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PRODUCT SPECIFICATION

REV LTR	REVISION ISSUE DATE	APPROVED BY	REVISIONS
A	10/6/76	*[signature]*	Original Issue (Mark VI.1)
B	2/23/7	*[signature]*	Changes for the VI.1 Release

Page	Change
2-1	DISK.FILE ACCEPT procedure modified.
2-2	Compare (CMP) description expanded; description of file-handling added.
2-3 to 2-4	Updated Concatenate (CAT) description; tape handling procedure modified.
2-5	End-of-file display added to CARD FILE° SPECIFICATIONS.
2-6	Minor revision in the wording of DISK.FILE INPUT section; (no change in syntax)
3-1	Deleted non-fatal error message: "INVALID NUMBER OF FILES..."
3-2	Added non-fatal error message: "⟨unit-id⟩ HAS ONLY ONE NAME..."
3-2	Deleted "PACK NOT FOUND" from fatal errors.
3-3	Added to fatal errors: "⟨integer⟩ CHARACTER RECORD LENGTH IS LESS THAN 8".

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INTRODUCTION

GENERAL

TAPECOPY is a general-purpose utility program used to duplicate, compare, merge, or concatenate non-library, multi-file or single-file tapes. It allows the user to selectively delete any of the files to be processed or to produce multiple copies of a copied, merged, or concatenated tape. It accepts input files coming from either tape or disk.

Note that ANSI standards do not allow a blank file-id on a multi-file tape. However, a blank file-id is allowed on a single-file tape.

TAPECOPY will not accept library (LOAD.DUMP) tapes. For similar activities involving LOAD.DUMP tapes, the user must use SYCOPY.

RELATED PUBLICATIONS

Name	Number
B1700 Software Operational Guide	1068731
SYCOPY	P.S. 2212 5199

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OPERATING INSTRUCTIONS

When executed, TAPECOPY displays:

        ENTER <ACTION: CPY, CMP, CCM, MRG OR CAT>
              <DEVICE: T(APE) OR D(ISK)> <TAPE COUNT>

The user must respond with:

        <mix-index> AX <action> [<device>] [<integer>]

DEVICE

The <DEVICE> may be either T(APE) or D(ISK), with TAPE being the
default. If DISK, the system pack is assumed, unless the user has
file-equated DISK.FILE to a non-blank pack-id. For example, if the
user had specified "?FI DISK.FILE PACK.ID MYPACK;", TAPECOPY would
assume the desired pack is labeled "MYPACK".

TAPE COUNT

From one to seven tapes may be specified as output. If the
<INTEGER> entry is omitted, then one tape is assumed.

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ACTION

There are five possible actions:

CPY Create <INTEGER> copies of the source tape or
family of disk files, with no compare. If tape,
the input tape should have a default file-id of
SOURCE, but any tape may be IL-ed to the request.
If disk, the files should have a default
multifile-id of SYS. This may be modified by
file-equating the file named DISK.FILE to the
multifile-id desired by the user (See DISK FILE
INPUT on p. 2-5). The specified pack will then be
searched for all files with this multifile-id.
All output file-id's are identical to the input
file-id's. All output multifile-id's are
identical to to the input multifile-id, unless an
output tape has been file-equated (See RENAMING
OUTPUT TAPES on p. 2-5).

CMP Compare <INTEGER> tapes with the source tape or
family of disk files. If any tape fails to
compare, that unit is LOCKed and the user is
notified via the SPO. TAPECOPY continues to
compare the remaining tapes. If tape, the source
tape has an expected file-id of SOURCE; if disk,
the files have a default multifile-id of SYS (See
CPY above). The tapes to be compared have an
expected file-id of OUT.SYS, but any tapes may be
IL-ed to the requests. Tapes having different
file-id's or record lengths than the source tape
may be successfully compared. File names are not
checked, so tapes having different multifile-id's
or file-id's will pass the comparison if the
contents of the files are the same. When the
files being compared have different record
lengths, the shorter record is considered to be
right-filled with blanks for the purpose of the
comparison. Thus, files with different record
lengths will pass the comparison if the contents
of the files are the same except for trailing
blanks.

