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PDP-12
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MAGSPY

A MOVING WINDOW FOR SCANNING LINC-TAPE

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ABSTRACT

This program provides a moving window for scanning data stored on a LINC-tape. The data is scanned on the PDP-12 scope at a rate determined by the setting of the Analog-Digital Knob 7. The data can be interpreted as waveforms or as packed ASCII characters.

EQUIPMENT REQUIREMENT

The minimum configuration is the PDP-12A which consists of the LINC-tape drive, A-D circuits, Teletype, Scope, and 4K of core.

OPERATING PROCEDURE

1. START Dial:

- a. Stop the processor, by pressing STOP.
- b. Press I/O PRESET.
- c. With 0701 in the Left Switches and 7300 in the Right Switches, press the DO switch.
- d. Upon termination of tape motion, press START 20.

2. CALL MAGSPY:

a. Type:

→LO MAGSPY, unit ↵

where unit signifies the tape drive unit containing the LINC-tape with MAGSPY in its file. (If "NO" appears, check your index for MAGSPY by typing: ↵, then →DX, unit ↵).

- b. If the processor halts with the Program Counter equal to 7576, press I/O PRESET, and START 20.

3. PROGRAM TITLE SLIDE:

The program initially displays PROGRAM "MAGSPY" (DIGITAL EQUIPMENT CORPORATION) for a short period of time, then proceeds to the initial option questionnaire (no operator action required).

4. OPTION SELECTION SLIDE:

a. The user now can type in one of the following options:

1. To display the Explanation Slide
2. To display the Block/Unit questionnaire Slide
3. To return to the DIAL System.

RUBOUT To erase the previously typed character.

- b. After the desired entry has been typed, press LINE FEED to execute the desired option.

5. EXPLANATION SLIDE (Option 1):

Selection of Option One displays the various switch settings and waits for the operator to type a LINE FEED or RETURN indicating that he has read the displayed slide.

6. BLOCK/UNIT QUESTIONNAIRE (Option 2):

Type in the starting tape Block Number (BN), which may be 0 to 777. Leading zeroes are not required so that BN 7 may be typed by: 7 ↵, 07 ↵ or 007 ↵. Upon observing the correct BN on the scope, press the RETURN (↵) key.

Type in the tape drive number - which may be 0 through 7. If the correct entry is observed on the scope, type LINE FEED to begin displaying tape blocks. (This is the issue version of QANDA - see Document DEC-12-FISA-D for operational details.)

7. CALL DIAL (Option 3):

This option recalls the DIAL system into core without using the Left, Right, DO, and START 20 switches. This option may also be used anytime during program execution by restarting MAGSPY.

8. RESTART:

To restart MAGSPY in order to select another option, tape drive, or initial starting Block Number:

- a. Press STOP
- b. Set 4020 in the Left Switches
- c. Press START LS

9. WAVEFORM DISPLAY:

This option is in effect whenever Sense Switch 0 is pressed. The data on the tape blocks is interpreted as vertical coordinates for a point display. The Unit and Block Number display is initially in full-size character mode. However, it may appear in half-size character mode if this was the last mode when returning from TEXT Display.

The vertical line marks the division between blocks. To display increasing tape Block Numbers, turn the Analog-Digital Knob 7 counter-clockwise. A clockwise rotation will move toward the beginning of the tape. A center position halts the display.

Waveform examples have been stored on your tape under a Source Program called TESTDATA. Do not attempt to add this to the working area of the DIAL System since it doesn't meet the criteria for a

source program. To move TESTDATA to another tape without copying the entire tape:

- a. Create a dummy source file by adding long source programs until you have a 46 block program filed on your tape.
- b. Note the starting Block Number and copy 46 blocks from your tape to the new tape by using the command:

-CP)

Relative Block No.	Contents
00-01	a continuous (two block) FM waveform
02-03	a continuous (two block) 0.7 ms filtered (20-650 cps) waveform
04-05	a continuous (two block) 0.4 ms filtered (20-1300 cps) waveform
10-11	a continuous (two block) low pass filtered (600 cps) waveform
12-13	a continuous (two block) low pass filtered (1200 cps) waveform
14-15	a continuous (two block) low pass filtered (2400 cps) waveform
16-17	a continuous (two block) 500 cps burst
20-21	a continuous (two block) 1Kc burst
22-23	a continuous (two block) 2Kc burst
24-25	a continuous (two block) 4Kc burst
26	female adult ECG
27	fetal ECG
30	abnormal looking adult ECG
31	maternal and fetal ECG
32	the last ECG
33-36	four independent exponential waveforms in order of increasing decay; each exponential is one block.
37	Doubly differentiated Gaussian
40	Singly differentiated Gaussian
41	Gaussian distribution
42	7 cps sine wave
43	15 cps sine wave
44	4 cps cosine wave
45	12 cps cosine wave

10. TEXT DISPLAY:

If Sense Switch 0 is not pressed, the data on tape is interpreted as packed-ASCII i.e., 0162 will appear as an "A2" on the scope. When Sense Switch 1 is pressed, the text is displayed in full-size mode - otherwise, data is displayed in half-size mode.

The current Block Number and Unit is displayed at the top of the scope. A horizontal bar indicates the end of the current block. A carriage return on the tape will create a new source line on the display. DIAL Sources are stored in packed ASCII.

Rotation of the Analog-Digital Knob 7 counter-clockwise will move the display toward the end of the tape (NB 000 follows BN 777) while rotation in the opposite direction displays data toward the beginning of the tape. A center position maintains a steady display.

11. SUMMARY OF ACTIONS:

Procedure	Action
SW0 = 1	Display data as waveforms
SW0 = 0	Display data as packed-ASCII Source
SW1 = 0	Display data as small text if SW0 = 0.
SW1 = 1	Display data as large text if SW0 = 0.
A-D Knob 7 ↶	Move toward the beginning of the tape.
A-D Knob 7 ↷	Move toward the end of the tape.

The above procedures can be changed at will. However, to call the DIAL system, change tape drive units, or to advance over a large portion of the tape - the RESTART procedure, covered earlier, must be used.