TO:       R.C. Daley

FROM:     J. H. Saltzer

SURJ:     Interim total dump and reload program for temporary
          use with new file system.

Until such time as the incremental dumper (DAEMON) is
completely checked out and trustworthy, there is a need for
a very simple method of completely dumping the contents of
the disk for backup in case of an emergency. Three programs
must be written, a complete dump, complete reload, and
selective reload for retrieval. These programs are to be
characterized by a lack of sophistication, and therefore
high probability of working very soon. These programs will
be known as the Interim Dump, Load, and Retrieval programs,
to emphasize their transitory nature.

All three programs will be written in the MAD language.
They will all be capable of operating as background jobs
while CTSS is in operation, although they will use entries
into the file system both for reading the disk and for
writing on tape. As such, they fall into the category of a
privileged background job, requiring a special operator's
console key (23) down during operation. The complete load
program must also be capable of running without the
time-sharing system supervisor, with its own copy of the
file control system.

The dump program will write a single file onto tape
containing the complete contents of several user's file
directories. The number of users who are dumped onto the
tape will be chosen so as to keep the tape file on a single
reel if possible. Another group of users will be dumped in
a single file onto another tape, etc., until the complete
contents of the disk have been dumped. A directory of users
on each tape will be written on the disk for off-line
printing, so that retrievals may be easily handled, without
scanning several tapes.

The file written on tape consists of logical records
preceded by record-marks. (This format is seen by the
program and is independent of the physical format written on
the tape.) The format is shown on the last two pages.

This format has been chosen primarily for the
simplicity of coding of the dump and load programs, and
convenient recovery in case of fatal tape reading errors.
Again, for simplicity, the dump program will follow several conventions.

1. An interlocked file will not be dumped. Comment will be made off-line.

2. Two identical dump tapes will be written.

3. If any tape errors occur while dumping a file, that tape file will be completely rewritten on a new (pair) of tapes. Other errors will cause a fatal halt.

4. Temporary mode files will not be dumped.

5. Tape files will not be dumped.

6. All files are reloaded onto the disk, even though they are from the drum.

7. If a fatal tape error occurs on both tapes on loading, the user file in question will be skipped, and loading will continue as soon as possible thereafter. A parity error on both tapes will be ignored.

On the next two pages are indicated the format of the dump tapes.
An M.F.D. entry will usually be followed by several U.F.D. entries.

If the U.F.D. entry does not describe a "linked file", it will be followed by the dumped file.

"count" is normally 2500 words, except for the last record of a dumped file.

The last record is identified by the 377777 record mark.

This entry means that the file was interlocked and could not be dumped.
end-of-U.F.D. marker

037777000003
Prohno
Progno
Sum of prev. 3 words

This record is not strictly needed, but simplifies reading, and recovery from tape errors.

end-of-last dump tape marker

017777000004
(ENDF)
M,F,D
(FILE)

again, not needed, but simplifies loading.