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CCM   Create <INTEGER> copies of the source tape or
       disk file family, and compare all copies with the
       original. If any copied tape is not identical to
       the original, that tape is PURGEd and the user
       notified via the SPO. TAPECOPY continues to
       compare the remaining tapes. If tape, the source
       tape should have a default file-id of SOURCE; if
       disk, the files should have a default
       multifile-id of SYS (See CPY above). All output
       file-id's are identical to the input file-id's.
       All output multifile-id's are identical to the
       input multifile-id, unless an output tape has
       been file-equated (See RENAMING OUTPUT TAPES on
       p. 2-5).

MRG   Merges the files from a source tape with either
       (a) the files on a second tape, or (b) a family
       of disk files. It creates <INTEGER> number of
       copies, all having the same multifile-id as the
       source tape unless an output tape has been
       file-equated (See RENAMING OUTPUT TAPES on p.
       2-5).

       The source tape has an expected file-id of
       SOURCE. The update tape has an expected file-id
       of UPDATE. Both tapes may be IL-ed to the
       request. If the update files are on disk, they
       are assumed to have the same multifile-id as the
       source tape unless DISK.FILE has been
       file-equated (See DISK FILE INPUT on p. 2-6). The
       specified disk is searched for all files having
       this multifile-id, and these files are used as
       the update files. Duplicate files are eliminated,
       with the update file having precedence over the
       source file.

CAT   The input files will be concatenated into one
       tape file, with <INTEGER> copies (if requested).
       The output tape file will have the same name as
       the first input file, unless the output tape has
       been file-equated (See RENAMING OUTPUT TAPES on
       p. 2-5).

       TAPE INPUT Input tape files are expected to have
                   a file-id of NEXTFILE, but any tape

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may be IL-ed to the request. Only the
first file on each tape is used, then
the unit is LOCKed and another tape
is requested. This continues until
the user responds to a file request
with the optional file statement:

<mix-index> AX OF

DISK INPUT Input disk files are expected to have
a multifile-id of SYS, though this
may be modified by file-equating the
file named DISK.FILE to the desired
multifile-id (See DISK FILE INPUT on
p. 2-5). The message

ENTER FILE ID OF NEXT FILE

will appear on the SPO for each of
the files to be concatenated. The
user must ACCEPT with the file-id of
the desired file:

<mix-index> AX <file-id>

A blank accept message terminates the
concatenation process, so the user
must use quotes to enter a blank
file-id. If the name is invalid, or
the file cannot be found, an
appropriate message will be displayed
on the SPO and the user should
re-enter the correct name. If SW 2 =
1, the names will be in a card file
labelled TCARDS (with one name per
card.)

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At the completion of processing, TAPECOPY will display the following message:

<integer> TAPE[S] <action taken>

followed by

<integer> TAPE[S] [FAILED TO COMPARE or PURGED]

if any tape(s) failed to compare or were purged.

OPTIONAL FEATURES

CARD FILE SPECIFICATIONS

Normally, TAPECOPY interfaces with the user via the SPO. However, if SW 3 = 1, TAPECOPY will expect all commands in a card file labeled TCARDS. Each card is treated as a single accept message, and no command prompts will appear on the SPO. Switch 3 will override the settings of Switches 1 and 2, so that all input is from cards. If any card is incorrect, an appropriate error message will appear on the SPO, followed by the message

PLEASE CORRECT CARD AND REEXECUTE--TAPECOPY ABORTED

TAPECOPY will terminate and the user should re-execute the program using the corrected card deck. If end-of-file is reached while looking for a card, the message

INPUT SPECIFICATION CARD MISSING

will be displayed on the SPO. The card file will be reopened, and the user should read in a file labeled TCARDS which contains the remaining specification cards.

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RENAMING OUTPUT TAPES

TAPECOPY allows the user to change the name of each duplicated, merged, or concatenated tape through file equation. Tape number (TAPE.<n>) is equated to name (NAME <tapename>) for each copy desired with that name. If no new name is specified, the default output tape label will be the same as the input tape label. Multiple copies may contain a mixture of default and specified names, for up to seven tapes.

