

Introduction

Computer-aided design is simple and sophisticated with Valdraw, an easy-to-use electronic drafting and design tool for creating technical drawings. Valdraw makes electronic drafting so easy that you'll be drawing your first picture within minutes of connecting your mouse and loading your Valdraw disks.

A variety of tools and features contribute to Valdraw's ease-of-use. A T-square "squares" your horizontal and vertical lines; the Zoom feature lets you work on your design in closer detail; the drawing grid provides a structure within which to work; a lettering system lets you incorporate text into your drawing; the block feature lets you create reusable templates for future drawings; and the list continues.

As a result of its capabilities, Valdraw's applications are virtually limitless. Architectural possibilities include floor plans and interior design. Educational and business users will find Valdraw particularly well-suited for making presentation quality transparencies, especially in conjunction with the Epson HI-80 four-color plotter. Electronic schematics, industrial drawings—as quickly as

2 Drawing with Valdraw

you think of an application, Valdraw is there to accommodate you.

And after you've made your first Valdraw picture, try using Valpaint to add color and shading to your design. You may end up with a striking illustration!

So take a few minutes to experiment (glancing casually at the manual now and then). In less time than you can imagine, you'll be turning out professional quality line drawings, and using Valdraw for a host of applications.

HOW TO USE THIS MANUAL

The following pages are organized to give you as much or as little information as you need. Part I presents an overview of the Valdraw basics—it contains the minimum of information you'll need to start working and experimenting with Valdraw.

Part II discusses Valdraw in greater detail, by describing individually the various tools Valdraw offers and the tasks it can perform. These are listed alphabetically, for greater ease in locating the information you need. Additionally, you'll find a discussion of the two main menus—the Line menu and the Tool menu—organized by their on-screen menu presentation, and a listing of keyboard keys and their functions.

The Appendixes in Part III at the end of the manual describe the procedure for installing and running Valdraw, provide a list of compatible mice, plotters, and digitizers, and describe a technique for photographing your screen drawings.

FOR FURTHER ASSISTANCE

This manual is intended to be your primary source of operating information about Valdraw. However, if you have questions that are not answered here, or need applications assistance, call Rising Star's Customer Services hotline at 213-373-9127, Monday through Friday between 7 a.m. and 5 p.m. Pacific Coast Time, and we'll do our best to help.

In the meantime, start drawing!

Part I

Valdraw Basics

The first step into your Valdraw experience begins with a look at Appendix A, for a description of the Valdraw installation procedure.

Once you've installed Valdraw according to these instructions and connected your mouse or other graphics input device to your computer, you'll see a blank screen containing a cursor positioned near the center. (See Figures 1 and 2.)

THE MOUSE

Your mouse has three buttons that are the primary Valdraw controls. (The buttons on compatible digitizers have the same functions, so throughout the rest of this manual, the controls will be referred to as "mouse buttons.")

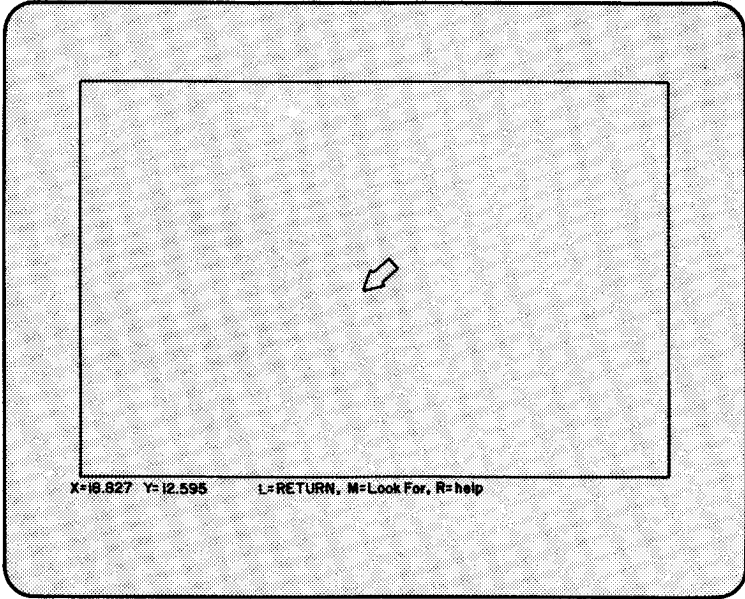


Figure 1. The cursor as it first appears. The size of this figure is determined by the scale selected for your output device.

Mouse Controls

The LEFT mouse button corresponds directly with the **[RETURN]** key on your keyboard. Menu selection is made by pressing this button or the keyboard **[RETURN]** key. If no menu is shown and the graphics cursor is on the screen, pressing this button will start a line. (More on that in a moment.)

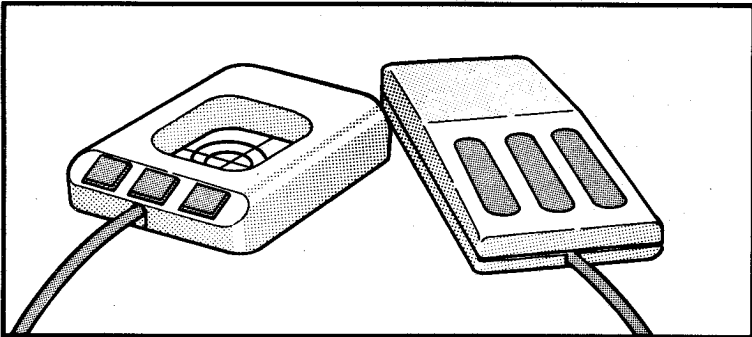


Figure 2. The digitizer wand (left) and the mouse (right)

The MIDDLE mouse button serves two purposes. When a menu is shown on the screen, the button functions as the **[UNDO]** keyboard key, allowing you to leave the menu and return to the drawing screen. When a menu is NOT in use, this button activates Valdraw's "gravity" or LOOK-FOR function. This allows you to move the cursor to the nearest line end point or nearest intersection on the drawing grid. Look-for is an exceptionally handy feature when you're working on a complex drawing.

The RIGHT mouse button lets you select one of the two main Valdraw menus, described in a moment. However, if a menu is already present on the screen, pressing this button will give you access to the Help menu. Help files describing every Valdraw menu item are provided on your Valdraw disk.

THE MAIN MENUS

Valdraw operates from the two main menus displayed whenever the RIGHT MENU mouse button is pressed.

The Tool Menu

If no line is being drawn at the time the RIGHT MENU mouse button is pressed, the "tool" menu will appear. This menu gives you access to all of the Valdraw tools used to create or modify images on the screen, such as the Zoom feature, Enter Text feature, and Delete ability.

