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SLIDES: A Program to Draw Slides and Posters

by

Richard M. Bertrand

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

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Revised
August 1980

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ABSTRACT

SLIDES is a program that takes text and commands as input and prepares lettered slides and posters. When run on an interactive system, the program can display its output on an interactive graphics terminal; in batch, it can direct its graphical output to a variety of plotters. The program uses DISSPLA graphical subroutines and standard subroutines from the AMD plotting utility library, PLOTUTL. This report contains material written for the novice computer user, who should be able to produce useful slides or posters by following the examples. This report also serves as a reference manual for the SLIDES program.

INTRODUCTION

General Description

SLIDES is a generalized program that letters slides or posters, and utilizes DISSPLA graphics subroutines to generate its output. DISSPLA is a proprietary software product of ISSCO, from San Diego, California. SLIDES receives simple, self-descriptive commands and text as its input. The program automatically chooses the size for characters so that the text fills the area of the slide. It can be run interactively under CMS at a graphics terminal, or it can be run in batch with output directed to any AMD-supported plotter. When used with the FR80 film recorder at AMD, it produces slides suitable for standard slide mounts.

SLIDES is capable of executing various actions with a line of text. It can scale a line relative to another line, underline the line once or a specified number of times, center the line, left-justify the line to a user-defined edge, or right-justify the line to a user-defined edge.

SLIDES can use all of the character styles and alphabets of DISSPLA: It can display text in eleven character styles. It can display text in upper- and lower-case Roman ("Standard"), Greek, Russian, and Hebrew alphabets. It can display text in standard, italic, and script alphabets. It can display mathematical and other symbols. The DISSPLA User's Manual (Part B, Sections 22 and 23) shows most of the type styles and alphabets available.

SLIDES can also utilize all of the string-manipulation instructions in DISSPLA. Complex mathematical expressions containing multiple levels of subscripting and superscripting, and various styles and sizes of brackets, as well as any character style and any alphabet, are possible with these instructions.

SLIDES is "device-independent", which means that it can plot text on any device. When specialized features, such as color, are not supported on a particular device, the feature is simply ignored. SLIDES is capable of using most of the features of the various hardware devices that can be used to generate a slide. When used with the FR80 film recorder, it can display text in any and/or all of the various spot sizes, intensities, and colors available on this device.

Simple Example for Producing Slides

The following example shows use of the SLIDES program on batch to produce three black-and-white 35mm slides suitable for mounting in standard slide mounts:

```
//jobname JOB (nnnnn,5,0,2),REGION=250K
cua card
//SLIDES EXEC SLIDES,PLOTTER=SPU35BW
//SYSIN DD *
&COMMENT      THIS EXAMPLE PRODUCES THREE SLIDES
&COMMENT      ON BLACK-AND-WHITE 35 MM FILM.
&DEVICE SPU35BW
&PERCENT
&COMMENT      THIS FIRST SLIDE USES ONLY DEFAULT VALUES
THE SLIDES PROGRAM
CONVERTS SIMPLE INPUT TEXT
INTO GRAPHICAL OUTPUT
SUITABLE FOR SLIDES AND SIGNS.
&NEW
&COMMENT      THIS SECOND SLIDE SHOWS THE USE OF PARENTHESES
&COMMENT      TO CAPITALIZE LETTERS.
(C)HARACTERS ARE NORMALLY DRAWN IN LOWER CASE.
(L)ETTERS OR (WORDS)
TO BE CAPITALIZED ARE
ENCLOSED IN PARENTHESES.
&NEW
&COMMENT      THIS THIRD SLIDE COMBINES SEVERAL
&COMMENT      OPTIONAL COMMANDS.
&FRAME
&FUTURA
&GAPS 100
&LEFT
(T)HERE ARE A NUMBER OF
(OPTIONAL CCMMANDS)
&SCALE .5
TO SELECT CHARACTER FONTS
AND CONTROL THE FORMAT OF THE SLIDES.
&END
/*
```

See Figure 1 on the next page for the slides generated from these examples.

the slides program
converts simple input text
into graphical output
suitable for slides and signs.

Characters are normally drawn in lower case.
Letters or WORDS
to be capitalized are
enclosed in parentheses.

**There are a number of
OPTIONAL COMMANDS
to select character styles
and control the format of the slides.**

Figure 1: Three Slides Produced by Preceding Examples

How to Use This Manual

For making simple slides or signs in a hurry, you may have already read enough. Copy the example from the preceding section, substituting your text for ours. You should have useful 35mm film output in less than a day.

Read further if you want to use some of the extensive facilities of the SLIDES program, or if you are just curious about what it can do. This report contains material written for the novice computer user; we recommend that it be read through from beginning to end. This report is also a reference manual for the SLIDES program, and contains some sections organized primarily for reference.

TEXT FOR SLIDES

Guidelines for Preparing Text

"If the slide cannot be read without magnification when held at arm's length, it cannot be read at any magnification at any length." The most common error in preparing slides is overcrowding. The above rule of thumb should be strictly followed; the following suggestions will help you do so:

- Keep the slide simple. A slide, like a highway billboard, must be easily understood when read quickly.
- Show one idea per slide. Use a series of slides for progressive disclosure of complex ideas. Use duplicates to refer to the same slide at different times during the presentation.
- Use key words rather than full sentences. Limit words to about 20 per slide. Include titles to supplement, not duplicate, slide data.
- Use several simple slides rather than one complicated one. Limit display time to a maximum of one minute.
- For a table, use simplified captions and, if possible, round off the numbers. Use no more than four to six columns and a maximum of 10 lines. Use no more than 20 items in any format.
- Use no more than 45 characters per line. Use capital letters for short lines and lower case for longer lines. Use simple lettering styles such as FUTURA.
- Use a simple color scheme in your presentations, such as one color for each topic. Too much color distracts from what you want to say.

How to Enter Text

Type your text line for line as you want it to appear on the slide, using columns 1 through 72 of each input record. The text is plotted in the order in which it is entered. The commands that are in effect at the time the line of text is entered are used in processing the line of text. There is a limit of ten lines per slide image.

Parentheses must be placed around the characters to be capitalized, except when in the Instruction mode. See the &INSTRUCTION command for a discussion of the Instruction mode. Only the characters enclosed in parentheses are capitalized. The parentheses do not appear. If no parentheses are used, lower-case is used for all characters. For example, the following line of text,

(J)AMES (R). (J)ONES (PHD)

would appear as

James R. Jones PHD

Parentheses must be placed around parentheses that are to be included in the line of text. The text following the parentheses enclosed in parentheses is not capitalized, unless it is also enclosed in parentheses. For example, the following line of text

(W)OULD YOU HELP ME (()(PLEASE)()) (M)R. (J)ONES?

would appear as

Would you help me (PLEASE) Mr. Jones?

The text for a line is composed of all the characters beginning in column one to the last non-blank character before column 73. Completely blank lines are treated as if they contained one blank character, so they are useful for inserting extra vertical spacing in a slide. To offset text from the left margin, use the &LEFT command. To offset text from the right margin, use the &RIGHT command.

Lines of text cannot begin with an ampersand (&) because that character is used to identify SLIDES commands. If your slide requires a text line that begins with an ampersand, begin the line with two ampersands (&&). For example, the following line of text,

&&ERSAND

would appear as

&ersand

SLIDES COMMANDS

General Information About SLIDES Commands

SLIDES has 79 commands that are simple and self-descriptive. Each SLIDES command begins with an ampersand (&). All non-sequence commands remain in effect from slide to slide until explicitly changed. All commands set a mode (such as a character style) that remains in effect until another command resets that mode. Commands are typed one per line (or card). They can be placed in any order among text lines, but they affect only succeeding text lines.