        Example:

            ?EX TAPECOPY
            ?FI TAPE.1 NAME NEW.TAPE;
            ?FI TAPE.2 NAME DUP.TAPE;
            ?END

After the sample deck is entered through the card reader, TAPECOPY will then ask for an operator response (See OPERATING INSTRUCTIONS) and perform the requested action, labelling the merged, copied, or concatenated output tapes as NEW.NAME and DUP.TAPE. If the user had requested seven copies, the five other tapes in that execution would have had default (input multifile-id) labels.

DISK FILE INPUT

If <device> is D(ISK), TAPECOPY will accept input files from disk. The files are assumed to be on the system pack, with a default multifile-id of SYS (or of the source tape in the case of a merge). The disk pack-id or multifile-id can be changed by file-equating DISK.FILE to the desired name, as in the following example.

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Example:

```
? EX TAPECOPY
? FI DISK.FILE NAME MYPACK/NEW.MFID/;
? END
```

With proper changes, this execution could have also been done on the SPO.

TAPECOPY now expects all input disk files to be found on the pack MYPACK and to have a multifile-id of NEW.MFID. In a copy, compare, or merge, the disk directory will be searched for all files with the multifile-id of NEW.MFID, and these files will be used as input. In a concatenation, the user will be asked to specify the file-id's of the files to be concatenated.

DELETE FILES

If Switch 1 is set, then the user can specify that certain files be ignored (deleted in a copy or merge and skipped over in a compare). SW 1 is set to "1" if the file names are to be read from a card file labelled TCARDS and to "2" if the names are to be entered from the SPO (e.g., ?EX TAPECOPY SW 1 = 2). Note, however, that Switch 3, if set, will override these settings (See CARD FILE SPECIFICATIONS on p. 2-5).

The names must be valid file-ids. Special characters must be enclosed in quotes.

The files are assumed to have the same pack-id (if disk) and multifile-id as the input unit. If an invalid name is read, an error message will appear on the SPO.

    FROM CARDS   Only one file-id per card is allowed. A blank card or EOF signals that there are no more names to be read. If an invalid name is found, an appropriate error message will appear on the SPO, and TAPECOPY will terminate after displaying the message:

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                PLEASE CORRECT CARD AND REEXECUTE --
                        TAPECOPY ABORTED

    FROM SPO   The user must enter a single name per ACCEPT
                message. A blank ACCEPT message terminates
                the name-entry process:

                        <mix-index> AX

    PRINT FEATURES

When the print option is set (SW 0 = 1), TAPECOPY will   produce a
record of files accessed and actions   taken.   It will   print the
names of all files the user requested deleted. It will also   print
the name of each tape or disk file accessed, and   whether or   not
that file was copied, compared, or skipped. Example:

            ****** FILES TO BE DELETED ****
            TAPECOPY2
            ********* COPY FILES **********
            SNORMAL   COPIED
            TAPECOPY2   SKIPPED
            NIF   COPIED
            ******** COMPARE FILES ********
            SNORMAL   COMPARED
            TAPECOPY2   SKIPPED ON SOURCE
            NIF   COMPARED
            ** 1 TAPE COPIED AND COMPARED **

            Fig. 2.1 Example of Printed Output

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SWITCH SETTINGS

All defaults are zero for the following program switches:

    Switch 0
    ----

        0 -   No printer output

        1 -   Prints a summary of actions taken

    Switch 1
    ----

        0 -   No files to be deleted

        1 -   The names of files to be deleted will be read
                from TCARDS

        2 -   The names of files to be deleted will be read
                from the SPO

    Switch 2
    ----

        0 -   The names of disk files to be concatenated
                will be read from the SPO.

        1 -   The names of disk files to be concatenated
                will be read from the card file TCARDS

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Switch 3
----

0 -   Specifications will be read from the SPO

1 -   All specifications and file names will be
       read from the card file TCARDS. This
       overrides SWitches 1 and 2.