The Line Menu

When you press the RIGHT MENU mouse button while a line is being drawn, the "line" menu appears. The selections on this menu are related to line drawing and cursor movement. For example, the T-square, used to make a line perpendicular or parallel with the bottom edge of a drawing, is found here. Manual keyboard entry of a line dimension or cursor position can also be performed from this menu. You can also cancel drawing the current line.

THE CURSOR

The cursor and its movement are controlled via your mouse. Each time you move the mouse, the cursor moves accordingly on the screen.

Drawing a Line

To draw a line on the screen, first press the LEFT RETURN mouse button to start the line, then move the cursor. A "rubber band" line will stretch between the starting point and the cursor. Press the LEFT RETURN mouse button a second time when you're ready to "set" the end point of the line and make it permanent. If you tap the LEFT RETURN mouse button quickly, the line ends at the end point and the arrow cursor returns. If you hold the button down for a moment, you can continue drawing from the last end point.

Continue to draw a second line from the end of the first by moving the cursor to a third location on the screen and again press the LEFT RETURN mouse button. Figure 3 illustrates how you can draw a triangle on the screen.

Start a line by pressing the LEFT RETURN mouse button, then move the cursor to adjust the first line. Press the LEFT RETURN mouse button to permanently draw the line, then move the cursor to the desired end point. End the second line by pressing the LEFT RETURN mouse button, then move the cursor to the desired end point. Press the MIDDLE LOOK-FOR mouse button to move the cursor to the beginning of the first line. Without moving the mouse, fix this line in position by pressing the LEFT RETURN mouse button. (The LOOK-FOR function is called "gravity," and

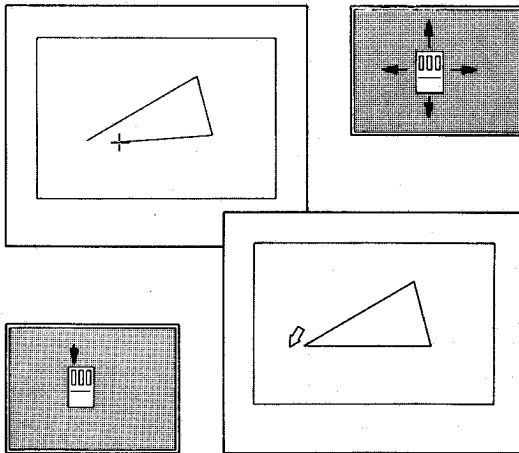


Figure 3. Drawing a line

it precisely positions the cursor at the nearest line end point, eliminating the possibility of intersections where lines "almost" come together.)

To Stop Drawing

When you've finished drawing your line, tap the LEFT RETURN mouse button or press the **[RETURN]** key.

UNDOING MISTAKES

Valdraw is probably unique in the electronic drafting field, by allowing you to "UNDO" your changes (and mistakes). If you inadvertently erase an important part of your drawing, you can either go to the Tool Menu and select the <U>ndo a Deletion option to bring it back or simply press the **[UNDO]** key. Valdraw keeps track of the last thousand or so deletions, so you can "back up" and recover your work. If you are in the process of drawing a line and you change your mind, you can delete it by pressing the RIGHT MENU mouse button and selecting the <S>top drawing the line option.

STORING AND RETRIEVING DRAWINGS

When you're ready to save or print a drawing, simply press the **[PRINT]** or **[STORE]** key on your keyboard. These and most of the other Valdocus function keys work just as you would expect. (For a complete listing of all the keyboard keys that have specific meanings for Valdraw, see the section entitled "The Keyboard" in Part II of this manual.)

A FINAL WORD

With this brief introduction, then, you're ready to begin your acquaintance with Valdraw. Experiment with the tools you'll find in the menus. If you need information about the use of a specific

8 *Drawing with Valdraw*

tool, or how to perform a particular task, the following section of the manual will probably answer most of your questions. You can also get additional information when in any menu by pressing the **[HELP]** key, or the RIGHT MENU mouse button.

Above all, experiment and enjoy. You're moments away from your first professional Valdraw drawing.

Part II

Beyond Basics

In addition to the ease-of-use that you've no doubt already encountered in your experimentation with Valdraw, you've probably begun to realize that Valdraw gives you access to a wide variety of drafting tools and features.

The first section of Part II is a dictionary organized on a "tool" or "task" basis. Each Valdraw function is described individually, as are many common drafting tasks. Topics are arranged alphabetically, so that you can flip through to the information you need. Most of the tools found in the various menus are listed as they appear in the menus, although some are grouped together. For example, Circles and Arcs appear with other similar items under the heading "SHAPES."

A listing of Valdraw menus and sub-menus follows the dictionary, so if you have a question about where to find a particular tool or task, simply check the menu listings provided here.

Finally, at the end of Part II you'll find a section entitled "The Keyboard," which not only tells you how particular keyboard

keys function with Valdraw, but also tells you how to operate Valdraw from the keyboard, without a mouse or digitizer.

DICTIONARY OF TASKS AND TOOLS

Blocks

Valdraw's "block" feature represents an important aspect of Valdraw—that is, it allows you to approach and work on your drawing as a collection of screen blocks. This, in turn, lets you create and store your own series of templates to use in future illustrations.

Defining a Block: A block is that area on the screen that you wish to copy or move to another screen position, delete, save to a disk file, or modify. All block operations follow the same general procedures as shown in Figure 4.

Place the cursor in a corner of the area you wish to treat as a block. Press the RIGHT MENU mouse button and select the lock option. Move the mouse so that the desired block area is enclosed inside the rectangle that forms as you move the mouse. Press the LEFT RETURN mouse button to highlight and define the block. Move your mouse to relocate or change the block; press the LEFT RETURN mouse button to complete the block operation.

Note: If any part of the line or shape in the block you've selected extends *outside* the block's boundary, Valdraw will not treat it as part of the block.

