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~~2~~ FLOPPY DISK UTILITY
USER'S GUIDE

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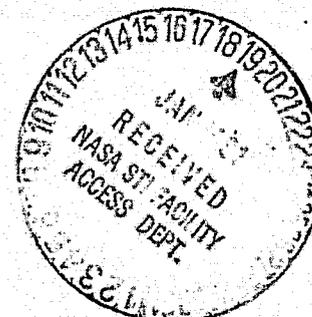
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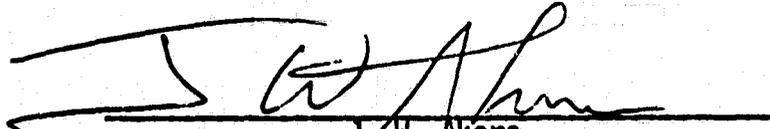
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2. FLOPPY DISK UTILITY
USER'S GUIDE

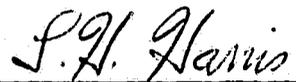
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PREPARED BY

3.


J. W. Akers

APPROVED BY


L. H. Harris, Job Order Manager
Power and Data Systems Engineering Section

Prepared By

4. Lockheed Engineering and Management Services Company, Inc.

For

Avionics Systems Division
Engineering and Development Directorate

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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16. Abstract The Floppy Disk Utility Program will transfer programs between files on the hard disk and floppy disk. It will also copy the data on one floppy disk onto another floppy disk and compare the data. The program operates on the Data General NOVA-4X under the Real Time Disk Operating System (RDOS).					
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1. INTRODUCTION

The Floppy Disk Utility controls the transfer of programs from the hard disk to the floppy disk and vice versa. It will also copy the data on a floppy disk to another floppy disk and compare the data of two floppy disks.

The program operates under the Data General NOVA-4X Real Time Disk Operating System (RDOS).

2. OPERATOR INTERFACE

The operator controls the transfer of data via inputs from the Cathode Ray Tube (CRT) keyboard. (Or any system console device.)

The programs request operator input by displaying an exclamation mark (!). The operator responds with a string of control characters which direct the programs to perform an operation. Additional input, necessary to perform the operation, is requested via displays on the CRT.

The operations and the operator interface are described below. Operator input is underlined.

2.1 DISPLAY MENU

!M

The commands and their functions are displayed. (See Appendix A for a sample of the display.)

2.2 UNIT

!U

UNIT (0-1) u U

The current floppy unit is u. The operator may change units by typing a 0 or 1. If the operator responds with a carriage return and no unit value, the unit remains the same.

Also, these operations cause the floppy unit u updated program directories to be copied out of unit u, if necessary. The unit need not be changed to cause the copy. (See Appendix B for a description of the program directories.)

2.3 DISPLAY PROGRAM DIRECTORY

IP

The program directories for the current floppy are displayed one directory at a time, beginning with program directory 0. Pressing carriage return terminates the display. Pressing any other key causes the next directory to be displayed. If there are no more directories, the display is terminated. (See Appendix B for a description of the directories.)

2.4 READ FLOPPY PROGRAM FILE

IRF

PROGRAM NUMBER p P

Where: p is the current program number.

P is the operator response.

Carriage return will cause program file p to be read.

A numeric response (0-9) will cause the specified file to be read. Any other response will cause a question mark (?) to be displayed and the operation terminated.

If the program file is not defined on the floppy, the message

UNDEFINED PROGRAM

is displayed. The operation will be terminated.

If a status error is detected, the message, STATUS, the unit number, and the status code is displayed (octal format). The operation is terminated.

2.5 WRITE FLOPPY PROGRAM FILE

IWF

PROGRAM NUMBER	p <u>P</u>
FLOPPY PROGRAM NAME	<u>xxxxxx</u>
START ADDRESS	s <u>S</u>
END ADDRESS	e <u>E</u>

Where: p is the current program number.

P is a carriage return if the program file to be written is p or a digit (0-9) if another program is to be written.

xxxxxx is the program name terminated by a carriage return or the input of 12 alphanumeric characters.

s is the start (low) address of the program. If the program was read from hard disk, s is zero (0). If the program was read from the floppy disk, s is taken from the program directory.

S is a carriage return if s is the start address. Otherwise it is an octal value terminated by a carriage return.

e is the end (high) address. It is taken from word 404₈ (NMAX) of the file if the program was read from the hard disk. If the program was read from the floppy disk, the end address is taken from the program directory.

E is a carriage return if e is the end address. Otherwise, to set another end address, E is an octal number terminated by a carriage return.