Default Values

The only commands you need to know are &NEW and &END, because the program has been designed to produce slides with a minimum of input. Table 1 on the following page contains the commands with default values in effect when the program starts.

General Format

Commands follow a simple format. Commands must start with an ampersand (&) in column one of a record. The next four alphanumeric characters define the command. Characters beyond these four through the first blank are usually ignored. For example, the following all specify the same command, &UNDERLINE:

```
&UNDE
&UNDERLINE
&UNDERNEATH
```

Some commands require parameters. At least one blank must separate parameters. Numbers must be unsigned. Parameters are checked for correctness. Default values are supplied for any parameters that are illegal, for any parameters that follow illegal parameters, and for any parameters that are not explicitly specified by you. The following examples show the values assumed for parameters (legal values for &COLOR are 0 to 1):

```
&COLOR .45 .35 .25      Parameter values are .45 .35 .25
&COLOR                  Parameter values are 1 1 1
&COLOR .57 -1 .20      Parameter values are .57 1 1
&COLOR .20 .4 E        Parameter values are .2 .4 1
```

TABLE 1

Default Values

```
&ANGLE 90
&BACKGROUND 0 0 0 .01
&CENTER
&CRAYON WHITE
&DEFAULT
&ECHO
&GAPS 11
&IMAGE 11 11
&INTENSITY 1
&MARGIN .55
&MX1ALF L/CSTD )
&MX2ALF STANDARD (
&NOANLLOGO
&NOCHECKOUT
&NOFRAME
&NOINSTRUCTION
&NOPERCENT
&NOUNDERLINE
&PAGE 0 0 11 11
&ROTATION 0
&SCALE 1
&SIZE 11
&SKIP
&SLIDE
&SPOTSIZE 0
&STANDARD
&TEXT
```

Command Categories

SLIDES commands can be broken down into the following seven categories:

SEQUENCE
CONTROL
SIZE AND POSITION
CHARACTER STYLE
ALPHABET
HARDWARE
MISCELLANEOUS

Each one of these categories of commands is described in one of the next seven sections.

Sequence Commands

The sequence commands terminate groups of commands and text lines, and cause the current slide to be plotted. Table 2 lists the sequence commands.

TABLE 2	
Sequence Commands	
&AGAIN	- Replot the last slide.
&END	- Plot this slide and terminate the program.
&NEW	- Plot this slide and prepare for the next.
&OVERLAY	- Plot this slide and overlay the next.
&REPEAT	- Repeat this slide and prepare for the next.
&SAVE	- Save this slide and prepare for the next.

Control Commands

The control commands operate on all text and slides following their entry, until another command cancels or changes them. They are normally used before any text lines for the slide in which they are to begin operation. Table 3 lists the control commands.

TABLE 3
Control Commands

&ANLLOGO	- Generate the ANL logo.
&BACKGROUND	- Color the background.
&CHECKOUT	- Approximate text with the DEFAULT style.
&CINE	- Output slides in CINE format.
&COMIC	- Output slides in COMIC format.
&ECHO	- Print each input line.
&FRAME	- Draw a frame around the page.
&NOANLLOGO	- Do not generate the ANL logo.
&NOCHECKOUT	- Leave checkout mode.
&NOECHO	- Do not print each input line.
&NOFRAME	- Do not draw a frame around the page.
&NOPERCENT	- Do not measure page value in percent.
&NOSKIP	- Do not skip a frame between slides.
&NOTEXT	- Do not put the text in the ANL logo.
&PERCENT	- Measure page values in percent.
&POSTER	- Generate poster-size output.
&RESET	- Set all commands to their default values.
&SKIP	- Skip a frame between slides.
&SLIDE	- Generate slide-size output.
&TEXT	- Put the text in the ANL logo.

Size and Position Commands

The SLIDES program automatically scales the text for your slides. An understanding of the process may help you to effectively use the size and position commands, although you will probably never need to concern yourself with the details presented here. Simply use the &DEVICE command appropriate for the device the slide will be produced on and the

&CENTER, &LEFT, and &RIGHT commands, and SLIDES will properly scale and position your output. This will be adequate for all but very complex slides. If you wish to learn more about the scaling concepts used by SLIDES, read on; if not, skip to the listing of the size and position commands in Table 4 on page 14.

Three logical constructs or concepts are used to explain how SLIDES positions and scales the text input for a slide. These three concepts are the physical image, the logical image, and the logical page.

The first concept to be understood is the physical image. The physical image is the largest area available for the slide or poster on a specific output medium. This area is initially defined to be 11 units by 11 units. The physical image can only be changed by the &DEVICE command. This command modifies the physical image size depending upon each output device's actual medium size. For example, &DEVICE U35BW sets the physical image to be 16.48 by 11 units.

The next concept to be understood is the logical image. The logical image is the area SLIDES thinks it has available. This area is initially defined to be 11 units by 11 units, just like the physical image. The logical image is set to the same values as the physical image by the &DEVICE Command. You may also set the logical image with the &IMAGE command. If you have not used the &DEVICE command, the logical image you define with the &IMAGE command must be a subspace of the 11-by-11 physical image. If you use &IMAGE with values greater than 11, the resulting slides may not be to your liking. If you use &IMAGE with values less than 11, your slides will be reduced in size. However, if you have used the &DEVICE command, the logical image you define with the &IMAGE command will be centered within the physical image and, if you have specified a device other than a paper plotter, will be scaled to fit within the physical image. It will also be centered within the physical image. For example, &DEVICE U35BW sets both the physical image and the logical image to be 16.48 units by 11 units. An "&IMAGE 9 6" command would define a logical image of 9 units by 6 units that would be scaled up and centered within the physical image of 16.48 units by 11 units. This would guarantee a 9-by-6 aspect ratio. Note that the logical image may be larger than the physical image if the &DEVICE command has been used.

When the slides are to be generated on a paper plotter and the &DEVICE command is used, the logical image size in units corresponds to inches on the paper. In this case, the &IMAGE command may have values as large as the size of the plotter in inches. For example, the CAL936 device, can support "&IMAGE anything 33", whereas, the VERS11 device can only support "&IMAGE anything 10.56".

The last concept to be understood is the logical page. The logical page is the subspace of the logical image available to SLIDES. This area is initially defined to be from 0 to 11 in the X direction and 0 to 11 in the Y direction, just like the logical image and the physical image. The logical page is set to the same values as the physical image or logical image whenever they are set. You may also set the logical

page with the &PAGE command. The values you choose must be a subspace of the logical image, or your slide will be clipped.

Figure 2 illustrates the relationship among physical image, logical image, and logical page. The physical image, which is selected by the &DEVICE U35BW command, is the area inscribed by the largest rectangle. The logical image, which is selected by the &IMAGE 11 11 command, is the square centered within the physical image. The logical page, which is selected by the &PAGE 25 25 75 75 command, is the smallest square in the figure. Text is scaled by SLIDES to fit within the logical page.

Figure 2: "Physical Image", "Logical Image", and "Logical Page"

Note that whenever the physical image is set by an &DEVICE command, the logical image and logical page are also set. Whenever the logical image is set by the &IMAGE command, the logical page is also set. In addition, whenever the logical page is set by the &PAGE command, or the margin is set by the &MARGIN command, &CENTER is in effect.

Now, having described the logical page, we will describe the actual scaling algorithm of the SLIDES program. The width and height of the slide are determined by the values assigned by the &MARGIN and &PAGE commands. The height is "top-page-limit minus bottom-page-limit minus 2*margin". The width is "right-page-limit minus left-page-limit minus 2*margin". All of the text lines are scaled proportionally to their scaling factor so that no line is longer than the slide is wide. The left and right justification is checked and the text lines are again scaled so that no line is longer than the space in which it is to fit. The height is checked and the text lines are again scaled so that there is at least half the height of the smallest character between text lines and at the top and bottom of the slide. The &SIZE command is checked, and the text lines are again scaled so that text lines are no taller than the "size*scale" units.

By using the &PERCENT command, you can eliminate the need to worry about the size of the physical image or the logical image. The &PERCENT mode lets you position &PAGE and &ANLLOGO commands as a percentage of the physical image and/or logical image size.

The size and position commands control the relative sizes and positions of the lines of text. The &IMAGE, &MARGIN, and &PAGE commands, if used, normally appear at the start of the input to the SLIDES program. In addition to their various individual functions, they also establish the &CENTER mode. The &SIZE command is also normally used at the beginning of the input to the SLIDES program. This command does not affect the &CENTER mode. The &CENTER, &LEFT, &RIGHT, &ROTATE, and &SCALE commands affect succeeding text lines. They are normally interspersed with the text strings for individual slides. Table 4 lists the size and position commands.

TABLE 4

Size and Position Commands

&CENTER	- Center the following lines.
&IMAGE	- Define the image size of slides.
&LEFT	- Left-justify the following lines.
&MARGIN	- Define the size of the margin.
&PAGE	- Define the page size of slides.
&RIGHT	- Right-justify the following lines.
&ROTATE	- Rotate the following lines.
&SCALE	- Scale the following line sizes.
&SIZE	- Don't let the following lines get too large.

Character Style Commands

The character style commands specify the particular type style, as well as some variable aspects of the style, to be used when plotting one or more lines of text. They cause succeeding text lines to be plotted in the specified character style. See Figure 3 for samples of each character style. Table 5 lists the character style commands.

TABLE 5

Character Style Commands

&ANGLE	- Shade characters at this angle.
&CARTOG	- Use the Cartog style.
&COMPLX	- Use the Complx style.
&DEFAULT	- Use the Default style.
&DUPLX	- Use the Duplx style.
&FASHON	- Use the Fashion style.
&FUTURA	- Use the Futura style.
&GAPS	- Shade characters with lines placed this far apart.
&GOTHIC	- Use the Gothic style.
&LOGO	- Use the Logo style.
&SCMPLX	- Use the Scmplx style.
&SERIF	- Use the Serif style.
&SIMPLX	- Use the Simplx style.
&TRIPLX	- Use the Triplx style.

The style of the output text is a function of the style chosen (Cartog, Simplx, etc.) and the alphabet chosen (Greek, Russian, etc.). Not all of the alphabets are available in all of the type styles. See the DISSPLA User's Manual, Part B, Sections 22 and 23, for listings of most of the styles and alphabets, and for instructions on how to select the unique characters.

Cartog abc DEF 123

Gothic abc DEF 123

Complx abc DEF 123

LOBO ABC DEF 123

Default abc def 123

Scmplx abc DEF 123

Duplx abc DEF 123

Serif abc DEF 123

FASHON ABC DEF 123

Simplx abc DEF 123

Futura abc DEF 123

Triplx abc DEF 123

Figure 3: Character Styles Available for Text

Alphabet Commands

The alphabet commands specify the particular alphabet to be used when plotting the characters of succeeding text lines. They are also used to establish string macros, and to shift characters for use with complex formulas. See Figure 4 for samples of each alphabet. Table 6 lists the alphabet commands.

Greek $\alpha\beta\eta$ $\Delta\text{E}\Phi$

Hebrew אבג טזז

Italic *abc DEF*

Russian абэ дйф

Script *abc DEF*

Special $\cap \cup \subset$ $\otimes \Psi \odot$

Standard abc DEF

Figure 4: Alphabets Available for Text

TABLE 6

Alphabet Commands

&GREEK	- Use the Greek alphabet.
&HEBREW	- Use the Hebrew alphabet.
&INSTRUCTION	- Use the Instruction mode.
&ITALIC	- Use the Italic alphabet.
&MXnALF	- Establish a shift character.
&NOINSTRUCTION	- Do not use the instruction mode.
&RUSSIAN	- Use the Russian alphabet.
&SCRIPT	- Use the Script alphabet.
&SPECIAL	- Use the Special alphabet.
&STANDARD	- Use the Standard alphabet.
&USE	- Set the Z macro string.
&USEn	- Set the Zn macro string.

When using the Special alphabet, the characters enclosed in parentheses use the Special alphabet, while those not enclosed in parentheses use the Mathematic alphabet. See the DISSPLA User's Manual, Part B, Section 22, for a listing of the Mathematic alphabet. Because neither the Special nor the Mathematic alphabet have both upper- and lowercase characters, using the Special alphabet with the parentheses convention that usually designates uppercase characters makes both alphabets available together for formulas or other complex expressions.

Hardware Commands

The hardware command &DEVICE tells SLIDES which device to scale its output for. The &DEVICE command has only one argument: the name of the device. Table 7 lists these arguments and the corresponding physical image sizes for the designated output device.

TABLE 7

&DEVICE Arguments and Physical Image Size

<u>Argument</u>	<u>Function</u>	<u>Length</u>	<u>Width</u>
BLOWUP	- Use BLOWUP driver frame size.	33	33
CAL580	- Use CAL580 driver frame size.	11	11
CAL780	- Use CAL780 driver frame size.	11	11
CAL936	- Use CAL780 driver frame size.	11	11
DUMMY	- Set DUMMY driver frame size.	11	11
G1DATA	- Set G1DATA driver frame size.	11	11
HP2648A	- Set HP2648A driver frame size.	22.03	11
HP7221A	- Set HP7221A driver frame size.	15.43	11.21
PRINTER	- Set PRINTER driver frame size.	11	11
SPCAL780	- Set SPCAL780 driver frame size.	11	11
SPU35BW	- Set SPU35BW driver frame size.	16.48	11
SPVERS11	- Set SPVERS11 driver frame size.	10.56	10.56
SPXEROX	- Set SPXEROX driver frame size.	20.89	16.53
S16BW	- Set S16BW driver frame size.	14.85	11
S16CLR	- Set S16CLR driver frame size.	14.85	11
S35BW	- Set S35BW driver frame size.	11	13.23
S35CLR	- Set S35CLR driver frame size.	11	13.23
TEK4012	- Set TEK4012 driver frame size.	14.44	11
TEK4014	- Set TEK4014 driver frame size.	14.44	11
TEK4025	- Set TEK4025 driver frame size.	15.72	11
TEK4027	- Set TEK4027 driver frame size.	15.72	11
TEK4662	- Set TEK4662 driver frame size.	15	10
U105BW	- Set U105BW driver frame size.	14	11
U35BW	- Set U35BW driver frame size.	16.48	11
VERS11	- Set VERS11 driver frame size.	10.56	10.56
WYL4012	- Set WYL4012 driver frame size.	14.44	11
WYL4014	- Set WYL4014 driver frame size.	14.44	11
XEROX	- Set XEROX driver frame size.	20.89	16.53

Miscellaneous Commands

The miscellaneous commands provide special features for general use. They affect succeeding text lines. Table 8 lists the miscellaneous commands.