Rotating a Block: The procedure you'll use to rotate a block differs slightly from other block operations. First, define and select the block as outlined in the steps shown above. Then:

1. From the menu that is presented, choose to copy or move the block to the new position, and press the LEFT RETURN mouse button.
2. Place the cursor at the position around which

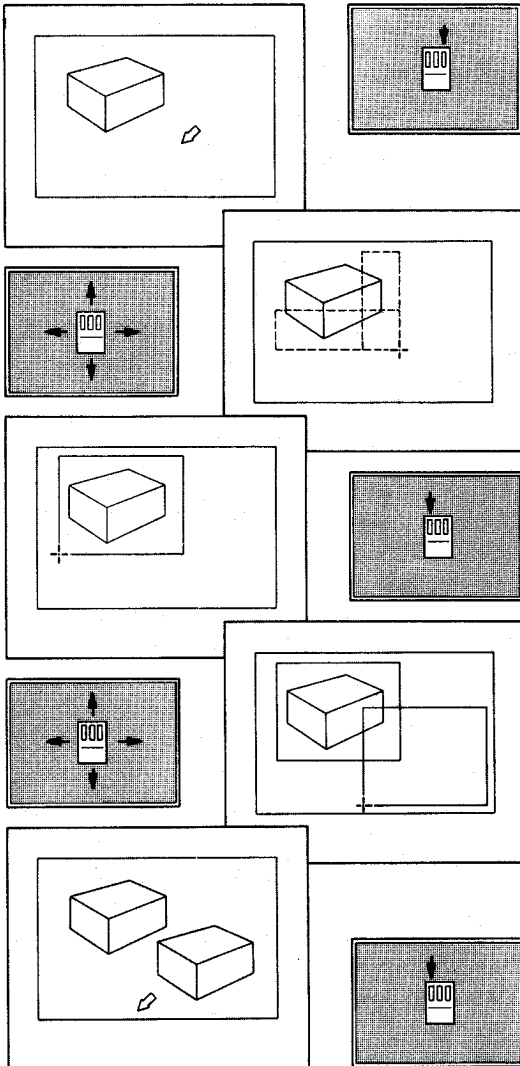


Figure 4. Defining a block

the block will be rotated, and press the LEFT RETURN button.

3. The block will rotate as you move the mouse. Press the LEFT RETURN mouse button to fix the rotated image on the screen.

The rotation feature will, for example, allow you to invert a section of your drawing. By rotating the block several times in succession, you could create a geometric figure that was radially symmetrical. Once you get the hang of rotating blocks, you might even want to try drawing a gear by drawing a single tooth and then rotating the tooth around the circumference of the circle.

Lines and shapes not originating and ending inside a block are not affected by block commands.

Use standard Valdocs indexed filenames to store your blocks, and then press the **[STORE]** key. Blocks can be retrieved by using the **[RETRIEVE]** or **[INDEX]** keyboard key.

Blocks, like completed drawings that you've stored in a Valdraw file, can be re-scaled and inserted into your current drawing by using the **[RETRIEVE]** or **[INDEX]** keyboard key. (For more information on incorporating an already drawn illustration into your current design, see "Merging Two Drawings.")

Templates from Blocks: The block feature can also be used to create "templates" (basic drawings that are used frequently in other drawings). Examples of frequently used templates might include scaled shapes for furniture and appliances (for use in floor plan layouts) and electrical or electronic symbols such as circuit breakers, transistors, gates, etc. Once composed, a template can be used over and over without the necessity of redrawing it every time.

For a description of how to merge or insert your template into a drawing under construction, see "Merging Two Drawings."

Delete

Lines, shapes, and dimension lines can be deleted by first placing the cursor on or near the item you want to delete. Then press the RIGHT MENU mouse button and select the **<D>** delete option. Alternately, position the cursor as above and press the **<X>** (left delete) key.

Note that text can be deleted either using the <D>elete Text option found in the Text menu or with the [X> (right delete) key.

Dimension Lines

Valdraw provides automatically scaled dimension lines when you select the <A>dd a Dimension Line option in the Text menu.

To add a dimension line:

1. Position the cursor at one end of the line or shape to be dimensioned and press LEFT RETURN.
2. Press RIGHT BUTTON, select <T>ext, then <A>dd a Dimension line.
3. Move the cursor to the end of the line or position to be dimensioned and press the LEFT RETURN mouse button. The scaled dimension will be computed and the dimension line drawn in.

The size of the dimension characters is set by the <S>et Height of Dimension option, also found in the Text menu.

Drawing Grid

If you would like to organize your drawing layout within a grid, select the On-Screen Format menu, then the <G>rid On/Off option. Alternately, you can press [CTRL][G].

The drawing grid shown in Figure 5 is an aid to drafting layout and should be turned off prior to printing or plotting. The cursor can be automatically directed to an intersection on the grid by means of the gravity "LOOK-FOR" function. (See the On-Screen format menu for the Grid/Point Look-for options.)

Drawing Lines

To draw lines on the screen, position the cursor at the desired starting location on the screen, and press the LEFT RETURN mouse button. Draw the line, then

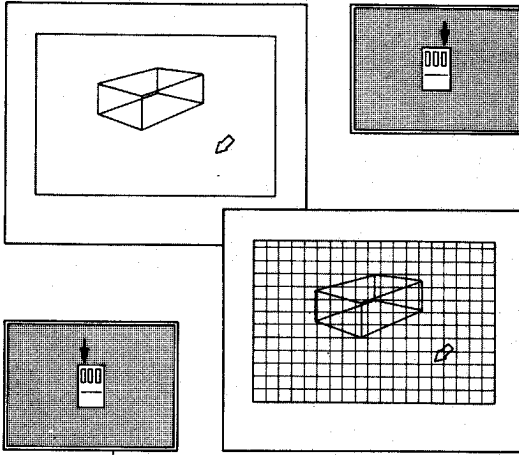


Figure 5. The grid

press the RETURN button again to "set" the end point of the line. You can extend another line from the end of this line by moving the cursor to a third location and pressing the RETURN button to end it.

Note: You can use the keyboard **[RETURN]** key instead of the mouse RETURN key.

Erasing the Screen

Select the **<M>** iscellaneous menu and then select the **<E>**rase Screen option to **<T>**hrow away the current screen image. The original file copy of the drawing, if you saved one earlier, is still retained and can be used again.

Gravity

Valdraw provides a "gravity" function (Figure 6) that lets you precisely place the cursor at a line end point, the center of a circle, or drawing grid intersection, thus increasing accuracy and enhancing the professional look of your drawing. To activate gravity, place the cursor near the desired target and press the CENTER LOOK-FOR mouse button. Alternately, press either **[CTRL][L]** or **[CTRL][+]** (plus). The cursor will

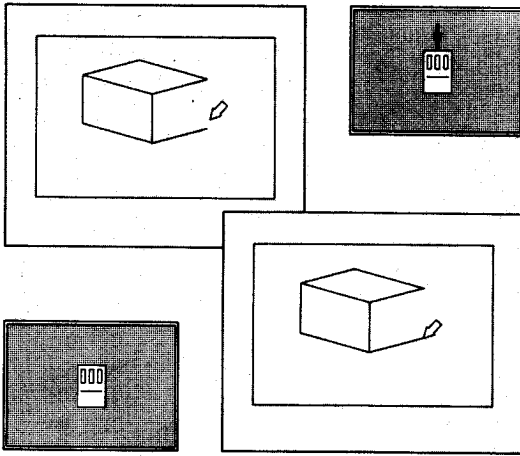


Figure 6. The **CENTER LOOK-FOR** mouse button automatically moves the cursor to the nearest line end point of circle center.

move to the closest line end point, circle center, or drawing grid intersection. (See the On-Screen format menu for the Grid/Point Look-for options.)

If the cursor moves to a point other than the one you want, position the cursor closer and try again. (It may take several attempts if the desired point is closely surrounded with other intersections. You may want to magnify the image with the ZOOM option to make cursor positioning easier.)

Manual Cursor Positioning

The cursor can be positioned manually from numbers you type on the keyboard. First, start your line by pressing the LEFT RETURN mouse button or the keyboard **[RETURN]** key. Press the RIGHT MENU mouse button and select the **<M>**ove Cursor to a Location option or press either a **[CTRL][P]** or the **[DEC. TAB]** key. Then type the desired cursor location as X position and Y position on the keyboard.

A line started before you selected this option will be drawn to the position you specified in your keyboard entry. The line can be "set" or thrown away by follow-

ing the usual procedures: either pressing the LEFT RETURN mouse button or selecting the <S> top Drawing Line option.

Manual Line Entry

A line segment can be drawn using the length and angle specifications you type from the keyboard. Start a line in the normal fashion by positioning the cursor and pressing the keyboard [RETURN] key or mouse RETURN key. Press the RIGHT MENU mouse button and select the <E> nter Line's Dimension option or press the [+/-] key. Then type the line length and angle. Line lengths can be specified to three decimal places; angles can be specified to two decimal places. (These values may be slightly adjusted depending on the scale you select and internal Valdraw rounding when the line is drawn.)

Merging Two Drawings

The procedure for merging a previously drawn illustration or a template with your current drawing is quite simple. (Refer to Figure 7.)

1. Use the [RETRIEVE] or [INDEX] key to select the drawing you want to work on, and choose <M>erge drawing from disk. Then choose your drawing.
2. Point the cursor at a feature within the merge drawing to indicate a positioning reference point, and press the LEFT RETURN mouse button to set it. A cross-hair will appear on the merge drawing to identify this reference point. This reference point enables you to precisely align the merge drawing with the current drawing.
3. Select the spot in the main screen where you want the corner of the retrieved (merge) drawing to go and press the LEFT mouse button. (Note that you can push down the bottom window to see any part of the drawing covered up by the merge drawing.)

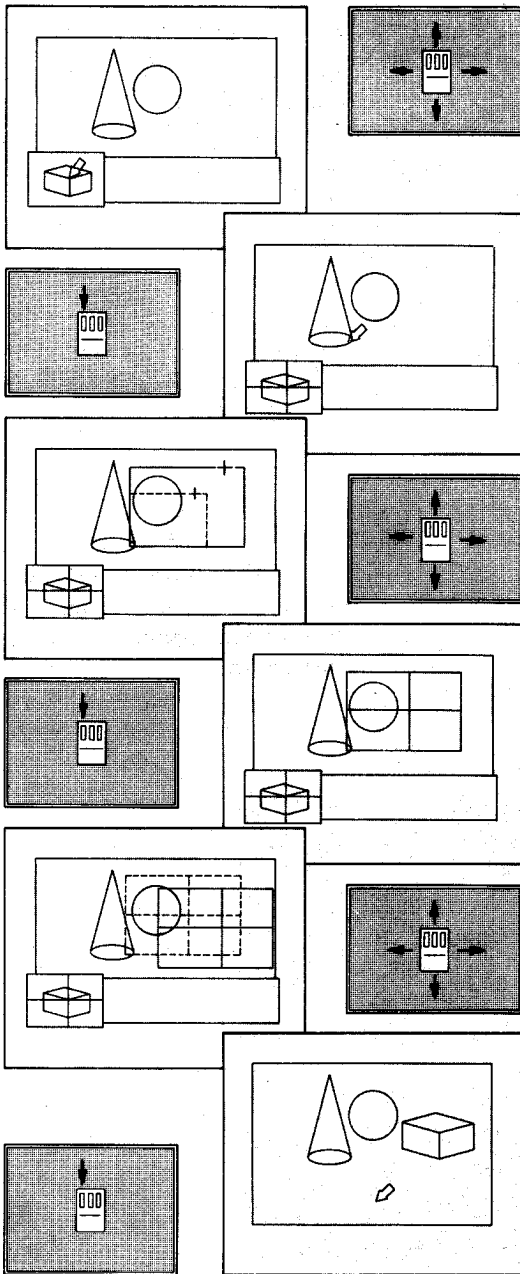


Figure 7. Merging illustrations

4. Set the size of the screen area that will be occupied by the merge drawing by moving your mouse. (The merge drawing will be scaled to fit inside this area.) A rectangle showing the size is drawn as the mouse is moved. Press the LEFT RETURN mouse button to set the size. A reference cross-hair corresponding to the one already drawn on the merge drawing will appear inside the size rectangle.
5. Using the cross-hair as a reference, move the rectangle to the screen position you want it to occupy and press the LEFT RETURN mouse button once more.

Paint Current Drawing

You can enhance your Valdraw screen images with the addition of Valpaint. The color, shading, and other details supplied by Valpaint can make a dramatic difference in the appearance of images printed with dot matrix printers. (See Figures 8 and 9.)

Applying Valpaint to your Valdraw illustration only changes the appearance of the screen image; your

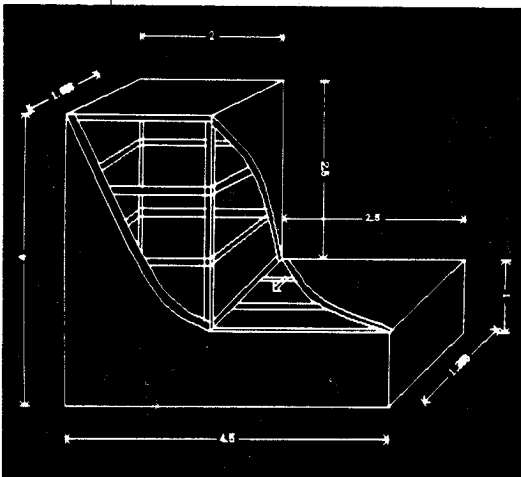


Figure 8. A Valdraw illustration

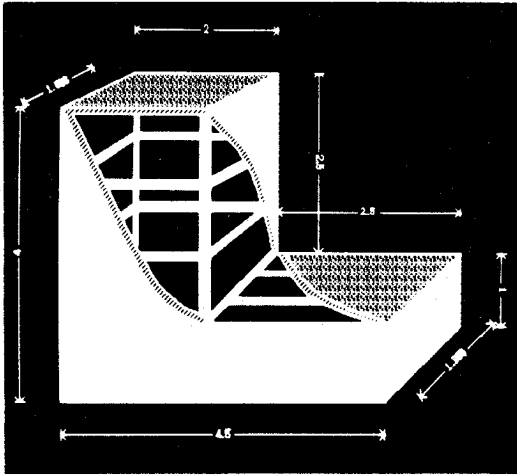


Figure 9. The painted version of Figure 8

original Valdraw file is not affected, and it can be used again without any painted effects. You can make any number of "painted" versions of your Valdraw image by retrieving the Valdraw file and passing it to Valpaint each time you wish to paint it.

To paint your illustration, press the RIGHT MENU mouse button and select the <P>aint Finished Drawing option.

Images composed or modified by Valpaint must be printed with a dot matrix printer; plotters cannot print the Valpaint image.

Panning

Panning allows you to move to any part of a drawing after you've zoomed in. After the new section of the drawing is displayed, the cursor is relocated to the center of the screen. For example, to see a section of the drawing that is above the current display, press either a shifted-[UP ARROW] or a shifted-[8]. The other shifted-arrow keys and shifted-numeric pad keys pan the display accordingly. (See also <P>an view under the On-Screen format menu.)

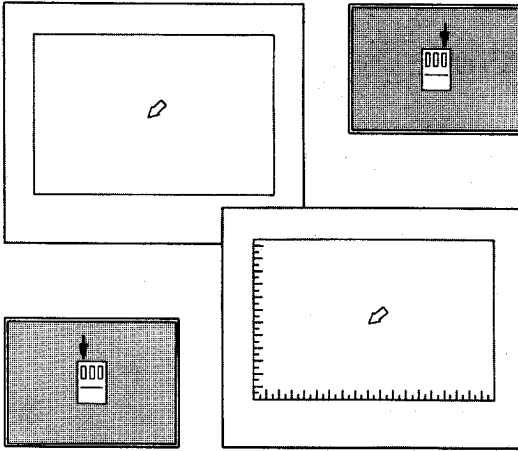


Figure 10. The ruler

Ruler

To assist you in making scale drawings, you can display a ruler at the left and bottom edges of the screen. Select the **<R>**uler On/Off option that appears in the On-Screen Format menu. You can choose a "decimal" or "English" ruled scale. The decimal scale is ruled in tenths and hundredths; the English scale is ruled in halves, quarters, eighths, etc. The fractional divisions on the scale are not visible until the image is magnified with the ZOOM feature (see "Zoom").

The ruler scale is measured in arbitrary "drafting units." You can set the number of drafting units per inch on the plotter unit by selecting the scaling option, also in the On-Screen Format menu. (See Figure 10.)

Scaling

Valdraw lets you scale your drawings to any reasonable size, thus permitting you to use a wide variety of plotter and printer options.

Set the scale from the On-Screen Format menu by indicating the **<D>**efine Scale of Drawing option. The scale is set in arbitrary "drafting units." You can set any number of drafting units between 0.1 and 100.0

to represent one inch on your plotter or printer output device.

Shapes

Valdraw automatically draws rectangles, arcs, circles, and French curves. First, select the shape you want to draw from the Shape menu. You can access the Shape menu through the Tool menu or by pressing either a **[CTRL][S]** or the **[×]** (multiplication sign) key on the numeric pad. The general procedure for drawing each shape is the same; individual variations are explained on the summaries below.

Circles: (Refer to Figure 11.)

1. Select the **<C>**ircle option from the Shape menu or press the **[0]** (zero) key.
2. Adjust the size of the circle by moving the cursor, then press the LEFT RETURN mouse button.
3. Position the circle on the screen by moving the mouse. Set it in place by pressing the LEFT RETURN mouse button.

Arcs: (Refer to Figure 12.)

1. Place the cursor on one of the desired end points of the arc, then select the Shape menu and the **<A>**rc option. Alternately, position the cursor and press either the **[I]** or **[D]** key.
2. Move the cursor to the other end point of the arc and press the LEFT RETURN mouse button.
3. Set the chord of the arc (the height of the arc above or below the two end points) by moving the mouse. Set it in the drawing by pressing the LEFT RETURN mouse button.

Rectangles: (Refer to Figure 13.)

1. Place the cursor at the desired corner position for the rectangle, then select the Shape menu and the **<R>**ectangle option.
2. Adjust the size and direction of the rectangle by moving the mouse. The rectangle grows as the mouse is moved.

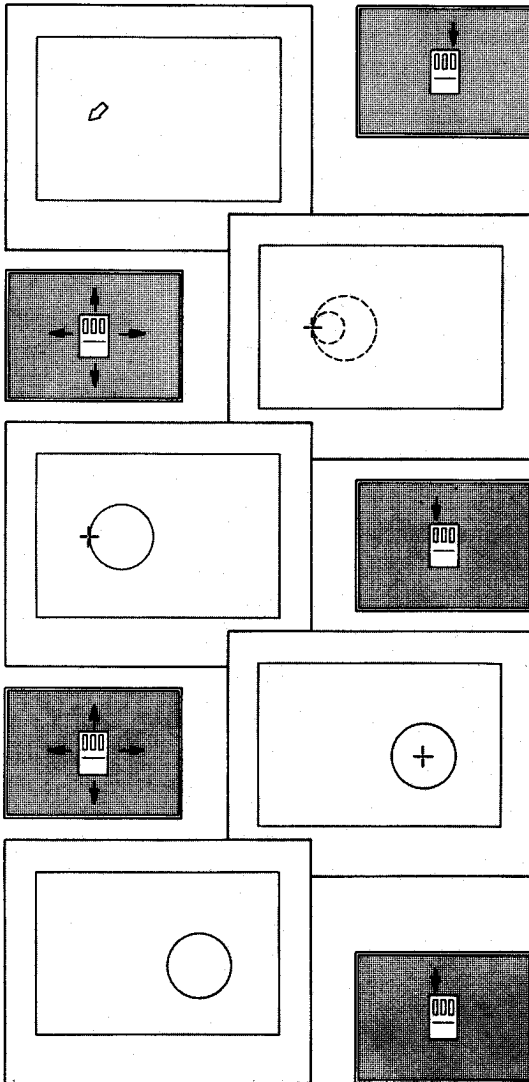


Figure 11. Circles

3. Finish the rectangle by pressing the LEFT RETURN mouse button.

French Curves: (Refer to Figure 14.)