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FILE NAME CONVENTIONS

TAPECOPY uses the following files:

EXTERNAL NAME	INTERNAL NAME	DEVICE
SOURCE	SOURCE.TAPE	Tape
UPDATE	UPDATE.TAPE	Tape
SYS	DISK.FILE	Disk
OUT.SYS	TAPE.1, . . . TAPE.7	Tape
TCARDS	TCARDS	Cards

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ERROR MESSAGES

TAPECOPY produces two types of error messages, depending on the error (non-fatal or fatal). Non-fatal error messages are warnings that require an additional response or are for the user's information. For non-fatal DISK READ PROBLEMS, it is suggested that the user DS the current job and execute it again with Switch 1 set to "1" so that a printed record of all activities will be available. The other alternative, checking output tapes for missing files, is considerably less reliable. Fatal errors require that the job be run again.

NON-FATAL ERRORS

Processing will continue after one of the following messages is received. Except for the last two messages, which are solely for the user's information, all require user response for proper execution of the program.

*   INVALID ACTION -- <input message>
    (ACTION must be CPY, CMP, CCM, MRG or CAT.)

*   INVALID DEVICE OR TAPE COUNT -- <input message>
    (DEVICE must be D(ISK) or T(APE) or blank. TAPE COUNT must be between "1" and "7", or blank.)

*   INVALID NAME -- <error message> -- <input name>
    (One of the following: EMBEDDED BLANKS NOT ALLOWED, CAN HAVE AT MOST 10 CHARACTERS, UNMATCHED QUOTE, or BLANK FILE-ID NOT ALLOWED.)

*   <unit-id> IS LIB TAPE -- MUST EXECUTE SYCOPY FOR LOAD.DUMP TAPES
    (Only non-library multifile tapes may be used with TAPECOPY. The tape unit is closed with LOCK, and the OPEN is reissued.)

* <unit-id> HAS ONLY ONE NAME -- MUST HAVE NON-BLANK FILE-ID FOR
  A MERGE
  (ANSI standards will not allow a blank file-id on a multi-file
  tape. The tape unit is closed with LOCK, and the OPEN is
  reissued.)

* FILE <file-name> NOT FOUND
  (When concatenating disk files, the specified file could not be
  found. Re-enter the correct name.)

* INVALID RESPONSE
  (The prompt is reissued, listing valid responses.)

* DISK READ PROBLEMS -- ALL FILES MIGHT NOT HAVE BEEN FOUND --
  TAPECOPY CONTINUED
  (Disk was specified in a copy, compare or merge and disk read
  problems were encountered during the search of the disk
  directory for the file names. It is possible that not all of
  the files were found. It is suggested that the user re-execute
  the program unless Switch 1 was set.)

* COMPARISON ERROR ON <unit-id>
  (This tape did not match the original.)

FATAL ERRORS

Each of the following error messages ends with:

                        -- TAPECOPY ABORTED

The first part of the SPO message corresponds to one of the
following errors:

* [DISK READ PROBLEMS--] <pack name>/<family name>/= NOT FOUND
(No files with the specified family name were found. If DISK READ
PROBLEMS is part of the message, disk read problems were
encountered during the search of the disk directory for the files,
so   it is possible that there are files with the specified family
name on disk. It is suggested that the user re-execute the
program.)

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* <integer> CHARACTER RECORD LENGTH IS GREATER THAN 2000
(The maximum record size of 2000 characters was exceeded.)

* <integer> CHARACTER RECORD LENGTH IS LESS THAN 8
(The MCP will not allow tapes with a record size less than 8
characters)

* RECORD LENGTH OF <integer1> CHARACTERS IS GREATER THAN INITIAL
  RECORD LENGTH OF <integer2>
(When concatenating files, no file may have a record length greater
than that of the first file.)

* NO FILES [COPIED, MERGED, CONCATENATED], NO TAPES CREATED
(No tapes were created. The user specified that all files were to
be deleted.)

* PARITY ERROR ON <unit-id>
(The specified input file had a parity error.)

ALPHABETIC INDEX: