DRAFT CHOICE for Windows

Version 2.00

Evaluation Copy User's Manual

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WHAT'S ON THE DISKETTE

The README.WRI file, provided on the Draft Choice for Windows program diskette, contains last minute news about the program, important information and a brief description of the files on the Draft Choice for Windows diskettes.

To view the README.WRI file on your screen, use your WIndows Write, or your favorite Windows Word processor.

The following files should be present on the distribution diskette (Note that if the files have been compressed using PKZIP, or any other archiving program, these files might be in a single file with a ZIP extension. They need to be Extracted before the program can be installed):

REQUIREMENTS

- 80386/486/Pentium CPU
- 4 Mb RAM
- Windows 3.1
- MS Compatible Mouse
- Laserjet/DOT Matrix Printer, HPGL compatible Plotter, or other device supported by Windows

INSTALLATION

Copy the files to a temporary directory (C:\Temp for example), start Windows and choose the command *File, Run*. When prompted for the command line, type in ***C:\Temp\Setup*** and then select *OK*. Note that what you enter when prompted for the command line should reflect the drive and directory where the original files were copied.

During the Installation process, you will be asked to verify the destination directory, and other pertinent information. Please, follow the instructions on the screen. Note the option to create the Group (in Program Manager) is toggled ON. We recommend that you allow the Installation program to create the group, but if you are quite familiar with Windows, you may toggle that option OFF and create the group yourself.

Note: It is also possible to install the program directly from a diskette (Provided all files listed in "What's on the Disk" section are there), but it could take a significantly longer time to install as diskette access speed is much slower. If you are installing from a diskette, then:

1. Place the DCWIN diskette in your drive.

2. From windows Program Manager, select File, Run and then type in, x:\SETUP.EXE where x is the drive where the DCWIN disk resides. For example, if the DCWIN disk is in drive A, then type A:\SETUP.EXE and press [ENTER]. If the DCWIN disk is in dive B, then type B:\SETUP.EXE and press [ENTER]. (Instead of ENTER, you may click on the OK button).

STARTING THE PROGRAM

If the installation was completed successfully, there should be a new Group folder (DCWIN) in your Windows Program manager. Double click on that and then double click on the DCWIN icon that should also be in the program. It's that simple!

4. COMMAND REFERENCE

This section describes the powerful commands that are available in DraftChoice.

4.1 FILE

This FILE menu provides an interface between DraftChoice and your computer and peripherals. FILE allows you to begin a new drawing, save or open an existing drawing, import, or export a drawing, print, configure, and get file info.

4.1.1 NEW

Prepares DraftChoice for a new drawing and clears memory of the previous drawing including symbols. You are presented with a dialog window which allows you to specify paper size and orientation. Before you begin to draw, it is very important to set the scale settings and drawing scale factors for your drawing.

NEW clears your computer's RAM of the current drawing, including symbols and option toggle selections, resets all user-values to defaults contained in the configuration file, and draws a "Usable Area" box on the screen.

The box dimensions correspond to the selected paper size (minus a half inch margins on all sides). You can verify that by using the MEASURE QUERY LENGTH command. For example, for a 1" Real = 1" Drawing scale, and 8.5" x 11" paper, the rectangle would measure 7.5" X 10".

If you want the drawing to be printed to scale, it is very important that all elements you draw are within the drawing frame. This rectangle is the basis for the specified scale. DO NOT erase the drawing frame. If you do not want the drawing frame plotted, use the ALTER STYLE NONE command to make it non-printable (invisible).

The default drawing size when FILE NEW is selected is set by the drawing size saved with the DCWIN.INI file.

UNITS: Reflects the units that will be used for the new drawing. If you click on the Units button you will be presented with all available units options.

Dwg Units & Paper Units: These two values set the actual drawing scale, i.e., they relate the real, physical units of the objects you will draw to the paper units. For example, if the 8.5" x 11" paper size has been selected, the units are feet, the Dgw Units is 3.0 and the Paper Units is 1.0, then the scale of the drawing (when printed) will be 3 ft to 1 inch ,i.e., one inch measurement on the printed drawing will represent 3 ft. Under these conditions (and assuming 0.5" margins all around), the maximum "scaled" object that can be drawn is 30 ft by 22.5 ft, i.e. a printable paper area of 10"x7.5" at 3 feet per inch.

DRAWING SIZE - The drawing size reflects the final paper output size and is used for the actual scaling of the Drawing. Note that the

Displayed choices depend on the **SI** (mm based) and **Imp** (inch based) selection that is made in this dialog box.

DRAWING ORIENTATION - The drawing may be plotted in Portrait (vertical) or Landscape (horizontal) orientation:

PORTRAIT - Horizontal drawing direction is matched to the narrow paper direction.

LANDSCAPE - Horizontal drawing direction is matched to the long paper direction.

OK - Accept the settings. DraftChoice will automatically display the drawing frame on the screen. All user-selectable parameters will change to the settings contained in the DCWIN.INI file (see FILE CONFIGURE), or to the internal DraftChoice default settings.

CANCEL - Reject the settings and return to the current drawing without clearing that drawing from memory.

4.1.2 OPEN

Retrieves a previously saved DraftChoice file from disk. OPEN clears the current drawing and symbols from RAM. When the selected file is loaded, all user-values will be restored to their status when the drawing was stored. OPEN prompts you for a FILENAME and DIRECTORY by presenting a dialog window which lists drawing files, subdirectories and drives names in the current directory.

FILENAME: You can either select a filename from the OPEN dialog window or type in the name of the file you want to load.

To select a file from the name list, move the cursor and double click on that name. The name will be transferred into the FILENAME box at the top of the dialog. The UP and DN indicators may be used to scroll the list of file names up or down. You could also directly type a different filename into the FILENAME box. To load the file, select OK or to return to the file menu without loading, select CANCEL.

PATH: Specifies the path (drive and directory) to be searched for drawing files. The current path is listed. A different path may be selected by clicking on a specific drive and then a directory.

FILES: Specifies the FILES in a drive/directory. Clicking twice on DIRECTORIES will give you a list of FILES for that drive/directory.

DIRECTORIES: Specifies the current directory. To select or change a directory, double click on a directory from the list of available directories. The name of the directory will change in the DIRECTORIES input box. A new list of files for the directory selected will appear in the FILES window frame.

Subdirectory names and destination drives will also appear in the file list box but when selected will be transferred to the FILENAME input box.

Once OPEN has been selected, the drawing currently in RAM is cleared (including all symbols currently in memory) and the specified file is retrieved and placed in memory. The current file name will be displayed in the FILENAME input box. If you want to retrieve a drawing

file, without erasing the current drawing or symbols from memory, you need to use the FILE IMPORT command.

4.1.3 SAVE DRAWING

Save your drawing to disk (using the user-specified filename and path). If you loaded a file from disk, that file name and subdirectory will appear as the default FILENAME and DIRECTORIY. If you confirm the filename, the file on disk will be replaced with a file containing date currently in RAM. Use the SAVE command frequently to save your data.

FILENAME: Prompts you for a file name to be assigned to the current drawing in memory.

PATH: Specifies the path (drive and directory) to be searched for drawing files. The current path is listed. A different path may be selected by clicking on a specific drive and then a directory.

FILES: Specifies the FILES in a drive/directory. Clicking twice on DIRECTORIES will give you a list of FILES for that drive/directory.

DIRECTORIES: You may select DIRECTORIES and change the subdirectory, highlight one of the displayed files and press the left mouse button, or select FILENAME and enter the name. Then, select OK to store the data onto your disk. If the file already exists, you will be given a chance to overwrite it, or cancel the SAVE DRAWING operation.

Note that once you select to overwrite the file, any data stored on your disk under that name will be overwritten with the data currently in RAM.

4.1.4 PLOT

Creates a hardcopy print or plot file of the current drawing. The entire drawing or a portion of the drawing may be printed. This menu permits you to print, or plot your drawing to the currently selected Windows output device. You can change the device driver used (the printer selection) and the output port, using the Windows Program Manager (Windows Main, Printers option).

Output is generated in horizontal strips, which may result in a short delay before the graphics information is sent to the printer. A status bar (upper right hand side of screen), graphically displays the percent of the drawing which has been generated and sent to the printer (file).

Output directed to the default plot device and the default output port specified in Windows.

Before printing, make sure the printer paper is adjusted to the top of the form and then select the command GO PRINT. The size of drawing sent to the printer is set by the scale factor selected under FILE NEW in combination with the PRINT setting.

MARGINS

LEFT - Specifies the left margin.
TOP - Specifies the top margin.
RIGHT - Specifies the right margin.
BOTTOM - Specifies the bottom margin.

PORT
This field echoes the Output port currently selected (the actual selection is done in conjunction with the printer device from the Windows, Main, Printer area).

SCALING
Select from two options. *Scale to Fit* will scale the entire drawing up or down to fill the selected paper size. The *Screen* option will scale the portion of the drawing visible on the screen to fill the paper size.

OPTIONS
Passes control to the Windows Printer Options dialog and permits you to change paper cassette type, densities, and other printer specific parameters.

Note: The printer device driver used may be changed from the Winows Main, Printer menu, not from DRAFT Choice for Windows!

4.1.5 IMPORT

Allows you to import a file in of many different formats. Import text, drawings, or interchange data with other drawing programs. See File, Open for instructons on how to use the presented dialog box.

FILE TYPES

DCW - Native DraftChoice format (*.DCW). All symbols defined in the drawing will be included/added to the main drawing. (Note that up to a total of 100 symbols are supported in a single symbol library).

SYM - Save only the symbols defined in the current drawing to a special symbol file. (*.SYM) **-** Import/Export a DraftChoice symbol file with extension SYM. Note that if you type a .DCH file name, only the symbols contained within the DCH file will be imported. The import/export symbols are appended to the symbols already in RAM.

DXF - Data eXchange Format (DXF), a graphics data interchange format developed by Autodesk (the developers of AutoCAD and Autosketch) and used by many CAD programs.

PLT - Imports a text file in HP Graphics language format, HPGL.

WPG VECTOR - Uses DrawPerfect format for clip art used by DrawPerfect and WordPerfect. (*.WPG)

FNT - Import a font file (*.FNT). The font must be in DraftChoice_ file format. The current font in memory is replaced with the imported font. Two **FNT** options are available, one for the Primary and one for the secondary font.

BMP - Windows Bit map format

DCH - Native DraftChoice for DOS format (*.DCH). All symbols defined in the drawing will be included/added to the main drawing. (Note that up to a total of 100 symbols are supported in a single symbol library).

4.1.6 EXPORT

Allows you to export portions of your current drawing and save it in one many formats. Export text, portions of drawings, or interchange data with other drawing programs.

Prompts you for a FILENAME and DIRECTORY by presenting a dialog window which lists drawing files, subdirectories and drives names in the current directory. (See File, Open for information on the dialog box presented).

A number of different file formats are supported. See File, Import section for a brief description of these formats.

4.1.7 CONFIGURE

Configures DraftChoice settings for your specific system. The screen settings, cursor type, fonts, serial port communication settings, screen colors, and other personal preferences may be set for the current session.

They may also be saved in a configuration file as the default settings for future settings. Whenever FILE NEW is selected, parameters are reset to internal defaults, or those contained in the configuration file if one exists.

4.1.8 GETINFO

Displays general settings. This includes the objects, symbols, detected video mode, memory, last screen update time, and filename if present.

4.1.9 EXIT

Quits DraftChoice and returns control to Windows. Remember to save any changes to your drawing prior to exiting as they will otherwise be lost.

4.2 DRAW

The DRAW menu contains the DraftChoice drawing commands used to create simple objects, i.e., objects which are comprised of fundamental graphics information. While drawing, the cursor position will be echoed at the top of the screen if OPTIONS TOGGLE COORDINATE is active. The delta X (dX) and delta Y (dY) distances also display once a beginning reference point has been entered. Coordinate display may also be toggled on/off by pressing [F2].

When prompted for a reference point, the mouse may be used to position the cross-hair cursor. Clicking the left mouse will accept the current location. Coordinates may also be used to accurately locate a reference point. SNAP may also be used to more accurately locate reference points when drawing objects with a mouse. If a fill pattern has been specified (see OPTION FILL or OPTION HATCH), the ARC, BOX, CIRCLE, BEZIER, or POLYGON will automatically fill with the default pattern.

4.2.1 LINE

A straight line between a start point and an end point. Select DRAW LINE and press the left mouse button for the start of a new line, move the cursor to the location desired and press left mouse button for point or type coordinate. A new line will be drawn from the last entered point. The sequence continues until the right mouse button has been pressed. You can have snap mode active or enter coordinates at any time in order to precisely locate reference points for any object.

4.2.2 BOX

A rectangle between two points which locate opposite corners of the box. Select DRAW BOX and DraftChoice will prompt you to locate the first point by positioning the cursor and pressing the left mouse button. Next, move the cursor to the point defining the opposite corner of the box and press the left mouse button. If a fill pattern has been selected, the box is automatically filled.

4.2.3 CIRCLE

A circle or ellipse by specifying radius, diameter, or points on the circle's circumference. When the circle command is invoked, the user is presented with the *Place* and *Setup* commands.

PLACE - Draw a circle according to the default settings. You will be prompted according to the type of circle selected under the SETUP menu.

SETUP - Specify circle types and aspect ratio in a dialog window. The default circle type is RADIUS with an ASPECT RATIO of 1.

4.2.4 TEXT

Allows text to be entered in a drawing. Options allow the size, orientation and specific location of the text to be specified.

PLACE - Text can be placed anywhere on the screen. Text is aligned and oriented according to SETUP. DraftChoice will prompt you to

position the cursor to define the text location. After pressing the left mouse button, you will be prompted to enter the desired text. Pressing the left mouse button will accept the text and reposition the cursor as specified by SETUP parameters. You may enter a second line of text if desired and press the left mouse button. If you press the left mouse button without entering text, you will be returned to the text menu.

SETUP - Specify the height, width, angle and spacing of the text from the SETUP menu. The unit of measurement displayed is the same as that specified when FILE, NEW is started.

4.2.5 ARC

A semicircle between two points located on the circumference of a circle. Select DRAW ARC and indicate the center of the arc, the starting point on the circumference, and then the ending point on the circumference, either clockwise or clockwise from the first point.

The clockwise/counterclockwise direction can be toggled while drawing (end points of the arc are exchanged), by pressing [SHIFT] - [F3] or by selecting the appropriate icon with the mouse cursor and pressing the left mouse button.

The arc is drawn according to the current circle aspect ratio. See DRAW CIRCLE SETUP ASPECT RATIO for information on adjusting the circle aspect ratio. If a fill pattern is selected, the ARC will be automatically filled.

4.2.6 POLYGON

A polygon-shaped object about a specified center point. A polygon is a regular-sided closed shape with all sides and all angles equal. Polygons are centered on the first reference point specified and the location of the first vertex is set by the second point using the PLACE command. The number of polygon sides is defined in the SETUP dialog.

PLACE - Positions the polygon. You will be prompted to locate the center point of the polygon. After pressing the left mouse button, a polygon will be displayed on the screen. The size and orientation of the polygon will float until fixed by selecting the first vertex point and pressing the left mouse button.

SETUP - Select the number of sides to the polygon.

4.2.7 BEZIER

Creates a special quadratic curve specified by 3 control points. Points 1 and 2 of the curve define the end points and point 3 is dynamically used to flex the shape of the quadratic curve. The bezier curve has the characteristic that the slope of the curve at the end points (1 and 2) is tangent to imaginary lines drawn to point 3 and that the shape of the curve is always concave to the controlling reference points.

Select DRAW BEZIER, indicate the starting point for the curve, and press the left mouse button. You will be prompted for the second end point. Position the cursor and press the left mouse button. You will now be prompted for the midpoint. The Bezier curve will float as the cursor moves around the screen. Once positioned, press the left mouse button to fix the bezier curve to its final position and press the left mouse button. Pressing the right mouse button cancels the object. (See also OPTION FILL)

4.3 COMPLEX COMMANDS

COMPLEX commands are used to create complex entities. A complex object consists of two or more vertex or control points defining a shape. Complex objects have a single reference mark and may be manipulated as though they were a single object. The interior of the shape may be filled with bit-mapped patterns or vector hatching.

While drawing objects, the cursor position will be echoed above the drawing area, if OPTION TOGGLE COORD is active. The delta X (dX) and delta Y (dY) distances also displayed once a beginning reference point has been entered. The coordinates may be toggled on/off by pressing [F2].

When prompted for a reference point, the keyboard cursor keys or mouse may be used to position the cross-hair cursor. Pressing the left mouse button will accept the current location. Coordinates may also be used to accurately locate a reference point.

SNAP may also be used to more accurately locate reference points when drawing complex objects using the mouse.

If a fill pattern has been specified (see OPTION FILL or OPTION HATCH), the FREEHAND, POLYLINE, SPLINE and TAPE will automatically fill with the default pattern.

4.3.1 POLYLINE

An irregular sided shape composed of straight and/or curved line segments. Control points defining the shape are specified in a manner similar to the LINE command. The polyline will be filled with the default fill pattern if one is selected and fills are active (See ALTER FILL, OPTION FILL and OPTION TOGGLE FILL).

Select COMPLEX POLYLINE and DraftChoice will prompt for a starting point. Position the cursor at the start location or enter coordinate and press the left mouse button. Position the cursor at the next vertex point or enter coordinate and press the left mouse button. A line will be drawn between the first and last points. Specifying subsequent points will result in a point to point connection of the complex line. The last point can be made to close the shape by typing "C" and pressing the left mouse button. Pressing the right mouse button terminates the input of control points.

4.3.2 SPLINE

A special polyline whose vertices are used as control points. The control points are used to create a smooth curve tangent to mid-points and tangent to end points of imaginary lines connecting the control points. Curve smoothness is controlled by the value specified by LEVEL under FILE CONFIGURE. A LEVEL value of 1 results in the same shape as COMPLEX LINES. A LEVEL value of 3 results in a smooth shape.

Select COMPLEX SPLINE and DraftChoice will prompt you for a starting point. Position the cursor at the start location or enter coordinate and press the left mouse button. Position the cursor at the location of the next vertex point or enter coordinate and press the left mouse

button. A line will be drawn between the first and last points. Specifying subsequent points will result in a point to point connection of the complex line. The last point can be made to close the shape by typing "C" and pressing the left mouse button. This process continues until the right mouse button is pressed, which terminates the input of control points. The straight polylines are replaced with the smooth curved shape.

4.3.3 FREEHAND

A polyline created by drawing freehand on the screen using the cursor. A maximum of 100 points may be stored per object. The faster you move the cursor, the bigger the step size and more coverage you can get with the 100 points. After 100 points a new line is automatically created. FREEHAND allows you to enter information, like your signature, directly into the drawing.

When you start drawing, DraftChoice prompts you that the pen is up, i.e. no drawing will take place. Position the cursor at the start point 2 and press the left mouse button. DraftChoice will respond that the pen is down. Move the cursor to create the object. Press the right mouse button to exit the mode.

4.3.4 TAPE

A polyline whose line segments are mirrored by parallel lines drawn at a specified offset from all control points. Line segments are drawn between the first point and its mirrored control point and the last point and its mirrored control point creating a closed object. The mirrored line is drawn to the left of the control line, relative to the segment's begin and end points.

When you start drawing, you will first be prompted for the tape width. Type the offset value in the current units of measurements and press the left mouse button. You will then be prompted to locate the start point. Position the cursor at the start location of the next vertex point or enter coordinate and press the left mouse button. A line will drawn between the first and last points. Specifying subsequent points will result in a point to point connection of the complex line. The last point can be made to close the shape by typing "C" and pressing the left mouse button. This process continues until the right mouse button is pressed, at which time the mirror line is drawn and the ends are closed.

4.3.5 MODIFY

Allows existing complex objects to be modified by moving their vertices individually or as a group. MODIFY allows complex objects to be created from simple objects. If a fill pattern has been specified (see OPTION FILL or OPTION HATCH), MODIFY DOUBLE and MODIFY JOIN will automatically fill with the default pattern. The following options are available.

DOUBLE - Creates a polyline whose line segments are drawn parallel to both either simple or complex entities at a specified offset from all control points. Line segments are drawn between the last point and its mirrored control point creating a closed object at one end. The mirrored line is drawn to the left of the control line, relative to the segment's begin and end points.

JOIN - Connects lines or complex entities into a single complex object. A line segment will be created between the selected entities. Joining will occur based on the order in which the entities are selected and the proximity of their beginning and end points. Connection order is ambiguous when the window selection mode is used, and should be avoided. If the window mode is used, objects should be selected one at a time.

To ensure current order when joining objects, ensure that all objects connect at their end points and that you maintain a logical consistent order around the perimeter of the shape when selecting objects with the pick mode.

CONTROL - Dynamically changes the position of up to two control points at a time. After selecting CONTROL, DraftChoice will prompt you to select the object. Once selected, each control point on the object will be represented by a box. To move a single control point, position the cursor on the control point and press the left mouse key.

Keeping the left mouse key pressed, reposition the control point to its new location by moving the mouse cursor. The object will dynamically change its shape to reflect the new position of the control point. When the left mouse key is released, the position of the control point will be fixed. You may reselect the same control point or select a new control point as often as you wish.

The same procedure is followed when moving two control points. Simply place the mouse cursor on the line segment connecting the two control points, and press the left mouse key. Note that when the line segment is moved, the two control points at either end move to the new location. Press the right mouse button to exit and the object will be fixed about its new control points.

4.4 EDIT

Edit commands revise selected object(s), with options such as erase, duplicate, translate, rotate, mirror, or combinations thereof. The objects previous shape prior to the editing command is saved in the Undo Buffer and may be restored if a mistake occurred during the edit operation.

EDIT commands operate on all unprotected layers. To protect objects in a layer from accidently being selected for editing, you must protect the layer.

Whenever DraftChoice prompts you for a position, you can position the cursor with the mouse or cursor keys. For more precise positioning, screen coordinates may be entered.

Two methods are available for selecting objects(s) for editing, the Window method and the Pick method. See Object Selection methods section.

OBJECT SELECTION METHODS

Two methods are available for selecting an object(s) for editing, the Window method and the Pick method. An icon positioned above the drawing area indicates which mode is active.

WINDOW

Select objects by enclosing the reference mark associated with the object in a window. You will be prompted to establish one corner of the window. Move the cursor near the reference mark(s) of the object(s) you wish to edit and hit the left mouse button. Move the cursor diagonally creating a window which captures the reference mark(s) and press the left mouse button again.

To continue with the editing command, you must press the right mouse button to halt the window selection mode. All objects selected by the window will be modified by the selected EDIT command.

PICK

The Pick mode is preferred if reference marks are clustered and you wish to edit only one object. To select the Pick mode, press the [F4] function key. A small box will appear on the screen in place of the cursor.

Position the box over a line associated with the object to be edited and press the left mouse button. If found, the object is added to the list of object(s) selected. To halt the selection mode, press the right mouse button, otherwise continue selecting objects.

NOTE: Switch between WIND and PICK modes by pressing [F4] at any time or by clicking on the appropriate icon button with the mouse.

Normally selected objects are added to the selection list, however, it is possible to deselect an object by pressing function key [F5]. This causes the selection mode to become **[-]**, as indicated by an icon above the drawing area and objects will be removed from the selection

list. Pressing [F5] again restores the selection mode to **[+]**. The selection mode may also be toggled by clicking the mouse on the appropriate icon button.

4.4.1 COPY

Creates a duplicate of the selected object(s) and allows you to dynamically position the copy on the screen. Multiple copies may be made of the original objects(s) and positioned about the screen.

DraftChoice will prompt you to select the object(s) to be copied. You will then be prompted to select the FROM point. This point is used as a reference point for positioning the copies and may be located at or near the selected objects(s). Locate the cursor accordingly, and press the left mouse button. You will then be asked for the TO position. As you move the cursor, the copy will dynamically follow the crosshairs. Move the copy to its desired position and press the left mouse button. You can continue to move the cursor and place duplicates on the screen. Press the right mouse button to terminate this mode.

4.4.2 MOVE

Repositions selected object(s) on the screen to the desired location. DraftChoice will prompt you to select the object(s) to be moved. You will then be prompted to select the FROM point. This point is used as a reference point for repositioning the selected objects(s). Locate the cursor accordingly and press the left mouse button. You will then be asked for the TO position. Move the reference FROM point to the desired location and press the left mouse button. The object(s) will be fixed at the new location.

4.4.3 ERASE

Removes the selected object(s) from the drawing.

DraftChoice will prompt you to select the object(s) to be erased. A dialog window will then appear which reports the total number of objects to be erased. You are asked to confirm your selection. Click on YES to confirm your selection or NO to cancel the ERASE operation.

NOTE: See UNDO to restore the last command.

4.4.4 SCALE

Enlarges or reduces the selected object(s) according to a specified scale factor. Independent scale factors may be specified for the X and Y axes. The current horizontal and vertical dimensions of the object(s) will be multiplied by the X and Y scale factors.

SCALE will prompt you to select the object(s) to be scaled. A dialog window will appear which shows the current scale parameter defaults. You may accept or change values of the following parameters.

X Set Horizontal scaling factor
Y Set Vertical scaling factor

HALF Reduce current X and Y scale factors by 1/2.
DOUBLE Increase current X and Y scale factors by 2.
UNITY X and Y scale factors become 1.0

The following flags are optional when scaling.

GLOBAL Selected elements are scaled about a single, common reference point.

LOCAL When active, objects are scaled about their local reference points which remain fixed. When inactive, objects are scaled about a single fixed global reference point.

4.4.5 ROTATE

Rotates selected object(s) about a user-specified center point. After selecting the object(s) to be rotated, a dialog box will appear prompting for the angle of rotation. The angle may be typed in or one of the preset angles may be selected. Positive (+) angles are rotated in a counter-clockwise direction, negative (-) angles are rotated in a clockwise direction.

Use the tab key to toggle through the options or manually enter the angle rotation.

A number of buttons permit convenient preset angles to be entered, and/or to change the rotating direction.

4.4.6 XTEND

Increases the length of one or more selected lines to intercept with a boundary object. The intersection point may be anywhere on the boundary object, but no extension will take place if the lines cannot intersect each other. When extending to complex objects, the extension is up to the closest point which has a distance greater than zero from the existing line.

You are first prompted to select one or more boundary objects to which the line segments are to be extended. After pressing the right mouse button, you will next be prompted to select the line(s) to be extended.

4.4.7 ARRAY

Combines a COPY operation with an action that scales, rotates, translates or sweeps the selected object. Copies may be produced in linear or circular arrays, along the path as a selected object, or rotated about a vertical axis to simulate a 3-dimensional object.

After selecting one or more objects, the ARRAY dialog window prompts for the type of copy and other controlling parameters.

The following action modifiers may be selected from the dialog window.

LINEAR - Copies will be positioned in a straight line. When selected, you will be prompted to position the first copy. Subsequent copies will be positioned the same distance away from the line established between the original and first copy.

The distance between the reference point of original object and the reference point of the first copy sets the spacing for subsequent copies. Succeeding copies will be positioned along the line established by the reference points of the original and first copy, scaled and rotated according to option settings.

CIRCULAR - Copies will be rotated about a center point in a circular array. When selected, you will be prompted to select the center point of rotation for the objects. The distance between the center point of rotation and the closest reference point of the selected objects will determine the radius of the circle used for placing the object. The object will be rotated from a center point in a circular rotation. You will be prompted to specify the center of rotation. Copies will be positioned in a circle about a specified point.

VOLUME - Copies will be revolved about a vertical axis in a 3-dimensional type array. Volume only works with one object at a time. Only the last complex object selected will be copied.

When selected, you will prompted to select the vertical axis of rotation for the copies. The distance between the axis of rotation and the reference point of the selected object determines the radius of the circle used for placing the copies. Position the crosshair cursor and press the left mouse button. Copies will be positioned in a counter-clockwise direction about the axis of rotation. The outer vertices of each copy are joined with adjacent copy's vertices by a line, as are the inner vertices, producing the illusion of depth.

The resultant object is tilted from the horizontal plane to further enhance the 3-dimensional effect.

NUMBER OF COPIES Specify the number of times the object is copied. Changes to this value will automatically recalculate the ANGLE value based on a 360 degree sweep of the objects.

SCALE PER COPY A factor applied to each successive copy. The default value of 1 results in no scaling. A scale of less than 1 results in copies getting smaller. A scale of greater than 1 results in copies getting larger.

ANGLE Copies can be rotated or revolved about a reference point in a circular fashion. The effective radius of the circle is equal to the

distance between each object and the reference point. ANGLE defaults to 360/(number of copies plus 1.)

TOTAL ANGLE This value may be used to additionally rotate each object. The ANGLE value is added to the TOTAL ANGLE value to determine the total angle of rotation. If set equal to, but with the opposite sign of the ANGLE value, the object will maintain its original orientation and only be translated.

Negative TOTAL ANGLE values are subtracted from the ANGLE value.

For example, to ARRAY a triangle (a 3 sided POLYGON) with 3 copies, the angle of rotation estimated by DraftChoice will be 360 degrees divided by (3+1) = 90 degrees.

4.4.8 FLIP/MIRROR

Creates a reverse image copy of the selected object(s) about a reflection axis at any orientation.

After selecting the object, you will be prompted to place a reflection line. Next, you will be prompted to identify the reference point of the object to be flipped or mirrored. A dialog window will appear with the selections FLIP or MIRROR.

Mirror and Create New Objects - Creates a reverse image copy of the selected objects about a reflection axis. The original objects are left intact.

Flip Existing Objects - Creates a reverse image copy of the selected objects about a reflection axis. The original objects are removed from the drawing.

HINT: To flip an object vertically (across the horizontal axis), use the ROTATE command first, perform the MIRROR command, and then ROTATE back to the original angle.

4.4.9 TRIM

Erases parts of line objects that extend beyond a specified boundary. Complex objects must be exploded first before they can be trimmed. However, a complex object may be used as a trim boundary.

You will be prompted to select the trim boundary or cutting line(s). You will next be prompted to select the lines to be trimmed. Position the cursor on the line on the side of the boundary which is to be trimmed and press the left mouse button. That line segment which intersects the closest boundary line will be erased from the drawing.

If the line to be trimmed crosses more than one boundary edge, the boundary intersection points closest to the indicated trim point, identify that portion of the line to be removed. Select EDIT TRIM. You will be prompted to select the trim boundary. Select a boundary line and then press the right mouse button. Next, position the cursor on a line on the side of the boundary which is to be trimmed. Press the left mouse button and you will notice the trimmed line.

4.4.10 BREAK

Removes a portion of an object between two specified points. First, select the object to break. Next specify the first break point by positioning the cursor on the object and press the left mouse button. Finally, position the cursor at the second break point, and press the left mouse button. Note that cutting off the end of a line can be performed by positioning the cursor outside the line end point on the portion of the line to be deleted.

The entity will be broken into two segments with the segment defined by the two break points deleted. This command is very useful when

you have one object intersecting another and you wish to selectively erase part of one of the objects.

NOTE: Breaking a CIRCLE creates an ARC object. The direction of the break is clockwise from the first break point.

4.4.11 OFFSET

Creates a line parallel to a line,circle, arc or polygon entity. When the command is selected, you are asked to enter the offset distance in current drawing units. Once you've entered the offset, select the base entity (usually using the Pointing Method) and then press the right mouse button to indicate you have finished selecting the base entity. Then, locate the cursor on the side you want the new copy created and press the left mouse button.

4.4.12 CORNER

Modifies the intersection of two lines with either a Fillet, a Chamfer or an exact Meet.

First select two intersecting lines. Press [ESCAPE] to confirm your selections. Next confirm or change the parameters in the dialog menu. The following corner options may be selected.

FILLET Extends or trims two lines until they are tangent to an arc of specified radius. The Fillet command rounds off the corner of the lines and replaces them with an arc. The two lines must intersect at a point within the drawing. DraftChoice will not FILLET parallel lines. If such an operation is attempted, an error message will be displayed. A-LEN and B-LEN parameters have no effect on FILLET operations.

CHAMFER Chamfer will cut off the corner or edge of an object at the specified distance and join the ends with a line. The Chamfer command replaces the corner with a straight line. The RADIUS parameter has no effect on CHAMFER operations.

MEET The two lines will be extended until they intersect.

RADIUS OF FILLET Select radius of arc applied to corner.
LENGTH OF LEG A Distance from intersecting point on line one.
LENGTH OF LEG B Distance from intersecting point on line two.

4.4.13 TWEEN

Creates intermediate objects by blending two different control objects. The control objects can not be symbols.

LINE - Use line segments (1st degree functions) for the intermediate objects.

SPLINE - Use spline curves for intermediate bjects.

COPIES - Set number of intermediate blended objects to be created.

DIVISIONS - Set number of points which subdivide the complex line created by blending two control objects.

NOTE: When tweening it is very important to align the position of the reference point on each shape.

For example, TWEEN could be used to create intermediate contour lines for a topographic map, a centerline between river banks on a map, or create a series of shapes morphing between a circle and a triangle.

4.4.14 WARP

Permits dynamic skewing, shearing and scaling of objects. Selected objects will be exploded and surrounded by a four point control envelop. One or two control points at a time may be selected and dragged into a new position with the mouse.

To select a single control point, position the mouse pointer inside the small control point box. Depress the left mouse button and drag into the new position. Release the button to release control point.

To move two adjacent control points at a time, position the mouse pointer on top of the control line connecting two control points. Press the left button and drag to new position. Release button to release control points.

All objects will be redrawn and distorted according to the control envelope. To convert final placement, press the right mouse button.

NOTE: Text objects must be exploded prior to WARP.

4.5 **ALTER**

This powerful menu contains commands that are required to change certain attributes for entities that are already drawn and allows editing of special-type entities.

The ALTER command can be used to change the position of control points on a complex object. First, place a window around the complex object to modify and press the left mouse button. Next, press the right mouse button to call up secondary dialog menus.

4.5.1 EXPLODE

Converts COMPLEX objects such as bezier curves and circles into equivalent objects composed only of straight line segments. In the case of dimension objects, the object is converted into a text object and a line object. This effect can be used to manually adjust a dimension.

After selecting the object(s) to be exploded, you will be prompted to confirm your selection and the process will be completed. If reference marks are toggled on, reference marks for the resulting straight line objects will appear on the screen.

4.5.2 RUBBER

Move the end point of LINE and BEZIER objects into new positions. Objects totally enclosed in the rubber window will be moved. Objects crossing the window boundary will be stretched.

First, select those objects with end points you dynamically choose to move. Next, specify a "FROM" position. After the from position is identified, move the cursor until the collection of objects is stretched into the desired shape. Finally specify the "TO" position by pressing the left mouse button or cancel the operation and restore the original shape by pressing the right mouse button.

NOTE: Rubber will not expand complex objects, but will move the object according to its reference point.

4.5.3 STYLE

Modifies the line style attributes of already drawn objects.

Permits you to change the line style of selected objects. After selecting the object(s) a pick list of styles is presented. See OPTION STYLE for an explanation of the various line styles. Place the cursor on your selection and press the left mouse button. Line styles are defined in the external text file DC.LIN.

After selecting the object(s), a pick list of available line style choices will be displayed.

STYLE NAME Select a line style from the available pick list.

SPACE Set the spacing of dots and dashes for various line styles.

SLIM Represent each line with 1 dot width.

THICK Represent each line with 3 dot width.

FAT Represent each line with 5 dot width.

NONE Hide lines from the display and printout

4.5.4 FILL

Alters the fill pattern of already drawn complex entities. A dialog menu will be presented which permits the user to select from a list of 45+ visible patterns. Fill patterns are defined in the external text file DC.PAT.

The following dialog button modifiers may be selected;

OPAQUE Creates a solid fill pattern of the type selected. Objects underneath the pattern will not show through.

TRANSPARENT Allows fill patterns from overlayed filled objects to show through.

HOLLOW Only the outline of the main object appears so any object will be visible.

Highlighting a pattern and pressing the left mouse button will cause the pattern to be selected and the dialog will be exited.

4.5.5 HATCH

Modifies the fill or hatch pattern attribute of existing complex entities with a vector-based (stroked) pattern. Hatch patterns should be used when the patterns are required to be print resolution independent, such as with a pen plotter.

For hatch patterns to be displayed on the screen when you begin to draw, the FILL toggle must be active (see OPTION TOGGLE). If FILL is toggled off, all hatch patterns will be suppressed with only the perimeter of the shape drawn. For more information on hatch patterns, see the OPTION HATCH section.

HATCH PATTERNS Are selected by name from a pick list of 15+options. Hatches are defined in the external text file DC.PAT.

REPEAT INTERVAL Sets the Spacing between hatching entities

NOTE: The default hatch pattern for new complex objects is set using the OPTION, HATCH command.

4.5.6 TEXT
Permits the user to edit text already placed in the drawing

4.5.7 UNITS
Alters the unit of measurement attribute of a dimension line object. UNITS does not alter the default unit of measurement set for the drawing (see OPTION UNITS).

To change units, the object must have been dimensioned using one of the MEASURE

commands, such as DIMENSION, RADIUS, or BOUNDARY. Dimensions which have been created by the user with the DRAW TEXT command can not be altered with the PROPERTY UNITS command.

After selecting the dimension(s) to be altered, a pick list appears displaying the available unit types. A diamond indicator marks the current unit type.

FIX Specifies the number of decimal places to be displayed. The default value for FIX is 3.

The exception occurs when FT.IN is selected as the unit type, which displays fractions instead of fixed point numbers. In this case, FIX sets the maximum size of the fraction denominator expressed as the number 2 raised to the power of FIX, i.e. 2FIX. The table below shows the fraction denominator to be displayed as a function of FIX.

For example, to display measurements down to the 1/8 inch, set FIX to 3.

Dimension objects will be converted and redisplayed in the new units types. See Section on OPTION, UNITS, for available unit types.

4.6 IMAGE COMMANDS

Image commands control the view of the drawing displayed on the screen.

When DraftChoice is started, the default image scale factor is set to 1.00 and the coordinate of the lower corner of the screen is set at 0,0. This is called the origin. The image scale factor (ISF) is displayed in the lower left of the DraftChoice screen. You can modify the ISF by using the IMAGE menu commands to adjust the position of the viewing window with respect to the drawing and the overall size of the drawing displayed on the screen.

The screen update speed can be significantly increased for drawing which contain many fill patterns, text objects, or line styles by disabling the OPTION TOGGLE settings of FILL, TEXT, and STYLE. See OPTION TOGGLE for more information.

The IMAGE commands of DOUBLE, HALF, ALL, and LAST may also be selected by clicking on their respective tool box icons on the right side of the display.

Imagine that you are looking through a magnifying window at a very large and detailed picture. At high magnification, you can only see that portion of the picture which is directly under the viewing window. To see more of the picture (but less detail), you must decrease the image scale factor. To zoom in on a specific detail, you increase the image scale factor (but see less of the picture).

4.6.1 UPDATE

Redraws the entire screen at the current image scale and option settings.

UPDATE removes remnants of objects that have been EDITED OR MODIFIED. The screen may also be updated to display new or changed OPTION settings. Note that the speed of screen updates can be enhanced in those drawings that contain FILL patterns, TEXT objects and LINE styles if their associated OPTIONS TOGGLE are disabled.

4.6.2 WINDOW

Enlarges that portion of the drawing contained within a user-specified window to fill the screen.

The user is prompted to specify a portion of the current display. You select a portion of the drawing which will be enlarged to fill the screen, by enclosing the area with a flexible window. The size of the window will be used to determine the new image scale factor.

4.6.3 LAST VIEW

Redraws the entire screen using the image scale factor and option settings of the screen previously displayed.

LAST VIEW is very useful when working on a very large drawing. It allows you to zoom in on a small work area, make your changes, and

then returns you to the original scale which shows the entire drawing.

4.6.4 DOUBLE 2x

Redraws the screen using twice the image scale factor and current option settings. The midpoint of the previous view is maintained as the midpoint of the new view. Objects in the drawing will appear larger by a factor of two.

4.6.5 HALF x.05

Redraws the screen using half the image scale factor and current option settings. The midpoint of the previous view is maintained as the midpoint of the new view. Objects in the drawing appear smaller by a factor of two.

4.6.6 ALL

The extents of the objects in the drawing are scanned to determine the maximum and minimum X-Y coordinates of the drawing. An image scale factor and viewing window are calculated which display the entire drawing on the screen at the largest scale possible. The screen is then redrawn and the image scale factor updated.

4.6.7 PAN

Scrolls the viewing window in any direction across the drawing and redraws the new view using current settings.

You will first be prompted to select a FROM point, which is used as a point of reference. You will next be prompted for a destination point. The distance and relative direction between the points is used to reposition the viewing window. If BWON is toggled off, a segment will be drawn between the points indicating the relative direction and distance the viewing window will be moved.

Locating the FROM point near the center of the screen will permit the greatest range of movement when repositioning the viewing window. When the new location of the viewing window is complete, anchor its location by pressing the left mouse button. The drawing will than be redrawn using the new view settings.

4.7 OPTIONS

OPTIONS commands control the view attributes of the drawing displayed on the screen.

OPTIONS commands provide tools which can facilitate the creating, editing, and redisplay of a drawing. Modifications remain in effect until the next time a parameter is changed or DraftChoice_ is restarted from DOS. To save changed parameters as new defaults for future sessions, see FILE CONFIGURE SAVE SETTINGS.

To display changes in option settings, it may be necessary to select IMAGE UPDATE, forcing a redraw of the visible screen.

4.7.1 GRID

Controls a settings for a visible construction grid and an invisible snap grid used as a reference for locating points in a drawing. Allows you to select from two options GRID and SNAP. After selecting OPTIONS GRID, a dialog menu will appear.

GRID

Creates a construction grid of evenly spaced dots. The visible grid provides a measurement scale at the specified x and y grid spacing in the displayed units. The grid is visibly represented by a dot at each XY intersection coordinate. Grids are preset to correspond to a 1 inch paper distance. (The physical grid will not be displayed until the GRID menu has been exited.)

The grid can be toggled on and off by clicking on the GRID option flag. From the drawing screen, the grid may be toggled on/off by pressing the [F6] function key or by toggling thru GRID icon button.

SNAP

Creates an invisible grid and restricts placement of objects to only those points which fall on the grid.

Constrain movement of the cursor to exactly the spacing of the snap grid. The snap grid is similar to the construction grid, but is not visible. When drawing an object, physical coordinates are forced to the nearest snap point.

The snap grid can be toggled on and off by selecting SNAP from the dialog window or toggling the SNAP icon button with the mouse. While drawing press the [F9] Function Key. A change in color of the SNAP button on the DraftChoice screen indicates the snap option is active.

X,Y Sets the horizontal and vertical grid spacing.

H,V Sets the horizontal and vertical snap spacing.

4.7.2 TOGGLE

Groups control options which affect the drawing screen interface. A check mark next to each switch indicates the switch is active.

The switches are listed below along with their default settings in brackets:

COORDINATE - Dynamically display the X-Y coordinate position of the cursor in the current units. Changes in x and y values (dx and dy), radius, and angle are also displayed while drawing or editing as appropriate. [ON]

Reference MARKS - Display the object reference mark (X). This toggle switch is useful when fine editing of entities is desired. [ON]

TEXT VISIBLE -Display TEXT objects completely. If disabled, represent text with a solid line to speed up screen redrawing. [ON]

BLACK ON WHITE - When enabled use monochrome color and a video buffer for all drawing operations to increase speed of display update. When disabled draw directly to screen using assigned layer colors. [ONFF

FILL BITMAPS - Fill shapes with assigned patterns. If disabled, only boundary of objects is drawn. Disabling fill may be used to speed up drawing update time (see OPTIONS FILL or OPTIONS, HATCH). [ON]

LINE STYLE - Permit use of line styles. If disabled, show each line with a thickness of SLIM (see OPTIONS STYLE). [ON]

4.7.3 ATTACH

Places the begin/end points of an object being drawn/edited to a specified connecting point on an existing object, therefore giving the two points the same coordinate.

ATTACH is helpful when you are drawing or editing an object, and you need to locate either the begin or end point at precisely the same location of an existing object. ATTACH may be toggled on/off by pressing the [F10] function key, or by clicking the mouse on the [A] ATTACH button at the top of the screen.

VERTEX - Attach to a polygon vertex, complex vertex, or Bezier/Line endpoints.

MID POINT - Attach to a point on an object midway between two end points or two vertices.

REFERENCE - Attach to either end of the existing object. The end point closest to the cursor will be selected.

TANGENT - Attach to a point on the object which results in a tangent line projecting backwards to the last indicated point.

CLOSEST - Attach to a point on the selected object which results in a perpendicular line to that point when projected back to the last point defined.

NOTE: The cursor must be positioned with in a certain number of pixels of the existing object for attach to function. For entities that have no start or middle (e.g. circles), newly drawn objects will attach to the nearest vertex point.

4.7.4 FILL

Selects a fill pattern and makes it the default fill pattern. All new complex objects drawn will be filled with the default pattern. The fill pattern of existing objects will not be changed (see ALTER FILL).

NOTE: Bit-mapped fill patterns will NOT be printed on pen plotter devices.

FILL may also be selected from the Tool bar by clicking on the appropriate icon with the mouse cursor from the keyboard. A dialog box will be displayed which allows you to select from 45+fill patterns and identifies the current fill pattern.

OPAQUE Creates a solid fill pattern of the type selected. Objects underneath the pattern will not show through.

TRANSPARENT Allows fill patterns from overlayed filled objects to show through.

HOLLOW Only the outline of the main object appears so any object will be visible.

4.7.5 HATCH

Selects a hatch pattern and makes it the default pattern. All new complex objects drawn will be filled with the default hatch pattern. The hatch pattern of existing objects will not be changed (see ALTER HATCH) filled.

Hatch patterns are often used to produce a consistent pattern, regardless of the plot device resolution.

A pick list is displayed which lists the hatch patterns available. Scroll through the list. and when the desired hatch pattern is highlighted, press the left mouse button. You will be returned to the previous menu and the name of the default hatch pattern will be displayed.

For hatch patterns to be displayed on the screen, the FILL option must be toggled on (see OPTION TOGGLE). If FILL is toggled off, all hatch patterns will be displayed on screen with a fill pattern of NONE.

NOTE: Hatch patterns are defined in the external file DCWIN.PAT. new or modified hatch patterns may be created.

4.7.6 STYLE

Selects a line style and makes it the default line style. All new objects drawn will use the new line style.

Useful when you choose to draw all new objects with the same line styles. The style of already drawn objects will not be changed (see

ALTER STYLE).

NOTE: Line styles are defined in the external file DCWIN.LIN. New or modified line styles may be created.

A pick list of available line styles will be displayed. Highlight your selection and press the left mouse button.

After a style has been selected, a dialog window of typical style options will be displayed. STYLE NAME Line styles can be selected from a dialog window representing the available styles.

SPACE Sets the spacing for dots and dashes for the various line styles

THICKNESS The line thickness may be modified with the following options.

SLIM - Represent each line with 1 dot width
THICK - Represent each line with 3 dot width
FAT - Represent each line with 5 dot width
NONE - Hide lines from the diaply and the printout

4.7.7 UNITS

Selects a unit to be used for measurement and makes it the default unit for mapping screen coordinates. Only new dimension objects drawn will be assigned the new unit of measurement. See OPTION UNITS to change the unit type for existing dimension objects.

A diamond indicator identifies the current default setting which will be used by all new dimension operations and by the coordinate position indicator displayed in the top left portion of the screen. It does not have any effect on previous units that were already embedded in the drawing. (See ALTER UNITS to change previous units.)

FIX Specifies the number of decimal places to be displayed. The default value for FIX is 3.

4.7.8 MARKS

Specify the symbol to be used as a reference mark. Reference marks can be thought of as handles used to locate an object during an editing selection (see Reference Marks Section). For reference marks to be displayed on the screen, the MARK option must be toggled on (see
OPTION TOGGLE).

DraftChoice allows you to select your own reference mark type. A pick list displays the mark types available.

A diamond indicator depicts the active reference mark. Highlight your choice and press the left mouse button and select OK. The mark selected will become the new default mark. Any screen update will replace the old mark with the new mark.

Solid Cross - The object will be marked with a solid cross.

Broken Cross - The object will be marked with a broken cross.

Hollow Box - The object will be marked with a hollow box.

Solid Box - The object will be marked with a solid box.

4.7.9 CALCULATOR

Invoke the calculator. Type formula and press enter on the desired formula to calculate.

4.7.10 BACKGROUND

Customize the screen background color.

4.8 **SYMBOL**

SYMBOL commands provide control over the creation, deletion, and use of symbols. Symbols are groups of objects which have been combined into a single drawing entity.

When creating drawings, groups of objects are frequently used over and over again. Symbols allow you to save time, effort and drawing memory by grouping a number of drawn objects and assigning a symbol name to that group. The symbols may then be used repeatedly in the drawing or exported to a file for use in other drawings. Up to 100 symbols may be saved with a drawing.

For example, an electrical designer might have a set of symbol definitions for common objects like resistors and capacitors. Each symbol might be composed of one or more base objects like lines, circles, and boxes.

Symbols reside in the computer's RAM. When FILE NEW is selected, any symbols currently in RAM are purged.

Symbols are automatically saved with the drawing in which they are used when FILE STORE is selected. When a drawing file is loaded, the symbols which were present when the file was saved are loaded into RAM for reuse. Importing a drawing file that contains symbols will merge any symbols in the imported file with those currently in memory. If an imported symbol has an identical name to a resident symbol, the imported symbol is not loaded.

Symbols may also be saved separately from the drawing with the FILE EXPORT SYM command. Whenever you make any additions to the symbol library currently in RAM, the symbol library file on disk must be updated (extracted) to save the changes.

To use symbols on other drawings, they must be imported into the drawing (see FILE IMPORT SYM).

NOTE: To cause a symbol library to be automatically loaded during DraftChoice startup or after a FILE NEW command, simply provide the library with the name AUTOLOAD.SYM.

4.8.1 USE

Selects a symbol for use in the drawing. A dialog window will appear which displays icons of the available symbols. The symbols are displayed in alphabetical order by name. Use the arrow icons to scroll through the list of symbols. To make a selection, highlight the symbol's name and press the left mouse button, or highlight and select the appropriate icon for a particular symbol.

X (SCALE) - Scale the horizontal dimension of the selected symbol, based on its original size and its reference point.

Y (SCALE) - Scale the vertical dimension of the selected symbol, based on its original size and its reference point.

ANGLE - Rotate the selected symbol about its reference point (degrees)

DEFAULT SYMBOL - This field displayes the name of the curreently selected symbol.

Any modifications made to scale or rotate remain in effect until they are changed again or the library is re-loaded.

When the settings are acceptable, select OK. The symbol will appear on the screen with the cross-hair cursor centered on its reference point. Use the cursor keys, mouse, or coordinates to position the symbol. The symbol will float as the cursor is moved. To anchor the symbol position, press the left mouse button. A copy of the symbol will be placed by repositioning the cursor and pressing the left mouse button. When through, press the right mouse button.

4.8.2 MAKE

Create and name a symbol. Select the objects to be grouped as a symbol. When complete, press the right mouse button. A dialog box will appear prompting for the symbol name. Up to 8 characters may be used, blank spaces will be ignored. If a symbol by the same name currently exists, it will be replaced with the new definition. You will next be prompted for the symbols reference point which is used for positioning the symbol. When a symbol is used, location of the symbol will align the reference point on top of the pointing cursor.

Thoughtful selection of the reference point can facilitate future placement of a symbol. For example, for a rectangular symbol you might choose a reference point at a corner to make it easier to align the other objects when the attach mode is active. However, any point may be used.

Pressing the left mouse button will add the symbol to the library in RAM, positioning it alphabetically by name in the list of symbols. Remember to save your symbol library and any changes made for future use (see FILE EXPORT SYM).

NOTES: 1. A maximum of 64 line segments can used to define a symbol.

2. A maximum of 100 symbols may be saved with a drawing.

NOTE: Remember to save your new symbols. (See FILE IMPORT SYM).

4.8.3 DELETE

Remove a symbol from the library. A dialog window will appear which displays icons of the available symbols. Use the arrow icons to scroll through the list. Highlight the name of the symbol to be deleted and double click the left mouse button.

Caution: Any occureneces of the deleted symbol in the current drawing will be eliminated as well, unless they have been exploted prior to the deletion (see below).

4.8.4 EXPLODE

Explode a symbol into basic component parts (i.e. lines, circles, arcs).

First USE the symbol to be exploded and place it in your drawing. After selecting EXPLODE, select the symbol and press the right mouse button. The symbol will be replaced with its basic object components.

4.8.5 RESET

Deletes ALL symbols from the current symbol library.

WARNING: All symbol objects currently displayed in the drawing will be deleted from the drawing.

4.9 MEASURE

MEASURE commands provide for the dimensioning of objects. To precisely locate the cursor when dimensioning, set the snap grid on, use coordinates, or use the attach mode.

4.9.1 DIMENSION

Measures the distance between two points and places the dimension on the drawing. At the prompts, locate the first point, press the left mouse button, and locate the end point and press the left mouse button. A dimension line and dimension text will be placed between the end points. The orientation of the text string is controlled by the order in which the end points are selected.

Dimension text will automatically update to reflect any changes in distance between the end points as a result of scaling. The unit of measurement reported in dimension text can be changed be selecting the ALTER UNITS command. The default unit assigned to new dimension text is selected through the OPTIONS UNITS command.

To override the dimension text, use the ALTER EXPLODE command and then the ALTER TEXT command. Once dimension text has been exploded, it is no longer associated with the dimension end points, and will not be automatically updated.

This type of object will update the echoed distance if any changes result from scaling occur.

Place a dimension line on the screen complete with end point arrow heads and a text string representing the distance between the end points. The orientation of the text string is controlled by the order in which the end points are indicated. The text is always placed from the first point to the last point. If the space between the leader lines is greater than the length of the dimension text the distance text will be centered between end points. Otherwise, text overflows to the left.

4.9.2 COORDINATE

Places the coordinate of a reference point in the drawing. At the prompt, position the cursor at the desired reference point and press [ENTER]. An object which echoes the current X and Y coordinate and unit of measurement will be placed in the drawing. The coordinate is linked to the reference point and updates whenever the position of point changes. The coordinate will also update to reflect a new type when OPTION UNITS has been selected.

The text string displayed is not a text-type entity. It is a different object type which cannot be modified with the ALTER TEXT command.

4.9.3 RADIUS

Draw a dimension line from a center point to a point on a circumference. Horizontal and vertical crossed lines are placed at the first point and are used to indicate the center of the circle. An arrow is placed on the circumference point.

At the prompts, locate the center point, press [ENTER], and locate a point on the circumference and press [ENTER]. A dimension line and text will be placed between the two points. The center point of the dimension line is represented by two perpendicular lines in the shape of a plus sign (+).

The text string echoes the radius distance. The orientation of the text string is from the center point to the circumference point and parallel to the direction of the radius line. The text string may be edited the same as with the DIMENSION command.

4.9.4 DIAMETER

Draws a dimension line between two points on the circumference of a circle, and display the measured distance.

At the prompts, locate one point on the circumference, press the left mouse button and locate a second point on the circumference, making sure the floating line passes through the center, and press the left mouse button. A dimension line and dimension text will be placed between the two points.

The text string echoes the diameter distance. The orientation of the text string is from the first point to the second point. The text string may be edited the same as with the DIMENSION command.

4.9.5 ANGLE

Draws dimension lines and the measured angle between three points. At the prompt position the cursor at the center point and press the left mouse button. As you move the cursor, a radius line will be drawn form the center point and the circle it defines will float on the screen. Positive angles are measured in a clockwise direction.

Position the cursor on a point on one of the lines which describes the angle to be measured, and press the left mouse button. The circle will be replaced by an arc which expands as you move the cursor clockwise to a point on the second line. Press the left mouse button to fix the point. Dimension lines will connect the center point with the first point and the second point which describe the angle, and the two points will be connected by an arc with arrow heads at either end. Dimension text will display the measured angle in degrees.

The orientation of the text string is always horizontal, on the side of the angle being measured. The text string displayed is not a text type entity. it is a different object type which cannot be modified with the ALTER TEXT command.

4.9.6 LEADER

Place a leader line on the drawing. A leader line is a two segment line typically used to locate text (drawn above or at the end of the leader) on a drawing. The first line segment is fixed at point 1 with an arrow head and is angled 60 degrees from the horizontal. The second line segment is always horizontal, anchored to the first segment at one end point 2 at the other end.

At the prompt, position the cursor at point 1 which is where the arrow head is to be placed, and press [ENTER]. Move the cursor to point 2 which defines end of the line. As you move the cursor, a leader line will be displayed and move dynamically on the screen until its location

is fixed by pressing [ENTER].

4.9.7 BOUNDARY

Automatically dimension the horizontal and vertical drawing extents of an object or group of objects.

Select the object(s) to be dimensioned. Dimension lines and dimension text will be placed below, marking the horizontal extents of the objects(s), and to the right, marking the vertical extents of the object(s). The text strings echo the distance between the two pair of end points.

The dimension lines and text behave the same as with the MEASURE DIMENSION command.

4.9.8 QUERY

Reports attributes, characteristics, and parameters associated with a selected object(s). Select type of measurement from the following:

LENGTH Reports the distance between two points and total distance between first and last points. The user is prompted to select the first point and press [ENTER]. The distance between points is reported at the top of the screen. If a new point is selected, the segment distance between the last two points and the total distance from the first point to the last point are displayed.

ANGLE Reports the interior and exterior angle between three points which define the intersection of two lines. The user is prompted to specify the intersecting point, and a point on each line segment. The line segment points should be selected such the second point is clockwise from the first point. The calculated angle and its complement will be displayed in a dialog window.

AREA Reports the area of any straight-sided shape defined by the user. The user is prompted to specify points which define the perimeter of the polygon. A minimum of three points must be specified. DraftChoice will set the last point equal to the first point. Each point will be identified by a reference mark. After specifying the last point, press [ESC]. The area of the polygon will be reported in the default units of measurement.

OBJECT Report parameters associated with a selected object including Layer, Style, Width, Fill, and Points.

4.10 LAYER

DraftChoice permits you to work on mulitple layers which can be thought of transparent overlays. Layers permit you to organize objects in your drawing into logical groupings.

The maximum number of layers supported is 128. The maximum number of characters used for the layer name is limited to 9.

4.10.1 USE

Specify the layer which new objects will be placed. When selected, you are presented with a dialog window. Only one layer can be active at a time. The currenlty selected layer is highlighted.

4.10.2 COLOR

Colors may be individually assigned to each layer. Change layer color for the active layer from a series of 16 layer colors. The active layer is displayed in the dialog window. Toggle between the layer colors to select a color. Notice the layer color in the dialog window will change as you toggle through the colors.

Layer colors will be visible only when BLACK ON WHITE is disabled (see OPTIONS TOGGLE BLACK ON WHITE). Changes to layer colors will take effect after IMAGE UPDATE is performed.

4.10.3 MOVE

Permits you to move one or more objects to another layer selected from a pick list. You will be asked to select the object to move.

Select the object with the pick or window mode and you have confirmed your selection, press the right mouse button. You will be presented with the Layer Color dialog window. Change the color layer to the one desired. Your layer color will automatically change to the one specified.

4.11 WIN

Permits the user to exchange information with other Windows applications.

COPY Text - Copy selected text from the drawing to the Windows ClipBoard (as text).

COPY Bitmap - Copy a selected portion of the drawing to the Windows ClipBoard as a bit-mapped image.

PASTE Text - Paste Text from the Windows ClipBoard to the user specified cursor position.

PASTE Bitmap - Paste Bit-mapped image from the Windows ClipBoard to the upper left corner of the DRAFT Choice For Windows screen.

Logo - Displays the DRAFT Choice for Windows Logo.