1. Place the cursor at the desired end point of the

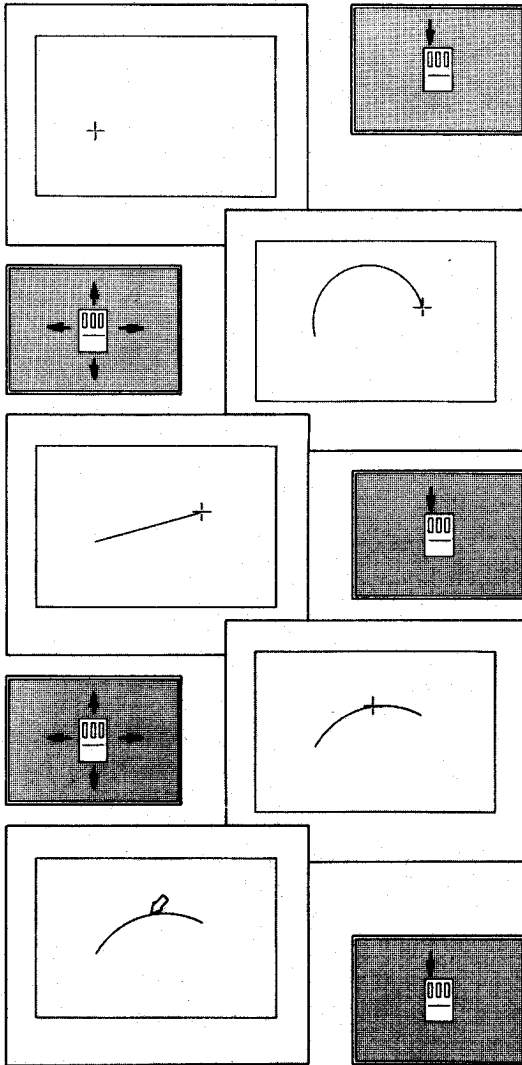


Figure 12. Arcs

- curve, then select the Shape menu and the <F>rench curve option.
2. Move the cursor to the other end point of the curve and set it by pressing the LEFT RETURN mouse button.

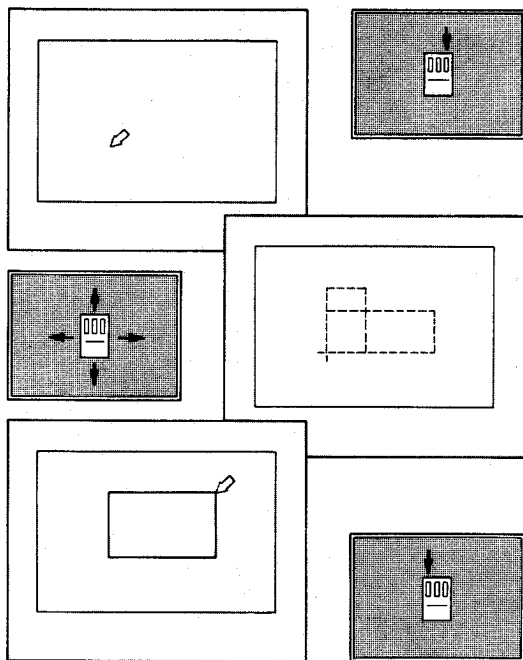


Figure 13. Rectangles

3. Bend the line to form the curve you want by moving the cursor. Fix the curve in the drawing by pressing the LEFT RETURN mouse button.

Stop Drawing Lines

Valdraw lets you draw one line segment after another by pressing the LEFT RETURN mouse button at each end point. Stop drawing the line by a quick tap on the LEFT RETURN mouse button, or you can cancel the line by pressing the RIGHT MENU mouse button and selecting <S> top Drawing Line. You can also stop drawing the line by pressing the [RETURN] or [ENTER=] keys.

Text

Enter text into a drawing via the Text menu option or by pressing the [WORD] key. Single lines of text can

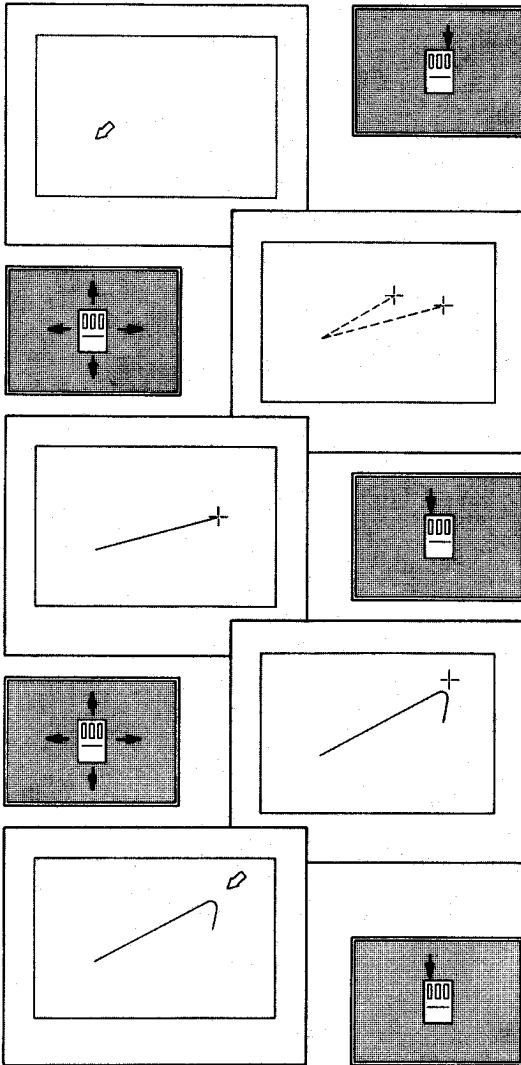


Figure 14. French curves

be entered, positioned, stacked, rotated, and scaled in to any position, as shown in Figure 15.

Text can be deleted by selecting the <D>lete Text option in the Text menu or by pressing the [X] (right delete) key.

