Geological Legend Command Reference

LEGEND Version 2.3

LEGEND {legend_text_file} {x y} {PAGE | MAP}
LEGEND {legend_text_file} {graphics_file}

Plots a geological legend based on information recorded in a text file.

Arguments

{legend_text_file} - name of the legend text file to be read containing information about the geological legend. The default file name legend<workspace_number>.txt will be used if no file name is entered or this argument is skipped using the pound sign (#).

{x y} - X and Y coordinates to positon the origin (upper-left margin) of the geological legend. If no X and Y coordinates are entered, by default the left margin will be positioned one inch towards the right from the left edge of the page and one inch towards the bottom from the top edge of the page. If an X coordinate value is entered a Y coordinate value must also be entered. A space or a comma can separate coordinate values.

{PAGE | MAP} - keyword stating unit of coordinates.
PAGE - X and Y coordinates are in page units. This is the default option.
MAP - X and Y coordinates are in map units from the current map extent.

{graphics_file} - name for a graphics file where the geological legend will be plotted to a series of 8½" x 11" pages. The graphics file name will be appended with the page number
(i.e.: legend1.gra, legend2.gra, legend3.gra, etc...). If any of these graphic files exist they will be over written. When using Arcplot Menus to plot the legend, selecting the option for "8½ x 11 Page" will default the graphics file name to legend.

Notes
- The legend text file contains descriptive text of the geological legend plus special legend commands to plot graphic elements such as lines, point symbols, notes, etc. These legend commands apply only to the LEGEND command and are not available at any ArcInfo prompt. Syntax rules for these commands are the same as those used for ArcInfo commands.
- Entering a graphics file name for the second argument is a quick method of obtaining a plot of the symbol legend on 8½" x 11" paper, by creating a series of graphic files. Use the POSTSCRIPT or SEPARATOR commands to convert the graphic files to PostScript. If a map composition is currently open it will be closed and re-opened after the graphic files have been created.
- If the LEGEND command encounters an error in the legend text file, the line will be displayed along with the line number in the command tool or terminal window. If an incorrect value is entered for an argument, a message will be displayed stating the problem along with the line number in the command tool window. By default, the symbol legend will continue plotting the remainder of the symbol legend, for either of these two scenarios. This can be changed using the SET command. Plotting will stop if there is an error with any of the LEGEND commands.
- Page units can be inches or centimeters.
- The symbols created in the GSC symbolsets are based on pageunits being inches. When page units are centimeters, symbols will be automatically scaled a factor of 2.54, only when specifying a symbol number as an argument however.
- Line spaces in the legend text file are required to terminate plotting of text associated with the DESC and NOTE command, separating unit boxes plotted with the BOX command, and for plotting leader lines in the symbols portion of the legend. In all other cases, line spaces are ignored.
- Comment lines preceded by (/*) are allowed in the legend text file and will be skipped.
- Any unrecognized commands will be ignored, however plotting of the geological legend will continue.

- Only one bracket at a time can be plotted. Plotting of brackets is not supported when plotting the geological legend across multiple columns using CHRONTAB. Brackets will not be plotted when specifying a graphic file name for the {graphics_file} argument.
- Since the legend is plotted from top to bottom, all downward measurements for line spacing and offsets for symbol coordinates should be given as positive values.
- Do not use the double quote character (") as it is used as the variable delimeter in the LEGEND program. This allows the percent symbol (the standard variable delimeter in AMLs) to be plotted.
- The ORIGIN command is no longer required to be included in the legend text file, however the command still exists to maintain compatibility with earlier legend text file versions.

AP <command>

Executes an ArcPlot command.

Arguments

<command> - any ArcPlot command, enclosed in single quotes.

Notes
- Control returns to the legend routine after the command has been completed. The command can also execute an AML directive or function.
- The AP command is useful in changing symbolsets within your legend legend text file. Subsequent use of symbols would be referenced to the specified symbolset.
- To execute an ArcPlot command using the values of legend routine variables or to execute an AML, which passes the values of legend routine variables as arguments, use the quote and value functions rather than the single quote character.

Legend Text File Examples

- The following changes the lineset for subsequent plotting of legend features.

```
AP 'LINEDELETE ALL; LINESET GSC'
```

- The first example below passes the legend variable .leg$x as an argument to my_aml and the second example assigns the value of the legend variable .leg$y to the variable .temp_y.

```
AP [quote &run my_aml [value .leg$x]]
AP [quote &s .temp_y [value .leg$y]]
```

BOX {shade_symbol | colour} {text} {line_spacing} {indent}

Plots a unit box with or without a fill and/or a text string.

Arguments

{shade_symbol | colour} - shade symbol or colour to fill the unit box. No fill is plotted if this argument is skipped. If an invalid shade symbol or colour is entered only the box outline will be plotted.
shade_symbol - integer value between 1 and 999 specifying the shade symbol number from the current shadeset.
colour - any ArcInfo supported colour name or colour model, enclosed in single quotes if spaces   exist.

{text} - text plotted inside the box, enclosed in single quotes if spaces exist.

{line_spacing} - numeric value specifying a line spacing distance from top of unit box to baseline of text, measured in points unless stated otherwise using the SET command
(variable: box_line_spacing). If no distance is given, or the argument is skipped, the text string is centered vertically within the dimensions of the box.

{indent} - numeric value specifying an indenting distance from left edge of unit box to starting position of text string, measured in millimeters unless stated otherwise using the SET command
(variable: box_indent). If no distance is given, or the argument is skipped, the text string is centered horizontally within the dimensions of the box.

Notes
- Size of the box defaults to 10 x 18 millimeters, and can be changed using the BOXSIZE command. *(alternatively, see variables: box_width, box_height)*
- By default, the outline of the box is plotted as a 0.010" black line (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: line_size and line_colour)*
- By default, text plotted within the box defaults to 10 point Triumvirate, plotted in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: box_size, box_font and box_colour)*. The MAPTYPE command can also be used to change the font.
- To indent boxes from the left margin of the column while maintaining the original column width adjust the value of the variable *column_indent*, measured in the current page units using the SET command.
- Including a line space in the legend text file will space boxes 14 points from the bottom of a previous box or descriptive text, which ever is lower. This line space does not include the line space needed to terminate the plotting of descriptive text. The default distance can be changed using the SET command *(variable: space)*.
- The BOX command is ignored when plotting the symbols legend.

Legend Text File and Plotting Examples

```
AP 'SHADEDELETE ALL; SHADESET GSC'
BOX 9 Q
BOX 'CMYK 40 0 20 0' Hm 20 2
DESC
Black and green mudstone

BOX 200 MHi
DESC
Bimodal metavolcanic rocks


SET column_indent 0.25
BOX

SET column_indent 0
AP 'SHADESYMBOL 1; SHADECOLOR CMYK 34 10 42 5'
BOX # MLt
BOX 'Magenta' MLu

BOX 'RGB 170 23 200' MLv
END
```
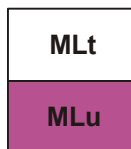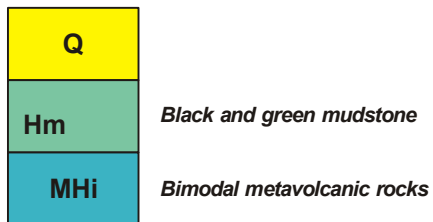
BOXSIZE <width> <height> {MM | INCHES | POINTS}
BOXSIZE DEFAULT

Sets the width and height of unit boxes, plotted using the BOX and SUBBOX commands.

Arguments

<width> - numeric value specifying the width of the unit box.

<height> - numeric value specifying the height of the unit box.

{MM | INCHES | POINTS} - keyword stating the unit of measurement for above width and height distances. Millimeters are the default.

DEFAULT - keyword specifying that the size of the unit boxes will be defaulted to 18 x 10 millimeters.
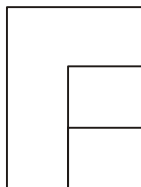
Notes
- Both width and height arguments are required when explicitly setting a distance.
- Millimeters are used if an unknown unit of measurement is entered.

Legend Text File and Plotting Examples

```
BOX
BOXSIZE 4.5 10
SUBBOX 9 0
SUBBOX 13.5 0


BOXSIZE 18 24
BOX
BOXSIZE 10 8
SUBBOX 8 8
SUBBOX 8 16

SET column_indent 0.315
BOX

SET column_indent 0
BOXSIZE DEFAULT
BOX
END
```

BRACKET TOP {LEFT | RIGHT} {offset}
BRACKET SET <column> {LEFT | RIGHT} {offset}
BRACKET <BOTTOM | OVERLAP | column> {text} {UP | DOWN | HORIZONTAL} {shift}

Plots a bracket and text alongside the geological legend.

Arguments

TOP - keyword that establishes top or starting point of a new bracket in the current column.

SET - keyword that establishes top or starting point of a new bracket in the specified column.

<column> - an integer value indicating the column in which the new bracket is established.

{LEFT | RIGHT} - keywords specifying which type of bracket will be plotted at the left margin of the current or the specified legend column.
LEFT - left bracket will be plotted (point of bracket points left). This is the default.
RIGHT - right bracket will be plotted (point of bracket points right).

{offset} - numeric value specifying the distance between the bracket ends and left margin of the legend column, measured in millimeters unless stated otherwise with the SET command
(variable: bkt_units). Default distance is 0 if no offset distance is entered.

<BOTTOM | OVERLAP | column> - keywords or integer value to plot the bracket along with associated text string.
BOTTOM - establishes the bottom of the bracket.
OVERLAP - end of the bracket is plotted in three dashes so as to continue with the next bracket.
column - an integer value indicating the column in which to plot the bottom of the bracket

{text} - optional text to plot at the point of the bracket, enclosed in single quotes if spaces exist. To plot multiple lines of text, the back slash character can be used (\), however this defaults the text strings to left justification.

{UP | DOWN | HORIZONTAL} - keywords stating the direction of the text string.
UP - the text is read upwards. This is the default.
DOWN - the text is read downwards.
HORIZONTAL - the text is placed horizontally next to the point of the bracket.

{shift} - numeric value specifying distance from the middle of the bracket to the point of the bracket, measured in millimeters unless stated otherwise with the SET command
(variable: bkt_units). A positive distance will shift the point of the bracket up and a negative distance will shift the point of the bracket down. Default distance is 0.

Notes
- To plot more than one bracket simultaneously uses the command with the SET argument.
- By default, the text string is plotted as 10 point Triumvirate Light in black (CMYK -1 -1 -1 100) offset 1mm from the point of the bracket. These defaults can be changed using the SET command *(variables: bkt_size, bkt_font, bkt_colour, bkt_text_offset)*.
- The end of the bracket can be plotted as a straight line or the traditional hook, using the SET command *(variable: bkt_type)*.
- The bracket is plotted as a 0.007" black line (CMYK -1 -1 -1 100). The width of the bracket is 3mm (horizontal distance from the end of the bracket and point of bracket to main stem). These default settings can be changed using the SET command *(variables: bkt_line_size, bkt_line_colour, bkt_width and bkt_type)*.

Legend Text File and Plotting Examples

Each example displays the text file used to create the following graphic.