TABLE 8

Miscellaneous Commands

&COLOR	- Set color for text strings.
&COMMENT	- Comment.
&CRAYON	- Set color for text strings.
&INTENSITY	- Set intensity for text strings.
&NOUNDERLINE	- Do not underline text lines.
&SPOTSIZE	- Set spotsize for text lines.
&UNDERLINE	- Underline text lines.

Order-Dependent Commands

Some SLIDES commands are order-dependent, because of the nature of the commands involved. Except for the commands listed below, all other SLIDES commands are order-independent.

The following commands should be entered in the order given:

- 1) &DEVICE to set the physical image.
- 2) &COMIC or &CINE to set the orientation of the physical image.
- 3) &IMAGE to set the logical image.
- 4) &PERCENT or &NOPERCENT to set the parameter interpretation mode.
- 5) &GAPS, &BACKGROUND, &ANLLOGO, &SIZE, and/or &UNDERLINE.
- 6) &PAGE to set the page size.
- 7) &MARGIN to set the page margin.
- 8) All other commands and the actual texts for each slide.

If you do not use the first four listed commands in the suggested order, your results could be unpredictable. Since these commands are normally used only once in a SLIDES run, entering them in the recommended order should not present any serious inconvenience. The last four commands may be entered as often as desired. However, if they are used, they must occur after the first four. Also, selecting &PAGE resets the &MARGIN.

The following commands set the &CENTER mode: &CINE, &COMIC, &DEVICE, &IMAGE, &MARGIN, and &PAGE. Again, these commands are normally used only once in a SLIDES run.

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USING SLIDES COMMANDS AND SPECIAL FEATURES

&AGAIN and &SAVE Commands

The &AGAIN and &SAVE commands work like the &NEW command and can be used after &NEW as often as desired. In reality, &AGAIN and &SAVE take the current slide and reprocess it. If any text lines are entered before the &AGAIN or &SAVE command, the old text is lost, and these new lines are treated as the slide to be processed.

This means that you may use the &NEW, and &CHECKOUT commands to view your slide, type &NOCHECKOUT and &AGAIN to see the actual slide, and then type &SAVE to save this slide. You continue with the next slide by entering any text line. The &AGAIN, &REPEAT, and &SAVE commands do not work with overlaid slides.

Producing High-Quality Slides

When you are ready to prepare the final copies of your slides with the SLIDES program, make sure that you use one of the U35BW, S35BW, or S35CLR options of the &DEVICE command so that your slides will be properly scaled for easy mounting. It is also good practice to include the ANL logo in all of your slides. We also suggest that you use the bolder character style, FUTURA, to improve the visibility of the slides for the audience. A colored background is also pleasing, and is easier on the audience's eyes than a clear (white) background. To ensure solid characters, &GAPS should be set to 100 in &PERCENT mode.

Character Shift Commands

The SLIDES &MXnALF commands are used to set up to six different shift characters (n ranges from 1 to 6). Each &MXnALF command sets one specified shift character to be used with a specified alphabet. These commands allow the user to change from uppercase to lowercase or from one alphabet to another within one line of text. In fact, they make it possible to display up to six different alphabets (or more realistically, upper- and lowercase characters from three different alphabets) in one line.

The first two &MXnALF commands (&MX1ALF and &MX2ALF) have alphabet and shift character defaults of "&MX1ALF L/CSTD)" and "&MX2ALF STANDARD (". All the alphabet commands in the following list set the &MX1ALF and &MX2ALF shift characters to ")" and "(", and the alphabet parameters to the corresponding lowercase and uppercase character sets:

<u>Alphabet Command</u>	<u>&MX1ALF Alphabet</u>	<u>&MX2ALF Alphabet</u>
&DEFAULT	L/CSTD	STANDARD
&GREEK	L/CGREEK	GREEK
&HEBREW	L/CHEBREW	HEBREW
&ITALLIC	L/CITALLIC	ITALLIC
&RUSSIAN	L/CRUSSIAN	RUSSIAN
&SCRIPT	L/CSCRIPT	SCRIPT
&STANDARD	L/CSTD	STANDARD

The &INSTRUCTION and &NOINSTRUCTION alphabet commands also set the &MX1ALF and &MX2ALF shift characters to ")" and "(" . The &INSTRUCTION command, which is used to shift into the instruction mode, sets the alphabets in the &MX1ALF and &MX2ALF commands to "L/CSTD" and "INSTRUCTION", while the &NOINSTRUCTION command resets them to the defaults of "L/CSTD" and "STANDARD". Similarly, the &SPECIAL command allows the user to use special characters from both the Special and Mathematic alphabets for formulas or other complex expressions. The &SPECIAL command sets the &MX1ALF and &MX2ALF shift characters to ")" and "(", and the corresponding alphabets to "MATHEMATIC" and "SPECIAL".

Essentially, every alphabet command uses the first two &MXnALF commands. This means that any previous &MX1ALF and &MX2ALF settings you may have made are changed by every subsequent alphabet command.

When the slide is actually generated on the output device (after a sequence command), only the last settings of the &MXnALF and &USEn commands are used. This means that there really are only six shift characters and seven "Z" macro strings per slide, not per text line.

Using the &OVERLAY Command

The &OVERLAY command is used to place more than one slide image on the same physical slide. By proper use of the &OVERLAY and &PAGE commands, it is possible to construct very complex text arrangements. This is especially useful for producing posters, because you can subdivide the standard 11-inch-by-11-inch image into separate areas and place different text in each, as shown in the following example:

```
&COMMENT    TOP LEFT QUARTER
&PERCENT
&PAGE  0 40 30 100
&FRAME
TOP
LEFT
TEXT
&OVERLAY
&COMMENT    TOP RIGHT QUARTER
&PAGE  40 60 100 100
TOP RIGHT TEXT
&OVERLAY
&COMMENT    BOTTOM LEFT QUARTER
&PAGE  0  0  60 30
BOTTOM LEFT TEXT
&OVERLAY
&COMMENT    BOTTOM RIGHT QUARTER
&PAGE  70 0 100 50
BOTTOM
RIGHT
TEXT
&END
```

See Figure 5 for the graphical output of this example.

Figure 5: Sample Text Arrangement Using the `&OVERLAY` command

Using Color

Color film is available on the FR80 plotter in both 16mm and 35mm sizes. The 35mm sprocketed color film is the most desirable medium for producing presentation-quality slides, but the turnaround time (including exposure at AMD and processing at Graphic Arts) for this film may be too long for some projects. We recommend that you first make acceptable black-and-white slides, and then add the commands necessary for a color run.