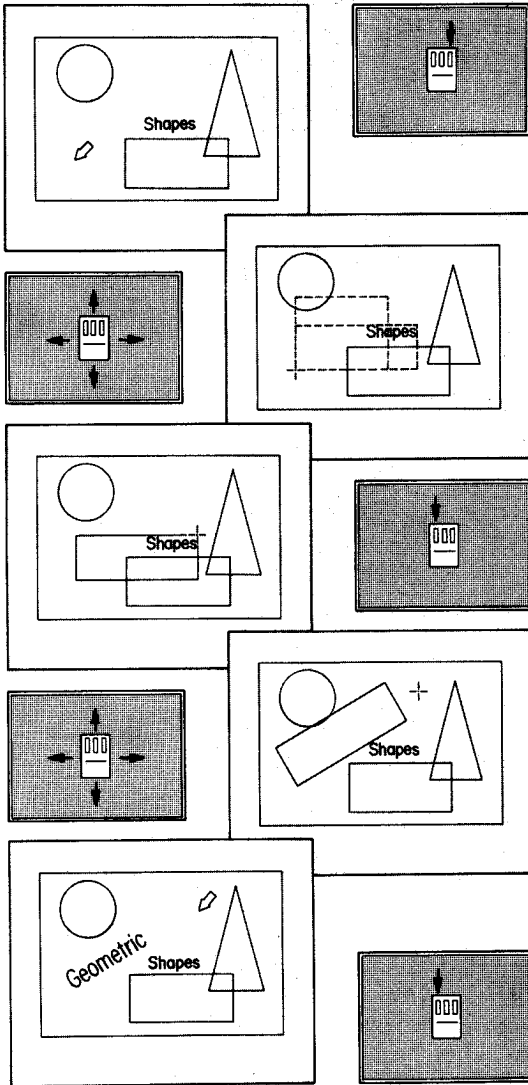


Figure 15. Using text with Valdraw

Position the cursor where you wish to add text, then select the Text menu and the <E>nter Text option. Type the text, ending with a RETURN. Set the size of the text by moving the cursor. (A rectangle showing

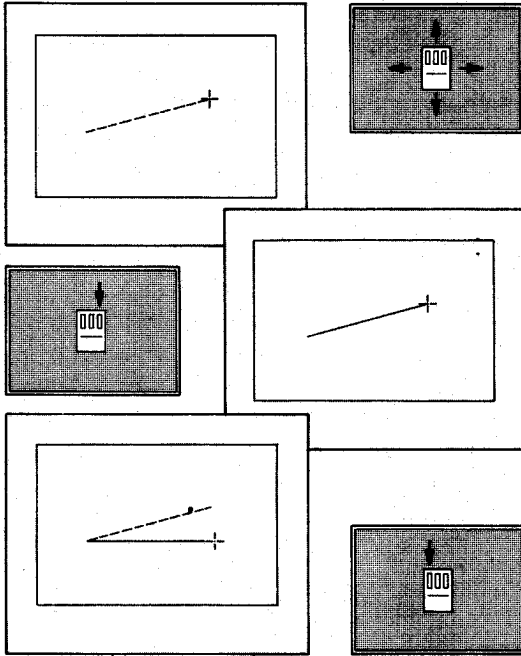


Figure 16. The T-square

the window size is drawn on the screen as the mouse is moved.) Press the **[RETURN]** key to set the size. Set the angle of the text by moving the cursor again. Press the LEFT RETURN button to place the text in the drawing.

T-Square

The Valdraw T-square (Figure 16) lets you “square” your horizontal or vertical lines. It can only be used while a line is being drawn.

To “square” a line, press the RIGHT MENU mouse button while you’re drawing a line, and select the <T>-square option or press the **[LINE]** key.

Undo a Deletion

As you delete lines or shapes from your illustration, Valdraw keeps a record, so you can restore deleted

elements on command. To restore a deletion, press the RIGHT MENU mouse button and select the <U>ndo a Deletion option.

Deletions are recovered in the reverse order in which they were made, i.e., the last deletion is recovered first.

Text deletions are not recoverable.

Zoom

The Zoom feature (Figure 17) lets you magnify your drawings up to 1600 times their normal screen size. Zoom menu options include closer (magnified) views, previous views, or full-sized viewing of the current screen image. You can zoom in repeatedly to get successively increasing magnifications. You can access the Zoom menu as a selection from the Tool menu or by pressing [CTRL][Z].

Enlarge a portion of a drawing by selecting the Zoom

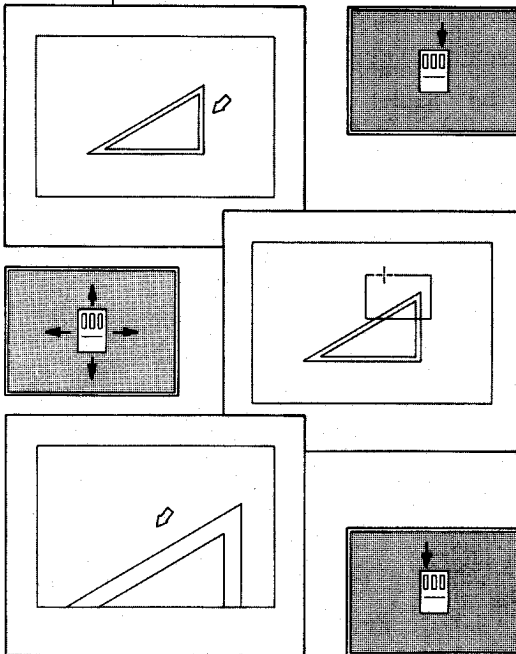


Figure 17. The Zoom feature

option after placing the cursor near the area to be magnified. Select the <Z>oom in Closer option, then move the cursor to enclose the area of interest in the enlargement rectangle. Press the LEFT RETURN mouse button to draw the enlarged area on the screen.

Images drawn in a highly magnified state might be reduced into illegible smudges when the normal screen view is restored. From the Zoom menu, you can also select the <P>an view option, in which you move the cursor to a new location and then press the LEFT RETURN mouse button. The drawing is panned over and that cursor location becomes the center of the screen. (See also the section of Panning.)

MAIN MENU FEATURES

Valdraw's tools and facilities are organized and presented in two main menus. The Line menu provides you with items for lines under construction. The Tool menu lets you select various Valdraw drafting tools whenever a line is not being drawn.

The Line Menu

The following menu appears when the RIGHT MENU mouse button is pressed while a line is being drawn:

<T>-*Square* (or press the **[LINE]** key): Selecting this option allows you to square the line currently being drawn with one of the borders. Whether it squares the line horizontally or vertically depends on the orientation of the line.

<S> *top Drawing the Line*: This option cancels the line currently being drawn.

<E> *nter the Line's Dimensions* (or press the **[+/-]** key): Use this option to manually enter a line dimension and an angle from your computer keyboard.

<M> *ove Cursor to Location* (or press **[CTRL][P]** or **[DEC. TAB]**): This option allows you to move the cursor to an X-Y location according to the coordinates you enter manually from your computer keyboard.

THE TOOL MENU

The tool menu appears when you press the RIGHT MENU mouse button and a line is *not* under construction. Some of the tools listed below are selected from the sub-menus shown, and may require additional user input.