Example 1: This example shows a simple version of plotting brackets alongside the column as the columns are plotted downward from the top.

```
COLUMN 2 0.5
BRACKET TOP
BOX
BRACKET BOTTOM CENOZOIC DOWN
BRACKET TOP
BOX

BOX

BOX
BRACKET OVERLAP PALEOZOIC
BOX

BOX
SET bkt_type 0
BRACKET BOTTOM PROTEROZOIC
COLUMN NEW
SET bkt_units INCHES
BRACKET TOP RIGHT 2
BOX

BOX

BOX
SET bkt_type 1
BRACKET BOTTOM PROTEROZOIC # -0.25
END
```
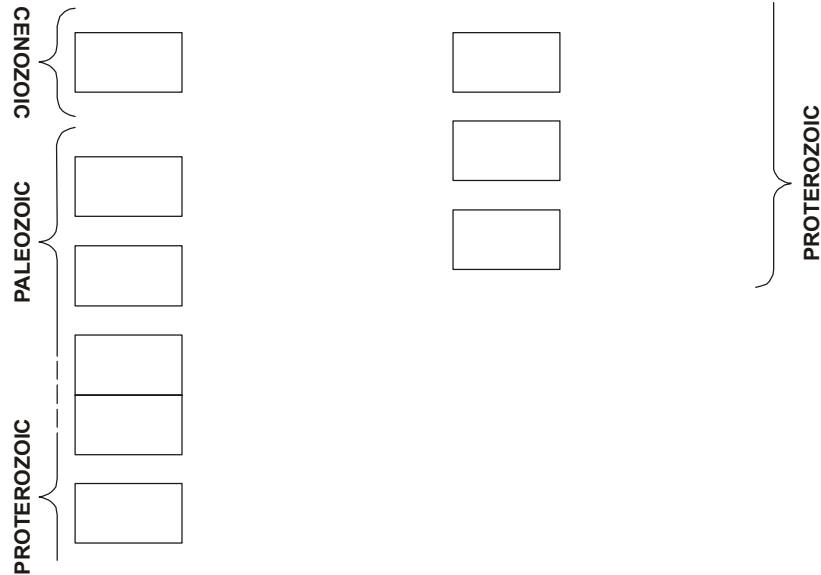
Example 2: The next example explains plotting more than one bracket simultaneously in other legend columns.

```
COLUMN 1
COLUMN 3.5 0.3 INCHES KEEP
COLUMN 2
COLUMN 3 0.3 INCHES KEEP
COLUMN 1
BRACKET TOP LEFT
BOX # 1
DESC
The bracket in the first column has been set. The bracket to the right will be set next, the top of
which is aligned to the bottom of this box or the description, which ever is lower.

BRACKET SET 2 RIGHT -7

BOX # 2

BOX # 3

BOX # 4
DESC
After plotting the forth box, the bottom of the bracket to the right is plotted, aligned to the
bottom of this box or the description, which ever is lower.

BRACKET 2
BOX # 5
DESC
Plotting a box immediately after the bracket is plotted will center the box to the point of the
bracket.
CHRONTAB AUTO
COLUMN 1
BOX # 6
DESC
Before returning to the first legend column the CHRONTAB command resets the Y coordinate value to the
lowest Y value from all columns, in this case the bottom of box 4. Finally, the bracket in the first
column is plotted.

BRACKET BOTTOM 'PROTEROZOIC' UP
END
```
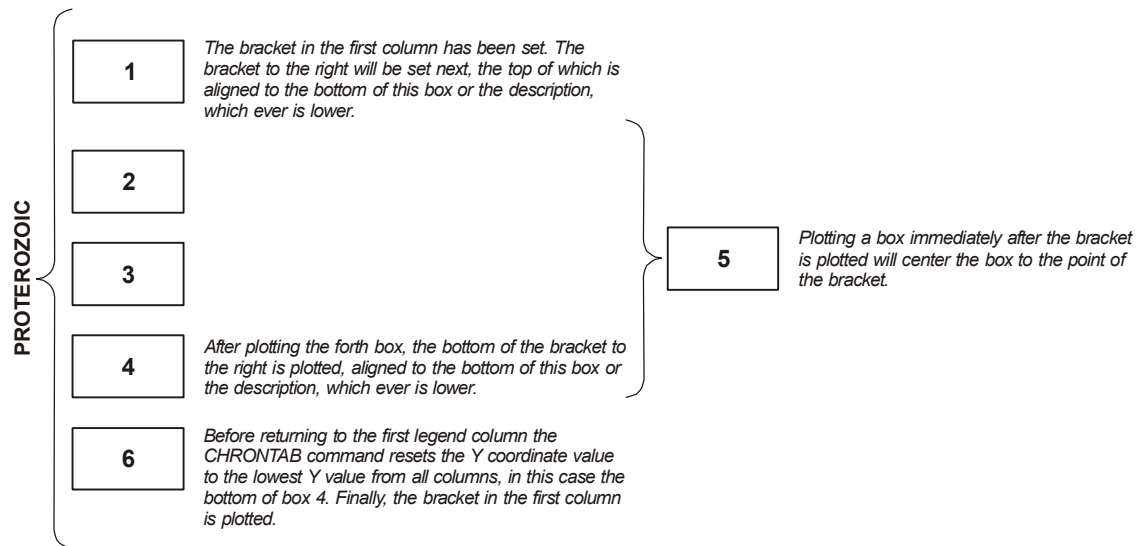
BREAK {line_symbol} {line_spacing} {indent} {length}

Plots a line across the current legend column.

Arguments

{line_symbol} - integer value between 1 and 999 specifying the line symbol to use from the current lineset. If no value is entered or the argument is skipped, the current line symbol set with the AP command is used. No line is plotted if the line symbol does not exist.

{line_spacing} - numeric value specifying a line spacing distance from a previous plotted legend feature to the line, measured in points unless stated otherwise using the SET command
(variable: line_spacing). If this argument is skipped or an invalid value is entered, the default line spacing distance from previously plotted legend features as listed in Appendix A will be used.

{indent} - numeric value specifying an indenting distance from the left margin of the column to the starting coordinate of the line, measured in picas unless stated otherwise using the SET command *(variable: indent)*. If no value or an invalid value is entered or the argument is skipped, the starting coordinate of the line will be left margin of the legend column.

{length} - numeric value specifying the overall length of line measured in the current page units. If no value or an invalid value is entered or the argument is skipped, the line will terminate at the right margin of the legend column.

Notes
- Automatic scaling of GSC line symbols when page units are centimeters will only occur if an integer value is entered for {line_symbol}

Legend Text File and Plotting Examples

```
AP 'LINEDELETE ALL; LINESET LEGEND'
BOX
BREAK 22
BOX
AP 'LINESYMBOL 52; LINECOLOR BLUE'
BREAK # # 5 3
END
```
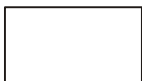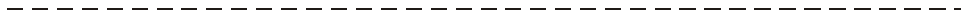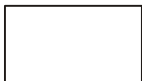
CHRONTAB <SET | AUTO>

Sets a chronology tab to align legend features horizontally between legend columns.

Arguments

<SET | AUTO> - keyword to specify action when setting a chronology tab.
SET - sets the chronology tab to the previous plotted legend feature.
AUTO - sets the chronology tab to the next plotted legend feature and sets the Y value used to plot legend features to the lowest Y value of all columns.

Notes
- At the start of the legend routine, the chronology tab is set to the top of the legend.
- Chronology tabs can only be set to the top of unit boxes plotted with the BOX command, the baseline of text plotted with the HEADING and TEXT commands, and the Y value for the line plotted with the BREAK command.
- The position of the chronology tab always changes when issuing the CHRONTAB command. Therefore, since previous chronology tab positions are not saved, any legend features, such as boxes, headings, text and line breaks, in all legend columns that are related to the current chronology tab position must be plotted before a new chronology tab position is set. Use the COLUMN command to change legend columns.
- Changing legend columns will automatically set the Y value of the column to the current chronology tab position.

Legend Text File and Plotting Examples

```
COLUMN 2.0 0.25
HEADING L 'Column One'
BOX
DESC
At the beginning of the legend the chronology tab is automatically set to the first plotted element,
in this case the base line of the above heading

BOX
DESC
Next, the legend will change to column three and plot a heading along with a unit box

COLUMN 3
HEADING L 'Column Three'
BOX
DESC
Next, a heading has to be plotted in column two, but it has to be below all elements plotted thus far
in all columns. The AUTO option is used to accomplish this

CHRONTAB AUTO
COLUMN 2
HEADING L 'Column Two'
BOX
CHRONTAB SET
DESC
A chronology tab was set after plotting the box so boxes in the other legend columns would align to
it

COLUMN 1
BOX
COLUMN 3
BOX
END
```

Column One

At the beginning of the legend the chronology tab is automatically set to the first plotted element, in this case the base line of the above heading

Next, the legend will change to column three and plot a heading there along with a unit box

Column Three

Next, a heading has to be plotted in column two, but it has to be below all elements plotted thus far in all columns. The AUTO option is used to accomplish this

Column Two

A chronology tab was set after plotting the box so boxes in the other legend columns would align to it

COLUMN <NEW >
COLUMN <width> <gap> {INCHES | CM | MM | PICAS} {KEEP}
COLUMN <n>

Start a new legend column, sets the width of legend columns and the gap between legend columns or changes legend columns.

Arguments

<NEW> - keyword to start a new legend column to the right of the current legend column.

<width> - numeric value specifying the width of legend columns.

<gap> - numeric value specifying the gap between legend columns.

{INCHES | CM | MM | PICAS} - optional keyword stating the unit of measurement for width and gap distances. Unit of measurement does not have to be the same as current page units. Inches are the default option.

{KEEP} - keyword to keep the current location and column width of the current column, when changing to columns of different width. Used in conjunction with CHRONTAB command and
<n> argument.

<n> - integer value between 1 and 99 specifying current column number to plot legend elements, used in conjunction with the CHRONTAB command. Column numbers advance from left to right.

Notes
- At the start of the legend routine, the column width and gap is preset to 5 inches and ½ inch respectively and the column number is set to 1.
- When starting a new legend column, the left margin is positioned to the right based on the distances of both the column width and column gap.
- The value of the column width establishes the right margin of the legend column. The right margin is used in the DESC and NOTE commands to prevent any words from extending past the right margin. The column width is not meant to fully left right justify any lines of text.
- When changing columns by entering a column number for purposes of maintaining a chronological order (tab) of the legend, the Y value of the column will automatically be set to the current chronology tab position. Therefore, all legend features should be plotted in the respective column before swicthing columns or setting another chronology tab. See CHRONTAB command for more information on setting chronology tabs.
- Do not use the NEW argument if entering a column number to change columns.

Legend Text File and Plotting Examples

```
COLUMN 1.5 0.25 # KEEP
HEADING L 'Column One'
BOX
DESC
At a width of one-and-half inches.

COLUMN 2
COLUMN 2.25 0.25 # KEEP
HEADING L 'Column Two'
BOX
DESC
At a width of two and one quarter inches.

COLUMN 3
COLUMN 1.75 0.25 # KEEP
HEADING L 'Column Three'
BOX
DESC
At a width of one and three quarter inches.

CHRONTAB AUTO
COLUMN 1
BOX
CHRONTAB SET
COLUMN 2
BOX
COLUMN 3
BOX
END
```

Column One

At a width of one-and-half inches.