The &ANLLOGO, &BACKGROUND, &COLOR, and &FRAME commands specify colors as values between 0 and 1 for red, green, and blue. This can best be understood by picturing a cube with three axes, red, green, and blue. As you move along any axis from 0 to 1, the amount of the color of that axis is increased. For example, a value of ".5 red and .5 blue" means "half-brightness" red is added to "half-brightness" blue, producing a "half-brightness" purple. Yellow consists of "full-brightness" red and "full-brightness" green. Decreasing the amount of green will move in the direction of red, going through areas with less yellow and more red, or through a range of orange shades. Understanding the composition of the color cube and how values varying from 0 to 1 move along the three axes of this cube will help you select colors more accurately. The following chart lists some representative combinations:

Values for			Color Produced
<u>Red</u>	<u>Green</u>	<u>Blue</u>	
0.0	0.0	0.0	black
0.0	0.0	1.0	blue
0.0	1.0	0.0	green
1.0	0.5	0.0	orange
1.0	0.0	1.0	purple (magenta)
1.0	0.0	0.0	red
1.0	1.0	1.0	white
1.0	1.0	0.0	yellow
0.0	1.0	1.0	blue-green (cyan)

Because of the nature of color film, the selection of the color for the background, using the &BACKGROUND command, needs to be thought out carefully. Since text color is added to the background, the color cube described above comes into play. If the background of a slide is bright red, then it is not possible to produce text which is red, pure green, or pure blue. Since the background is red, only colors composed of red plus some other color can be visible. For example, with a red background, a green text line will appear yellow because red plus green produces yellow. Therefore, with a red background, only shades of orange, yellow, pink, and magenta are available. This same condition occurs with a blue or green background. Only text lines whose color is a combination of the background color plus the selected color are visible. A wider selection of colors for text lines is possible if the

background color is not of full intensity. For example, a background of ".2 green" can have green, almost-blue, and almost-red text lines.

The color of a text line can be selected by either &COLOR or &CRAYON. If &COLOR is used, the &INTENSITY and &SPOTSIZE commands are ignored. If &CRAYON is used, the &INTENSITY and &SPOTSIZE commands are processed. Because the color of a text line can be changed on every line, you may have one line that uses &CRAYON, &INTENSITY, and &SPOTSIZE, and another that uses &COLOR.

Using the J Instruction

There is a special string manipulation command defined especially for SLIDES, called the "J" instruction. It takes a single unsigned integer parameter. This parameter is a color-selection code. There can be at most, three digits in this parameter. Each can vary from 0 to 9. The "hundreds" digit is the red component of the color; the "tens" digit is the green component of the color; and the "ones" digit is the blue component of the color. A 0 (zero) value means no degree of the corresponding color component. A 9 value specifies the maximum brightness of the corresponding color component. The command "JX" is not understood.

The following example would generate a string of text with three colors. The word "red" would be red, "green" would be green, and "blue" would be blue.

```
&INSTRUCTION  
(J900)RED(J090)GREEN(J009)BLUE
```

This command provides a way to generate a multi-colored one-line string.

RUNNING THE SLIDES PROGRAM

Using SLIDES on Interactive Terminals

SLIDES may be run on interactive graphics terminals. You can type commands and text in at the keyboard and immediately see the image on the screen. This is particularly useful for (1) familiarizing yourself with the program, (2) debugging complex text layouts, and (3) producing quick signs via the terminal's associated copier unit.

Step 1: Get into a 600K CMS machine.

```
LOGON Bnnnnn yourpassword
DEFINE STORAGE 600K
IPL CMS
```

Step 2: Prepare for terminal input and output.

```
FILEDEF 5 TERMINAL
FILEDEF 6 TERMINAL
```

These two CMS commands associate your terminal with FORTRAN's input file 5 and output file 6, which are used by the SLIDES program. You can allocate FT05F001 to a saved dataset, from which SLIDES will read text and commands. Alternatively, you can have SLIDES write a copy of its output into a saved dataset that you have allocated to FT06F001.

Step 3: Run the SLIDES program

```
SLIDES
```

If the program terminates for some reason, simply repeat steps 2 and 3 to run it again; you do not need to sign on again.

Step 4: Type in the SLIDES text and commands.

After each slide is drawn in response to a &NEW or &END command, the SLIDES program turns on the terminal's crosshairs and waits for "graphical input". At this point, you can press the terminal's MAKECOPY button to produce a permanent copy of the display. To continue after the crosshairs have been turned on, simply press the SPACE bar. The program will also pause and turn on the crosshairs after the second and subsequent &NEW commands, unless you use &NOSKIP.

Step 5: Send your slides to a hardcopy output device.

The slides you saved by using the &SAVE command or by specifying G1DATA in your &DEVICE command can now be routed to any batch hardcopy device. Simply follow the instructions that appear on your terminal after you enter the &END command.

Using SLIDES on Batch

You will eventually want to submit batch jobs to produce SLIDES output on the Calcomp, FR80, or Versatec plotters. Batch jobs--including the necessary IBM Job Control Language, SLIDES commands, and SLIDES text--may be submitted either on punched cards or from one of the interactive systems (CMS or Wylbur).

Using the Versatec for Debugging or Paper Copies

The Versatec electrostatic plotter produces quick, inexpensive graphical output suitable for checking SLIDES commands and text. Since the Versatec plots on 11-inch wide rolls of paper, its output may also be acceptable for producing signs quickly. Use the following Job Control Language (JCL) to submit a batch job to run the SLIDES programs and direct output to the Versatec:

```
//jobname JOB (nnnnnn,5,0,2),REGION=250K  
    account card (computer use authorization)  
//SLIDES EXEC SLIDES,PLOTTER=G1DATA
```

Insert SLIDES commands and text here.

```
//STEPTWO EXEC POSTPLOT
```

This JCL requires no tape setup for its graphical output, and consequently should minimize turnaround time. Graphical output is limited, however, to 400 tracks--or about five feet of Versatec plotter paper.

Using the FR80 to Produce Slides on Film

With two simple changes in the JCL in the above example, you can direct the graphical output to the FR80 recorder to produce unsprocketed black-and-white film. Remove the second step (//STEPTWO EXEC POSTPLOT) and modify the first step to read:

```
//SLIDES EXEC SLIDES,PLOTTER=SPU35BW
```

Insert SLIDES commands and text here.

Using Other Plotters

By simply changing the JCL, your slide images can be directed to any of the plotters at AMD. Replace the "SPU35BW" device with the name of any of the other devices available. For specifics, see Graphics at ANL, AMD Technical Memorandum 335.

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THE FINAL PRODUCT

The SLIDES program will produce images on terminal screens, photographic film, or paper. These media vary greatly in output quality, cost, and the time required for processing.

Film Slides

The FR-80 film recorder at AMD is currently set up for six kinds of photographic film: (1) 16mm sprocketed black-and-white film, (2) 16mm sprocketed color film, (3) 35mm sprocketed black-and-white film, (4) 35mm sprocketed color film, (5) 35mm unsprocketed black-and-white film, and (6) 105mm unsprocketed black-and-white film. The black-and-white film is processed at AMD, the 35mm color film is processed at Graphic Arts, and the 16mm color film is processed off site.

We recommend using 35mm unsprocketed black-and-white film whenever possible. You can produce the largest slide images on this size film. Slide images on the sprocketed 35mm films are aligned precisely for mounting in standard 35mm slide mounts if you use the &SPU35BW, &S35BW, &S35CLR, or &U35BW command. Do-it-yourself slide mounts are available commercially, or you can have the work done at Graphic Arts. See Graphics at ANL, AMD Technical Memorandum 335, for more information on preparing graphics material for Graphic Arts.

Paper Prints

You can draw slide images directly on paper using the Calcomp or Versatec plotters. You can make a copy of the screen image on terminals with attached copiers or desk-top plotters. You can also make prints from film.

We recommend using the Versatec plotter rather than one of the Calcomps for plotting directly on paper. The Versatec is inexpensive and fast, especially when you spool the graphical output. Calcomp plotters are not well-suited to filling in the shaded character styles that are most appropriate for posters, and their plotting is not precise enough to produce good slide images.

Finally, you can submit 35mm film to Graphic Arts for photographic printing; they can produce very-high-quality glossy prints of your text images, but this procedure may be slow and expensive.