<Z>oom

The Zoom feature lets you isolate and magnify an area on the screen so that you can work "close up" on a particular aspect of your drawing.

<Z>oom in closer

<R>eturn to full picture

<P>an view: Cursor location becomes new center of screen.

<G>o to previous view, prior to last zoom

<D>elete (or press <X> key)

Use the Delete option to erase a line, circle, or arc.

<U>ndo a Deletion (or press [UNDO])

Valdraw keeps a running count of your deletions as you work. By backing up, or [UNDO]ing, you can restore your deletions, beginning with the most recent ones.

<C>ursor move (or press [CTRL][P])

This option lets you move your cursor to a location indicated by the coordinates you type manually from your keyboard.

<T>ext

Use the text option to do any of the following:

<E>nter Text (or [WORD]): Lets you enter text in your drawing.

<D>elete Text (or [X] key): Lets you delete the text you've entered in your drawing.

<A>dd a Dimension line: Automatically draws scaled dimension lines.

<S>et Height of Dimension: Adjusts the dimension line lettering height.

<T> *ext Height*: Adjusts the size of the text.

<F> *ixed Height Text Entry*: All text is entered in a fixed height.

<S> *hapes* (or press [CTRL][S])

The Shapes option provides access to the following menu for drawing the shapes listed:

<C> *ircle*

<A> *rc*

<R> *ectangle*

<F> *rench Curve*: You will be prompted to provide additional parameters for drawing each of the shapes above.

 locks (or press [CTRL][B])

The block selection provides you with the following options:

<C> *opy Block*

<M> *ove Block*

<R> *otate Block*

<E> *nlarge/Shrink Block*

<A> *lter Proportions*

<N> *ew Block Color*: All displayed elements within block are changed to current color.

<S> *tore Block to Disk*

<D> *etele Block*: You will be required to provide additional parameters for manipulating blocks. These are requested, as needed, by the menus that will appear according to your selection.

<M> *iscellaneous* (or press [CTRL][M])

The Miscellaneous menu has the following options:

<C> *hange data disks*

<L> *og in a different disk drive*

<E> *rase screen*

<K> *eepest the drawing*

<T> *hrow the drawing away*

<O>n-Screen Format

Selecting the On-Screen Format option will reveal the following menu options:

- <G>rid on/off**
- <R>uler on/off**
- <D>efine Scale of Drawing**
- <E>nglish/Decimal Ruler**
- <S>elect Colors**
 - <A>ll colors on**
 - lue on/off**
 - <R>ed on/off**
 - <P>urple on/off**
 - <G>reen on/off**
 - <C>yan on/off**
 - <Y>ellow on/off**
 - <W>hite on/off**
- oth grid & ruler on/off**
- <I>ntersection of grid Look-for**
- <P>oint Look-for**
- <L>ook-for both point & grid**

<P>aint Finished Drawing

When you've finished drawing with Valdraw, you now have the option of painting your drawing (provided you have Valpaint and a color screen). This option takes the current screen image to Valpaint for image touch-up.

Note: It's a good idea to store and retrieve your drawing before you paint it. That way, you'll have a "backup" version of the drawing if you want to work on it again.

THE KEYBOARD

A number of your keyboard computer keys perform the same functions as your mouse controls. The following is a listing of all keyboard keys that have particular applications to Valdraw.

Function Keys

- [STOP]** Stops output to the printer or plotter.
- [HELP]** When pressed from the drawing screen, retrieves the main Valdraw menu. When pressed when a menu is on the screen, provides information about the feature you're using.
- [STORE]** Stores the current screen image as an indexed file.
- [RETRIEVE]** Loads or lets you merge a previously stored image with your current drawing. This function works the same as it does with the Valdocs editor.
- [PRINT]** Lets you print the current image on an Epson dot matrix printer, or on a plotter if that's what you've indicated in SETUP. (See Appendix A for information about printer and plotter selection.)
- [INDEX]** Serves the same purpose as in the Valdocs editor. This key can be used to retrieve drawings from an indexed list.
- [DRAW]** Re-draws the screen. The screen is first erased, then repainted with the current image you've been working on.
- [SIZE]** Lets you zoom in on your drawing. You can zoom in repeatedly to increase the magnification.
- [CTRL] [SIZE]** Zoom out. (Press repeatedly to return to normal magnification.)
- [STYLE]** Lets you select the display color if you have a color-equipped QX-10 or QX-16 computer.
- [CTRL] [STYLE]** Changes the color of the drawing element closest to the cursor. (Color QX-10 or QX-16 only.)
- [UNDO]** Restores the last line or shape that was deleted.

Special Keys

- [RETURN]** Serves the same purpose as the RETURN mouse button. If you're using the keyboard keys to draw a line, alternate presses on the **[RETURN]** key will toggle the start-line/stop-line cursor.

- [+] (plus) Serves in the same capacity as the LOOK-FOR (gravity) mouse button.
- [LINE] Provides the T-Square function
- [WORD] Selects the <E>nter Text option from the Text menu.
- [(I or D)] Selects the <A>rc option from the Shapes menu.
- <X> (left delete) Deletes the line nearest the cursor.
- [X> (right delete) Deletes the text nearest the cursor.
- [0] (zero) Selects the <C>ircle option from the Shapes menu.

Numeric Keypad Function Keys

- [DEC. TAB] Numeric X/Y entry mode.
- [÷] Tool menu.
- [×] Shape menu.
- [±] Numeric angle/length entry mode.
- [ENTER =] Start/end drawing line.
- [0] Start drawing a circle.
- [1-9] Move cursor.
- [SHIFT] [1-9] Pans in the corresponding direction (ie.e, [SHIFT] [6] pans right, [SHIFT] [2] pans down, etc.).

Note: [SHIFT] [5] makes the current cursor position the new center of the screen.

Arrow Keypad

- Unshifted—Normal cursor movement.
- Shifted—Pan in the corresponding direction.

Control Keys

- [CTRL] [B] Block menu.
- [CTRL] [G] Toggle grid on/off.
- [CTRL] [L] Looks for (moves cursor to) nearest end of line, center of circle, or grid pattern intersection.
- [CTRL] [M], [K], [Q] Miscellaneous menu.
- [CTRL] [O] On-screen menu.

[CTRL] [P]	Numeric X/Y entry mode.
[CTRL] [R]	Toggle ruler on/off.
[CTRL] [S]	Shape menu.
[CTRL] [Z]	Zoom menu.

Cursor Control from the Keyboard

The cursor can be controlled from either the mouse, the editing arrow keys, or the numeric keypad.

The editing arrow keys move the cursor up, down, left, and right in the direction of the arrows.

The numeric keypad performs cursor movements and functions.