If no program is in core, the message

NO PROGRAM

is displayed when the "W" of the command is input.

If the preceding program file number has not been defined in the current floppy unit's directory, the message

NONCONTIGUOUS FILE

will be displayed and the operation terminated.

If during the write operation an error is detected, the message, STATUS, the unit number, and the floppy disk status are displayed (octal format).
WARNING: All higher numbered files will be deleted after a WF command!

2.6 READ HARD DISK FILE

IRD

DISK FILE NAME xxxxx

Where: xxxxx is blank or the previous hard disk file name processed.

Appropriate operator response is a return to read file xxxxx or a file name terminated by a carriage return. (The file name must be compatible with RDOS conventions.)

If an error occurs during the read operation, a question mark and the RDOS error code are displayed. (See Appendix C for the RDOS error codes.)

2.7 WRITE HARD DISK FILE

IWD

DISK FILE NAME xxxxx

Where: xxxxx is blank or the name of the previous hard disk file processed.

Appropriate operator response is a return if the file to be written is xxxxx or a file name terminated by a return. To be written, the file must not be defined when this command is given. To delete a file see DELETE HARD DISK FILE (Section 2.10). If an error is detected, a question mark and the RDOS error code are displayed. (See Appendix C for the RDOS error codes.)

If no program is in core, the message

NO PROGRAM

is displayed when the character "W" is input by the user.

2.8 FORMAT AND WRITE BOOTSTRAP LOADER

IFO

The floppy on unit u is formatted. If a status error occurs during formatting, the process is terminated, the message STATUS, the unit number, and the status are displayed.

If formatting is successful, the name of the hard disk bootstrap loader file is requested by

DISK FILE NAME xxxxx

Where: xxxxx is blank or the previous program request.

The appropriate operator response is a return if xxxxx is the name of the bootstrap loader file. If it is not the name of the file, the operator should respond with the name followed by a return.

If the file cannot be read from the hard disk, a question mark and the RDOS error code are displayed. (See Appendix C for the RDOS error codes.) If an error occurs during the floppy write operation, the message, STATUS, the number of the offending unit, and the status are displayed (octal format).

Any programs read into core from a floppy or hard disk before the format operation are not available for transfer to the floppy or hard disk.

2.9 EXIT

IX

This command copies the updated directory, if necessary, onto the current unit and exits to RDOS.

A floppy disk should not be removed from the drive until this command is executed because of the potential for losing the updated directory.

2.10 DELETE HARD DISK FILE

ID

DISK FILE NAME xxxxx

Where: xxxxx is blank or the name of the previous hard disk file processed.

Appropriate response is a return if xxxxx is the file to be deleted or the name of the file terminated by a return.

If the file cannot be deleted, a question mark and the RDOS error code are displayed. (See Appendix C for the RDOS error codes.)

2.11 COPY

IC

INPUT

UNIT (0-1) u U

Where: u is the current unit

U is either a carriage return or a 0 or 1. If U is a carriage return, u will be the input unit. If U is a 0, or 1 then U is the input unit. The other unit is the output unit. Any other response from the operator will cause a question mark to be displayed and the operation terminated.

The output unit is formatted and the data on the input unit is copied from the input unit onto the output unit. All 76 tracks are copied. If an error is detected, the message, STATUS, the number of the offending unit, and the unit status are displayed. The operation is terminated.

Since all 76 tracks are copied, the data need not be in Data Systems Laboratory Floppy (DSLFF) Format.

2.12 VERIFY

IV

VERIFY ALL TRACKS - YES (Y), NO (N) Y

or

IV

VERIFY ALL TRACKS - YES (Y), NO (N) N

UNIT 0

PROGRAM NUMBER

P₀ P₀

UNIT 1

PROGRAM NUMBER

P₁ P₁

In the first case, all 26 tracks of unit 0 are compared with all 26 tracks of unit 1. Therefore, the floppy disk need not be in DSLF format.

In the second case, the specified program data on unit 0 is compared with the specified program of unit 1. The data of both floppy disks must be in DSLF format. If the two programs do not occupy the same number of tracks the error message

PROGRAM LENGTH

is displayed and the operation is terminated.

In both cases if an error is detected during the compare, the format of the error message is as follows:

$T_0 W_0 D_0 T_1 D_1$

Where: T_0 is the unit 0 track number
 W_0 is the unit 0 word number with the track (0-3177)
 D_0 is the unit 0 data word in error
 T_1 is the unit 1 track number
 D_1 is the unit 1 data word in error

All displays are in octal.