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COMMON ERRORS AND PROBLEMS

Error Messages

SLIDES is written so that it is difficult to make errors that will cause the program to end. Three error messages are printed in response to three basic errors: too much text for one slide, no text in a slide, and misspelled commands. These error messages are printed immediately after the command or text string that caused the error. In all cases, the command or text string containing the error is ignored; it is not plotted and has no effect on the rest of the input. These error messages are as follows:

***** MAXIMUM LINES USED - IGNORED

You have tried to put more than ten lines of text on the slide. This line of text is ignored. If you must have more than ten lines, use the &POSTER command. Remember, however, that overly-complicated slides are worse than no slides at all.

***** NOTHING IN SLIDE - IGNORED

You have tried to plot a slide without any text in it. The command to plot a slide was ignored. Each slide must include at least one line of text (but that line may be blank).

***** 'xxxx' OR 'xxxxxxxx' UNDEFINED COMMAND - IGNORED

You have probably misspelled a command. The command indicated in the message was ignored.

Meaningless Parameter Values

As explained previously, all SLIDES command parameters are positional parameters. Default values are supplied for all parameters not specified by the user, and default values are also substituted for all illegal values input by the user. When a meaningless or illegal value is detected for a command parameter, the default value is used for this parameter and all succeeding parameters. No error or warning message is given.

Shaded Styles Not Shaded Properly

The shaded styles of DISSPLA require additional memory for shading in the type characters. SLIDES uses the DISSPLA default of 2000 words, which is adequate for most applications. However, if you find that some characters in a line of shaded text are not shaded properly, SLIDES has run out of memory. You must either increase the "gaps" size in the &GAPS command, choose a different shaded style, or reduce the character size.

Text Strings Not Scaled Properly

DISSPLA chooses its intercharacter spacing as a nonlinear function of character height. The SLIDES scaling algorithm assumes that it is a linear function of character height. As a result, text strings that are very small (less than 0.1 inch high), or very large (greater than 10 inches high), may fail to scale correctly. Your only alternative is to make the characters bigger or smaller, as indicated by the lack of or excessive spacing between letters.

&IMAGE, &MARGIN, &PAGE, and &SIZE Problems

The parameters on the &IMAGE, &MARGIN, &PAGE, and &SIZE commands are not checked for reasonable values relative to each other. The consequence of this is that you are free to request a page whose upper right corner is in reality lower and left of your lower left corner; or to select a margin larger than half the height or width; or to select a &SIZE too small to read. In all of these cases, the results are not predictable, but they will, in general, be undesirable. You should be aware of this, and select your parameter values for these commands accordingly. (See the section of this manual on Size and Position Commands.)

&SCALE Problems

Since a given slide is scaled relative to itself only, any given scale factor, as long as it does not change in the slide, will produce the same size text as a scale factor of one; provided &SIZE doesn't come into play. For example, a slide drawn with a scale factor of 2 will be the same size as a slide drawn with a scale factor of .5.

However, in no event will the characters be scaled such that they are bigger than the &SIZE parameter times the &SCALE parameter.

Problems with the &SCALE command can usually be avoided by having at least one line with a scale factor of 1, and any other lines with a scale factor of 1 or less.

Missing Text and Text Drawn On Itself

If your logical page size (set by &PAGE) is larger than your logical image size (set by &IMAGE) the images on the right side of the slide are likely to be missing. The solution is to set your logical page smaller or your logical image larger.

If your text seems to "wrap around" on top of itself, the logical image of your slide is larger than its physical image, either because you have not used the &DEVICE command, or you have specified the wrong argument in the &DEVICE command. The solution is to reduce the size of the logical image, or to use the correct parameter in the &DEVICE command.

Tables of Numbers

SLIDES is not designed to produce tables. Because the character styles of DISSPLA are proportionally spaced (even numbers), it is very difficult to align text in columns. Tables do not make good slides, in general.

If you must generate tables, the instruction mode string-manipulation characters of "K" and "Q" may be of assistance. They can be used to stop proportional spacing.

Another technique (somewhat more difficult) is to define several pages using the &OVERLAY and &PAGE commands. If each page has the same number of lines, and each page is a column, this will help reduce the effects of proportional spacing.

In general, because SLIDES is not designed for producing tables, they are hard to produce.

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ALPHABETICAL LISTING AND DESCRIPTION OF COMMANDS

In the following listing, optional parameters are shown enclosed in brackets, "[" and "]". You do not type the brackets. Note that no SLIDES commands require you to supply arguments, but, because all SLIDES arguments are positional parameters, when an argument is supplied, values for all the preceding arguments must also be supplied.

&AGAIN

The &AGAIN command will replot the last slide, provided that no text lines have been entered since the last sequence command. It will not properly replot slides produced with the &OVERLAY command. This command is useful when combined with the &CHECKOUT, and &SAVE commands.

&ANGLE [degrees]

The &ANGLE command selects the angle of the lines used to shade the characters in the Futura, Logo, Serif, and Fashion type styles. "Degrees" is measured in degrees counterclockwise from the horizontal. The default is 90 degrees (vertical lines).

&ANLLOGO [left [bottom [size [gaps [r [g [b]]]]]]]

The &ANLLOGO command puts the Argonne National Laboratory logo on slides as they are plotted. The lower left corner of the logo is at ("left", "bottom"); the size is "size"; the opaqueness is specified by "gaps"; and the logo's color is composed various intensity combinations of "red", "green", and "blue", whose values range individually from 0 to 1. (See the &COLOR command below.) The default values for "left" and "bottom" are both 0; the "size" default is 10% of the logical image size; the "gaps" default is 100% opaque; and the default values for "red", "green", "blue" are all 1. If the &NOPERCENT mode is in effect, "left", "bottom", and "size" are given in units of the logical image size, and "gaps" is given as the distance between shading lines used to fill in the characters in units of the logical image size. If the &PERCENT mode is in effect, "left", "bottom", and "size" are given as percentages of the logical image size, and "gaps" is given as the percentage of opaqueness.

&BACKGROUND [red [green [blue [gaps]]]]

The &BACKGROUND command causes the entire area of the slide (as set by &PAGE) to be shaded the color resulting from the specified intensities of "red", "green", and "blue" (whose values range individually from 0 to 1), to the opaqueness given by the "gaps" parameter. This command is useful only on color film plotters. The default values for "red", "green", and "blue" are all 0, and the default for "gaps" is 100% opaque. If the &NOPERCENT mode is in effect, "gaps" gives the distance between shading lines used to fill in the page. If the &PERCENT mode is in effect, "gaps" is given as the percentage of opaqueness.

&CARTOG

The &CARTOG command selects the DISSPLA Cartog character style.

&CENTER

The &CENTER command centers succeeding text lines in the frame width; this is the default mode.

&CHECKOUT [checkout mode]

This command causes succeeding slides to be drawn using a very simple character style or no characters at all. The 'checkout mode' determines which level of checkout. 'TEXT' plots all text strings, even those specifically requested to be plotted in other styles, with the DEFAULT style. Styles selected with the 'F' instruction mode command will be honored, however. The size and position of the text string will be only approximately the same as that of the original string, because the DEFAULT style characters may differ in size from the other styles. Note that the DEFAULT style does not have all of the characters of the other styles. 'TEXT' is useful for checking out the spelling and the general appearance of slide text, because it plots the slides faster than they are plotted when other styles are used. 'BOX' causes all text lines to be replaced with boxes drawn to be approximately the same size and orientation as the area allocated for the text string. Underlines are drawn, if present. 'BOX' is useful for checking the layout of very complex slides, because it plots the slide very rapidly. If you do not specify a mode, 'TEXT' is used.