Column Two

At a width of two and one quarter inches.

Column Three

At a width of one and three quarter inches.

COVER <cover> <ARCS | POINTS | POLYGONS | ANNOTATION | scale>
      {symbol_item | symbol} {x_offset} {y_offset}

Plots features from a cover in the symbols portion of the legend.

Arguments

<cover> - an existing cover to plot in the symbols legend. The COVER command first looks for the existance of the cover in the LEGEND cover directory (gems\covers\legend), next the surround workspace (workspace\surround), then the legend workspace in the current workspace (workspace\legend) and finally the current workspace. In addition a workspace path to any cover can also be specified. No features are plotted if the cover does not exist in any of these workspaces.

<ARCS | POINTS | POLYGONS | ANNOTATION | scale> - keyword specifying the type of feature to plot from the cover or the publication scale of the cover.
ARCS - arcs from the cover are plotted as lines.
POINTS - label points from the cover are plotted as markers.
POLYGONS - polygons from the cover are plotted as shades.
ANNOTATION - annotation from the cover are plotted as text. Annotation subclasses are not supported for this option.
scale - integer value representing the scale denominator to plot all arcs, points or polygons and annotation (not in a subclass) features from the cover. Polygons will be plotted first, followed by arcs, points and finally annotation features.

{symbol_item | symbol} - defines how specified features are plotted. If nothing is entered for this argument, the current symbol settings for the specified feature, as set with the AP command will be used. This argument is ignored when annotation features are plotted as the annotation's psuedo item $symbol is used.
symbol_item - an item from the specified feature's attribute table whose value will be used as the   symbol number from the current symbolset.
symbol - an integer value between 1 and 999 specifying the symbol number from the current symbolset.

{x_offset} {y_offset} - numeric value specifying the distance to move the cover's X and Y coordinate position relative to the right margin, measured in millimeters unless stated otherwise with the SET command *(variable: offset_units)*.

Notes
- The specified feature to plot from the cover is not checked for its existance, nor if a feature attribute table or the symbol item exists.
- By default, the map units of the cover will be interpreted as millimeters, unless stated otherwise with the SET command *(variable: subcover_units)*. The cover's 0,0 coordinate is positioned at the right margin of the symbols legend.
- If a scale denominator is specified the lower right corner of the cover's bounding box will be positioned at the right margin of the symbols legend and plotted at the specified scale. The cover will automatically be REBOXed to achieve this positioning. This provides an easier method of plotting complex features that exist on the map rather than creating a new cover with the lower-right coordinate 0,0 and in map units in millimetres. To use this method, select the required features in ArcEdit and PUT them to <cover>. Update polygon topology if required.

- The GENERATE command from the Arc module can be used to create a cover, where the map units will be in millimeters. Example:

```
Arc: generate cover4sym
Copyright (C) 1982-1995 Environmental Systems Research Institute, Inc.
All rights reserved.
GENERATE Version 7.0.3  (Mon Mar 13 22:21:55 PST 1995)
Generate: tics
Enter Tics.
Terminate input by entering END at ID,X,Y: prompt.
ID,X,Y: 1 -20 0
ID,X,Y: 2 0 0
ID,X,Y: 3 0 10
ID,X,Y: 4 -20 10
ID,X,Y: end
Generate: quit

Externalling BND and TIC...
```

- This will create a new cover called COVER4SYM with four tics, 20 units wide and 10 units high, where the lower right tic (ID=2) with a coordinate of 0,0 will be positioned at the right margin of the column.
- Features can then be added in ARCEDIT and if required, build the corresponding feature attribute table and code features using the symbol item.
- Automatic scaling of GSC symbols when page units are centimeters will not occur if no value is entered for the {symbol_item | symbol} argument or if it is skipped.
- When plotting to the symbols legend, a leader line will plot from the symbol description to the map extent of the cover.
- This command is valid only when plotting the symbols legend.

Legend Text File and Plotting Examples

```
AP '(!LINE MARKER!)DELETE ALL; (!LINE MARKER!)SET GSC'
SYMBOLS
SYMDESC Trend of gneissosity or foliation
COVER TREND1 ARCS 807

SYMDESC 20 Mineral occurrence
SET cover_units INCHES
COVER MINOCC POINTS MINOCC-ID
COVER MINOCC ANNOTATION

END
```


SYMBOLS

Trend of gneissosity or foliation . . . .

Mineral occurrence . . . .

```
SYMBOLS
SYMDESC Geological contact
LINE CURVE1 20

SYMDESC 64 Rose diagram
COVER ROSEDIAG 100000 MSP-SYM

END
```


SYMBOLS

Geological contact . . . .

Rose diagram . . . .

DESC

Plots subsequent lines of text from the legend text file to the right of a unit box, not exceeding the right margin of the legend column, until a blank line is encountered.

Syntax options for subsequent lines of text in legend text file

<text>
<line_spacing> <text>
<line_spacing> <indent> <text>

Arguments

To better understanding the rules of plotting descriptive text, *lines of text* or *line of text* refers to each line of text in the legend text file and *text string* refers to text that is plotted.

<text> - line of text in the legend text file. Lines of text are not required to be enclosed in single quotes, allowing for ease of cutting and pasting lines of text from different document sources. Each line of text requires a hard return at the end. When plotting, any words that exceed the right margin of the legend column will be appended to following lines of text, until a blank line in the legend text file is encountered.

<line_spacing> - numeric value specifying a line spacing distance from the top of the unit box, shape or from a previous text string, measured in points. A line spacing distance on the first line of text immediately after the DESC command will position the text string that value from the top of the box or shape. If no line spacing distance is specified on the first line of text, the plotted text strings will be centered vertically to the height of the unit box or shape not exceeding the top of the box or shape. A line spacing distance on subsequent lines of text will plot the text that follows as a separate text string. A value of 0 will default the line spacing to 125% the point size of the text, whereas a value of 0.0 will use a line spacing distance of 0 points.

<indent> - numeric value specifying an indenting value from the left margin of descriptive text, measured in picas. A numeric value for line spacing must be entered if a value for indenting is required. The pound sign (#) cannot be used.

Notes
- Upper and lower extremes of unit boxes (plotted with BOX and SUBBOX command) and shapes (plotted with SUBSHAPE command) are used to set limits and position the text strings.
- If the first word in each line of text from the legend text file is numeric, it is interpreted as a value for line spacing, measured only in points. If the second word in each line of text from the legend text file is numeric, it is interpreted as a value for indenting.
- By default, the text string is plotted as 8 point Triumvirate Italic in black (CMYK -1 -1 -1 100). The left margin of the descriptive text is indented 5 picas from the left margin of the column. These defaults can be changed using the SET command (*variables: desc_size, desc_font, desc_colour and desc_indent*).
- If the MAPTYPE command has been specified with the SURFICIAL option, any text on the first line line of text that preceeds a colon will be plotted as Triumvirate Bold.

Legend Text File and Plotting Examples

```
BOX
DESC
Tuffaceous phyllite and sandstone, volcanic flows and tuff interlaced with minor
conglomerate marble

BOX
DESC
Deformed intrusive rocks
0 a) diorite, tonalite


BOX
DESC
Diabase dyke complex
0 a)
0.0 0.9 sheeted heterogeneous complex,
0 0.9 including diabase
0 b)
0.0 0.9 quartz-feldspar porphyyry


BOXSIZE 18 20
BOX
DESC
10 !FNT93710; Hummocky moraine:!FNT110003; silty loam till some underlying hummocks

END
```
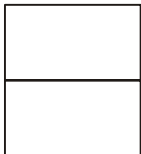
Tuffaceous phyllite and sandstone, volcanic flows and tuff interlaced with minor
conglomerate marble

Deformed intrusive rocks
a) diorite, tonalite

Diabase dyke complex
a) sheeted heterogeneous complex,
   including diabase
b) quartz-feldspar porphyry

Hummocky moraine: silty loam till some underlying hummocks

END

Terminates plotting of the legend.

Notes

- Can be placed anywhere in the legend text file to terminate plotting of the legend.

GOTO <label>

Passes subsequent lines of text in legend text file to the LABEL command with same label name.

Arguments

<label> - the name of the label used with the LABEL command specifying the location plotting will continue.

Notes
- Ideal for skipping sections when creating complex legends.
- The label name is not case sensitive.
- The legend will stop plotting if the END command is encountered while passing subsequent lines of text.
- The GOTO command is similar to the AML directives &GOTO and &LABEL.
- See the SKIP command for alternate methods of passing lines of text in the legend text file.

HEADING <L | I | B | D | F | G> <text_string> {line_spacing} {indent}

Plots rock ages, groups or formations text strings as headings to geological units.

Arguments

<L | I | B | D | F | G> - keyword specifying the placement of the left-justified text string, as well as font and point size. No text is plotted if any other character is used.
L - the text string will be aligned to the left margin of the column. By default the text string will be plotted in 9 point Triumvirate.
I - the text string will be indented from the left margin of the column half the distance between the left margin of the column and the left margin for descriptive text. By default the text string will be plotted in 8 point Triumvirate.
B - the text string will be indented the current unit box width from the left margin of the column. By default the text string will be plotted in 8 point Triumvirate.
D - the text string will be aligned with the left margin for descriptive text. By default the text string will be plotted in 8 point Triumvirate Italic.
F - the text string will be aligned with the left margin for descriptive text, representing the position of a formation name. By default the text string will be plotted in 8 point Triumvirate Italic.
G - the text string will be aligned with the left margin for descriptive text, representing the position of a group name. By default the text string will be plotted in 8 point Triumvirate.

All of the above defaults can be changed with the SET command
(variables: heading< L | I | B | D | F | G>_size and heading< L | I | B | D | F | G>_font)

<text_string> - text string to be plotted, enclosed in single quotes if spaces exist. No text is plotted if this argument is blank.

{line_spacing} - numeric value specifying a line spacing distance from a previous plotted legend feature to baseline of the text string, measured in points unless stated otherwise using the SET command *(variable: line_spacing)*. If this argument is skipped or an invalid value is entered, the default line spacing distance from previously plotted legend features as listed in Appendix A will be used.

{indent} - numeric value specifying an indenting distance from the left margin of the column to the starting coordinate of the line, measured in picas unless stated otherwise using the SET command *(variable: indent)*. If no value or an invalid value is entered or the argument is skipped, the text string will be indented based on the first argument.

Notes
- By default, the text string in all cases is plotted in black (CMYK -1 -1 -1 100), unless stated otherwise with the SET command *(variables: heading< L | I | B | D | F | G>_colour)*.
- The MAPTYPE command can also be used to change the default settings.

Legend Text File and Plotting Examples

```
HEADING L Archean
BOX
HEADING I 'UPPER ORDOVICIAN'
BOX
HEADING B 'HAMBURG GROUP' 30
BOX
HEADING D 'KULUT FORMATION'
BOX
HEADING F 'Black Hill Formation' 25
BOX
HEADING G 'SPARROW LAKE GROUP'
BOX
DESC
Black and green mudstone

HEADING L 'Indented 3 picas' # 3
BOX
END
```

Archean

UPPER ORDOVICIAN

HAMBURG GROUP

KULUT FORMATION

Black Hill Formation

SPARROW LAKE GROUP
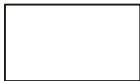
Black and green mudstone

Indented 3 picas

LABEL <label>

Marks a location referenced by the GOTO command.

