

Burroughs Corporation



COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

P.S. 2228 3493

B1800/B1700 FOREIGN/TAPECOPY

PRODUCT SPECIFICATION

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SECTION I
INTRODUCTION

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INTRODUCTION

FOREIGN/TAPECOPY is designed to copy or list any 7 or 9 track tape. The program will copy the input tape to disk, printer or tape. Disk and Printer output files will be in the Standard E1000 format and Tape files will be an exact copy of the input file. Data on the tape that is bounded by the specified delimiters will be copied to a separate file. The user is allowed to specify the tape format using mnemonics to designate tape marks, header information, data, and labels. Input specifications may be entered via an ODT, remote terminal, or a card file.

SECTION II

OPERATING INSTRUCTIONS

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OPERATING INSTRUCTIONS

FOREIGN/TAPECOPY uses dynamic memory for both input and output tape buffers. This allows the program to use only as much memory as required. When executing FOREIGN/TAPECOPY, use enough memory for an input buffer and output buffer. When using output blocking include the size of one record. If the amount of memory specified is not enough the program will terminate with an appropriate message.

SWITCHES:

- 0 = 0 INPUT FROM ODT
 = 1 INPUT FROM CARDS
- 7 = 0 NO ACTION
 = 1-15 MESSAGE DISPLAYED FOR EACH FILE COPIED
- 8 = 0 NO ACTION
 = 1-15 PROGRAM DUMP AT ABNORMAL TERMINATE

Executing FOREIGN/TAPECOPY with SW(0)=1 directs the program to a card file, (CARDS), which must contain the input specifications (see input specifications). A maximum of 20 cards is allowed.

Executing FOREIGN/TAPECOPY with SW(0)=0 will result in display of the following message:

ENTER INPUT SPECIFICATIONS OR "HELP"

The user should enter a string of information representing the input specifications (see input specifications) or "HELP". A maximum of 1600 characters is allowed. Entering "HELP" will cause the following messages to be displayed. The user should respond with the appropriate information. (See input specifications for details of input parameters.) A blank or null response will terminate the program at this point.

INPUT TAPE MNEMONIC? <MTx>

OUTPUT DEVICE? <DISK, PRINTER, TAPE>

DEFAULT SPECIFICATIONS? <YES, NO>

If the user wishes to override the default values, the following input messages will be displayed.

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ENTER TAPE FORMAT? V <D, EOF, H, L, TM, V>

INPUT TRANSLATION? <ASCII8, ASCII7, EBCDIC, BCL, file-name>

VARIABLE LENGTH RECORDS? <YES, NO>

OUTPUT BLOCKING?

BLOCKING FOR VARIABLE RECORDS: <MAX BLOCK LENGTH>

INPUT-OUTPUT BLOCKING: <characters per record> <records per block>

ENTER OPTIONS?

<PURGE <format list>,
SKIP(number of files),
INC(number of files),
2xx3,
FIRST, COPY,
CCPYALL>

NOTE: A blank or null response, in most cases, is equivalent to a "NO" answer or "NO ACTION" answer.

If output device is tape only the relevant specifications will be displayed.

SECTION III

INPUT SPECIFICATIONS

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INPUT SPECIFICATIONS

SYNTAX

```

<input specifications> ::= <input tape mnemonic> <output device>
                           <default specifications>
                           <tape format>
                           <input translation> <input record type>
                           <input-output blocking> <options>

<input tape mnemonic> ::= MT<unit>

<unit> ::= A | B | C | D | E | ... | N | O | P

<output device> ::= DISK | PRINTER | PRINT | TAPE | <empty>

<default specification> ::= DEFAULT | DEF | <empty>

<tape format> ::= <tape format list> | <empty>

<tape format list> ::= <tape parts list>
                       | <tape parts list>
                         <number of repeats>/
                       <tape parts list>/

<number of repeats> ::= <integer> | <empty>

<input translation> ::= ASCII7 | ASCII8 | EBCDIC | BCL
                       | <translate filename> | <empty>

<translate filename> ::= <filename>

<input record type> ::= FIXED | FIX | VARIABLE | VAR | <empty>

<input-output blocking> ::= <input blocking> <output blocking>
                             | <empty>

<input blocking> ::= <max block size>
                     | <characters per record>
                     <records per block>
                     | <empty>

<output blocking> ::= <characters per record>
                     <records per block>
                     | <empty>

<max block size> ::= <integer>
  
```

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<characters per record> ::= <integer>

<records per block> ::= <integer>

<integer> ::= <digit> | <digit><integer>

<digit> ::= 1 | 2 | 3 | 4 | ... | 9 | 0

<options> ::= <purge opt>
 <first opt> <pad opt>
 | <skip opt> <inc opt> <first opt>
 <pad opt>
 | <copy opt>

<purge opt> ::= PURGE <tape parts list> | <empty>

<skip opt> ::= SKIP <number of files> | <empty>

<inc opt> ::= INC <number of files> | <empty>

<first opt> ::= FIRST | <empty>

<pad opt> ::= a<EBCDIC character><EBCDIC character>a
 | <empty>

<copy opt> ::= COPY | COPYALL | <empty>

<tape parts list> ::= <data part> <eof part> <header part>
 <label part> <tape mark part>
 <volume part>

<data part> ::= D | D(<number of blocks>) | <empty>

<eof part> ::= EOF | EOF(<number of blocks>) | <empty>

<header part> ::= H | H(<number of blocks>) | <empty>

<label part> ::= L | L(<number of blocks>) | <empty>

<tape mark part> ::= TM | TM(<number of blocks>) | <empty>

<volume part> ::= V | V (<number of blocks>) | <empty>

<number of files> ::= <integer>

<filename> ::= <packname>/<multifile-id>/<file-id>

<packname> ::= <name> | <empty>

<multifile-id> ::= <name> | <usercode> | <empty>

<file-id> ::= <name>

<usercode> ::= (<name>)

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<number of blocks> ::= <integer>
 <name> ::= <letter><name>
 <letter> ::= A I B I C I D I E I X I Y I Z
 <empty> ::= null
 <EBCDIC character> ::= A I B I C I D I E I F I <digit>

SEMANTICS

The input tape mnemonic is the only required specification. The remainder are optional but, if entered, must appear in order and separated by a blank. Only columns 1-72 of a card file will be scanned for specifications allowing for either comments or sequence numbers in column 73-80.

<input tape mnemonic>

The input device must be a system defined unit mnemonic for any 7 or 9 track tape, e.g. "MTA". If the input device name is entered incorrectly the user may re-enter the appropriate device. If the input device is a valid device name, but not present, the program will hang waiting hardware. The check of that device is not made until the copying actually begins. There is no default value for input device.

<output device>

The output may be directed to disk, or printer using the words "DISK", "PRINTER", or "PRINT". The default output device is DISK. All output files have a default multifile-id of "OUTPUT". The filenames for disk files begin with "FILE0001" and are numbered sequentially.

Each file written to disk becomes a separate file. For printers, one backup print file is created with "BOF" and "EOF" messages separating the individual files. The print files will contain a header consisting of blocking factor, filename, and input tape mnemonic for each file copied. The filename for a print file is "FILES".

The output may also be directed to tape to create an exact copy of the input tape. Tape output is only allowed with the COPY or COPYALL options.

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<default specification>

The word "DEF" or "DEFAULT" is used to specify default specification. This enables the user to copy an EBCDIC tape with fixed-length records to the output device. The output records will be unblocked with a new file being created for data that exists between single tape marks. FOREIGN/TAPECOPY will stop copying when it encounters a double tape mark. If <default specification> is used, no other input specs are required. If "TAPE" is specified as the output device along with DEFAULT, the "COPY" option is assumed with default blocking. "PRINT" and "DISK" output devices assume no options.

<tape format>

FOREIGN/TAPECOPY assumes that all files are separated by single tape marks and the end-of-file marker is a double tape mark. Since all tapes do not follow this form, the user may specify the format of the tape to be copied. The following mnemonics are used to explain the tape format:

D	data portion of the tape
EOF	end-of-file information
H	header information
L	label
TM	tape mark
V	volume label

Any mnemonic may be optionally followed by "<number of blocks>" to specify the number of blocks to be included in that portion of the format. A zero block count is not valid. FOREIGN/TAPECOPY must still rely on tape marks to delimit files of information. The alternative to this is to specify the number of blocks for each portion of the file (specified by a mnemonic) between tape marks. This will cause the number of blocks specified to be placed in a separate file.

FOREIGN/TAPECOPY will stop processing when it hits a double tape mark, or on a single tape mark immediately following an end-of-tape mark. If a tape does not follow this standard, it is up to the user to specify the physical limit of the input tape. This can be accomplished by specifying <number of repeats>. If the number is too long, the user can get garbage data or run off the end of the tape. If <number of repeats> is specified, double tapemarks will not terminate the copy. It is suggested the user try his format with the FIRST option to a printer to check the correctness. For example a tape with one file would have a tape format as follows:

V H H TM D TM EOF EOF TM TM

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This would result in the following files:

```
FILE0001      (V H H)
FILE0002      (C)
FILE0003      (EOF EOF)
```

The V H H will be placed in the same file since a block count was not specified. FOREIGN/TAPECOPY copied the blocks until it reached a tapemark.