&CINE

The &CINE command causes slides to be plotted on the FR80 in the "cine" (movie) format, that is, the slides can be read properly while viewing the film strip vertically like a movie projector.

&COLOR [red [green [blue]]]

The &COLOR command causes the color of the succeeding text lines to be composed of the specific intensity combinations of "red", "green", and "blue", where the intensities of these three color parameters range individually from 0 to 1. The default values are all 1. The following table gives the corresponding &COLOR intensity values for the &CRAYON color names:

<u>Values</u>	<u>Co'or</u>	<u>Values</u>	<u>Color</u>
(1.,1.,1.)	- white	(0.,1.,0.)	- green
(1.,0.,0.)	- red	(0.,1.,1.)	- cyan
(1.,1.,0.)	- yellow	(0.,0.,1.)	- blue
(1.,0.,1.)	- magenta		

&COMIC

The &COMIC command causes slides to be plotted on the FR80 in the "comic" format, that is, the slides can be read properly while viewing the film strip horizontally like a comic strip.

&COMMENT [anything]

The &COMMENT command is used to generate a comment; it has no affect on succeeding text lines or slides.

&COMPLX

The &COMPLX command selects the DISSPLA Complx character style.

&CRAYON [colorname]

The &CRAYON command causes all succeeding text lines to be the color specified, until another color is called for. Valid color names are WHITE, CYAN, MAGENTA, YELLOW, RED, BLUE, or GREEN. The default is WHITE.

&DEFAULT

The &DEFAULT command selects the DISSPLA Default character style.

&DEVICE [device mnemonic]

The &DEVICE command sets the physical image size available for slides. See Table 7 for a list of the mnemonics for the available output devices, and the image size selected by each option.

&DUPLX

The &DUPLX command selects the DISSPLA Duplx character style.

&ECHO

The **&ECHO** command causes all succeeding text lines and commands read in by the **SLIDES** program from its input dataset (FT05F001) to be "echoed" on the output dataset (FT06F001); this is the default mode.

&END

The **&END** command causes the current slide to be plotted and the program to terminate. The **SLIDES** program will also process the last slide and terminate if it encounters an "end-of-file" in its input dataset (FT05F001).

&FASHON

The **&FASHON** command selects the **DISSPLA** Fashion character style.

&FRAME [red [green [blue]]]

The **&FRAME** command causes a frame to be drawn around the text when the slide (and those succeeding it) is plotted. The frame is the color resulting from the specified intensities of "red", "green", and "blue", whose values range individually from 0 to 1. (See the **&COLOR** command above). The default values are all 1.

&FUTURA

The **&FUTURA** command selects the **DISSPLA** Futura character style.

&GAPS [gaps]

The **&GAPS** command selects the opaqueness of the shade pattern in the characters in the Futura, Logo, Serif, and Fashion type styles. If the **&NOPERCENT** mode is in effect, "gaps" is given as the distance between the shading lines used to fill in the characters in units of the logical image size. If the **&PERCENT** mode is in effect, "gaps" is given as the percentage of opaqueness. The default is no shading.

&GOTHIC

The **&GOTHIC** command selects the **DISSPLA** Gothic character style.

&GREEK

The **&GREEK** command selects the **DISSPLA** Greek alphabet.

&HEBREW

The **&HEBREW** command selects the **DISSPLA** Hebrew alphabet.

&IMAGE [width [height]]

The &IMAGE command selects the logical image size. See the Size and Position Commands section of this manual for a discussion of &IMAGE. The default values are both 11, for an 11 x 11 area.

&INSTRUCTION

The &INSTRUCTION command sets the instruction mode, so that text is processed in a special manner. Parentheses are used in the instruction mode to delineate instructions to the string-manipulation features of DISSPLA; all string-manipulation instructions must be placed in parentheses. All of the string-manipulation features of DISSPLA are included in the SLIDES program, and the string-manipulation rules described in the DISSPLA documentation are in effect. Complex formulae and text strings can be produced with these string instructions. For further information and usage examples, see Part B, Section 24 of the DISSPLA User's Manual. For further information and examples of the "J" instruction, see the "Using the Instruction Mode" section of this manual. The &INSTRUCTION command is equivalent to the following &MXnALF commands:

```
&MX1ALF L/CSTD )
&MX2ALF INSTRUCTION (
```

&INTENSITY [brightness]

The &INTENSITY command causes succeeding text lines to have the intensity specified by "brightness". The "brightness" parameter value range is from 0 to 1, with 0 the least bright and 1 the brightest. If the &COLOR command is used to select colors, this command has no effect; use the &CRAYON command if you want to use &INTENSITY. The default value is 1.

&ITALIC

The &ITALIC command selects the DISSPLA Italic alphabet.

&LEFT [percent]

The &LEFT command causes succeeding text lines to be left-justified by the specified percentage of the frame width from the left edge. (Obviously, the maximum value should be less than 100.) If the &LEFT command is given with no percentage value specified, 0 (zero) is assumed, and the text is justified at the left edge of the frame.

&LOGO

The &LOGO command selects the DISSPLA Logo character style.

&MARGIN [size]

The &MARGIN command causes slides to be plotted in the logical page with a margin whose width is specified by "size" around all sides. If the &NOPERCENT mode is in effect, "size" is given in units of the logical page size. If the &PERCENT mode is in effect, "size" is given as a percentage of the logical page size. The default is 5 percent of the logical page size.

&MXnALF [alphabet [character]]

The &MXnALF commands set the specified "character" as the shift character. Up to six shift characters can be set (n ranges from 1 to 6). The "alphabet" is the type style or alphabet to be used. The selections are: STANDARD, L/CSTD, ITALIC, L/CITALIC, SCRIPT, L/CSCRIPT, GREEK, L/CGREEK, RUSSIAN, L/CRUSSIAN, HEBREW, L/CHEBREW, SPECIAL, MATHEMATICAL, and INSTRUCTION. Succeeding text lines are affected by these commands. The following alphabet commands -- &DEFAULT, &CARTOG, &SIMPLX, &COMPLX, &DUPLX, &TRIPLX, &GOTHIC, &FUTURA, &FASHON, &LOGO, &SERIF, -- and the &NOINSTRUCTION command set only the first two shift characters (&MX1ALF and &MX2ALF) to their default values, which are

```
&MX1ALF L/CSTD )
&MX2ALF STANDARD (
```

These commands provide a technique where up to six alphabets can be displayed on a single text line without using the instruction mode, or the instruction mode can be shifted into and out of in a single line.

&NEW

The &NEW command causes the current slide to be plotted, and input for the next slide to be accepted.

&NOANLLOGO

The &NOANLLOGO command suppresses the drawing of the ANL logo when the slides are plotted; this is the default mode.

&NOCHECKOUT

The &NOCHECKOUT command causes slides to be plotted in the specified style(s) rather than in the default style. This command, which suppresses the &CHECKOUT mode, is the default.

&NOECHO

The &NOECHO command suppresses the "echoing" of all succeeding text lines and commands read in by the SLIDES program from its input dataset (FT05F001) on the output dataset (FT06F001).

&NOFRAME

The &NOFRAME command suppresses the drawing of frames around slides that are plotted; this is the default mode.

&NOINSTRUCTION

The &NOINSTRUCTION command suppresses the instruction mode so that all succeeding text lines are to be treated in the normal manner. Characters inside of parentheses are in uppercase, and those outside the parentheses are in lowercase; this is the default mode. This command is equivalent to the defaults for the first two &MXnALF commands:

```
&MX1ALF L/CSTD )  
&MX2ALF STANDARD (
```

&NOPERCENT

The &NOPERCENT command selects the nopercent mode (and suppresses the &PERCENT mode); this is the default mode. See the &PERCENT command for a discussion of the percent mode.

&NOSKIP

The &NOSKIP command suppresses the &SKIP command that plots slides with a blank slide between them. The &NOSKIP is useful for producing movies.

&NOTEXT

The &NOTEXT commands causes the ANL logo to be drawn without the words "ARGONNE NATIONAL LABORATORY".

&NOUNDERLINE

The &NOUNDERLINE command turns off the text underlining feature; this is the default mode.

&OVERLAY

The &OVERLAY command causes the current slide image to be plotted, but no frame advance is made so that the next slide will be plotted directly over the current slide.

&PAGE [left [bottom [right [top]]]]

The **&PAGE** command selects the logical page size. This command causes slides to be plotted in a logical page whose lower left corner is at ("left", "bottom"), and whose upper right corner is at ("right", "top"). (See the Size and Position Command section for a discussion of **&PAGE**.) If the **&NOPERCENT** mode is in effect, the arguments are given in units of the logical image size. If the **&PERCENT** mode is in effect, the arguments are given as percentages of the logical image size. In either case, the logical page defined by the **&PAGE** command must be a subspace of the logical image defined by either the **&IMAGE** or the **&DEVICE** command. The default values for "left" and "bottom" are both 0, "right" and "top" are the size of the logical image.

&PERCENT

The **&PERCENT** command selects the percent mode. Parameters on the commands **&ANLLOGO**, **&BACKGROUND**, **&GAPS**, **&MARGIN**, **&PAGE**, **&SIZE**, and **&UNDERLINE** are interpreted as percentages. See the Size and Position Command section for a more detailed discussion of **&PERCENT**.

&POSTER

The **&POSTER** command permits the SLIDES program to accept a maximum of 60 lines per frame, instead of 10. Do not use this command for text slides or movie titles; use it only for posters.

&REPEAT [times]

The **&REPEAT** command causes the current slide to be plotted the number of times specified by "times", and the input for the next slide to be accepted. This command will not process overlaid slides properly. The default value is 1.

&RESET

The **&RESET** command causes succeeding text lines and slides to be processed with default values of most of the commands. See Table 9 for a list of commands reset by the **&RESET** command, and their associated default values.

TABLE 9

Default Values Assigned by a &RESET Command

&ANGLE 90
&BACKGROUND 0 0 0 opaque (this means no background)
&CENTER
&CRAYON WHITE
&DEFAULT
&ECHO
&GAPS not filled in
&IMAGE whatever the physical image size is from &DEVICE
&INTENSITY 1
&MARGIN 5% of logical page
&MX1ALF L/CSTD)
&MX2ALF STANDARD (
&MX3-6ALF no shift character or string defined
&NOANLLOGO
&NOCHECKOUT
&NOFRAME
&NOINSTRUCTION
&NOPERCENT
&NOUNDERLINE
&PAGE 0 0 whatever the physical image size is
&ROTATION 0
&SCALE 1
&SIZE same as the logical image
&SKIP
&SLIDE
&SPOTSIZE 0
&STANDARD
&TEXT
&USEn all "Zn" string macros set to a single blank

&RIGHT [percent]

The **&RIGHT** command causes succeeding text lines to be right-justified by the specified percentage of the frame width from the right edge. (Obviously the maximum value should be less than 100.) The default value is 0, and the text is justified at the right edge of the frame.

&ROTATE [degrees]

The **&ROTATE** command causes succeeding text lines to be rotated the specified number of degrees counterclockwise from horizontal; the default value is 0.

&RUSSIAN

The **&RUSSIAN** command selects the **DISSPLA** Russian alphabet.

&SAVE

The **&SAVE** command works only on CMS. It saves the last slide in a file named **SLIDES GRAPHICS A1**, and processes it after the **&END** command. The 'last slide' is the last set of text lines entered. This command will not process overlaid slides properly. It is possible to construct slides interactively using **&NEW** until you find a slide you like. You may then enter **&SAVE** after the **&NEW** and this slide will be saved and processed later.

&SCALE [factor]

The **&SCALE** command causes the size of succeeding text lines to be changed by a size "factor" larger or smaller than a normal line. The default value is 1. The actual size of the text lines is a function of the environment in which it is plotted. Complex slides typically have very small lettering and simple slides have very large lettering. See the "Size and Position Commands" section for a detailed discussion of the scaling process.

&SCMPLX

The **&SCMPLX** command selects the **DISSPLA** Simplx character style.

&SCRIPT

The **&SCRIPT** command selects the **DISSPLA** Script alphabet.

&SERIF

The **&SERIF** command selects the **DISSPLA** Serif character style.

&SIMPLX

The **&SIMPLX** command selects the **DISSPLA** Simplx character style.

&SIZE [size]

The &SIZE command limits the size of characters to a given maximum. If the nopercent mode is in effect, "size" is given as units of the logical image size. If the percent mode is in effect, "size" is given as a percentage of the logical image size. The default is the entire logical image (no limit on size). See the "Size and Position Commands" section for a discussion of the scaling process.

&SKIP

The &SKIP command causes slides to be plotted with blank slides between them. This command should be used if slides are to be mounted.

&SLIDE

The &SLIDE command permits the SLIDES program to accept a maximum of 10 lines per frame; this is the default mode.

&SPECIAL

The &SPECIAL command selects the DISSPLA Special alphabet.

&SPOTSIZE [size]

The &SPOTSIZE command causes the succeeding text lines to be plotted with the spotsize specified by "size". The "size" parameter must range from 0 to 1, with 0 specifying the smallest, sharpest spot, and 1 the largest, most diffuse spot. If the &COLOR command is used to select colors, this command has no effect; use the &CRAYON command if you want to use &SPOTSIZE. The default value is 0.

&STANDARD

The &STANDARD command selects the DISSPLA Standard alphabet.

&TEXT

The &TEXT command causes the ANL logo to be plotted with the words "ARGONNE NATIONAL LABORATORY" superimposed. This is the default mode.

&TRIPLX

The &TRIPLX command selects the DISSPLA Triplx character style.

&UNDERLINE [times [distance]]

The &UNDERLINE command causes succeeding text lines to be underlined the number of times specified by "times", with the space between them specified by "distance". The default for "times" is once, and the default for "distance" is one percent of the logical image size. If the &NOPERCENT mode is in effect, "distance" is given in units of the logical image size. If the &PERCENT mode is in effect, "distance" is given as a percentage of the logical image size.

&USE [textstring]

The &USE command is used to define a string macro. The value of the macro is the "textstring" given in the command. Up to 40 characters can be included in the macro definition. The macro is referenced using the "Z" string manipulation instruction while in the instruction mode. See the DISSPLA User's Manual, Part B, Section 24, for a discussion of string macros. The default is a blank.

&USEn [textstring]

The &USEn commands are the same as &USE, except that they allow definition of up to six different string macros (n ranges from 1 to 6); these macros are then referenced using "Z1" through "Z6". The &USE commands provide a technique for generating very long and complicated text strings, and the 72-character line limit can easily be overcome using these commands. See the DISSPLA User's Manual, Part B, Section 24, for a discussion of string macros.

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