DataGeneral

TECHNICAL STATEMENT

TEXT LISTING

068-000038-06

PROGRAM

4057 DISK PACK FORMATTER

TEXT TAPE

097-000038-06

ABSTRACT

THIS PROGRAM IS PROVIDED FOR WRITING FORMAT INFORMATION ON 4057 TYPE DISK PACKS USED WITH THE 4046 DISK PACK CONTROLLER. PROPER FORMATTING IS A PREREQUISITE TO READING AND WRITING ON A DISK PACK.

```
 0001 F4057    MACRO REV 06.30          12:49:04 02/21/79
01
02
03
04
05
06
07              ;*****************************************************************
08              ;
09              ; NAME: 4057DPF.TX                          PART NUMBER: 097-000038
10              ;
11              ;
12              ; DESCRIPTION: 4057 DISK PACK FORMATTER
13              ;
14              ;
15              ; REVISION HISTORY:
16              ;
17              ;       REV.            DATE
18              ;
19              ;       00              11/08/71
20              ;       01              05/03/73
21              ;       02              09/21/73
22              ;       03              02/04/74
23              ;       04              12/12/75
24              ;       05              05/21/76
25              ;       06              01/13/78
26              ;
27              ; COPYRIGHT (C) DATA GENERAL CORPORATION, 1971, 73, 74, 75, 78
28              ; ALL RIGHTS RESERVED.
29              ;*****************************************************************
```

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10002 F4057
01
02
                        .TITL   F4057
04
05              ; 1. ABSTRACT
06              ;       THIS PROGRAM IS PROVIDED FOR WRITING FORMAT
07              ;       INFORMATION ON 4057 TYPE DISK PACKS USED WITH THE
08              ;       4046 DISK PACK CONTROLLER.  PROPER FORMATTING
09              ;       IS A PREREQUISITE TO READING AND WRITING
10              ;       ON A DISK PACK.
11              ;
12              ; 2. REQUIREMENTS
13              ;       NOVA FAMILY CENTRAL PROCESSOR
14              ;       8K READ/WRITE MEMORY
15              ;       4046 DISK PACK CONTROLLER
16              ;       4057 CONTROL ADAPTER
17              ;       4057A DISK PACK DRIVE
18              ;
19              ; ***NOTE***
20              ;       THE COMPUTER EXECUTING THE FORMAT PROGRAM MUST BE
21              ;       CONNECTED TO THE "B" COMPUTER SIDE OF THE 4057 ADAPTER
22              ;       BACK PANEL BOARD.  IF THE "A" COMPUTER SIDE IS CONNECTED
23              ;       TO ANOTHER COMPUTER, THAT COMPUTER SHOULD BE MAINTAINED
24              ;       IN A STOPPED OR HALTED STATE WHILE THE FORMAT PROGRAM
25              ;       IS RUNNING TO PREVENT ACCIDENTAL INTERFERENCE WITH
26              ;       CRITICAL FORMATTING OPERATIONS.
27              ;
28              ; 3. OPERATING PROCEDURE
29              ;       1. LOAD PROGRAM USING THE BINARY LOADER
30              ;       2. START AT LOCATION 2 OR 200.
31              ;                  LOCATION 3 FOR SINGLE TRACK.
32              ;                  LOCATION 4 SET I/O ADDR. TO 33
33              ;                  LOCATION 5 SET I/O ADDR. TO 73
34              ;       3. PROGRAM WRITES THE FORMAT INFORMATION
35              ;          THEN READS IT BACK FOR VERIFICATION.
36              ;       4. UPON COMPLETION THE PROGRAM PRINTS
37              ;          "FORMATTING DONE".
38              ;
39              ;       SWITCH REGISTER CONTROL
40              ;               SW1=1 LOOP ON CURRENT TRACK
41              ;               SW2=1 INHIBIT TELETYPE PRINTING
42              ;               SW5=1 PRINT TO SLPT
```

```
01
02              : 4. ERRORS
03              :       WHEN AN ERROR IS ENCOUNTERED AN ERROR MESSAGE
04              :       IS PRINTED AND THE FUNCTION IS TRIED AGAIN.

05              :       A SECOND FAILURE RESULTS IN ANOTHER ERROR
06              :       MESSAGE AND THE PROGRAM CONTINUES ON.
07              :       (ERRORS ON SEEK AND RECALIBRATE ARE RETRIED
08              :       INDEFINITELY UNTIL SUCCESSFUL)
09              :       A SINGLE ERROR MESSAGE ON A PARTICULAR HEAD/TRACK
10              :       INDICATES THAT THE RETRY WAS SUCCESSFUL.
11              :       IF BAD TRACKS EXIST THE DISK PACK MAY BE USED
12              :       BUT WITH THE EXCEPTION OF THESE TRACKS.
13
14              :       SAMPLE ERROR PRINTOUT

15
16              :       CYL = 40        HEAD = 3
17              :       DATA COMPARE ERROR, WORD 1014
18
19              :       IN THE ABOVE EXAMPLE HEAD 3, CYLINDER 40 ENCOUNTERED
20              :       AN ERROR IN THE DATA COMPARE PHASE FOLLOWING THE
21              :       READ.  SINCE IT WAS ONLY PRINTED ONCE THE RETRY
22              :       (WRITE-READ-COMPARE) WAS GOOD.
23
24              : 5. FORMATTING ONE TRACK
25              :       OCCASSIONALLY IT MAY BE DESIRED TO REFORMAT ONE
26              :       TRACK, LEAVING THE REMAINDER OF THE DISK PACK
27              :       INTACT.  WHEN STARTED AT LOCATION 3 THE PROGRAM
28              :       ASKS FOR THE CYLINDER AND HEAD AND THEN REWRITES
29              :       THE FORMAT FOR THAT TRACK ONLY.
```