Arguments

<label> - the name of the label used by the GOTO command, at which point the legend will continue plotting.

Notes
- Command is used only with the GOTO command. It is ignored in all other instances.
- See GOTO command for use.

LINE <cover> {line_symbol} {from_vertex} {to_vertex} {line_scaling}

Plots a line in the symbols legend, using the vertices of an arc in the specified cover as points defining the line.

Arguments

<cover> - an existing cover, from which the vertices of the first arc in the cover are used as the points defining the line to plot. The LINE command first searches for the cover in the LEGEND archive workspace (gems\cover\legend), next the surround workspace (workspace\surround), then the legend workspace that may exist in the current workspace (workspace\legend) and finally the current workspace. No line is plotted if the cover does not exist in any of these three workspaces.

{line_symbol} - integer value between 1 and 999 specifying the line symbol from the current lineset to plot. If no line symbol is entered or the argument is skipped, the current line symbol settings from a previous plotted legend feature or line symbol settings set with the AP command are used. No line is plotted if the line symbol does not exist.

{from_vertex} - integer value greater than 1 specifying the vertex of the first arc in the specified cover that will be used as the starting point to plot the line. If no value is entered or the argument is skipped or an invalid value is entered, the arcs first vertex will be used as the starting point.

{to_vertex} - integer value greater than 1 specifying the vertex of the first arc in the specified cover that will be used as the ending point to plot the line. If no value is entered or the argument is skipped or an invalid value is entered, the arcs last vertex will be used as the ending point.

{line_scaling} - numeric value specifying the scaling factor of the line symbol.

Notes
- The LINE command is valid only when plotting the symbols legend.
- No error checking is performed to ensure that an arc exists in the cover. If more than one arc exists in the cover, the arc with the $RECNO equal to 1 will be used.
- A vertex value equal to or less than zero will be interpreted as one. If the value exceeds the number of vertices in the arc, the arc's last vertex will be used.
- By default, the map units of the cover will be interpreted as millimeters, unless stated otherwise with the SET command *(variable: cover_units)*. The cover's 0,0 coordinate is positioned at the right margin of the symbols legend.
- Automatic scaling of GSC symbols when page units are centimeters will not occur if the {line_symbol} argument is skipped or a value is entered for {line_scaling}
- Four covers exist in the legend cover directory (gems\cover\legend). Two of the covers, LINE1 and LINE2 are straight lines with 102 and 203 vertices respectively. The other two covers, CURVE1 and CURVE2 are curved lines with 111 and 201 points respectively. See examples below for definition.

- The GENERATE command from the Arc module can be used to create a cover, where the map units will be in millimeters. Example:

```
Arc: generate newline
Copyright (C) 1982-1995 Environmental Systems Research Institute, Inc.
All rights reserved.
GENERATE Version 7.0.3  (Mon Mar 13 22:21:55 PST 1995)

Generate: tics
Enter Tics.
Terminate input by entering END at ID,X,Y: prompt.
ID,X,Y: 1 0 0
ID,X,Y: 2 -30 0
ID,X,Y: 3 -30 10
ID,X,Y: 4 0 10
ID,X,Y: end
Generate: quit

Externalling BND and TIC...
Arc:
```

This will create a new cover called NEWLINE with four tics, thirty units wide and 10 units high, where the lower right tic with a coordinate of 0,0 will be positioned in the symbols legend at the right margin.

- A leader line will plot from the symbol description to the plotted line.

Legend Text File and Plotting Examples

```
AP 'LINESET LEGEND'
SYMBOLS NONE
SYMDESC Cover LINE1 with 102 vertices
LINE LINE1 810

SYMDESC Cover LINE2 with 203 vertices
LINE LINE2 810

SYMDESC Cover CURVE1 with 111 vertices, line symbol scale 3 times
LINE CURVE1 810 # # 3

SYMDESC Cover CURVE2 with 201 vertices
AP 'LINESYMBOL 820; LINECOLOR CMYK -1 -1 -1 50'
LINE CURVE2 #

DESC Geological contact (defined, approximate, assumed)
LINE CURVE1 20 1 32
LINE CURVE1 22 31 75
LINE CURVE1 23 111 70

DESC Fault (defined, interpreted)
LINE LINE2 52 203 135
LINE LINE2 30 140 75

END
```
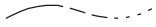

Cover LINE1 with 102 vertices. . . . . _____

Cover LINE2 with 203 vertices. . . . . _____

Cover CURVE1 with 111 vertices, line symbol scale 3 times. . . . .~~~~~

Cover CURVE2 with 201 vertices. . . . . ~~~~~~~

Geological contact (defined, approximate, assumed). . . . .

Fault (defined, interpreted) . . . . ___ _ _ _ _

LINEMARKER <vertex> {marker_symbol} {marker_angle} {marker_scale}

Plots a marker symbol along a line that was plotted with the LINE command.

Arguments

<vertex> - an integer value greater than 1 specifying the vertex of the line plotted with the LINE command at the location to plot the marker symbol.

{marker_symbol} - integer value between 1 and 999 specifying the marker symbol from the current markerset to plot. If no marker symbol is entered or the argument is skipped, the current marker symbol settings from a previous plotted legend feature or marker symbol settings set with the AP command are used. No marker is plotted if the marker symbol does not exist.

{marker_angle} - numeric value specifying the angle of the marker symbol. If an invalid value is entered the default marker angle of 0 will be used.

{marker_scale} - numeric value greater than 0 specifying the scaling factor of the marker symbol.

Notes
- The LINEMARKER command is only valid when plotting the symbols legend.
- The LINE command must be executed prior to issuing the LINEMARKER command.
- A vertex value equal to or less than zero will be interpreted as one. If the value exceeds the number of vertices in the arc, the arc's last vertex will be used.

Legend Text File and Plotting Examples

```
AP 'LINESET LEGEND; MARKERSET LEGEND'
SYMBOLS NONE
SYMDESC Anticline (upright, overturned)
LINE LINE2 808 53 203
LINEMARKER 98 841
LINEMARKER 158 846

SYMDESC Orthopyroxene isograd
LINE CURVE1 98

SYMDESC Orthopyroxene isograd
LINE CURVE1 807
AP 'MARKERSYMBOL 800; MARKERFONT 29; MARKERPATTERN 80; MARKERSIZE 0.1'
LINEMARKER 25
LINEMARKER 55
LINEMARKER 87

END
```

Anticline (upright, overturned) . . . .

Orthopyroxene isograd . . . .

Orthopyroxene isograd . . . .

MAPTYPE {BEDROCK | SURFICIAL}

Sets the font to use for headings and descriptive text based on specifed map type.

Arguments

{BEDROCK | SURFICIAL} - keyword specifying the type of geological legend to create, that in turn sets the font to use for the legend commands listed in the chart below.
BEDROCK - specifies bedrock geology
SURFICIAL - specifies surficial geology

Notes
- This chart lists the legend commands affected by the MAPTYPE command and the fonts used when the legend starts plotting (default values) and when the BEDROCK or SURFICIAL option is specified. The MAPTYPE command changes the value of the legend variable, which stores the font used for each of the commands.

Legend Command	Legend Variable	Value of Variable – Fonts Used		
		Default	BEDROCK	SURFICIAL
HEADING L	headingl_font	Triumvirate	Triumvirate	Triumvirate Bold
HEADING I	headingi_font	Triumvirate	Triumvirate	Triumvirate Bold
HEADING B	headingb_font	Triumvirate	Triumvirate	Triumvirate Bold
HEADING D	headingd_font	Triumvirate Italic	Triumvirate Italic	Triumvirate Bold Italic
HEADING F	headingf_font	Triumvirate Italic	Triumvirate Italic	Triumvirate Italic
HEADING G	headingg_font	Triumvirate	Triumvirate	Triumvirate
DESC	desc_font	Triumvirate Italic	Triumvirate Italic	Triumvirate Italic [b]
NOTE	note_font	Triumvirate Italic	Triumvirate Italic	Triumvirate Italic [b]
TEXT	text_font	Triumvirate	Triumvirate	Triumvirate Bold
BOX [a]	box_font	Triumvirate	GSCSpecial-Regular	Triumvirate

[a] Also includes text plotted with SUBBOX, SUBELLIPSE, SUBSHAPE.

[b] Any text on the first line that precedes a colon, including the colon itself will be plotted as Triumvirate Bold Italic. This avoids having to include typesetting codes such as !FNT93712; throughout the legend legend text file.

- The MAPTYPE command does not plot anything. It simply offers an easier method of changing the fonts used by the above commands, rather than using a series of SET commands.

Legend Text File and Plotting Examples

```
AP 'SHADEDELETE ALL; SHADESET GSC'
HEADING L ARCHEAN
HEADING F 'TROUT FORMATION'
BOX 302 Cd
DESC
Diorite to gabbro (gneissic)

MAPTYPE SURFICIAL
HEADING L QUATERNARY
BOX 234 H
DESC
Hummocky moraine: silty loam till

END
```
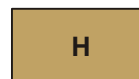
ARCHEAN

TROUT FORMATION

Diorite to gabbro (gneissic)

QUARTERNARY

Hummocky moraine: *silty loam till*

MARKER {marker_symbol} {marker_angle} {marker_scale} {dip} {x_offset} {y_offset}

Plots a marker symbol in the symbols legend.

Arguments

{marker_symbol} - integer value between 1 and 999 specifying the marker symbol from the current markerset to plot. If no marker symbol is entered or the argument is skipped, the current marker symbol settings from a previous plotted legend feature or marker symbol settings set with the AP command are used. No marker is plotted if the marker symbol does not exist.

{marker_angle} - numeric value specifying the angle of the marker symbol. The default angle is 0 unless it is a supported GSC marker symbol (see Notes and Appendix B).

{marker_scale} - numeric value greater than 0 specifying the scaling factor of the marker symbol.

{dip} - dip value be placed at default location based on type of symbol, only if automatic dip placement is supported for symbol.

{x_offset} - numeric value specifying the distance to move symbol in X direction, measured in millimeters unless stated otherwise with the SET command *(variable: offset_units)*.

{y_offset} - numeric value specifying the distance to move symbol in Y direction, measured in millimeters unless stated otherwise with the SET command *(variable: offset_units)*.

Notes
- The MARKER command is only valid when plotting the symbols legend.
- The MARKER command is specifically designed to plot marker symbols from GSC symbolsets. Each of the GSC marker symbols have characteristics of origin, height, width, display angle and dip location that are automatically loaded and are used to position the marker symbol and the dip value (see Appendix B). These default characterisitcs can be changed using the Arcplot MARKERTYPES command. In addition, the Arcplot MARKERTYPES command can be used to set the symbol characteristics of non-GSC marker symbols for automatic marker and dip placement.
- Repeating the MARKER command plots additional marker symbols on the same description line to the left of a previous plotted marker symbol. The separation distance between marker symbols is 0.15 inches, unless stated otherwise with the SET command *(variable: marker_gap)*.
- The default distance or gap between GSC marker symbols and the dip value is 0.020 inches. This value can be changes using the SET command *(variable: dip_gap)*.
- Spacing, positioning and orientation of GSC marker symbols is automatically calculated when using the marker symbols default characteristics. Specifying an angle other than the default may require values for {x_offset} and {y_offset} arguments to appropriately space symbols.
- A leader line will be plotted from the symbol description to the last plotted marker symbol.

Legend Text File and Plotting Examples

```
AP 'MARKERSET GSC0'
SYMBOLS
SYMDESC Bedding, facing unknown; inclined, vertical
MARKER 50
MARKER 1 # # 10

SYMDESC Gossan
AP 'MARKERSYMBOL 56; MARKERCOLOR RED'
MARKER

SYMDESC 22 Minor fold; generation unknown, first, second, third
AP 'MARKERSET GSC1'
MARKER 177 # # 25 -2.2
MARKER 176 # # 60
MARKER 112 # # 10
MARKER 127 # # 40

SYMDESC U-Pb age determination site
AP 'MARKERSET GSC2'
MARKER 236

END
```
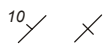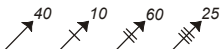
SYMBOLS

Bedding, facing unknown; inclined, vertical. . . . .

Gossan. . . . .

Minor fold; generation unknown, first, second, third. . . . .

U-Pb age determination site. . . . . ▼

MINERAL <text> {text_colour} {point_size}

Plots a mineral text character in the symbols legend.

Arguments

<text> - mineral text string, enclosed in single quotes if spaces exist. By default, the text string is plotted as 8 point Triumvirate Bold in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: mineral_font, mineral_size and mineral_colour)*.

{text_colour} - any ArcInfo supported color name or colour model to plot mineral text string, instead of using the default value *(variable: mineral_colour)*.

{point_size} - numeric value greater than 0 specifying the point size of the mineral text string instead of using the default value *(variable: mineral_size)*.

Notes
- The MINERAL command is only valid when plotting the symbols legend.
- The mineral text string is justified lower right to the right margin of the symbols legend.
- A leader line will be plotted from the symbol description to the mineral text string.

Legend Text File and Plotting Examples

```
SYMBOLS NONE
COLUMN 2.25 0.5
SET TEXT_SIZE 10
SET TEXT_FONT Triumvirate
TEXT Minerals
SYMDESC Actinolite
ORIGIN SET
MINERAL act

SYMDESC Bornite
MINERAL bn RED

COLUMN NEW
SYMDESC 0.0 Olivine
MINERAL ol 'CMYK 100 100 -1 -1' 10

SYMDESC Tremolite
SET MINERAL_SIZE 12
MINERAL tr

END
```

Minerals

Actinolite. **act**   Olivine. . . . . **ol**

Bornite. **bn**   Tremolite. . . . . **tr**

NOTE

Plots subsequent lines of text from the legend text file aligned with the left margin for descriptive text, not exceeding the right margin of the legend column, until a blank line is encountered.

Syntax for Subsequent Lines of Text in legend text file

<text>
<line_spacing> <text>
<line_spacing> <indent> <text>

Arguments

To better understanding the rules of plotting text associated with the NOTE command, *lines of text* or *line of text* refers to each line of text in the legend text file and *text string* refers to text that is plotted.

<text> - line of text in the legend text file. Lines of text are not required to be enclosed in single quotes, allowing for ease of cutting and pasting lines of text from different document sources. Each line of text requires a hard return at the end. When plotting, any words that exceed the right margin of the legend column will be appended to following lines of text, until a blank line in the legend text file is encountered.

<line_spacing> - numeric value specifying a line spacing distance measured only in points from a previous plotted legend feature. A line spacing distance on the first line of text immediately after the NOTE command will position the text string that value from the previous plotted legend feature. If no line spacing distance is specified on the first line of text or a value of 0 is specified, the default line spacing distance will be determined from the previous plotted legend feature as as listed in Appendix A. A line spacing distance on subsequent lines of text will plot the text that follows as a separate text string. A value of 0 will default the line spacing to 125% the point size of the text, whereas a value of 0.0 will use a line spacing distance of 0 points.

<indent> - numeric value specifying an indenting value from the left margin of descriptive text, measured in picas. A numeric value for line spacing must be entered if a value for indenting is required. The pound sign (#) cannot be used.

Notes
- If the first word in each line of text from the legend text file is numeric, it is interpreted as a value for line spacing, measured only in points. If the second word in each line of text from the legend text file is numeric, it is interpreted as a value for indenting.
- By default, the text string is plotted as 8 point Triumvirate Italic in black (CMYK -1 -1 -1 100), and indented 5 picas from the left margin of the column so as to align with the left margin of the descriptive text. These defaults can be changed using the SET command (*variables: note_size, note_font, note_colour and note_indent*).

Legend Text File and Plotting Examples

```
BOX
DESC
Greenstone and mudstone

NOTE
The Opal Member replaces the Marston Member and possibly parts of the lower
and middle Carnarvon Member in most of the areas

SET note_indent 0
NOTE
The Opal Member replaces the Marston Member and possibly parts of the lower
and middle Carnarvon Member in most of the areas

BOX
DESC
Greenstone and mudstone

END
```
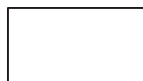
Greenstone and mudstone

The Opal Member replaces the Marston Member and possibly parts of the lower and middle Carnarvon Member in most of the areas

The Opal Member replaces the Marston Member and possibly parts of the lower and middle Carnarvon Member in most of the areas

Greenstone and mudstone

ORIGIN <x y> {PAGE | MAP}
ORIGIN <SET>

Position the starting point of the legend on the page.

Arguments

<x y> - X and Y coordinates to positon left margin and top of geological legend as the starting point of the geological legend. If an X coordinate value is entered a Y coordinate value must also be entered. A space or a comma can separate coordinate values.

{PAGE | MAP} - keyword stating unit of coordinates.
PAGE - X and Y coordinates are in page units. This is the default option.
MAP - X and Y coordinates are in map units from the current map extent.

<SET> - keyword to set the origin or starting point of the geological legend for subsequent commands at the current location in the geological legend.

Notes
- The ORIGIN command is not required to appear on the first line in the legend text file to position the starting point of the legend, as this is accomplished when issuing the LEGEND command from ArcPlot. The ORIGIN command is maintained for backward compatibility for legend text files created to operate on earlier versions of the LEGEND routine.
- The SET keyword is useful for creating a list of mineral occurrences where the legend is divided into two columns after the symbols portion. See example under MINERAL command.
- Positioning the legend using map coordinates from the current map extent can be beneficial if you need the legend to move with the map whenever the position of the map changes on the page.

PATTERNFILL {shade_symbol} {shade_colour} {shade_scale} {ON | OFF}
{text} {line_spacing} {indent}

Plots a pattern/shade symbol inside a plotted box, ellipse, or shape.

Arguments

{shade_symbol} - integer value between 1 and 999 specifying the shade symbol from the current shadeset to plot. If no shade symbol is entered or the argument is skipped, the current shade symbol settings from a previous plotted legend feature or shade symbol settings from the AP command are used. No pattern/shade symbol is plotted if the shade symbol does not exist.

{shade_colour} - specifies the colour of the shade symbol. Any ArcInfo supported colour name or colour model can be used, enclosed in single quotes if spaces exist. No default colour is applied to the shade symbol if this argument is skipped.

{shade_scale} - specifies the scale factor of the shade symbol. No default scale is applied to the shade symbol if this argument is skipped.

{ON | OFF} - keyword specifying whether or not the shade symbol is masked when plotting text.
ON - shade symbol will be masked.
OFF - shade symbol will not be masked.

{text} - text plotted inside the box, ellipse or shape, enclosed in single quotes if spaces exist.

{line_spacing} - numeric value specifying a line spacing distance from top of unit box or shape to baseline of text, measured in points unless stated otherwise using the SET command
(variable: box_line_spacing). If no distance is given, or the argument is skipped, the text string is centered vertically within the dimensions of the box or the vertical extremes of the shape.

{indent} - numeric value specifying an indenting distance from left edge of unit box to starting position of text string, measured in millimeters unless stated otherwise using the SET command
(*variable: box_indent*). If no distance is given, or the argument is skipped, the text string is centered horizontally within the dimensions of the box or the horizontal extremes of the shape.

Notes
- By default, text plotted within the box defaults to 10 point Triumvirate, plotted in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: box_size, box_font and box_colour)*.
- By default, the outline of the patternfill is plotted as a 0.010" black line (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: line_size and line_colour)*.
- By default, the shape of the text masking is a RECTANGLE and the masking size of 0.03 inches. These defaults can be changed using the SET command *(variables: textmask_shape and textmask_size)*. See the Arcplot command TEXTMASK for more information.
- With ArcInfo Rev. 7.0.3, text masking using the HALO option does not reproduce on hardcopy.

Legend Text File and Plotting Examples

```
AP 'SHADESET GSC'
BOX 4
AP 'SHADESET OF1234'
PATTERNFILL 4 # # ON Mc

AP 'SHADESET GSC'
BOX 149
AP 'SHADESET OF1234'
PATTERNFILL 54 'CMYK 0 0 40 0' # OFF Krt

BOX 'RGB 50 240 230'
SUBELLIPSE 'CMYK 20 20 60 10'
AP 'SHADESYMBOL 131'
PATTERNFILL # WHITE
END
```
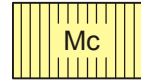
SET <variable> <value>

Change default values of legend variables.

Arguments

<variable> - name of the variable used in the legend AML to store default values.

<value> - value assigned to variable.

Notes
- Listed in the chart below are the default values of the variables used to plot the geological legend when the legend AML starts. The unit of measurement for numeric values is printed in bold (inches, picas, points, mm, cm), and cannot be altered.
- Variable names and values are not case sensitive.
- Fonts names with spaces must be enclosed in single quotes (i.e.: 'Triumvirate Italic').
- All of the variables are prefixed by .leg$, however it is not required for the SET command.

Variable	Default Value	Description
bkt_colour	CMYK -1 -1 -1 100	Colour of text plotted with BRACKET command
bkt_font	'Triumvirate Light'	Font of text plotted with BRACKET command
bkt_line_colour	CMYK -1 -1 -1 100	Line colour of brackets
bkt_line_size	0.007	Line thickness of brackets in inches
bkt_size	10	Size of text in points, plotted with BRACKET command
bkt_text_offset	1	Distance from point of bracket to text position in mm
bkt_type	1	Specifies style at end of bracket; 1 = traditional curve, 0 = straight line
bkt_units	mm	Unit of measurement for offset and shift distances as used with BRACKET command
bkt_width	3	Width of bracket in mm, between main stem of bracket to point and to curve end
box_colour	CMYK -1 -1 -1 100	Colour of text plotted inside of unit box; used with BOX, SUBBOX, SUBELLIPSE, SUBSHAPE and PATTERNFILL commands
box_font	'Triumvirate'	Font of text plotted inside unit box; used with BOX, SUBBOX, SUBELLIPSE, SUBSHAPE and PATTERNFILL commands
box_height	10	Height of unit box in mm
box_indent	mm	Unit of measurement for indenting text inside unit box; used with BOX, SUBBOX, SUBELLIPSE, SUBSHAPE and PATTERNFILL commands
box_line_spacing	points	Unit of measurement for line spacing text inside unit box; used with BOX, SUBBOX, SUBELLIPSE, SUBSHAPE and PATTERNFILL commands
box_size	10	Size of text plotted inside unit box in points; used with BOX, SUBBOX, SUBELLIPSE, SUBSHAPE and PATTERNFILL commands
box_width	18	Width of unit box in mm
column_gap	0.5	Distance between legend columns in inches, when page units are inches. If page units are centimeters the value is 1.27 cm
column_width	5.0	Width of column in inches, when page units are inches. If page units are centimeters the value is 12.7 cm
column_indent	0	Indent distance in current page units from left margin of column
cover_units	mm	Unit of measurement specifying cover units; used with COVER command
desc_colour	CMYK -1 -1 -1 100	Colour of text plotted with DESC command
desc_font	'Triumvirate Italic'	Font of text plotted with DESC command
desc_indent	5	Indenting distance in picas from left margin of column to left margin of descriptive text

Variable	Default Value	Description
desc_size	8	Size of text in points, plotted with DESC command
dip_font	'Triumvirate Italic'	Font of dip text plotted with MARKER and SUBMARKER commands
dip_size	6	Size of dip text in points, plotted with MARKER and SUBMARKER commands
dip_colour	CMYK -1 -1 -1 100	Colour of dip text plotted with MARKER and SUBMARKER commands
dip_gap	0.020	Distance between marker symbol and dip in inches
headingb_colour	CMYK -1 -1 -1 100	Colour of text plotted with HEADING command using indent position B
headingb_font	'Triumvirate Light'	Font of text plotted with HEADING command using indent position B
headingb_size	8	Size of text in points, plotted with HEADING command using indent position B
headingd_colour	CMYK -1 -1 -1 100	Colour of text plotted with HEADING command using indent position D
headingd_font	'Triumvirate Italic'	Font of text plotted with HEADING command using indent position D
headingd_size	8	Size of text in points, plotted with HEADING command using indent position D
headingi_colour	CMYK -1 -1 -1 100	Colour of text plotted with HEADING command using indent position I
headingi_font	'Triumvirate Light'	Font of text plotted with HEADING command using indent position I
headingi_size	8	Size of text in points, plotted with HEADING command using indent position I
headingl_colour	CMYK -1 -1 -1 100	Colour of text plotted with HEADING command using indent position L
headingl_font	'Triumvirate Light'	Font of text plotted with HEADING command using indent position L
headingl_size	9	Size of text in points, plotted with HEADING command using indent position L
indent	picas	Unit of measurement for indent distances used with BREAK, HEADING, SYMBOLS, SYMDESC, TEXT and TITLE command
leader_colour	CMYK -1 -1 -1 100	Colour of leader in symbols legend
leader_direction	1	Direction to plot leader; 1 = left to right, -1 = right to left
leader_end	0	Distance from right margin of column to end of leader, measured in current page units
leader_gap	0.030	Distance in inches between symbol and leader
leader_indent	0	Distance form left margin of column to end of symbol description, measured in current page units
leader_interval	0.009	Line interval value of leader in inches
leader_offset	0.005	Line offset value of leader in inches
leader_pen	0.008 BUTT MITER	Line pen characteristics of leader in inches
leader_size	0.008	Line thickness of leader in inches
leader_template	091	Line symbol template of leader
leader_type	WIDE	Line type of leader
leaders	.TRUE.	Boolean value; if .TRUE. leader will be plotted, if .FALSE. leaders will not be plotted
line_size	0.010	Line thickness of unit boxes, shapes, ellipses and pattern fills in inches
line_colour	CMYK -1 -1 -1 100	Line colour of unit boxes, shapes, ellipses and pattern fills
line_spacing	points	Unit of measurement for line spacing distance; used with BREAK, HEADING, SYMBOLS, SYMDESC, TEXT and TITLE commands
marker_gap	0.15	Distance in inches between marker symbols in symbols legend
mineral_colour	CMYK -1 -1 -1 100	Colour of text plotted with MINERAL command
mineral_font	'Triumvirate Bold'	Font of text plotted with MINERAL command
mineral_size	8	Size of text in points, plotted with MINERAL command
note_colour	CMYK -1 -1 -1 100	Colour of text plotted with NOTE command

Variable	Default Value	Description
note_font	'Triumvirate Italic'	Font of text plotted with MINERAL command
note_indent	5	Indenting distance in picas from left margin of column to text plotted with NOTE command
note_size	8	Size of text in points, plotted with NOTE command
offset_units	mm	Unit of measurement for X,Y marker offset distances; used with MARKER command
space	14	Distance in points between unit boxes when including a space in legend text file
sub_units	mm	Unit of measurement for X,Y distances; used with SUBBOX, SUBLINE, SUBMARKER, SUBSHAPE, and SUBTEXT commands
subcover_units	mm	Unit of measurement specifying cover units; used with SUBCOVER command
symbols	.FALSE.	Boolean value specifying whether symbol legend is currently being plotted; value is .TRUE. when symbol legend is currently being plotted, and .FALSE. when symbol legend is not currently being plotted
symbolscale	.TRUE.	Boolean value specifying whether to automatically scale all line, marker and shade symbols 2.54 times when page units are centimeters; if value is .TRUE. scaling will occur, and if value is .FALSE. scaling will not occur
symdesc_colour	CMYK -1 -1 -1 100	Colour of text plotted with SYMDESC command
symdesc_font	'Triumvirate Italic'	Font of text plotted with SYMDESC command
symdesc_indent	1	Indenting distance in picas from left margin of column for subsequent lines of symbol description
symdesc_size	8	Size of text in points, plotted with SYMDESC command
symtitle_colour	CMYK -1 -1 -1 100	Colour of text plotted with SYMBOLS command
symtitle_font	'Triumvirate Light'	Font of text plotted with SYMBOLS command
symtitle_size	10	Size of text in points, plotted with SYMBOLS command
text_colour	CMYK -1 -1 -1 100	Colour of text plotted with TEXT command
text_font	'Triumvirate Italic'	Font of text plotted with TEXT command
text_line_symbol		Line symbol used with DASH option of TEXT command; a blank value will plot the default line
text_position	LL	Justification of text used with SUBTEXT command
text_size	8	Size of text in points, plotted with TEXT command
textmask_shape	RECTANGLE	Shape of mask around text, used with PATTERNFILL and TEXT commands; additional options are HALO and POLYGON
textmask_size	0.03	Thickness of mask around text in inches, used with PATTERNFILL and TEXT commands
title_colour	CMYK -1 -1 -1 100	Colour of text plotted with TITLE command
title_font	'Triumvirate Light'	Font of text plotted with TITLE command
title_size	10	Size of text in points, plotted with TITLE command

SKIP

Skips and ignores subsequent lines in legend text file until another SKIP is encountered.

Notes
- Ideal for skipping sections of a legend during the creation process.
- If the END command is encountered the legend will stop plotting.

SUBBOX <x y> {shade_symbol | colour} {text} {line_spacing} {indent}

Plots a box with or without a colour fill and/or text, in relationship to a unit box plotted with the BOX command.

Arguments

<x y> - X and Y distance from the upper-left corner of the unit box plotted with BOX command to the upper-left corner of the sub-box. Distance is measured in millimeters, unless stated otherwise with the SET command *(variable: sub_units)*.

{shade_symbol | colour} - shade symbol or colour to fill the sub-box. No fill is plotted if this argument is skipped. If an invalid shade symbol or colour is entered only the sub-box outline will be plotted.
shade_symbol - integer value between 1 and 999 specifying the shade symbol number from the current shadeset.
colour - any ArcInfo supported colour name or colour model, enclosed in single quotes if spaces exist.

{text} - text plotted inside the sub-box, enclosed in single quotes if spaces exist.

{line_spacing} - numeric value specifying a line spacing distance from top of sub-box to baseline of text, measured in points unless stated otherwise using the SET command
(variable: box_line_spacing). If no distance is given, or the argument is skipped, the text string is centered vertically within the dimensions of the sub-box.

{indent} - numeric value specifying an indenting distance from left edge of sub-box to starting position of text string, measured in millimeters unless stated otherwise using the SET command
(*variable: box_indent*). If no distance is given, or the argument is skipped, the text string is centered horizontally within the dimensions of the sub-box.

Notes
- By default, the outline of the sub-box is plotted as a 0.010" black line (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: line_size and line_colour)*
- By default, text plotted within the sub-box defaults to 10 point Triumvirate, plotted in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command
  (variables: box_size, box_font and box_colour).
- Use the BOXSIZE command prior to the SUBBOX command to change the size of the subbox.
- The SUBBOX command is ignored when plotting the symbols legend.

Legend Text File and Plotting Examples

```
AP 'SHADEDELETE ALL; SHADESET GSC'
BOX 46 CMa # 1
DESC
Interlayered rhyolite

BOXSIZE 4.5 10
SUBBOX 9 0 16 b
SUBBOX 13.5 0 166 c

BOXSIZE 18 24
BOX 416 RLc 15
DESC
11 Green conglomerate, black and green mudstone, interdispersed with
fractured greywacke

BOXSIZE 10 8
SUBBOX 8 8 404 u
DESC
undivided

SUBBOX 8 16 609 l
DESC
lower

END
```
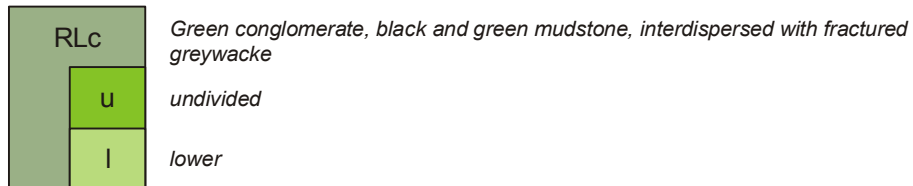
CMa b c   *Interlayered rhyolite*

RLc   *Green conglomerate, black and green mudstone, interdispersed with fractured greywacke*

u   *undivided*

l   *lower*

SUBCOVER <cover> <ARCS | POINTS | POLYGONS | ANNOTATION | scale>
{symbol_item | symbol} {x_offset} {y_offset}

Plots features from a cover in the symbols portion of the legend.

Arguments

<cover> - an existing cover to plot in the symbols legend. The COVER command first looks for the existance of the cover in the LEGEND cover directory (gems\covers\legend), next the surround workspace (workspace\surround), then the legend workspace in the current workspace (workspace\legend) and finally the current workspace. In addition a workspace path to any cover can also be specified. No features are plotted if the cover does not exist in any of these workspaces.

<ARCS | POINTS | POLYGONS | ANNOTATION | scale> - keyword specifying the type of feature to plot from the cover or the publication scale of the cover.
ARCS - arcs from the cover are plotted as lines.
POINTS - label points from the cover are plotted as markers.
POLYGONS - polygons from the cover are plotted as shades.
ANNOTATION - annotation from the cover are plotted as text. Annotation subclasses are not supported for this option.
scale - integer value representing the scale denominator to plot all arcs, points or polygons and annotation (not in a subclass) features from the cover. Polygons will be plotted first, followed by arcs, points and finally annotation features.

