has certain commands that can be directed to CANDE. These commands are WHO, STOP, ALL and MAKE. WHO prints a list of usercodes and associated logical station numbers that are currently logged onto the system. STOP brings CANDE to a logical conclusion; this command will only be executed if there are no users logged onto the system. The ALL command allows the operator to broadcast a message to all terminals. MAKE lets the operator make a station READY or NOT READY.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

MAKE

Syntax:

```
MAKE ---- <lsn> ----- READY -->#
          |-- NOT -->|
```

The READY flag in the network controller's table for the specified <lsn> will be changed as requested.

Whenever a station's READY flag is changed, the network controller will rebuild the autopoll list to delete any stations made NOT READY and include any made READY.

AUDIT

CANDE audits its own I/Os whenever it is executed with enough dynamic memory to handle its auditing functions. The AUDIT command allows the auditing capabilities to be set or reset without re-executing the program (when dynamic memory has been provided).

Dynamic memory for the audit file is provided by executing CANDE with a dynamic memory of 5760 bits (EX CANDE ME 5760). If the program is not executed in this fashion and auditing is requested, it will be denied (NO DYNAMIC MEMORY FOR AUDITING) and CANDE must be re-executed with sufficient dynamic memory, i.e., a minimum of 5760 bits.

Whenever an audit file is closed through the CLOSE option, the user should immediately print it with CANDE/ANALYZER, remove it from the disk directory, or change its name so that the next CANDE/AUDIT file opened does not cause a "duplicate-file" error condition. Since initialization of the audit file is a time-consuming process, the user should be aware that an AUDIT CLOSE followed by an AUDIT ON will cause a temporary suspension of datacomm service by CANDE while the audit file is being re-initialized.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

The syntax for AUDIT is defined as:

```
>-- <job-number>AX -- AUDIT ----->#
      |-- ON ----->|
      |-- OFF ----->|
      |----- CLOSE -->|
          |-- OFF -->|
```

Semantics:

AUDIT Displays the current status of AUDIT: whether it is ON or OFF and whether or not the AUDIT file is open or closed.

AUDIT ON Sets the AUDITING option ON and opens and initializes the audit file if it was closed.

AUDIT OFF Resets the AUDIT boolean but leaves the AUDIT disk file pointer intact and leaves the AUDIT file open so that the next AUDIT ON command begins auditing where the last auditing left off.

AUDIT [OFF] CLOSE Resets the AUDIT option and loses the audit file on disk. The next AUDIT ON causes a new audit file of the same name (CANDE/AUDIT) to be created and initialized. The duplicate-file restrictions mentioned above apply to this command. Note that CLOSE is sufficient to close the audit file and reset the audit option to OFF, but that OFF CLOSE, although redundant, is not prohibited syntax.

CANDE writes an "audit-on" and "audit-off" record into the audit file whenever the audit boolean is set or reset so that those who examine the file will know the period of time during which auditing was not done.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

STOP

Syntax:

```
STOP ----->#
      |-- <n minutes> -->|
```

Semantics:

<CANDE'S mix> AX STOP <n>

The STOP command, for automatic shutdown, provides for controlled shutdown of the CANDE system within <n> minutes, with <n> being optional, and a default of 2. When entered at the ODT, the command causes the following:

If no users are logged on, CANDE goes to EOJ.

Each logged on user is sent the following message:

```
CANDE WILL STOP IN <n> MINUTES. PLEASE SAVE OR
REMOVE ANY ACTIVE FILE AND LOG OFF.
```

At the same time each logged-on lsn is reported at the ODT (as before). After all logged-on lsns are reported, the following message is displayed at the ODT:

```
CANDE WILL ADVISE AUTOMATICALLY AT <hh:mm:ss.t>
IF USERS ARE STILL ACTIVE>
```

From this point on, the only commands allowed are:

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

Control commands ("?")		
RECOVER	UPDATE	BYE
REMOVE	WHAT	DCSTATUS
SAVE	RESEQ	FILES
TEACH		

One more page of input records will be processed, so any page in the process of being edited when the STOP occurs will not be lost.