When an error is displayed, the verification process is halted awaiting an operator response. Appropriate responses are:

Carriage return terminates verification.

Line feed causes the verification to be continued with the next track.

Any other character causes verification to be continued with the next word.

2.13 WRITE BOOTSTRAP LOADER ON THE FLOPPY

!L

DISK FILE NAME xxxxx

**Where: xxxxx is blank or the hard disk file name of the previous
program read from hard disk.**

**Appropriate operator response is a return if xxxxx is the hard disk file name
of the bootstrap loader or the file name of the bootstrap loader terminated
by a return.**

**If the file cannot be read, a question mark and the RDOS error code are dis-
played. (See Appendix C for the RDOS error codes.) If an error occurs
during the floppy write operation, the message, STATUS, the unit number, and
the floppy status are displayed (octal format).**

3. OPERATING INSTRUCTIONS

The Floppy Disk Utility is in directory DPOF:AKERSOF. The name of the program is FLOPM.

Samples of common operations are illustrated in Appendix D.

APPENDIX A
FLOPPY DISK UTILITY COMMANDS

APPENDIX A

FLOPPY DISK UTILITY COMMANDS

MENU	M
UNIT	U
DISPLAY DIRECTORY	P
READ FLOPPY	RF
WRITE FLOPPY	WF
READ DISK	RD
WRITE DISK	WD
FORMAT FLOPPY	FO
EXIT	X
DELETE DISK FILE	D
COPY	C
VERIFY	V
LOADER	L

APPENDIX B
DATA SYSTEMS LABORATORY FLOPPY (DSL F) FORMAT

APPENDIX B

DATA SYSTEMS LABORATORY FLOPPY (DSLFF) FORMAT

The program data stored on the disk will consist of a bootstrap load program, the program directories, and the program data.

The bootstrap loader occupies track 0, sector 1 through track 1, sector 15₈.

The program directories occupy track 1, sector 16₈ through track 1, sector 27₈. The directories define each program, its location on the floppy, and its core memory starting (low) address and stop (high) address. Each directory occupies one sector. The format of the directories is as follows.

WORD

0 - 11	Program file name - one character per word right justified
12	start (low) address
13	stop (high) address
14 - 21	date - one character per word right justified. The format of the date is as follows. MM/DD/YY Where MM is the number of the month, DD is the day of the month, YY is the year.
22	start track of the program file
23	number of the tracks in the file
24	last track of the program file
25	next available track (last track + 1)
26 - 64	Zero

Program files begin at track 2, sector 1. Each file begins at the track boundary, i.e., sector 1.

APPENDIX C
RDOS ERROR CODES

APPENDIX C
RDOS ERROR CODES

The following describes the RDOS error codes that may occur during operation of the Floppy Disk Utility program. A more complete description of the errors is in the Data General document, Real Time Disk Operation System (RDOS) Reference Manual.

<u>ERROR CODE</u>	<u>DESCRIPTION</u>
1	Illegal file name (only alphanumeric or \$ characters are permitted)
7	The file is read protected
10	The file is write protected
11	The file already exists
12	The file does not exist
13	The file cannot be deleted because it has the permanent attribute
52	Illegal directory specifier
101	Disk timeout occurred

'APPENDIX D
SAMPLE OPERATIONS

APPENDIX D
SAMPLE OPERATIONS

Below are given two examples that illustrate the major uses of the floppy disk utility. Operator input is underlined, and carriage return is represented by ↵.

Copy hard disk file, MONIT.SV onto the floppy disk unit 1, program file 1.

```
IU
UNIT (0 - 1)          0 1
IRD
DISK FILE NAME
MONIT.SV
IWF
PROGRAM NUMBER       0 1
FLOPPY PROGRAM NAME MONITOR ↵
START ADDRESS 000000 ↵
STOP ADDRESS 012517 ↵
IX
R
```

Copy floppy disk unit 1, program number 1 onto unit 0, program number 3.
Verify the transfer.

IU
UNIT (0 - 1) 0 1

IRF
PROGRAM NUMBER 0 1

IU
UNIT (0 - 1) 1 0

IWF
PROGRAM NUMBER 1 3
FLOPPY PROGRAM NAME MONITOR ↗
START ADDRESS 000000 ↗
STOP ADDRESS 012517 ↗

IV
VERIFY ALL TRACKS YES (Y), NO (N) N
UNIT 0
PROGRAM NUMBER 3 ↗
UNIT 1
PROGRAM NUMBER 3 1

IX
R