{symbol_item | symbol} - defines how specified features are plotted. If nothing is entered for this argument, the current symbol settings for the specified feature, as set with the AP command will be used. This argument is ignored when annotation features are plotted as the annotation's psuedo item $symbol is used.
symbol_item - an item from the specified feature's attribute table whose value will be used as the   symbol number from the current symbolset.
symbol - an integer value between 1 and 999 specifying the symbol number from the current symbolset.

{x_offset} {y_offset} - numeric value specifying the distance to move the cover's X and Y coordinate position relative to the right margin, measured in millimeters unless stated otherwise with the SET command *(variable: offset_units)*.

Notes
- The specified feature to plot from the cover is not checked for its existance, nor if a feature attribute table or the symbol item exists.
- By default, the map units of the cover will be interpreted as millimeters, unless stated otherwise with the SET command *(variable: subcover_units)*. The cover's 0,0 coordinate is positioned at the right margin of the symbols legend.
- If a publication scale is specified rather than features the center position of the cover's bounding box will be positioned in the center of the legend box and plotted at the specified scale. The cover will automatically be REBOXed. This provides an easier method of plotting complex features that exist on the map rather than creating a new cover with the upper-left coordinate 0,0 and in millimetres. To use this method, select the required features in ArcEdit and PUT them to <cover>.

- The GENERATE command from the Arc module can be used to create a cover, where the map units will be in millimeters. Example:

```
Arc: generate cover4box
Copyright (C) 1982-1995 Environmental Systems Research Institute, Inc.
All rights reserved.
GENERATE Version 7.0.3  (Mon Mar 13 22:21:55 PST 1995)
Generate: tics
Enter Tics.
Terminate input by entering END at ID,X,Y: prompt.
ID,X,Y: 1 0 0
ID,X,Y: 2 18 0
ID,X,Y: 3 18 10
ID,X,Y: 4 0 10
ID,X,Y: end
Generate: quit

Externalling BND and TIC...

Arc:
```

This will create a new cover called COVER4BOX with four tics, 18 units wide and 10 units high, where the lower-left tic (ID=1) with a coordinate of 0,0 will be positioned at the lower-left corner of the unit box. The dimensions of the tics are also the same as the default box size.

Features can then be added in ARCEDIT and if required, build the corresponding feature attribute table and code features using the symbol item.

- Automatic scaling of GSC symbols when page units are centimeters will not occur if no value is entered for the {symbol_item | symbol} argument or if it is skipped.
- When plotting to the symbols legend, a leader line will not plot from the symbol description to the map extent of the cover. Use the COVER command to automatically plot a leader line.

Legend Text File and Plotting Examples

```
AP 'LINEDELETE ALL; LINESET LEGEND'
AP 'SHADEDELETE ALL; SHADESET GSC'
BOX 401
SUBCOVER QUATERNARY POLYGONS 4
AP 'LINESYMBOL 150; LINECOLOR RED'
SUBCOVER QUATERNARY ARCS
SUBCOVER QUATERNARY ANNOTATION
DESC
Quaternary


END
```
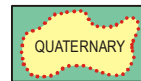

Quaternary

```
BOXSIZE 18 30
BOX
AP 'LINESYMBOL 890'
SUBCOVER ISLANDS 100000
DESC
Cover features plotted with SUBCOVER command
are clipped at the limits of the legend box

END
```


Cover features plotted with SUBCOVER command are clipped at the limits of the legend box

SUBELLIPSE {shade_symbol | colour} {text} {line_spacing} {indent}

Plots an ellipse inside a unit box plotted with either the BOX or SUBBOX command, with or without a colour fill and/or text.

Arguments

{shade_symbol | colour} - shade symbol or colour to fill the ellipse. No fill is plotted if this argument is skipped. If an invalid shade symbol or colour is entered only the ellipse outline will be plotted.
shade_symbol - integer value between 1 and 999 specifying the shade symbol number from the current shadeset.
colour - any ArcInfo supported colour name or colour model, enclosed in single quotes if spaces exist.

{text} - text plotted inside the ellipse, enclosed in single quotes if spaces exist. No text is plotted if nothing is entered for this argument.

{line_spacing} - numeric value specifying a line spacing distance from top of the unit box or sub-box to baseline of text, measured in points unless stated otherwise using the SET command
(variable: box_line_spacing). If no distance is given, or the argument is skipped, the text string is centered vertically within the dimensions of the sub-box.

{indent} - numeric value specifying an indenting distance from left edge of unit box or sub-box to starting position of text string, measured in millimeters unless stated otherwise using the SET command (*variable: box_indent*). If no distance is given, or the argument is skipped, the text string is centered horizontally within the dimensions of the sub-box.

Notes
- By default, the outline of the ellipse is plotted as a 0.010" black line (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: line_size and line_colour)*.
- By default, text plotted within the ellipse defaults to 10 point Triumvirate, plotted in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: box_size, box_font and box_colour)*.
- Shape of the ellipse cannot be altered, however the size of the ellipse is scaled automatically to fit inside the dimensions of any size unit box plotted with either the BOX or SUBBOX commands.
- The ellipse is a cover that must exist in the workspace gems\cover\legend, and the current &atool path must be set to gems\amls.
- The SUBELLIPSE command is ignored when plotting the symbols legend.

Legend Text File and Plotting Examples

```
AP 'SHADEDELETE ALL; SHADESET GSC'
BOX 40
SUBELLIPSE 20 Mm

BOXSIZE 18 14
BOX 4
BOXSIZE 15 7
SUBBOX 3 7 24
SUBELLIPSE 44 Tr
END
```
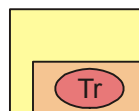
SUBLINE <x y ... x y> {line_symbol} {OFF | ON}

Plots a line in a unit box or in the symbols legend.

Arguments

<x y ... x y> - a series of X,Y coordinate pairs enclosed in single quotes where each coordinate pair represents the X and Y distance from either the upper-left corner of the unit box or the right margin of the symbols legend, to a point/vertex on the line. By default, the X and Y distances will be interpreted as millimeters, unless stated otherwise using the SET command *(variable: sub_units)*.

{line_symbol} - an integer value between 1 and 999 specifying the line symbol from the current lineset to plot. If no line symbol is entered or the argument is skipped, the current line symbol settings from a previous plotted legend feature or line symbol settings set with the AP command are used. No line is plotted if the line symbol does not exist.

{OFF | ON} - keyword specifying to spline the line.
OFF - the line is not splined. This is the default.
ON - the line is splined.

Notes
- Splining of the line uses the ArcPlot command SPLINE.
- A minimum of two coordinate pairs must be entered to define a line.
- A space or a comma can separate coordinates.

Legend Text File and Plotting Examples

```
AP 'LINEDELETE ALL; LINESET LEGEND'
BOX
SUBLINE '3 8 12 2' 840
BOX
SUBLINE '2 7 5 2 15 4 10 7' 121 ON
SYMBOLS
SYMDESC Example showing SUBLINE command
AP 'LINESYMBOL 121; LINECOLOR RED'
SUBLINE '2 7 5 2 15 4 10 7' # ON

END
```
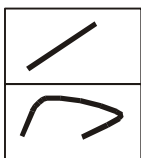

S Y M B O L S

Example showing SUBLINE command. . . . .

SUBMARKER <x y> {marker_symbol} {marker_angle} {marker_scale} {dip}

Plots a marker symbol in a unit box or in the symbols legend.

Arguments

<x y> - X and Y distance from either the upper-left corner of the unit box or the right margin of the symbols legend, to the location of the marker symbol. By default, the X and Y distances will be interpreted as millimeters, unless stated otherwise using the SET command *(variable: sub_units)*.

{marker_symbol} - integer value between 1 and 999 specifying the marker symbol from the current markerset to plot. If no marker symbol is entered or the argument is skipped, the current marker symbol settings from a previous plotted legend feature or marker symbol settings set with the AP command are used. No marker is plotted if the marker symbol does not exist.

{marker_angle} - numeric value specifying the angle of the marker symbol.

{marker_scale} - numeric value greater than 0 specifying the scaling factor of the marker symbol.

{dip} - dip value be placed at default location based on type of symbol, only if automatic dip placement is supported for symbol.

Notes
- The SUBMARKER command can automatically place a dip value next to a marker symbol, only if it is a standard GSC marker symbol and automatic dip placement is supported for the marker symbol. Each of the GSC marker symbols have characteristics of origin, height, width, display angle and dip location that are automatically loaded and are used to position the marker symbol and the dip value (see Appendix B). These default characterisitcs can be changed using the Arcplot MARKERTYPES command. In addition, the Arcplot MARKERTYPES command can be used to set the symbol characteristics of non-GSC marker symbols for dip placement.
- The default distance or gap between GSC marker symbols and the dip value is 0.020 inches. This value can be changes using the SET command *(variable: dip_gap)*.

Legend Text File and Plotting Examples

```
AP 'MARKERDELETE ALL; MARKERSET LEGEND'
SET box_font 'Triumvirate Bold'
BOX 4 Dkf # 1.8
SUBMARKER 11 5 39
SYMBOLS
SYMDESC Example of SUBMARKER command
SUBMARKER 11 3 39 90 1.5

END
```

Dkf ♦

SYMBOLS

Example of SUBMARKER command . . . . ◆

SUBSHAPE <x y ... x y> {shade_symbol | colour} {text} {line_spacing} {indent}

Plots a shape inside a unit box plotted with either the BOX or SUBBOX command or as part of the symbols legend, with or without a colour fill and/or text.

Arguments

<x y ... x y> - a series of X,Y coordinate pairs enclosed in single quotes where each coordinate pair represents the X and Y distance from either the upper-left corner of the unit box or the right margin of the symbols legend, to a point/vertex on the line that defines the shape. By default, the X and Y distances will be interpreted as millimeters, unless stated otherwise using the SET command *(variable: sub_units)*.

{shade_symbol | colour} - shade symbol or colour to fill the sub-shape. No fill is plotted if this argument is skipped. If an invalid shade symbol or colour is entered only the sub-shape outline will be plotted.
shade_symbol - integer value between 1 and 999 specifying the shade symbol number from the current shadeset.
colour - any ArcInfo supported colour name or colour model, enclosed in single quotes if spaces exist.

{text} - text plotted inside the sub-shape, enclosed in single quotes if spaces exist.

{line_spacing} - numeric value specifying a line spacing distance from the upper most coordinate of the sub-shape to the baseline of the text, measured in points unless stated otherwise using the SET command *(variable: box_line_spacing)*. If no distance is given, or the argument is skipped, the text string is centered vertically within the dimensions of the sub-shape.

{indent} - numeric value specifying an indenting distance from the far left coordinate of the sub-shape to the starting position of the text string, measured in millimeters unless stated otherwise using the SET command *(variable: box_indent)*. If no distance is given, or the argument is skipped, the text string is centered horizontally within the dimensions of the sub-shape.

Notes
- A minimum of three coordinate pairs must be entered to define a shape.
- By default, the outline of the sub-shape is plotted as a 0.010" black line (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: line_size and line_colour)*
- By default, text plotted within the sub-shape defaults to 10 point Triumvirate, plotted in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: box_size, box_font and box_colour)*.