Note: No further 'single-line' input is allowed, except when that line comes from a device with a pagesize of 1, in which case it is treated as 'one more page of input records' as above.

All other commands will receive the following response:

CANDE TERMINATION IN PROCESS. PLEASE SAVE OR
 REMOVE ANY ACTIVE FILE AND LOG OFF.

If <n> minutes elapse and there are still users logged on, the following message is displayed at the ODT:

SHUT DOWN TIME HAS ELAPSED WITH USERS STILL ACTIVE.
 OPERATOR ACTION REQUIRED.

None of the above conditions change except that CANDE will not advise the operator again.

The automatic shutdown function is intended for the system operator's convenience, not a user inconvenience. To that end, CANDE will never shut itself down while users are active. It is the responsibility of the user, however, to log off when no activity is anticipated for a while.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

CANDE/HANDLER

BASIC

The interactive BASIC implemented for B1000 CANDE is like that on the B6700 CANDE. The user creates his file, then enters COMPILER, RUN, or EXECUTE, and CANDE handles all file equations for the task. To make use of interactive BASIC, a naming convention must be followed in the NDL handler that is generated, the filename for the station must be "F" CAT <station name> and this name must not exceed four characters on COMPILERs, RUNs, and EXECUTEs of BASIC files.

SCROLLING

TD820/830 series devices are capable of scrolling. Scrolling is enabled by entering a "?+S" and disabled by "?-S". In SCROLL mode, all entries are made on the top line, but the entries are rolled to the bottom of the screen and the responses come back from the bottom up. "?+S" entered on devices that do not scroll will generate the response "NOT A SCROLLING DEVICE". To correctly determine the type of terminal, users must observe the following conventions when compiling a network controller to run with CANDE:

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

NDL "TERMINAL TYPE"

NUMBER	TERMINAL	NUMBER	TERMINAL
-----	-----	-----	-----
0	B9350 (TELETYPE DEVICE)	32	TD700
1	B9353 (BIDS)	33	TD730
2	B9352 WIDE (CONRAC)	34	-
3	B9352 NARROW (CONRAC)	35	-
4	-	36	-
5	-	37	-
6	RT2000	38	-
7	TT102	39	-
8	TT602	40	-
9	-	41	TD801
10	REDACTOR I	42	TD802
11	REDACTOR II	43	TD821
12	-	44	TD822
13	DC110	45	TD831
14	DC140	46	TD832
15	TU300	47	-
16	TU400	48	-
17	TU500	49	-
18	-	50	-
19	TU700	51	-
20	TU800	52	-
21	TC500	53	-
22	-	54	-
23	TC700	55	-
24	TC1700	56	-
25	TC3500	57	-
26	TC4000	58	-
27	TC5100	59	-
28	-	60	-
29	-	61	-
30	-	62	B1700
31	-	63	B6700

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

TERMINAL SECTION

See the TERMINAL command (COMMANDS Section) for valid terminal types.

Also implemented in CANDE's request-and-control sections is an output message control procedure which prevents output messages destined for a station that is in local, or otherwise unable to accept the message, from being retried indefinitely. If the output is denied, and a select sequence is included in the poll list, the station will be continually selected (and polled) until one of the following occurs:

1. The "RECEIVE" button is pressed.
Action: Message is tried again as above.
2. User transmits something other than "?".
Action: Suspended output message(s) retried; input is sent to CANDE.
3. User transmits "?".
Action: Suspended output retried and "?" not sent to CANDE.
4. User transmits "?CQ".
Action: Flushes queued output to a depth of 'MAX MESSAGES' as defined in the compiled handler. Default if not explicitly set is 20.

An input control procedure exists in CANDE's request and control sections that allows a terminal which has been turned off to be deleted from the autopoll list to avoid timeout degradation. Any such deleted terminal will again be included in the autopoll list within a maximum of "n" minutes after having been turned on ("n" is the number of "down" stations). The terminal will be included immediately if "made ready" from the ODT. See OPERATOR COMMANDS.

