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DECUS NO.	8-236
TITLE	SYSTEM AND USER FILES READ AND PUNCH PROGRAM (LEES)
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DATE	September 16, 1969
SOURCE LANGUAGE	PAL-D

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SYSTEM AND USER FILES READ AND PUNCH PROGRAM (LEES)

DECUS Program Library Write-up

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DESCRIPTION

The program has been designed for the PDP-8 Disk system. When working with a one-disk system you cannot output a saved file on paper tape, thus leaving maximal space on the disk for the next user.

LEES can punch a User or System file on the high-speed paper tape punch and restore it on the disk by writing it back on a later occasion. After that only the internal file number and the numbers of the used blocks can be different.

The program can also put on the disk a system program like Editor or FOCAL. The procedure that is to be followed is much easier than to first load a binary tape and then save it on the disk. Moreover, it is not necessary to know which memory locations are occupied by the program. With a specially designed binary loader (the program OPLO) you can also use the punched disk files as selfstarting binary tapes. Even the DEC paper tape BIN loader will load these tapes (nonselfstarting).

As an added feature it is possible to restore the DN1 and SAM1 block by copying their back-ups. This is performed by typing CONTR/R in Monitor Mode. Therefore it is necessary to make a patch in disk blocks 0, 1 and 2.

LOADING AND SAVING

```
.LOAD
*IN-R:
*
*OPT-1
ST=
↑↑
.SAVE LEES! 200-1177;547
.
```

To Read IST Time
.LOAD
IN:R
OPT 1
SA ç
SAVE OPLO!. 200;200 ↵

. LEES ↵

*OPT-S — Punch a system file

*IN-S:DDT ↵ — Device and file name are asked

* — Now the file is punched

*OPT-U — Punch a user file

*IN-S: .DDT ↵ — Device and file name are asked

* — User file is punched

*OPT-R — Read a user or system file from paper tape

↑S EDIT↑ — Input was a system file called EDIT

*OPT-R — Read a user or system file

↑U .SYM↑ — Input was a user file called .SYM

*OPT- — CONTR/C is typed

. — Back to Monitor Mode

RESTORING THE STANDARD DIRECTORY

To make it possible to copy the standard directory from the back-ups, the following patch has to be made (e.g. with SYSLUK, DECUS No. 8-141).

0.144 / 1364 1236
0.145 / 5754 3224
0.146 / 0000 5231
0.032 / 7527 7743
2.115 / 7641 0016
2.121 / 0162 0005
2.132 / 0002 0023
2.133 / 7400 0200
2.135 / 7400 0335

(Before the dot is the block number, after the dot: Address in the block, followed by old and new contents.)

If the first DN or SAM block has accidentally been overwritten or when you do not want to delete all superfluous files on the disk, type CONTR/R in Monitor Mode. Then block 177 and 200 of the disk (DN1 and SAM1) are reloaded with block 3 and 4 (back-ups). The drawback of this facility is that it comes instead of the "RUBOUT-feature."

MEMORY USAGE AND ERROR EXITS

Great care has been taken to keep the program (on the disk) as small as possible. The program itself takes location 200-1177 and it uses location

10,11
136 - 177
1177 - 2201
3000 - 3777
7000 - 7177
7402 - 7406

The following error exits are possible:

1. Error messages of the Command Decoder (option S and U only). They consist of one typed character, followed by return to Monitor Mode. Possible are:

I	Input file not found
E	More than one input file has been given
S	System device error
D	Directory full (cannot occur)
?	Miscellaneous error

2. Machine halts with Program Counter 0375 or 0537: Error return from the system I/O routine. Possible cause: attempt to write on a hardware protected part of the disk.

3. A '?' is typed and the program asks for a new option. Possible causes:

- Wrong option given (not R, S or U)
- ↑ not answered by CONTR/P
- Disk full (option R only)
- Paper tape has illegal format (for instance: first character not LEADER/TRAILER, but BLANK)
- Erroneous checksum (option R)
- Directory full (option R)
- Wrong device letter given (option S or U; *IN- not answered by S:name)