Legend Text File and Plotting Examples

```
AP 'SHADEDELETE ALL; SHADESET GSC'
SET box_font 'Triumvirate Bold'
BOX 416 OBb 25 10
DESC
BEARS BROOK FORMATION: !FNT93711;OBb!FNT93709;, red arkosic sandstone
conglomerate. !FNT93711;OBv!FNT93709;,rhyolite, minor basalt

SUBSHAPE '0 0 0 8 15 4' 129 OBv # 1

BOXSIZE 18 21
BOX
BOXSIZE 18 7
SET box_font Triumvirate
SUBBOX 0 7 14 Wq # 9
DESC
Webb Creek quartz megacrystic tonalite

SUBBOX 0 14 64 Wa # 9
DESC
Webb Creek agmatite

SUBSHAPE '0,0 0,21 8,21 4.5 19.25 8,17.5 4.5,15.75 8,14 4.5,12.25 8,10.5 4.5,8.75 8,7 18,7 18,0' 124
W 14
DESC
14 Quartz diorite, tonalite, granodiorite, quartz diorite intrusion breccia

SYMBOLS
SYMDESC Mylonite zone
SUBSHAPE '0 1 25 1 25 9 0 9' 41
AP 'SHADEDELETE ALL; SHADESET OF1234'
SET line_colour WHITE
PATTERNFILL 23 WHITE

END
```


BEARS BROOK FORMATION: OBb**, red arkosic sandstone conglomerate,* **OBv, rhyolite, minor basalt*
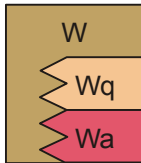
Quartz diorite, tonalite, granodiorite, quartz diorite intrusion breccia

Webb Creek quartz megacrystic tonalite

Webb Creek agmatite

SYMBOLS

Mylonite zone . . . .

SUBTEXT <x y> <text> {text_symbol} {point_size}

Plots additional text in a unit box or in the symbols legend.

Arguments

<x y> - X and Y distance from the upper-left corner of the unit box or from the right margin of the symbol legend to the justification position of the text string. By default, the X and Y distances will be interpreted as millimeters, unless stated otherwise using the SET command
(variable: sub_units).

<text> - text string to plot, enclosed in single quotes if spaces exist.

{text_symbol} - an integer value between 1 and 999 specifying the text symbol from the current textset to plot. If no text symbol is entered or the argument is skipped, the current text symbol settings from a previous plotted legend feature or text symbol settings set with the AP command are used. No text is plotted if the text symbol does not exist.

{point_size} - numeric value greater than one specifying the point size of the text string. No text is plotted if an invalid value is entered for this argument. There is not default size.

Notes
- By default the text will be justified LL (lower left) at the specified coordinate. This default can be changed using the SET command *(variable: text_position)*.

Legend Text File and Plotting Examples

```
AP '(!SHADE MARKER!)DELETE ALL; (!SHADE MARKER TEXT!)SET LEGEND'
BOX 4 Tkf # 1.8
SUBMARKER 11 5 39
SUBTEXT 12 4 om 620 6
SYMBOLS
SYMDESC Example of SUBMARKER command
SUBMARKER 11 3 39 90 1.5
SET text_position LR
AP 'TEXTSYMBOL 620; TEXTCOLOR CMYK -1 100 100 -1'
SUBTEXT 13 4 om # 8

END
```

Tkf ◆ᵒᵐ

SYMBOLS

Example of SUBMARKER command . . . . ᵒᵐ◆

SYMBOLS {title | NONE} {line_spacing} {indent}

Begins plotting symbols portion of geological legend including an optional title.

Arguments

{title | NONE} - text string to be plotted as the title for the symbols portion of the geological legend, enclosed in single quotes if spaces exist. The default text string 'S Y M B O L S' is used if nothing is entered or the argument is skipped.
NONE - keyword if no title is required.

{line_spacing} - distance from previous plotted legend feature to baseline of text string, measured in points unless stated otherwise with the SET command *(variable: line_spacing)*. If no value is entered or the argument is skipped, 36 points will be used as the default distance.

{indent} - distance from left edge of the column to the text string, measured in picas unless stated otherwise with SET command *(variable: indent)*. If no value is entered or the argument is skipped, the text string for the title will be centered in the column.

Notes
- The SYMBOLS command notifies the legend routine that the symbols portion of the geological legend is to begin, resulting in changes the way some commands respond. For example:
  - line spaces in your legend text file will create leader lines from the symbol description to the symbol
  - the SUB commands reference point is the right margin of the column
- By default, the text string is plotted as 10 point Triumvirate Light in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: symtitle_size, symtitle_font and symtitle_colour)*.

SYMDESC <text_string>
SYMDESC <line_spacing> <text_string>
SYMDESC <line_spacing> <indent> <text_string>

Plots a single line of text as a symbol description.

Arguments

<text_string> - text string to plot. Single quotes are not required to enclose the text string.

<line_spacing> - numeric value specifying a line spacing distance from a previous plotted legend feature. If issuing the SYMDESC command for multiple lines of symbol description, the line spacing will default to 125% of the point size of the text (i.e. 8 point text results in 10 point line spacing). A numeric value of 0 will use the default line spacing distances as listed in Appendix A. A numeric value of 0.0 will use a line spacing distance of 0 (zero). By default, the line spacing distance will be interpreted as points, unless stated otherwise using the SET command *(variable: line_spacing)*.

<indent> - numeric value specifying an indenting distance from left margin of the legend column, measured in picas unless stated otherwise with the SET command *(variable: indent)*.

Notes
- SYMDESC command can only be used when plotting the symbols legend.
- Subsequent SYMDESC command imediately on the next line in the legend text file will automatically indent the text string 1 pica, unless stated otherwise with the SET command
  (variable: symdesc_indent).
- By default, the text string is plotted as 8 point Triumvirate Italic in black
  (CMYK -1 -1 -1 100). These defaults can be changed using the SET command
  (variables: symdesc_size, symdesc_font and symdesc_colour).
- When plotting the symbols portion of the geological legend, a blank line in the legend text file will plot a leader from the end of the text string to the beginning of the symbols. By default, leaders are plotted as a black dashed line. These defaults for leaders can be changed using the SET command
  (variables: leaders, leader_colour, leader_direction, leader_end, leader_gap, leader_indent, leader_interval, leader_offset, leader_pen, leader_size, leader_template and leader_type).

Legend Text File and Plotting Examples

```
SYMBOLS
SYMDESC Description of first symbol

SYMDESC Description of second symbol continuing on second
SYMDESC line that is automatically indented 1 pica

SYMDESC 36 Description using 36 point line spacing
SYMDESC 0 3 Description indented 3 picas using default line spacing

END
```

SYMBOLS

Description of first symbol. . . . .

Description of second symbol continuing on second
   line that is automatically indented 1 pica . . . .

Description using 36 point line spacing
           Description indented 3 picas using default line spacing. . . . .

TEXT <text_string> {line_spacing} {indent}
TEXT <text_string> <CENTER | DASH> {line_spacing}

Plots a single line of text for titles and/or for other uses.

Arguments

<text_string> - text string to plot, enclosed in single quotes if spaces exist. No text is plotted if this argument is blank.

<CENTER | DASH> - keyword to center the text string in the legend column with or without a dashed line on either side.
CENTER - text string will be center justified in column.
DASH - text string will be center justified in column as well as a dash line plotted on either side.

{line_spacing} - numeric value specifying a line spacing distance from a previous plotted legend feature to baseline of the text string, measured in points unless stated otherwise using the SET command *(variable: line_spacing)*. If this argument is skipped or an invalid value is entered, the default line spacing distance from previously plotted legend features as listed in Appendix A will be used.

{indent} - numeric value specifying an indenting distance from the left margin of the column to the starting coordinate of the line, measured in picas unless stated otherwise using the SET command *(variable: indent)*.

Notes
- By default, the text string is plotted as 8 point Triumvirate Italic in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: text_size, text_font and text_colour)*.
- By default, the dashed line is plotted as a 0.010" thick line in black (CMYK -1 -1 -1 100) with a dash and gap of 0.040". The default line symbol can be changed with the SET command *(variable: text_line_symbol)*.
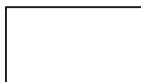
Legend Text File and Plotting Examples

```
AP 'LINESET GSC'
TEXT 'DYKE INTRUSIVE COMPLEXES'
BOX
SET text_font 'Triumvirate Bold'
TEXT 'Intermediate Structural Slices' CENTER
BOX
SET text_size 12
TEXT 'VOLCANIC AND INTRUSIVE ROCKS' DASH 24
END
```

DYKE INTRUSIVE COMPLEXES
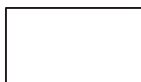
Intermediate Structural Slices

-------------- **VOLCANIC AND INTRUSIVE ROCKS**--------------

TITLE {text_string} {line_spacing} {indent}

Plots a title for the legend.

Arguments

{text_string} -   the text string to plot, enclosed in single quotes if spaces exist. The default text string is 'L E G E N D' if nothing is entered or the argument is skipped.

{line_spacing} - numeric value specifying the line spacing distance either from the origin coordinates of the legend if the title is the first feature to plot, or above the origin coordinates of legend if the title is the last feature to plot. By default the numeric value will be interpreted as points unless stated otherwise with the SET command *(variable: line_spacing)*.

{indent} - distance from origin coordinates of legend to the text string, measured in picas unless stated otherwise with the SET command *(variable: indent)*. If no distance is given, the text string will be centered in the column, or centered above all columns if it is the last feature to plot.

Notes
- If the TITLE command is the first legend feature to plot in the legend text file, the title will be plotted immediately using a default line spacing distance of 12 points from the origin coordinates of the legend. If the TITLE command is entered anywhere else in the legend text file, the title will be plotted when the end of the legend text file or the END command in the legend text file is encountered, using a default line spacing distance of 180% the point size above the origin coordinates of the legend.
- By default, the text string is plotted as 10 point Triumvirate Light in black (CMYK -1 -1 -1 100). These defaults can be changed using the SET command *(variables: title_size, title_font and title_colour)*.

Appendix A

The following table lists the default line spacing between legend features.

Legend Feature to Plot	Previous Plotted Legend Feature										
	Start	Box / Desc[a]	Bracket Bottom	Bracket Top	Break	Heading	Note	Leader Line	Symbol Title	Text	Title
Box	0	0	5 mm	5 mm	20	4	15	n/a	n/a	10	18
Bracket Bottom	n/a	3 mm	n/a	12 mm	3 mm	5 mm	5 mm	5 mm	5 mm	5 mm	n/a
Bracket Top	0	5 mm	3 mm	n/a	3 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm
Break	0	20	5 mm	5 mm	10	15	20	18	24	20	18
Heading	10	20	5 mm	5 mm	20	10	20	24	24	20	24
Note	10	20	5 mm	5 mm	20	15	20	24	24	20	24
Symbol Desc	10	36	5 mm	5 mm	18	18	18	18	24	18	24
Symbol Title	12	36	36	24	36	36	36	n/a	n/a	36	36
Text	10	20	5 mm	5 mm	20	15	20	24	24	20	24
Title	12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

All values are in points unless stated otherwise.
[a] From either the bottom of the unit box or descriptive text, whichever is lower