BURROUGHS CORPORATION
 COMPUTER SYSTEMS GROUP
 SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
 B1000 CANDE
 P.S. 2212 5561 (H)

This procedure prevents denied output messages from taking over the processor. The network controller executed with CANDE should be compiled using "NDL/LIBRARY" requests and controls selected from the following:

REQUESTS -----	CONTROLS -----	TERMINAL TYPE -----
CANDEPOLTD		
CANDESELTD -----	CANDETDCTL -----	TD SERIES, TC SERIES
CANDEFSLTD		
CANDAUDPOL		
CANDAUDFSL -----	CANDAUDCTL -----	TD SERIES, TC SERIES FOR AUDIT-DEBUG
CANDAUDSEL		
CANDEIOTTY -----	CONVERCTL -----	TELETYPE

These requests include a number of functions specifically tailored to the output produced by CANDE in order to provide a more readable output at the terminal and to ensure recovery under terminal failure situations (see Appendix A).

Other requests and controls that may be used with CANDE are the 'AUDIT' requests and controls named above. These are useful when a handler problem is suspected or some line error consistently occurs. The resultant listing will aid in any analysis or debugging.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

CANDE/ANALYZER

CANDE/ANALYZER is a companion program to B1000 CANDE and is intended primarily to aid in debugging CANDE. In an interactive real-time program such as CANDE, bugs can exist which become evident only upon entering some unusual sequence of commands or which involve a particular interaction between two or more users. When such bugs occur, it is typically difficult or impossible for users to know precisely what they did that caused the CANDE failure. CANDE/ANALYZER should help resolve this problem.

At BOJ, CANDE creates a trace file called CANDE/AUDIT and writes information about each USER/CANDE transaction into that file. CANDE/AUDIT is laid out to minimize the time required to create the trace and is not easily read by the user. CANDE/ANALYZER then assumes the burden of reading the audit file and of breaking it down into a format easily read by the user.

If any of the files named WORK, RECOVERY or AUDIT have been file-equated for the CANDE program or CANDE is run under a usercode that has a default pack associated with it then CANDE/ANALYZER should also have its corresponding files file-equated or should be run under the same usercode.

CANDE/ANALYZER is released with its program switches set to produce the most useful output for debugging purposes. This setting is: SW=200000000002. It may be modified to any other value.

For more information about CANDE/ANALYZER, see P.S. 2219 0185, CANDE/ANALYZER.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

APPENDIX A

NETWORK CONTROLLER

Compilation

This appendix contains a source listing of a typical handler to be used with CANDE.

Note that there must be a library "\$" card for the CANDE declarations. There must also be an 'AUTOPOLL' statement in the line section which specifies ten (10) times the number of stations on the line. The factor of ten is needed for the dynamic requirements of the handler.

The constants in this declaration may be overridden at compile time by including a redefinition of the desired items after the library call for the declarations and before the library call for the first request.

The file configuration allows a user program to open remote files to its own terminal without affecting operation at other terminals.

For example, user A at LSN-1 (station name = "ST1"), may execute a program which opens a remote file named FST1. The program will then automatically be attached to the terminal from which the user executed the job through CANDE. A file which the BASIC system is to open must be named with the letter F concatenated with the station name (in this case "ST1"); no more than four characters may be involved in forming this file name.

Application programs executed via CANDE need not ensure that the remote file name that is opened exists in the handler. The OPEN will be passed to the spawning job (CANDE in this case) if a file name match cannot be made.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

If CANDE is being run without file security (i.e., without a privileged, public usercode), then all OPENs are approved with no restrictions, except if the OPEN station list is null.

With file security, if the job requesting an OPEN was executed through CANDE, the OPEN is approved unless:

- the user is already attached to some job with a remote file;
- the user's station is not one of those in the OPENs station list; or
- other stations in the list are logged onto CANDE.

If the job requesting an OPEN was not spawned by CANDE, the OPEN is approved unless any station in the list is already logged on to CANDE.

Operation

The requests specified in the CANDE/HANDLER section initially determine if the stations opened are on line and responding. Those that are not will be automatically deleted from the poll list. Switched lines will remain in a "waiting for ring" state. If a leased or direct terminal is in use with CANDE and experiences failure (such as many consecutive timeouts, loss of "data-set-ready", or "loss of carrier"), the terminal is then deleted from the poll list.

If a switched terminal is disconnected or the line is disconnected in any way, then the network controller will reinitiate a "wait for ring" state on the line and CANDE will recover all appropriate data and will leave the station "ready" for the next dial-in.

Reconnecting a direct or leased terminal will not automatically cause the network controller to recognize and service it. The operator must enter a MAKE command at the ODT in order to make it ready immediately. If he does not make it ready, it will be retried in turn accordingly (see TERMINAL SECTION).

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ZZ
ZZ NETWORK CONFIGURATION ZZ
ZZ
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ZZ
ZZ TERMINAL SECTION ZZ
ZZ
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```

TERMINAL DEFAULT TDFLT:

```

REQUEST = CANDEPOLTD:RECEIVE, X
          CANDEFSLTD:TRANSMIT, X
TRANSMISSION = 0.
ADDRESS = 2.
TYPE = 44.X TD822
BUFFERSIZE = 2250.X

```

X

```

TERMINAL TD822:X
DEFAULT = TDFLT.

```

```

TERMINAL TTY:
REQUEST = CANDEIOTTY:RECEIVE, X
          CANDEIOTTY:TRANSMIT, X
TRANSMISSION = 0.
ADDRESS = 0.
TYPE = 0.X TELETYPE
BUFFERSIZE = 150.X

```

```

TERMINAL TCS:
DEFAULT = TDFLT
TYPE = 25.X (TC3500 SERIES)
BUFFERSIZE = 225.X

```

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

XX
XZ
XZ STATION SECTION XZ
XZ XZ

XX

STATION DEFAULT TD8DF: X
FREQUENCY = 2, 24.
MYUSE = INPUT, OUTPUT.
TERMINAL = TD822. X
RETRY = 4.X

STATION DEFAULT TTYDF: X
FREQUENCY = 2, 24.X
MYUSE = INPUT, OUTPUT.X
TERMINAL = TTY.X
RETRY = 4.X

X
STATION ST1: X
DEFAULT = TD8DF. X
ADDRESS = "D1".

STATION ST2: X
DEFAULT = TD8DF. X
ADDRESS = "D2".

STATION ST3: X
DEFAULT = TD8DF. X
ADDRESS = "D3".

STATION ST4: X
DEFAULT = TD8DF.X
ADDRESS = "D4".X

STATION ST5: X
DEFAULT = TD8DF.X
ADDRESS = "R3".X

STATION ST6: X
DEFAULT = TD8DF.X
ADDRESS = "R4".X

STATION ST7: X
DEFAULT = TD8DF.X
ADDRESS = "R5".X

STATION ST8: X
DEFAULT = TTYDF.X
ADDRESS = "00".X

STATION ST9: X
DEFAULT = TD8DF.X
TERMINAL = TCS.X
ADDRESS = "1A"

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ZZ                                                                 Z
ZZ                               LINE SECTION                       Z
ZZ                                                                 Z
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
LINE      DEFAULT LINEDFLT:
          CONTROL           =  AUTOPOLCTL.Z
Z
LINE      DIRECT01:
          DEFAULT           =  LINEDFLT.
          AUTOPOLL         =  70.Z 10 PER STATION
          ADDRESS          =  1:0:6.Z
          STATION          =  ST1,ST2,ST3,ST4,ST5,ST6,ST7. Z
LINE SYNC01:Z
          DEFAULT           =  LINEDFLT.Z
          AUTOPOLL         =  10.X 10 PER STATION
          ADDRESS          =  1:0:2:.Z
          STATION          =  ST11.Z
LINE TTY01:Z
          DEFAULT           =  LINEDFLT.Z
          CONTROL          =  CONVERCTL.Z
          ADDRESS          =  1:0:9.Z
          STATION          =  ST8.Z

```


BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

Terminal Options

Terminals other than those specified in the CANDE/HANDLER section, if connected to the CANDE system may not operate correctly with the specified requests, although any Burroughs' qualified terminal for the B1000 can be connected to the CANDE system via a user coded request which could include the special features built into the released CANDE requests.

CANDE makes use of certain control codes to effect a more readable output. Terminals should be so optioned when setup:

2002 (CR),	2252 (LF),	20C2 (DC4),
23C2 (HOME ONLY),	2112 (DC1),	2132 (DC3),
2272 (ESC),	2182 (CAN),	20F2 (SI), (TD820 Series)
		OR
		21E2 (SI), (TD830 Series)

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
8100 CANDE
P.S. 2212 5561 (H)

CANDE

CANDE Processor Time

A value called "TIME" appears on the screen whenever BYE, HELLO or USER is transmitted. This value is the amount of time the user spent being serviced by the CANDE system. This time will be less than the difference of log-on and log-off times except after recovery when the previous session's time is taken as a starting time.

The time value is not strictly hardware "CPU" time. It includes IO time, both datacomm and any disk accessing. Included also are such system overhead costs as overlay, service requests, rollin/rollout of the user, and others.

It is not intended to be used directly for billing, but it is an indication of the amount of time the CANDE system spent in servicing the user.

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

INDEX

?<MCP control string> 5-66

APPENDIX A A-1
AUDIT 6-4

BREAK 5-2
BYE 5-3

CANDE A-9
CANDE EXECUTION 4-3
CANDE MECHANISMS 4-1
CANDE/ANALYZER 6-12
CANDE/HANDLER 6-8
CLEAR QUEUE 5-6
COMMANDS 5-1
COMPILE 5-4
CRT-TYPE DEVICES 4-12

DATA FILES 3-8
DCSTATUS 5-7
DELETE 5-8
DISK PACK DEFAULTS 4-5
DISPLAYS AND ERRORS 4-10
DS 5-9

ENTERING DATA 3-3
ERROR MESSAGES 3-8
EXECUTE 5-10
EXECUTION OF CANDE 6-1

FILE POSITIONING 4-8
FILENAMES 6-3
FILES 3-4, 5-12
FIND 5-14
FIX 5-17

GET 5-20

HELLO 5-23
HELLO/USER 5-23

INSERT 5-24
INTRODUCTION 1-1

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
B1000 CANDE
P.S. 2212 5561 (H)

LINE DELETION 4-8
LIST 5-26

MAKE 5-27, 6-4
MARGIN 5-28
MERGE/RMERGE 5-30
MOVE 5-32

NETWORK CONTROLLER A-1

OPERATING PROCEDURES 3-1
OPERATOR COMMANDS 6-3
OPERATOR INSTRUCTIONS 6-1

PAGE 5-34
PASSWORD 5-37
PATCH MODE 4-6
PROGRAM SWITCH SETTINGS 6-2

RECORD MODIFICATION 4-7
RECOVER 5-38
RECOVERY 4-9
RELATED DOCUMENTATION 1-1
REMOVE 5-39
REPLACE 5-41
RESEQ 5-44
RESPONSES 3-4
RMERGE 5-30
RUN 5-10

SAVE 5-47
SCROLLING 4-12
SEQ 5-50
SEQUENCE NUMBERS 3-7
SINGLE-LINE ENTRY 5-52
SPATCH 5-53
SPECIAL CONTROL CHARACTERS 3-3
SS 5-55
STOP 6-6
STRUCTURE OF THE USERCODE FILE 4-2
SYNTACTIC VARIABLES 2-5
SYNTAX CONVENTIONS 2-4
SYNTAX DIAGRAMS 2-1
SYNTAX SPECIFICATIONS 2-1
SYSTEM/MAKEUSER EXECUTION 4-3

TEACH 5-56
TERMINAL 5-57
TITLE 5-59

BURROUGHS CORPORATION
COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

COMPANY CONFIDENTIAL
81000 CANDE
P.S. 2212 5561 (H)

USER 5-23
USERCODES AND SECURITY 4-1

WHAT 5-61
WHERE 5-63
WORKFILE 4-5
WRITE 5-64