Slashes ("/") are used to enclose the repetitive part of a tape format. A blank must delimit the repetitive <tape parts list> from the preceding <tape parts list>. No space is allowed between the <number of repeats> and "/".

For example, the same tape with n files would have a tape format as follows:

```
V /H H TM D TM EOF EOF TM/
```

This would result in the following files:

```
FILE0001      (V H H)
FILE0002      (D)
FILE0003      (EOF EOF)
FILE0004      (H H)
FILE0005      (D)
.
.
.
FILEnnnn      (EOF EOF)
```

If the <number of repeats> was specified for the above format, the result would be

```
V 5/ H H TM D TM EOF EOF TM /
```

```
FILE0001      (V H H)
FILE0002      (D)
FILE0003      (EOF EOF)
FILE0004      (H H)
FILE0005      (D)
FILE0006      (EOF EOF)
FILE0007      (H H)
FILE0008      (D)
.
.
.
FILE00014     (D)
FILE00015     (EOF EOF)
```

A maximum of 40 different tape format tokens may be used with any one run.

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<input translation>

The input tape may be translated from BCL, ASCII-7, or ASCII-8 to EBCDIC. The default is EBCDIC but the user may specify translation from ASCII-7 and ASCII-8 for 9-track tapes, BCL for 7-track tape or provide a unique translate table. The user supplied translate table should appear as a system filename. All translate tables are to be created with CREATE/TABLE. FOREIGN/TAPECOPY will look for the translate table named as TRANSLATE/EBCDIC, TRANSLATE/ASCII7, TRANSLATE/ASCII8, TRANSLATE/BCL or <translate filename> and use the second record of that file for translation.

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<input record type>

An input file may have fixed or variable length records. This may be specified by "FIXED", "FIX", "VARIABLE", or "VAR". The default is fixed length records for input. Output files are fixed only. The input record type is used for all files on the tape.

<input blocking> <output blocking>

The blocking factors are used to determine block and record sizes on the input tape and output file. If no blocking specs are provided, the default is unblocked, fixed length records and the first block of each file determines the length of the records. Blocking may be specified by characters per record, and records per block. For instance, "80 2" would be interpreted as 80 characters per record and 2 records per block. If a blocking factor is specified, it will be applied to all files copied from that tape. If only one blocking specification is entered, it will be applied to both the input and output files.

A maximum block size is required for variable length input blocks. The blocks, which may contain several variable or fixed-length records, will be written to the output device as fixed-length records with the record size as the maximum block size specified. The records will be padded with either zeros or the pad character specified as an option.

If the blocksize is too large or too small for a block of data, a message will appear.

When using the "COPY" or "COPYALL" option, a maximum block size will only be used to determine the input buffer size. If a block is shorter, it will be written using its actual length.

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<options>

PURGE <format list>

The PURGE option may be used with a user specified tape format to indicate which parts of the tape are not to be copied. The user may specify that a copy of any part(s) of the tape is not to be performed excluding tapemarks (TM). Tape marks are not copied but used only as a means of delimiting files. The option cannot be used in conjunction with SKIP or INC options.

Example:

```
PURGE V  
PURGE H V EOF
```

SKIP <number of files>

The SKIP option is used to bypass the specified number of files before copying a file to the output device. A file is defined to be that data existing between single tape marks. The SKIP option must be used with the INC option to select the required portions of the input tape. This option cannot be used with a tape format. A maximum of 100 "SKIP" and "INC" options may be used with any one run.

INC <number of files>

The INC option specifies the number of files to be copied to the output device. A file is defined to be that data existing between single tape marks. The INC option is used in conjunction with the SKIP option to select the required portions of the input tape. This option cannot be used with a tape format. Only files with an INC option will be copied if either the SKIP or INC option is used. In other words FOREIGN/TAPECOPY will stop processing at the end of the last SKIP or INC option.

FIRST

The FIRST option allows the user to print only the first block of each file of the input tape. This option is used to identify the contents of the tape. It is recommended this option be used to check correctness of the intended copy. It may only be used with an output device of printer.

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PAD

If padding is necessary, TAPEX will pad with 2002. A user selected character may be specified optionally in the form 2<EBCDIC character><EBCDIC character>2, where <EBCDIC character> will be a 4-bit hexadecimal number. This character may also be specified for use in filling variable length blocks for fixed output. For example, if a blank is desired, the appropriate input would be 2402.

COPY

The COPY option will provide an exact duplicate of the input tape. Translation, blocking, tape formats, or other options are not allowed and double tape marks will terminate the copy. Input and output tape densities must match.

COPYALL

The COPYALL option will provide an exact duplicate of the input tape. Translation, blocking, tape formats, or other options are not allowed and the physical end of either the input or output tape to terminate the copy. Input and output tape densities must match.

SECTION IV
APPENDIX A

ERROR MESSAGES

INVALID ERROR -- PROGRAM TERMINATING.

UNKNOWN ERROR, PLEASE INPUT INFORMATION AGAIN.

INPUT TAPE MNEMONIC REQUIRED.

INVALID INPUT TAPE MNEMONIC.

INVALID OUTPUT DEVICE MNEMONIC.

PLEASE ANSWER "YES" OR "NO".

INVALID TRANSLATION SPECIFIED.

NUMERIC VALUE REQUIRED FOR BLOCKING.

TOO MANY BLOCKING PARAMETERS SPECIFIED.

INVALID OPTION SPECIFIED.

MISMATCH OF PARENTHESES.

INVALID TAPE FORMAT MNEMONIC.

TAPE FORMAT EXCEEDS 60 MNEMONICS.

NUMERIC VALUE REQUIRED FOR "SKIP" AND "INC" OPTIONS.

INVALID PADDING CHARACTER SPECIFIED.

DOUBLE TAPEMARKS ENCOUNTERED.

NO OTHER INPUT SPECS ALLOWED WITH "DEFAULT" OPTION.

INPUT STRING EXCEEDED MAXIMUM LENGTH.

INPUT TAPE NOT READY, PLEASE READY UNIT.

PARITY ERROR ON INPUT TAPE, PLEASE ENTER "YES" TO CONTINUE.

PROGRAM TERMINATING.

TIMEOUT ERROR AFTER 5 RETRIES.

BLOCK SIZE TOO SMALL FOR ACTUAL DATA. (ONE TIME WARNING)

<MAXIMUM BLOCK-SIZE> REQUIRED FOR VARIABLE LENGTH RECORDS.

INPUT TAPE BLOCK LENGTH EXCEEDS 65528 BITS.

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ENTER "YES" TO TRUNCATE BLOCK AND CONTINUE.

TAPE NOT ALLOWED FOR OUTPUT DEVICE

DYNAMIC MEMORY TOO SMALL. RE-EXECUTE PROGRAM WITH MORE DYNAMIC MEMORY.

BLOCK SIZE TOO LARGE FOR ACTUAL DATA. (ONE TIME WARNING)

A "TAPE FORMAT" MAY NOT BE SPECIFIED WITH "SKIP OR INC" OPTIONS. "SKIP OR INC" OPTION IGNORED.

A "TAPE FORMAT" MUST BE SPECIFIED WITH A "PURGE OPTION". "PURGE" OPTION IGNORED.

INVALID INPUT/OUTPUT BLOCKING SPECIFIED.

PROGRAM EXCEEDED MAX NUMBER OF ELEMENTS IN TAPE FORMAT.

TAPE MARK ENCOUNTERED BEFORE NUMBER OF BLOCKS SPECIFIED WERE COPIED.

END OF TAPE ENCOUNTERED. MAY LOSE ENDING LABELS.

FIRST BLOCK OF FILE HAS A LENGTH OF ZERO.

USER SPECIFIED TAPE MARK NOT FOUND ON INPUT TAPE.

SIZE OF BLOCK EXCEEDS MAXIMUM LIMIT OF 65528 BITS.

"FIRST" OPTION ALLOWED WITH "PRINTER" OUTPUT ONLY.

END OF INPUT TAPE ENCOUNTERED.

END OF OUTPUT TAPE ENCOUNTERED.

NO DATA FROM READ HEAD.

MUST SPECIFY "COPY" OPTIONS WITH OUTPUT DEVICE "TAPE".

OUTPUT DEVICE "TAPE" MUST BE USED WITH "COPY" OPTIONS.

PARITY ERROR ON OUTPUT TAPE, PLEASE ENTER "YES" TO CONTINUE.

INPUT AND OUTPUT TAPE DENSITIES MUST MATCH FOR "COPY".

SECTION V
APPENDIX B

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INTERNAL FILES

INTERNAL FILE NAME

FUNCTION

CARDS

A CARD FILE CONTAINING
INPUT SPECIFICATIONS

CUTPUTFILE

MODIFIED TO APPROPRIATE
OUTPUT DEVICE

INPUTFILE

A TAPE FILE CONTAINING
INPUT DATA

TRANSFILE

TRANSLATE FILE

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