```
01
02              : 6. FORMAT PATTERN
03              :       EACH TRACK ON THE DISK SURFACES CONSISTS OF
04              :       12 SECTORS WHERE DATA CAN BE WRITTEN.
05              :       INTERSPERSED BETWEEN THE SECTORS IS SYNC AND
06              :       ADDRESS INFORAMTION USED BY THE HARDWARE
07              :       FOR CONTROL.  WHEN GENERATING THE FORMAT
08              :       ALL OF THIS DATA MUST BE OUTPUT TO THE
09              :       DISK CONTROL FROM MEMORY.  THE FORMAT OF
10              :       THIS DATA IS OUTLINED BELOW.
11
12              :       A. INDEX AREA
13              :               36 BYTES OF ALL ZEROS
14              :       B. HOME ADDRESS GAP
15              :               31 BYTES OF ALL ZEROS
16              :               3 BYTES OF ALL ZEROS
17              :               1 BYTE OF ALL ONES
18              :               1 SYNC BYTE
19              :       C. HOME ADDRESS
20              :               FLAG BYTE 000000AB
21              :                       (A) 1 IF DEFECTIVE TRACK.
22              :                          ALWAYS 0 FOR THIS SYSTEM.
23              :                       (B) 1 IF ALTERNATE TRACK.
24              :                          TRACKS 200-202 ARE SET
25              :                          TO 1 SINCE A COMPLETE
26              :                          SYSTEM IS DEFINED AS HAV-
27              :                          ING 200 ACTIVE TRACKS.
28              :               2 BYTES FOR CYLINDER NUMBER
29              :               2 BYTES FOR HEAD NUMBER
30              :               2 CHECK WORD BYTES
31              :       D. ALPHA GAP
32              :               LEAD BYTE 11001100
33              :               LEAD AREA 12 ZERO BYTES
34              :               VFO AREA 3 ZERO BYTES
35              :                        1 ONES BYTE
36              :               SYNC BYTE 00001110
37              :       E. SECTOR 0 ADDRESS AREA
38              :               FLAG BYTE (SEE PAR. 6.C)
39              :               2 BYTES FOR CYLINDER NUMBER
40              :               2 BYTES FOR HEAD NUMBER
41              :               1 BYTE FOR SECTOR NUMBER
42              :               1 KEY BYTE (ALWAYS ZERO)
43              :               2 BYTES FOR DATA LENGTH (1000 OCTAL)
44              :               2 CHECK BYTES
45              :       F. ALPHA PRIME GAP
46              :               LEAD BYTE 11001100
47              :               LEAD AREA 9 BYTES OF ONES
48              :               VFO AREA 6 BYTES OF ZEROS
49              :                        1 BYTE OF ONES
50              :               SYNC BYTE 00001110
51              :       G. DATA AREA SECTOR ZERO
52              :               512 BYTES OF ZEROS
53              :               2 CHECK BYTES
```

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10005 F4057
01
02              *       H. BETA GAP (PRECEEDS SECTOR N ADDRESS AREA)
03              *               LEAD BYTE 11001100
04              *               47 BYTES OF ONES
05              *               VFO AREA 4 ZERO BYTES
06              *                        1 ONES BYTE
07              *               ADDRESS MARK 2 BYTES OF ONES
08              *               SYNC BYTE 00001110
09              *       I. ADDRESS AREA, SECTOR N
10
11              *           (SAME AS SECTOR 0, SEE PARAGRAGH 6.F)
12
13              *       J. BETA PRIME GAP
14
15              *           (SAME AS ALPHA PRIME GAP, SEE
16              *               PARAGRAPH 6.F)
17
18              *       K. DATA AREA SECTOR N
19              *               512 ZERO BYTES
20              *               2 CHECK BYTES
21
22              *       THE SEQUENCE IN-PARAGRAPHS H,I,J,AND K
23              *       IS REPEATED FOR EACH SECTOR.  AN ADDITTONAL
24              *       BETA GAP FOLLOWS THE LAST DATA AREA.
25
26              * 7. PROGRAM DESCRIPTION
27              *       IN GENERATING THE FORMAT THE PROGRAM PRODUCES
28              *       ONE TRACK OF DATA IN MEMORY, THEN EXECUTES
29              *       A WRITE INSTRUCTION.  THE FORMAT MODE
30              *       HARDWARE ESTABLISHES THE WORD COUNT AND THE
31              *       ENTIRE TRACK IS WRITTEN. 7296 BYTES
32              *        (3648 WORDS) ARE REQUIRED.
33
34              *       WHEN READING IN THE FORMAT MODE ALL DATA EXCEPT
35              *       THE INDEX AREA AND THE HOME ADDRESS GAP IS
36              *       BROUGHT INTO CORE FOR VERIFICATION.  THE FORMAT
37              *       MODE READ LOGIC SETS THE WORD COUNT TO 3584.
38
39
40                      .EOT
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0006 F4057

**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS
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