

The GROUP EDIT palettes are used in many Accucadd functions. This section describes them in detail.

The Group palettes are used to select Entities (e.g., lines, arcs, hatches, Inserts) for the functions to operate on; the same editing operation is done on all the selected Entities. During Group operations, prompts appear on the status bar which guide you through use of the palette. The View functions from the menu can be useful while working with Group.

Introduction There are three Group palettes; the icons used on them are explained in detail below.

The full Group palette, used for selecting entire Entities and parts of Entities.

The Whole Group palette, used when complete Entities must be selected.

The Fence palette, used by the Fence selection facility — see below.

Group techniques The Group palettes provide several techniques for selecting Entities. Variations on these are provided by different icons, and all of the techniques can be used in combination. You can accumulate a set of selections using all the different Group selection facilities.

Item selection

Entities are selected one at a time.

Box selection

Entities lying within a rectangular box are selected. Special variations of this include selecting all the visible Entities, and selecting all the Entities on the drawing paper.

Path selection

A path is traced through the Entities that make up the drawing. All the Entities on the path are selected.

Fence selection

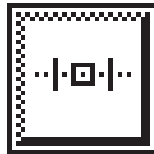
A regions of the drawing, in any shape, is defined with a 'fence', and all Entities within the fence are selected.

Part selection Many Entities can be 'part-selected' — only a part of the Entity, rather than the whole Entity, is selected. The part to be selected can be marked off by intersections with other Entities, and by a Box, Path or Fence. See Part Item and Cut Box below for more details. Part selection will usually 'break up' an Entity into two or more Entities, and this can affect Accucadd's 'magnetic' snap points — see "Details:", below.

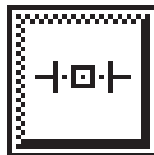
Un-selecting Entities You can pick a set of Entities by simply selecting them one after another. You can un-select them simply by selecting them again, with any of the Group facilities.

Highlighting Entities can be highlighted when they are selected; Elements (simple Entities) are shown with a cross at their mid point and boxes at the end points. The effects on other sorts of Entity are described below. To view highlights, select the Show Markers icon.

Icons The Group and Whole Group palettes contain many icons. They are explained here in the order that allows easiest understanding, rather than their (variable) order on the palettes:

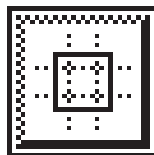


WHOLE ITEM: Selects whole Entities. Note that the whole of the line is shown as “dotted” to indicate whole item selection. This is the initial default selection and can be selected at any time using any of the other cursors. The Select Item cursor is produced; a small box, moving under the control of the Mouse. To select an entity, position the cursor over the Entity and click the button.



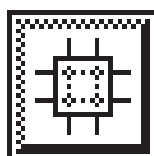
PART ITEM: Select parts of lines, arcs, circles and dimensions, using the Select Item cursor. Note that only part of the line is shown as “dotted” to indicate part item selection. A ‘Part’ is a portion of the Entity that lies between its ends, and/or its intersections with other such Entities. See DIMENSION: ENTITIES for more on part-selecting Dimension entities.

Warning: When you select a part, the Element it is a part of is divided into two or three parts. If you de-select the part, the Element remains subdivided and will remain subdivided when you select **OK** to confirm your selection of Entities for editing. If this is not desirable, select **EXIT** and begin the editing function again.



WHOLE BOX: Selects all Entities within, or passing through, a rectangular box. Position the cursor at one corner of the box and click the button to confirm the position, then position the cursor at the other corner and click to complete the selection. This cursor is known as the Select Box cursor.

Note that if any part of an Entity is within the box then the whole Entity is selected. Text, Insert and Fit Insert handles, Nib corners, Hatch and User Hatch seed points and Stream and Curve end points must be included in the box if you wish to select them. Dimensions can be selected like lines, arcs and circles, or by their text handles.

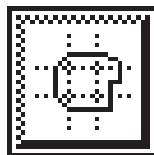


CUT BOX: Like WHOLE BOX, but line, arc, circle and Dimension Entities are cut at the edge of the Select Box cursor. Like PART ITEM, Elements selected with the Select Box cursor are subdivided at the box edge. Even if the Element is de-selected it remains subdivided.

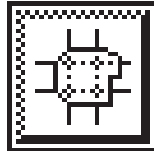
Other Entities are handled in the same way as WHOLE BOX, except for Inserts:

Inserts: If you select any Inserts that intersect the CUT BOX, Accucadd produces a warning palette giving the option to EXPLODE (see EDIT: EXPLODE) the Inserts. If you select **OK** from this palette, the Inserts are exploded. New Entities thus produced within the CUT BOX are selected by it; if new Inserts are produced by the EXPLODE, they are selected (just as if they had been selected with WHOLE ITEM), but you are not offered the chance to EXPLODE them.

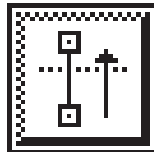
Caution: Once you have Exploded an Insert, it cannot be un-exploded, even by selecting **EXIT** from the GROUP palette, or using EDIT: UNDO.



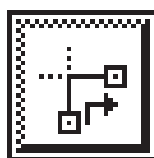
WHOLE FENCE: This operates like WHOLE BOX, except that instead of a rectangle, it selects Entities inside an arbitrary shape 'fence', drawn using the FENCE palette.



CUT FENCE: This operates like CUT BOX, but uses a fence. The FENCE palette is described below.

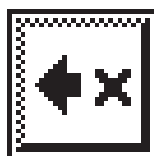


WHOLE ELEMENT PATH: This selects all the Entities along a path composed of lines and arcs. You are prompted to select the first element of the path, and then the last. Accucadd searches for a path joining them, and selects the Entities along that path. Note that it will only join Entities end-to-end; to select a path including parts of Entities, use PART ELEMENT PATH.

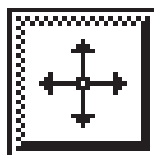


PART ELEMENT PATH: This operates like WHOLE ELEMENT PATH, but uses intersections between lines, arcs and circles, and can use parts of such Entities. For more details on PATH selections, see DRAW: PARALLEL.

Note: WHOLE and PART ELEMENT PATH only select the Entities *on* the path. They do *not* select Entities inside any areas that may be surrounded by a path.



LAST DATA: Selects the last Entity created or edited. If several Entities were worked on in one operation (e.g., DRAW: COPY, or DRAW: PARALLEL) all of them are selected.



ALL: This icon is only present on the WHOLE group palette. It selects all the Entities on the drawing paper in the same way as WHOLE BOX. Note that if you have reduced the size of the drawing paper, so as to leave Entities entirely outside the paper, they won't be selected by this icon (or any other GROUP icon).



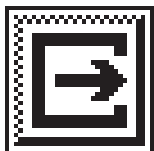
EDGE: This is a subsidiary control for the BOX and FENCE icons; select it to include the borders of the BOX or FENCE in the area selected, or un-select it to exclude them.



SHOW MARKERS: Select this icon to display the cross and end point markers on Entities during all group edit functions. This selection persists between uses of the functions that use the GROUP palette.



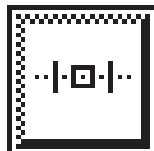
OK: Select this icon to confirm and activate the group function. Pressing **ENTER** has the same effect.



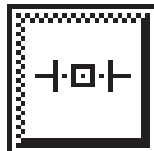
EXIT: Select this icon, or press **ESC** to exit the group function. If you select this icon before selecting the **OK** icon then all selections will be canceled (with some exceptions; see PART ITEM, CUT BOX, CUT FENCE and PART ELEMENT PATH).

FENCE palette

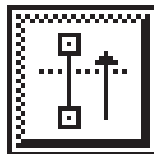
The **WHOLE FENCE** and **CUT FENCE** icons produce an additional palette, the **FENCE** palette. To abort drawing a fence, press **ESC**.



WHOLE ITEM: This adds a line or arc from the drawing to the fence, in the same way as the **WHOLE ITEM** icon described above. If you select a circle, it forms a complete fence.

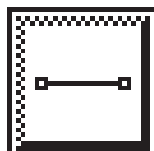


PART ITEM: This adds part of a line, arc or Dimension Entity to the fence in the same way as the **PART ITEM** icon described above.

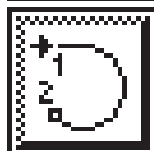


WHOLE ELEMENT PATH: This icon will take the last point added to a fence as its start point and create a path using the same rules as the **WHOLE ELEMENT PATH**, described above. The lines and arcs that make up the path are added to the fence.

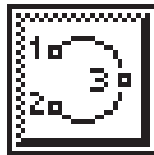
Note: This **PATH** is used in defining the fence area. It is different from the **PATH** icons on the main **GROUP** palette, which are used to select Entities directly.



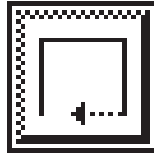
LINE: Use this icon (the default) to add a straight line to the fence, in the same way as the **LINE** icon of **DRAW: ELEMENTS**.



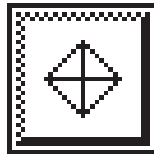
BLENDING ARC: Use this icon to draw an arc tangential to the last line added to the fence, in the same way as **BLENDING ARC** in **DRAW: ELEMENTS**. If this arc is the first part of the fence, it uses **THREE-POINT ARC**, described below.



THREE-POINT ARC: Use this icon to draw an arc with one end point at the last point added to the fence, in the same way as **DRAW: ELEMENTS: THREE-POINT ARC**.



COMPLETE: This icon will complete a fence by drawing a line from its start point to its end point. You must complete a fence before it will select anything; “drawing the fence closed” by hand has the same effect.



DRAG: Normally, when a fence is completed with **COMPLETE**, the selection takes place and the fence is discarded. Selecting this icon before completing the fence makes the fence into a ‘tool’ that can be dragged with the mouse. Entities ‘under’ it when the fence is completed are selected, and you can move the cursor and click at any position on the drawing to use it again.

Details:

When you divide Entities with Part Item, Cut Box, Part Element Path or Cut Fence, their endpoints become snap points. These are useful in selecting further items with the box cursors. If you abort the **GROUP** selection with **EXIT**, the snap points will vanish. The complex Entities are marked in different ways when selected:

Text, Curves, Inserts and Fit Inserts are marked by boxes which surround the Entity.

Hatches and User Hatches display an ‘H’ symbol at their ‘seed’ position.

Handles are marked by a cross

Nibs are marked by boxes at their four corners.

Dimensions are marked by boxes round the dimension text and arrowheads.

Snap Points

Several sorts of functions can create new ‘magnetic’ snap points (see “Snap points, Grids and Traps” under Accucadd: Orientation). These are:

Copying Entities: Draw: Copy, and Draw: Stretch-Copy

Creating new endpoints: Edit: Erase

Part-selection functions: Edit: Change, Edit: Move, and Edit: Stretch-Move

Adding a large amount of New Data: Edit: Explode

Creation of new snap points is controlled with Toolkit: Points: Edit Create (q.v.).

Show Markers If Accucadd takes a long time to display the highlights when you select **OK** on this icon, you can stop it by pressing **Space**.

Advanced: If you have several Inserts with handles in the same position (coincident handles), selecting them follows special rules:

Box and Fence

All the Inserts are selected if the Handle location is inside the selection area. They can be exploded quite normally by Cut Box or Cut Fence.

Whole Item and Part Item

When you click the button with several Insert Handles inside the Select Item cursor box, a window is produced for you to select one of the Inserts. The window shows the index number and position of the Inserts; select the Insert that you want from it. The Inserts are shown in the order that they were placed in the drawing.

You can select "all but a few" of a set of Inserts with coincident Handles by selecting them all with Whole Box, then un-selecting one with Whole Item.

Everything except... You can select everything in the drawing except one or two items by clicking on "All" and then selecting with the Whole Item cursor just those items you wish to keep. Similarly, in the case of a straight line that makes many intersections with other elements, you can select all of it except for the portion between two adjacent intersections by selecting the part you want to keep with the Part Item cursor, and then selecting the line with the Whole Item cursor.

This function undoes your last drawing action.

To use UNDO, select it from the menu; there is no Undo palette. Undo keeps a record of the changes you have made in a drawing since you started or loaded it — If you select Undo enough times, you can undo all your work on the current drawing.

You can undo:

- Drawing actions
- Editing actions
- Dimensioning actions

You cannot undo:

- Snap Points created with Delta or Polar keyboard input or Toolkit: Points.
- Changes of view (Zoom, Pan, Shrink, Redraw or Load Zoom) — but View: Previous View will “undo” the last change of view.
- Edit: Isolate operations, which really don’t affect the current drawing (see the description of Isolate below).

Details: Undo keeps a log of the changes made on each drawing page; you can use it separately on each page. The undo log is discarded when you use Edit: Wipe, File: Backup: Load Backup, Library: Load, or File: Open.; using File doesn’t affect it, but you can’t Undo a File.

Edit: Redo will undo the actions of the last Undo. It is always safe to try Undo; if your last action cannot be undone, Accucadd will tell you so and if it produces the wrong result, you can “undo the undo” with Redo.

If you use File: Backup: Backup Now to back up your drawing, and then use File: Backup: Load Backup you will start a new Undo/Redo Log.

Backward compatibility: Accucadd introduces multi-level Undo; earlier versions (RoboCAD) could only Undo one drawing action. In RoboCAD 4 and earlier versions, it was possible to Undo changes of view. View: Previous View now provides this facility.

This function “undoes” Undo operations.

To use Redo, select it from the menu; there is no Redo palette.

Redo only works if you haven't drawn or edited anything since you used Undo. Provided you follow this rule, you can completely dismantle a drawing with Undo, and then reconstruct it with Redo.

Details Naturally, Redo uses the Undo log (see above). If you draw or edit anything, the portion of the undo log that has been *used* by the Undo function is discarded, as it won't be meaningful if other changes are made to the drawing.

If you use File: Backup: Backup Now to back up your drawing, and then use File: Backup: Load Backup you will start a new Undo/Redo Log.

This function removes whole Entities, part Entities, groups of Entities and groups of part Entities from the drawing.

When Erase is selected, the main Group palette is displayed (see Edit: Group). Its icons are used to select Entities in the usual way, and all selected Entities are erased from the drawing when you select **OK** from the Group palette.

Erased Entities are removed from the drawing completely; you can recover them by using Undo immediately.

Erase and Snap points If you want 'magnetic' snap points to appear at cut ends of Entities, make sure that Toolkit: Points: Edit Create (q.v.) is active.

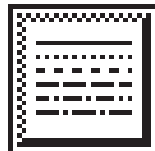
Warning: If you use Cut Box or Cut Fence to Explode Inserts, you cannot undo this effect by selecting **EXIT** from the Group palette, or with the Undo function.

This function lets you alter the line style, line weight, color or layer of an Entity or group of Entities in the drawing.

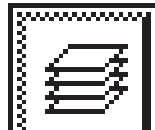
When you select Edit: Change the Group palette appears on the screen. Select Entities to be changed, and then select the **OK** icon from the Group palette. The Change palette is then displayed:



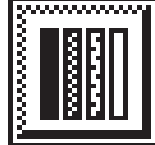
WEIGHT: Changes the line weight. On selection, the line weight palette is displayed. Select the new line weight for the selected Entities.



STYLE: Changes the line style. On selection, the line style palette is displayed. Select the new line style for the selected Entities.



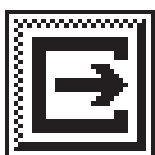
LAYER: Changes the selected Entities to a different layer. On selecting this icon, Accucadd prompts you to enter the number of the new layer, which must be one that is already set up in the Layer Table.



COLOR: Changes the color of Entities. The color selection window is displayed, and you should select the desired new color from it.



OK: Changes all the selected Entities to the new attributes set up with the Change palette.



EXIT: Leave Edit: Change.

Auto Regeneration

The Auto Regen control is described under View: Options. If it is set to On, the screen is updated for your changes immediately. If it is Off, the screen is not updated until it is otherwise regenerated.

Limitations

You cannot change the color or linestyle of an Entity from a layer set to a single color or linestyle.

This allows you to move sections, inserts and the whole drawing to another location on the current page, between Layers, onto the second drawing page or onto the Scratchpad. Using the Group icons allows you to cut blocks out of the drawing and move them.



When selected, Move displays the Group palette. Select the Entities to be moved, using any of the Group icons. If you want snap points to be created at the cut ends of part-selected Entities, turn on Toolkit: Points: Edit Create. Select **OK** to go to the Move selection window. This lists the move actions available:

- Drag** Select this option to move the selected Entities anywhere on the current drawing, another page or Scratchpad. When you select Drag, Accucadd prompts you to position a 'Handle' to be used as a center for moving and transforming the data. Position the cursor and click the button. Accucadd then presents you with an accurate image which you can pick up and position anywhere. You can use all of the icons associated with Drag Insert, including Cutout.
- Frame** Select this option to transform the selected Entities before you position them. When you select Frame, Accucadd prompts you to position a 'Handle' to be used as a center for moving and transforming the data. Position the cursor and click the button. One of two palettes is displayed: If you are Moving an Insert the Frame Insert palette is displayed. If you are Moving any other drawing Entities, a smaller palette which contains a subset of the icons in the Frame palette is displayed. In either case, you can use Cutout to clear the space where the moved data will be placed.

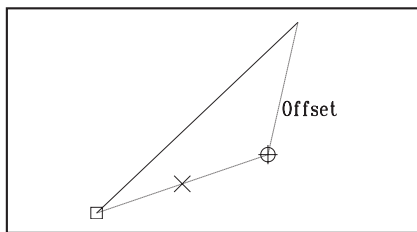
You can alter all of the data's attributes before placing it (see Frame Insert). As with Drag, above, you can position the Entities on either of the main pages or on the scratchpad.
- Mirror** Select this to reflect the selected data, about any axis. A line cursor is provided: draw the line about which the original is reflected to define its new position. Note that this won't create mirror-image text — mirrored text is shown correctly, although it may be rotated.
- Offset** Select this option to move the selected Entities to anywhere on the current page. A line cursor is provided: draw a line whose length and direction indicate the displacement and direction of the selected Entities from their original positions.
- Layers** When the status bar displays layer "OFF", you can select it and enter a new layer number to force the Entities being moved onto that layer. If you leave it at "OFF", they will remain on their original Layers.

This function allows you to move Entities or parts of Entities to a different position on the drawing. Lines, Arcs, Nibs, Hatches, Curves and Dimensions can be stretched by the movement, instead of simply moving with it. This function is easier to use than to explain — a little experimentation will be helpful.

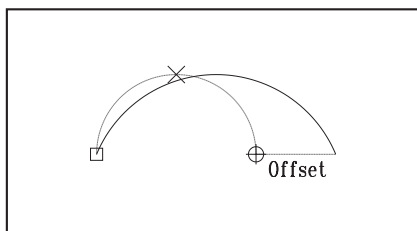
Principles: Unlike most Accucadd editing functions, Stretch-Move does not select Entities directly. Instead, it selects Move Points — positions in the drawing — and then selects the Entities that have an endpoint there. It allows you to move the selected Move Points; selected Entities are stretched to accommodate the move while keeping their other endpoints in their former positions.

Selection is done with the Group palette. Lines, arcs and circles can be part-selected, and will stretch or move from the point at which they are subdivided (their “Pivot Points”).

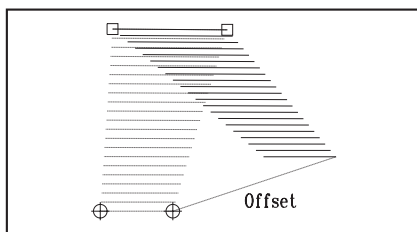
Movement is done with a line cursor, producing an offset, in the same way as for Edit: Move: Offset. Move Points are shown as a small circle with a cross-hair; Pivot Points and ordinary Endpoints are shown with a small box, as usual. Use of the Show Markers icon is recommended with Stretch-Move.



For example, a line with one endpoint selected as a Move Point stretches when it is moved. If both endpoints are Move points, it will simply move, and if neither is, it won't be altered.

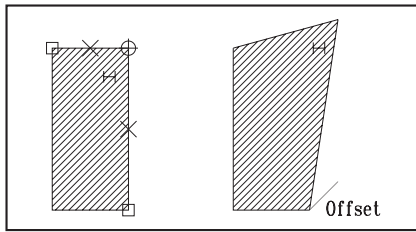


An arc will maintain its chord height (“Sagitta”) as it stretches, altering its radius and center position to accommodate the new position. If both endpoints are Move points, it will simply move, and if neither is, it won't be altered.

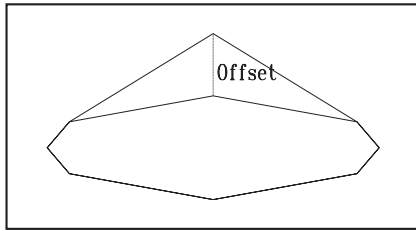


A nib will stretch if one to three of its corners are Move Points; it will simply move if all are.

Dimensions can be stretched in much the same way as lines; their text adjusts automatically for the new positions of Move Points. If a Dimension text handle is a Move Point, the text moves.



Hatches will stretch if their seed point is selected as a Move point and at least one of their corners is not. If all points are selected, they will move; if the seed isn't selected, there is no effect. The example shows a simple hatch area "before-and-after".



Curves will stretch, in that one or more of the lines that they consist of will be stretched. The original form of the curve isn't maintained. The example shows an ellipse, drawn with Curve Step=2 for clarity.

No other types of Entity will stretch. If they are selected, they will move; select them in the normal way, as described under Edit: Group.

Operation:

When selected, Stretch-Move displays the Group palette. Selection with Group for Stretch-Move is a little different from normal Group selection; read the descriptions below carefully.

WHOLE ITEM

WHOLE ITEM: Position the cursor over an endpoint and click the button; the endpoint is marked as a Move Point and all Entities with an endpoint, corner, handle or center there are selected for moving. Lines, arcs and nibs which are selected and don't have all their endpoints as Move Points will be Stretched.

You can also select and de-select entire Entities, in the normal Group style for Whole Item. This is useful to de-select stretchable Entities, and to select non-stretchable ones (e.g., Hatch) for moving. Note that a stretchable Entity won't be altered unless it has a Move Point, and can only be moved as a whole if all its endpoints are Move Points (use Whole Box, below, for this)

PART ITEM

Select in the same way as Whole Item. Lines and arcs that are selected will be subdivided if any intersect any other line or arcs; the intersection point becomes a Pivot Point and is treated as the endpoint of the Element.

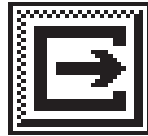
WHOLE BOX, PATH A, PATH B, WHOLE FENCE

Use the cursor as described under Edit: Group. All endpoints selected become Move Points; Entities will be selected if their endpoints or Handles lie within the box. All Entities selected will be Moved, including Entities that extend outside the box. Lines, arcs and nibs which have endpoints that haven't been selected will be Stretched.

CUT BOX, CUT FENCE

Nibs stretch in the same way as Whole Box. Lines and arcs will be subdivided at the box edge; Pivot Points are placed there and act in the same way as for Part Item. Inserts can be exploded in the usual way, as described under Edit: Group.

When you select **OK**, the Group palette is removed and another palette with one icon is presented.

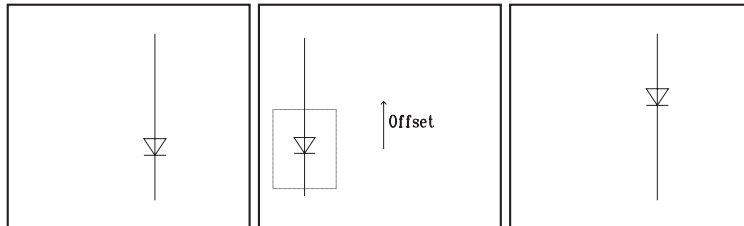


Select **EXIT** to leave Stretch-Move.

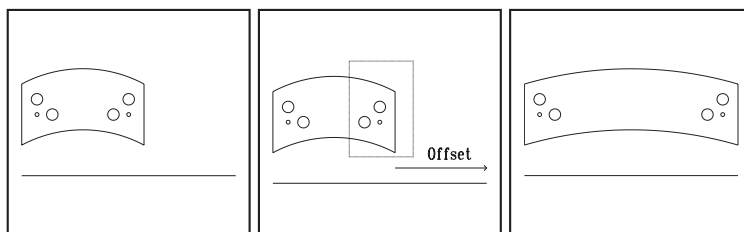
A line cursor is presented; draw a line with it whose direction and distance indicate the displacement and direction of the move.

The stretchable Entities adjust automatically; you will remain in Stretch-Move until you select **EXIT** and can move the selected Entities any number of times for adjustment.

Examples: Moving a component across a circuit diagram, using Whole Box:



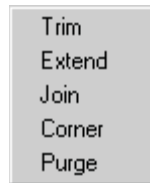
Reshaping a part, using Whole Box:



Details: If you select a point a second time, it toggles between being an endpoint and a Move point. If an Entity is selected twice, it is de-selected. If, for example, you wished to stretch a Nib, and selected two of its corners with separate Whole Item selections, you would have selected the Nib Entity twice, and therefore deselected it. You would have to select one of the Move points again to select the Nib as an Entity to be moved and stretched.

Layers When the status bar displays layer "OFF", you can select it and enter a new layer number to force the Entities being moved onto that layer. If you leave it at "OFF", they will remain on their original Layers.

This function lets you break, extend and join lines, arcs and circles. You can also tidy up corners, and purge (remove) duplicate data from the drawing.



Cleanup displays a window for selecting the exact function required: The functions work at once—you don't have to confirm them. Should the effect not be what you expected or wanted, simply use Edit: Undo.

- Trim** Select this option to delete part of an element that lies between any two snap points or intersections. First, select the element with the Select Item cursor. All the snap points and intersections on it are marked; select the points at the ends of the section you wish to delete — Trim removes the section immediately. Any points between the two selected will be ignored. Select a new first element to use Trim again, or select the **EXIT** icon to leave the function.
- Extend** Select this option to extend an element to meet another element. The Select Item cursor appears: use it to select an element. The snap points and intersections which indicate legal intersections are displayed. Select one of these points to extend the element — Extend draws the new, extended element immediately. Select a new first element to use Extend again, or select the **EXIT** icon to leave the function.
- Join** Select this option to automatically extend or trim two elements. Use the Select Item cursor to select the first element, then the section of the second element that you want to keep (if it needs trimming). Join draws the new versions of both elements immediately. Select a new first element to use Join again, or select the **EXIT** icon to leave the function.
- Corner** This option is used to miter sets of intersecting parallel lines, and to make neat T-junctions and intersections. It can be used as a substitute for the JOIN facility of Draw: Parallel, or to tidy up other sets of intersecting lines. Break/Extend: Join does the same job for single intersections. A selection box, like that of Edit: Group: Whole Box is produced. Use it to select the lines to be mitered; the operation proceeds automatically as soon as you have completed the selection.
- If Corner produces strange results, use it again on the same area. If you use it several times, use Purge with Delete Segments (described below) to clean up afterwards.
- Purge** This option removes duplicate lines, arcs and circles from the drawing. When working with Accucadd, it is quite easy to draw a line twice, or to draw a longer line “on top” of a shorter one. Purge is used to clean these up; use it before exporting a drawing, particularly for CNC or other post-processing work.

Limitations:

Lines, arcs and circles are checked against other lines, arcs and circles. All other Entity types are ignored, so Purge won't (for instance) remove lines that duplicate a hatch pattern.

Purge only considers geometry. The color, line style and line weight of elements are ignored.

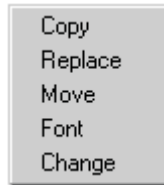
This function lets you delete Points using the Group palette. This is useful when you have used a Point as a datum, or as a guide for placing Inserts, but no longer need it.

To use this function select Erase Points from the Edit menu; the Whole Group palette is displayed. Its icons have their normal effects, as described under Edit: Group; no special cases occur, owing to the simplicity of Points.

Edit: Erase Points lets you delete points without deleting the corresponding Insert or any other item that may be on top of the Point.

Details: Edit: Erase Points does not affect Insert Handles, Text Handles, or the endpoints or seeds of any kind of Entity other than Points.

This function lets you manipulate text which has already been planted on the drawing.



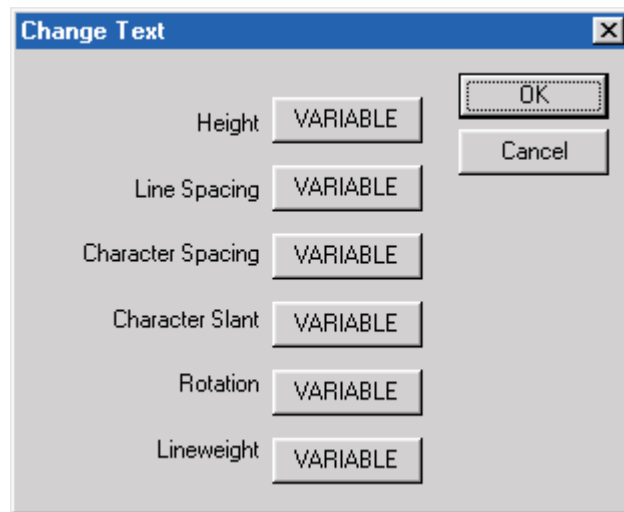
When you select Edit: Text, a window is displayed, along with an **EXIT** icon. Select **EXIT** to leave this function.

- Copy Select this option to copy an existing block of text. The Select Item cursor appears — use it to select the handle of the text block that you want to copy. The text editor is invoked, so that you can adjust the text before planting it on the drawing. If you want to copy the text “as is”, press **ESC** immediately. When you return to the drawing, the Draw: Text palette is displayed. You can alter all of the attributes of the text using this palette, and draw one or more copies by positioning the cursor clicking. See Draw: Text for information on its palette.
- Replace This option replaces existing text with new wording. The Select Item cursor appears; use it to select a text block. The text editor is invoked to allow you to alter the text. Press **ESC** to return to the drawing; the text is replaced automatically.
- Move This option moves a text block to a different part of the drawing, or on to another drawing page or the Scratchpad. Use the Select Item cursor to select a text block. The Page palette and Draw: Text palette are presented, and can be used to adjust the text, or move to another page. Position the cursor at the text’s new site and click the button to move it.
- Font This selection allows you to change the font of one or more text blocks. Select the new font from the Font Catalog, then select any number of text blocks with the Whole Group palette functions. Select **OK** to change the font of the selected text blocks. To change other properties of text, see below.
- Change This selection can change the height, line or character spacing, slant angle, rotation and line weight of one or more text blocks.

The Whole Group palette is presented; select the desired text blocks as described under Edit: Group and then select **OK** from the palette to apply the changes.

A Status Window is produced to allow you to enter the new attributes of the text block(s).

For each of the attributes that you wish to set, position the cursor over the corresponding VARIABLE keyword and click the button. An input window (or a selection window for line weight) is produced: enter the

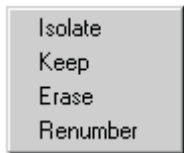


desired value for the attribute. Select **OK** from the window when you have finished.

VARIABLE Attributes that are left set to **VARIABLE** are not changed; each text block retains its previous value for that attribute. To reset a value to **VARIABLE**, click over the number in the Change Text dialog and the number will change to **VARIABLE**; to set it to a different value, click the button to set it to **VARIABLE**, click it again, and then input a new value.

Details: To use this function on the label of a Dimension, Explode the dimension first.

This function lets you delete a chosen layer, keep one layer and delete all others, change the number of a layer or isolate a chosen layer for work on the Scratchpad.



When you select LAYER from the EDIT menu a window appears:

Isolate Select this option to take the chosen layer onto the Scratchpad. You are prompted to enter the number of the layer that you wish to Isolate; type the number of the layer into the input window at the bottom of the screen and press **Enter**. The layer is isolated, and the Window menu (see Window) shows that you are working on the Scratchpad. You can use all of the Accucadd functions to modify the drawing. When you have finished working on it, and you have filed your drawing, use the Window menu to return to your main page.

The Isolated layer is copied onto the Scratchpad and becomes a drawing in its own right. The original drawing is not altered. Unlike a normal Edit: Isolate, you *must* file the Isolated layer if you wish to preserve your work on it. Accucadd can't automatically replace the edited layer in the main drawing.

Keep Select this option to delete all layers but the one you select. You are prompted to enter the number of the layer that you want to keep. Type its number and press **Enter**; the Entities on all layers except the one that you have chosen will be erased. The Layer Table is *not* altered by this option.

Erase Select this option to erase the contents of a chosen layer. You are prompted to enter the number of the layer to be erased. Type its number and press **Enter**; the Entities on the chosen layer will be erased, but the Layer's entry in the Layer Table is *not* removed.

Renumber Select this option to move all data from a layer to a different layer, leaving the first layer empty. Windows are produced for you to enter the number of the layer to be renumbered — type it in and press **Enter** — and the number of the layer that is to receive the data. This option does not alter the Layer Table, and won't create a new Layer if you enter an unknown layer number as the new layer number.

Note: You cannot use Edit: Layer: Isolate Layer if you are already on the Scratchpad.

This function allows you to edit Inserts in the drawing and to update and exchange Inserts with other Inserts from the library.

Basics: The Handles of all Inserts on the screen are displayed. Position the Select Item cursor over a handle and click the button. Accucadd makes a copy of the Insert on the Scratchpad, Explodes (q.v.) it, moves you to the Scratchpad, and displays the exploded Insert.

The warning palette is displayed, with the legend "Correct Insert?". Select **OK** to work on the exploded Insert, or **EXIT** to leave the Scratchpad and return to your drawing with nothing changed.

Having selected OK, the Scratchpad now holds the drawing that you Inserted into your working drawing (on Page 1 or Page 2). You can alter it using any of the Accucadd functions. You may even use Isolate on it again if it, in turn, contains Inserts. (This situation is called Nested Inserts.) However, we suggest you don't do this until you are familiar with Isolate and have a good working knowledge of what happens when you do use it.

To return to the original drawing, select the drawing page you were last using from the Page palette. Whenever you leave the Scratchpad, remember that the drawing on the Scratchpad is "vulnerable" to other Accucadd functions that may use the Scratchpad. Therefore if you want to keep the drawing on the Scratchpad you should always save it before switching to another page.

Using Isolate: how it can help

The different ways in which Isolate can be applied are explained below:

Recovering an Insert

If you have a drawing with an Insert which doesn't belong to any index in your current library, you can place it on an Index by using Isolate. This situation arises when you File a drawing Loaded from a different library (never a good idea in itself), or when you have deleted the Index the Insert came from.

If you Isolate the Insert you can File it, so that you can then Load it for modification, or Insert it into other drawings. Unfortunately, if you have several drawings that refer to the Insert, or multiple copies of it in a single drawing, you will have to Isolate them all individually.

Altering an Insert

Of course, you can Isolate any Insert in your drawing. The usual reason for doing so is to produce an amended version without spending time saving and loading drawings. Isolate the Insert, and alter it with the drawing tools.

Assuming that you want to put the Insert back into your drawing having altered it, you have several possible routes. These produce

different effects, and understanding this is key to realizing the full power and usefulness of the Isolate function:

Abandon

If you don't File the Insert at all, it will be lost when you return to the drawing you Isolated it from.

Local Update

If you File the Insert in an Index position that hasn't been used before, then return to the main drawing, Accucadd will produce the Warning palette, with the legend "Update isolated insert?". If you select **OK**, the new version of the Insert will replace the old one in the drawing. This is a "Local Update", the simplest means of changing an Insert with Isolate.

Global Update

If you File the Insert over the old version of itself, (File on the same Index and in the same position as you selected the Insert from when you first Inserted it) you will update all the copies of that Insert in your drawing. When you load other drawings, you will find them updated, too. Accucadd will tell you the Index number and position of the Insert — see "Details", below. Be sure you want to do a Global Update before you do this, however. Undoing a mistaken Global Update is usually tricky, and sometimes impossible.

Update Another Insert

If you File the Insert over another drawing that is used as an Insert in your current drawing, Accucadd will do a Global Update of that Insert to the Insert that you over-filed with. Be sure you want to do a Global Update before you do this, however. Undoing a mistaken Global Update is usually tricky, and sometimes impossible.

Exchanging You can exchange an Insert for another Insert from the library quite simply; Isolate the Insert that is to be removed and then use Library: Load to load the replacement Insert into the Scratchpad. Several forms of Exchange exist, selected by your actions after Loading:

Local Exchange

If you simply return to the main drawing, the Insert that you Isolated is replaced by the one you Loaded, after the "Update isolated insert?" warning.

Global Exchange

Having Loaded the replacement Insert, File it over the Insert that you Isolated. This signals to Accucadd that you wish to make a Global Exchange; it replaces all the copies of the Insert that you Isolated with copies of the replacement Insert. A Global Ex-

change propagates to all the other drawings in the library in the way that a Global Update does. Be sure you want to do a Global Update before you do this, however. Undoing a mistaken Global Update is usually tricky, and sometimes impossible.

Exchange Another Insert

Like Update Another Insert, File the replacement Insert over another drawing that is used as an Insert in the current drawing. This has identical effects to Update Another Insert. Be sure you want to do a Global Update before you do this, however. Undoing a mistaken Global Update is usually tricky, and sometimes impossible.

Nested Inserts You can select Isolate while you have an Isolated Insert on the Scratchpad, allowing you to Isolate nested Inserts. If you do this, you won't be able to perform a Local Exchange or Local Update; the other forms of Exchange and Update work normally.

Details: The Status bar shows two numbers when you enter Isolate. These are the Index number and position of the Insert, which can be helpful in distinguishing very similar Inserts.

Global Updates take place *as soon as you complete the File operation*. Once you have done this, the Global Update is in effect—even if you cancel out of the Isolate function.

Undo Edit: Undo follows special rules for Isolate:

Undoing a Local Exchange works in its entirety—once you Undo things are exactly as they were before you selected Isolate.

Undoing a Local Update works in its entirety—once you Undo things are exactly as they were before you selected Isolate, with one exception: the Filed version of the Insert remains in the library.

Abandon, Global Update, Update Another Insert, Global Exchange and Exchange Another Insert can't be Undone.

Anything that you can Undo can be re-done with Redo.

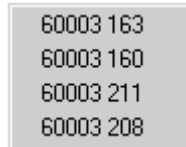
Undo works normally once you have started editing the drawing on the Scratchpad. If you try to Undo the start of the Isolate operation, by selecting Undo immediately after Isolating the Insert, Accucadd will respond with "Nothing to undo".

Paper Sizes Whenever you use Isolate, the program will consider the paper size to be a user-defined size (see Set Up: Paper), even if you originally drew the insert on a standard size. If this is the case, this "user-defined" size will have the same dimensions as the standard size.

With Accucadd you can change the paper size of an Insert, or exchange it for an Insert with a different paper size, without encountering

any scale changes. This could be a problem with previous versions (RoboCAD).

Coincident Handles



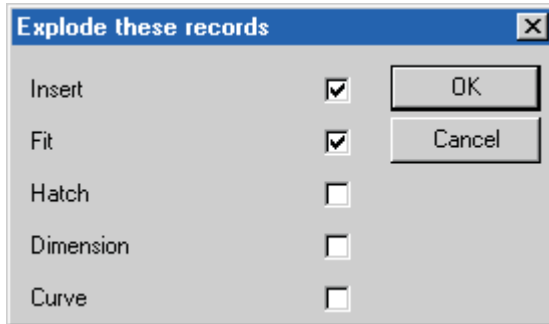
As for Edit: Group: Whole Item, where the handles of several inserts are coincident, Accucadd lists the inserts in the reverse order of planting, and waits for you to select the one you require.

Layers and Isolate

The Entities making up the insert that you isolate are shown on the screen according to the parameters of their own layers. If the insert was un-layered, this won't make any difference. If the insert belonged to a particular layer, then this is ignored while it is Isolated, and the Entities are shown with the parameters of their own layers, which might be `A's, or specific colors and linestyles.

Automatic Addition layers are put into the layer table to hold any Entities that belong to layers that were not in the layer table already – this happens if the isolated insert contained layers that were not in the drawing it had been inserted into. As all the drawing pages use the same Layer Table, any Automatic Addition layers that Isolate creates will remain when you return to the main drawing.

This function transforms an Insert, Fit Insert, Hatch or Dimension into its component Entities. This allows them to be edited individually.



The Group palette is presented, together with a Status icon (Query or Question Mark). When selected this produces a Status Window, which allows you to control which types of Entities can be selected and Exploded.

- Insert** If this is set to **Y**, Inserts can be selected and exploded. When an Insert is Exploded, its New data is added to the New data of the main drawing. All the Elements and other basic Entities become part of the New data and can be edited individually; Inserts `nested` within the Insert that was exploded become Inserts in the New data of the main drawing.
- Fit** Accucadd does not originate Fit Inserts. This function is provided for backward compatibility. When Exploded, Fit Inserts are broken up into their individual Inserts. These can be Exploded (or Isolated) separately if required.
- Hatch** The line patten of the Hatch is converted into individual lines, just as if you had drawn the hatch manually, line by line. All of the hatch data becomes New Data — this can create a great deal of New Data. An unexploded Hatch will adjust automatically to transformations if the drawing that holds it is used as an Insert in other drawings; an exploded one won't. Be careful about Exploding Hatches in drawings that have been used as components.
- Dimension** An Exploded Dimension Entity is transformed into lines, arcs and text records (for the dimension text, and the dimensioning symbols — see Dimension: Terminators). Once you do this the lines, etc. are no longer dimensions: they will not re-size or change with changes in the dimensioned entities.
- Curve** A curve is transformed into the individual lines that are used to draw it. The number of lines will depend on the curve step setting used to draw the curve in the first place. When the curve was drawn, a certain number of "curve points" were placed, and then Accucadd drew some sort of smooth curve connecting those curve points. At this point the "curve step" number was used. Suppose the curve step was set to 16; then Accucadd would approximate to the mathematically exact curve by drawing 16 straight line segments (according to a "best curve fit" for-

mula) between each curve point. If there were six curve points, then a total of 96 (6 x 16) straight line approximation segments would be used. Explode: Curve converts the curve into those 96 segments. Since the curve step can be as high as 32, and the number of curve points, essentially unlimited, is often as great as 50, then one curve record could be exploded into 1600 (50 x 32) line elements. This can create a lot of New Data.

Operation: Make the required settings in the Status Window and then select **Save** to apply them. If you want 'magnetic' snap points to appear on the new Entities, turn on Toolkit: Points: Edit Create. Select the required Entities with the Whole Group palette in the usual way (see Edit: Group) and select **OK** to Explode them.

Caution: Explode does not always work with inserts on which complex transformations have been used (squash, shear and aspect ratio) *and* which contain text, arcs, circles or hatches. If this is attempted, a warning palette is produced with the legend "Insert contains non-explodable elliptical data". If you continue, Accucadd will explode as much of the data as it can, but the remaining data will be lost. Since you can Undo an Explode, it is usually safe to go ahead and see what will happen. If you don't like the results, use Undo at once—*before you do anything else*.

Details: Exploding a record does not alter its appearance — it simply makes it possible to edit "the record", and makes it take up more space in the New Data. Exploding many records can enlarge the New data considerably and thus slow up Accucadd operations.

Inserts If you used a line style or line weight override in the original insert operation, then this override is applied to all the Entities in the insert by Explode, so that the appearance of the data does not change.

Nested Inserts are exploded one 'level' at a time. Inserts in an Exploded Insert become Inserts in the New Data. If they are Exploded, any Inserts they contain become Inserts in the New Data, and so on.

Exploding an Insert has no effect on any other copies of that Insert that may exist in the drawing.

Layers and Inserts If the Insert you explode was an un-layered Insert (there was no active layer when it was Inserted, and all the Entities within it were shown on the screen according to the settings of their own layers), then the Entities are put into the drawing data on their original layers. If the Insert was confined to a particular layer (it was Inserted onto that layer, the active layer when the Insert was done), then all of the Entities are put onto that layer, irrespective of the layer they were originally drawn on.

Technical Explode simply converts the single data record into the set of (top level) entities that are used to draw that record. Except in the case of

nested inserts, this means that it converts “record” entities to “element” entities.

This function allows you to convert part of your drawing into an Insert, which can be used in other drawings, or re-inserted into the current drawing. This function is not available in Accucadd Draftsman.

Operation When you select this function, the Group palette is produced. Use it to select the Entities to be made into an Insert, following the instructions in Edit: Group. Select **OK** from the Group palette when you have finished.

Accucadd prompts you (in the Status Bar) for the position of a Handle for the Insert you are creating. Position the cursor and click the button—you do not need to use Elements: Point. Accucadd then invokes Library: File to allow you to File the data — all Inserts must have a location in the Library.

Create Insert? When the File is completed, the warning palette is produced with the question “Create Insert?”. This does not refer to the insert created by the Implode operation—that insert has already been created, when you Filed the selected data in the library. This question means: “Do you want to replace the data you selected in your drawing by the insert you created from that data?” Select **OK** to make the change to your drawing, or **EXIT** to leave the drawing unaltered.

Details: The Insert created has the same paper size, scale, etc, as the original drawing. Any Handles you selected as part of the data to be Imploded become Insert Handles. A simple way to think of this is to imagine that you erased everything in your drawing excepting only the selected entities, and then you filed that in the library.

If you replace the data in your drawing with the new insert you can make further copies with Draw: Copy and use of the Insert functions. To alter the size or scale of this (or any) Insert, or to rotate it, or to add overrides, use Edit: Move.

When you choose to replace the data in your drawing with the new insert, the selected Entities are removed from the drawing’s New data and replaced by a newly created Insert record. Any Inserts you select during Implode become Inserts ‘nested’ within the newly created Insert. If you don’t create an Insert (select **EXIT** from the warning palette), the drawing is left unaltered. Any entities sub-divided or inserts exploded during the Group selection process are not permanent changes to your drawing.

Advanced: Implode can be used as “File a Group of Entities”, by selecting **EXIT** from the warning palette.

Exploding an Insert that has just been created with Implode has the same net effect as not creating the Insert with Implode — the drawing is unchanged, apart from one new point—the insert handle—and any changes caused by the selection process.

This function creates `magnetic` snap points. It can be used add snap points to Entities or Inserts, or to rebuild the snap list.



The snap list is explained under “Snap points, Grids and Traps” in Accucadd: Orientation. When selected, Add Snap presents a window listing its options. Entities have a variety of snaps. Entities with “ends” have snaps at their ends, such as lines, nibs, and arcs. Entities with “centers” have snaps at their centers: arcs and circles. Complex entities like Curve generally have snaps at the points used to generate the entity. Inserts have snap points at every handle placed in the original insert drawing. If there were none drawn, Accucadd will automatically place one in the middle of the drawing page. Thus every insert will have at least one handle.

Rebuild For All Records

This discards the current Snap list and creates a new one. The new one will have snap points for all Entities, but no other snap points.

You can loose some snaps

Snaps created “by hand” using Delta or Polar keyboard input, Toolkit: Points: Midpoint, Toolkit: Points: Intersection, and Toolkit: Tangent will be lost when you rebuild the snap list.

Select Records

This adds snaps from the selected Entities to the current Snap list. It does not create a new one. This is used to create a few snap points — it is usually used when you are using Edit or Copy functions without creating snap points, but need specific points as drawing aids. See Toolkit: Points for details of this technique.

The Whole Group palette is produced. Select the Entities required, as described under Edit: Group and then select **OK** from the Whole Group palette to create the entity snap points. Select more Entities, or select **Exit** to leave this function.

Snaps From Inserts

This can be used to create snap points on Inserts and Dimensions. The effect is similar to Edit: Explode (q.v.), except that the Entities are not actually exploded. Snap points are created at all the positions that would hold new Entity endpoints and handles if the Entities were exploded.

Details:

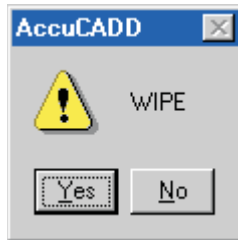
The snap list is discarded and rebuilt when Rebuild For All Records is used; Select Records and Snaps From Inserts add snap points to the existing snap list.

The snap list is usually discarded when a drawing is saved. It can be saved and re-loaded with the drawing, by using the controls described under Set Up: Snaps.

Hint:

To reconstruct the snap list, without discarding snap points you have created “by hand”, use Select Records, and then select the All icon from the Whole Group palette.

Wipe discards your current drawing. It does not, however, alter any of your current Set Up options.



A warning dialog is displayed with the legend "Wipe".

Yes: Click this button to discard the drawing.

No: Click this button to abort Wipe leaving the drawing intact.

Details: Wipe only clears the drawing on the current page.

This function sorts the drawing's data by position, collecting it into paths. This is very valuable in creating files for use by external programs. It's intended for use in preparing *data*, for use by other programs or CNC machines, and not for *drawing*. It may also speed up printing.

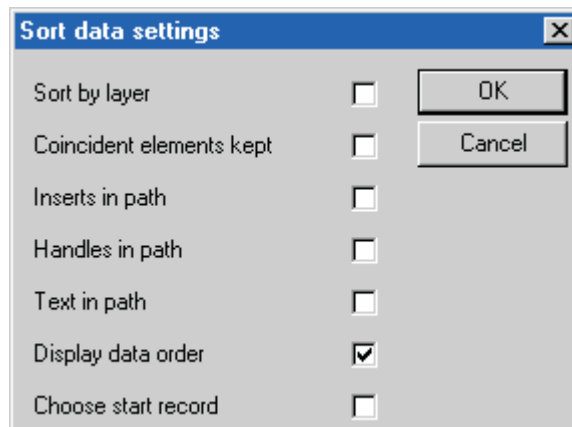
The Group palette is used to select Entities to be sorted. Use it as described under Edit: Group; select **OK** to begin the sorting process. Although you can select (or part select) any Entity, Sort Data only operates on lines, arcs, circles and curves. In the following, "Entity" refers only to lines, arcs, circles and curves unless specifically noted otherwise. Accucadd will sort Entities by position: Entities near one another will be grouped together.

Sorting can take some time, if many Entities are selected — Accucadd produces a progress count. When the sorting is completed, the data order is displayed if that option was selected. Note that data order is displayed for all the visible Entities, even those which weren't sorted.

The description of Sort, its variations, and the ways in which entities can be selected, all interact to make a rigorous description of Sort quite a heavy going topic. A few minutes experimentation is a very worthwhile exercise.



Click the Options (Query) button to bring up the Sort data settings dialog. This lets you control the sorting. If options are checked they take effect.



Sort by layer If this option is active, the layer that an Entity is drawn on takes precedence over the position of the entity. Thus all Entities on layer 1 will be sorted first, then all entities on layer 2, and so on. As always, Entities on layers that are not displayed will not be sorted.

Coincident elements kept If a line or arc exactly coincides with another line or arc, it will be included in the sort. If this option isn't active, such elements are ignored. This option isn't often required — leave it unchecked unless you spe-

cifically need it. Also refer to Edit: Cleanup: Purge for more information on handling coincident elements.

- Inserts in path Inserts will be included in the paths created; the handle used to place the Insert is the only part which can be included, and it is treated as a zero-length line. This facility is useful if you want to associate an Insert with a path.
- Handles in path Handles (Points) in the New Data are included in the path, as if they were zero-length lines. This is useful for associating a point with a path as a datum point.
- Text in path Text Entities are included in the path, as if their Text Handles were zero-length lines. This is useful for associating text with points on a path; for example, commands to a CNC cutting machine could be placed in Text Entities at the relevant positions along a path.
- Display data order When the sort is completed, the order of *all* the Entities in the current view will be shown by numbers added to the display on their center-points. These numbers disappear on any change of view; they aren't part of the drawing's data. It's a good idea to keep this option checked (on) unless there is so much data that it obscures what you need to see.
- Choose start record Lets you select a line, arc or curve which will be the starting point of the sort. First select all the entities that you want to sort. Click OK (the large check mark on the Group Palette). You will get a single "Select Item" box cursor, the prompt "Select element", and a Cancel icon.

Select the Cancel icon to abandon what you are doing, and leave your drawing unchanged.

Otherwise, choose the line, arc, or curve that you want to be first in the sorted data. Accucadd will start with that entity, and then proceed to find the next joining entity (or nearest if none), and so on, through the drawing.
- OK Remove the Sort data settings dialog, and put the selected options into effect.
- Cancel action, and produce the GROUP palette for selecting Entities to be sorted.
- Details: SORT DATA isn't commonly used while creating drawings as plans or illustrations. It's intended for use in preparing *data*, for use by other programs or CNC machines.

The sorting process re-arranges the order in which the drawing's Entities are stored. Normally, they are stored in the order in which they are created or edited; sorting re-arranges the sorted Entities so that

those which form paths are adjacent in the sequence of Entities. This also affects the order in which Entities are displayed (see View: Options).

Sort Data is most useful for producing RDF files where the data forms paths. This can be very helpful when producing CNC programs, and in almost all work where the Entities drawn with Accucadd are considered as a “model” of an object. If a drawing is a set of lines whose only meaning is in the eye of a human viewer, Sort Data isn’t required or useful. Library: Group Export can be useful in exporting sorted parts of a drawing.

Printing Sort Data also affects the order in which Entities are printed. This can make printing faster — although this may not be worthwhile, given that sorting the data in a large drawing takes some time, and data from Inserts isn’t sorted. It can also improve the quality of the print, if it is printed (plotted) using a moving-pen plotter with ink-based pens, rather than a laser, ink jet, or other “no-pen” device. The reduction in pen-ups and pen-downs reduces blotting and ink splashes, and hence improves the final print quality.

Paths The basic sorting operation joins lines, arcs, and curves (linkable data) end-to-end to form paths. This operates in much the same way as the Whole Element Path option of the Group palette. However, in the case of using the Group palette path option, the sorting into paths is temporary; in the case of Edit: Sort the order of the entities making up the drawing is changed, and remains that way until a further sort (or editing) is performed.

Paths are formed by starting with an entity, and then looking for an entity which joins it. If any “Point Data” (Text or Insert Handles, or actual Points) are found to join the entity they are included at that point, in the order in which they were drawn (or edited). Then the search continues at that point until a joining piece of linkable data is found, or all the data are searched.

If a joining entity is found, it is linked to the first entity (with any ‘point’ data included at the point), and the search starts over from the new point—the free end of the newly linked entity. Note that if three or more entities join at a point, the first one found (generally the first one drawn) will be chosen and linked. Other entities at that point will be returned to later, and will not be a part of the path.

Since—in general—you don’t know the order in which things were drawn, it’s best not to try and link entities that join three or more at a point. You can also use Sort and select everything to show the current order, and use sort again, possibly repeatedly, to re-sequence entities.

If a joining entity is not found, Accucadd will search for the nearest entity to the “loose end”, and attempt to make another path starting with that entity. This will continue until all the linkable data in the drawing has been sequenced.

What Accucadd considers the entity “nearest” a loose end, and how this may be modified by explicit selection is not easy to predict for complex, intersecting, drawings. Sort works best when the data selected fall naturally into a simple path, and then what we are doing is simply ordering the path.

If lines or arcs are subdivided using Part Item, Cut Box, Part Element Path or Cut Fence, then the parts can form sections of a Sort Data path. Circles can be subdivided, and the resulting arcs can be used as parts of a path.

Selected Entities are considered first for sorting; once these are processed the rest of the drawing will be sequenced using the same rules. Note that the first entity selected may not (and usually will not) be the start of the sort: to specify a specific start entity ensure that “Choose start record” is checked in the Sort data settings dialog. Text and Inserts can be included (see above) and Sort Data will include all the Handles (Points), Text or Inserts at that point before continuing the path past that point with a line or arc.

Text, Handles (Points), and Inserts are included in the path in the order in which they appear in the drawing data before the pending Sort operation is applied.

Group Palette Path selection

The Path options of the Group palette can be used to select Entities for sorting. If you select a path using Group, and don't select anything else, its Entities will be sorted into a single path. That is, the normally temporary effect of the Group Path selection will be turned into a re-arrangement of the data in the drawing that reflects that sequencing.