Picks and Clicks: Dynamic Blocks

This article originally appeared in the December 2010 issue of Professional Surveyor magazine.

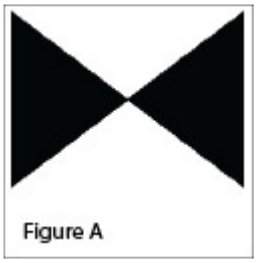
Welcome to the first installment of this new column highlighting favorite AutoDesk, IntelliCAD, and Carlson Software features. My goal is to help you reduce your number of "picks and clicks" while using these pieces of software so you can be more efficient, saving time and money.

Because many of us are hanging onto our current software versions for as long as possible these days, I will try to avoid reviewing features that were released in "last week's" version and will instead write about commands and features that have been around for at least a few years.

First: A little about my background and experience. My first CAD class was with AutoCAD 9 and DCA software as part of my Surveying Technology coursework in college. After graduating, I worked for various consulting, engineering, and surveying companies where I used mostly the Autodesk family of products: AutoCAD, AutoCAD Map, Land Desktop, and Civil Design with brief detours into the MicroStation, GeoPak and Eagle Point worlds.

It was during this time that I started teaching basic CAD and civil/survey CAD classes at local community colleges. I then joined a local Autodesk and Carlson Software reseller to help start and build their training division. In 2004 I stepped out to begin working for myself as That CAD Girl. I offer Carlson Software sales; training and support for Autodesk, Carlson and IntelliCAD; and associated consulting services while specializing in CAD standards development and surface modeling

training. My website is at www.thatcadgirl.com. And my surveying column is now here!


Figure A

Water Valve

(**Figure A**)

One of my favorite, fairly new AutoCAD features is Dynamic Blocks, which was first introduced in AutoCAD 2006. A Dynamic Block is simply a standard block that has been enhanced with additional functionality. You may have seen examples of complex Dynamic Blocks that allow you to change the size (by stretching) or the orientation (by mirroring) only pieces of a block without having to EXPLODE it. But, you can also save many picks and clicks by giving your existing blocks a facelift with some simple Dynamic functionality. Let’s start with a standard symbol

or block that most everyone will already have saved in a block library somewhere: a Water Valve.

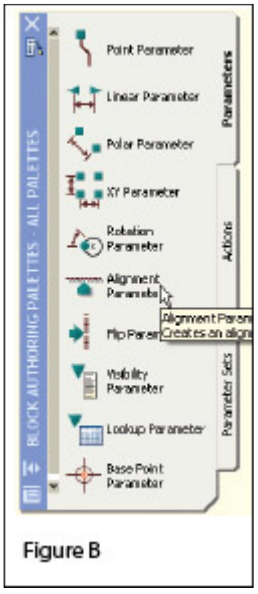


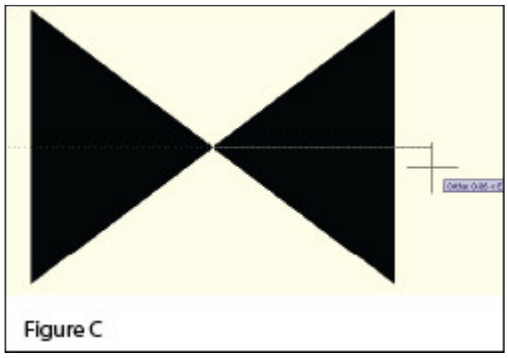
Figure B

To use the standard version of this block in a drawing, we usually have to:

1. Use the INSERT command to bring the block into the drawing.
2. Use a NEArest OSNAP to position the block on a line representing a waterline.
3. Use the ROTATE command with the Reference option to align the block with the line.
4. Whew!

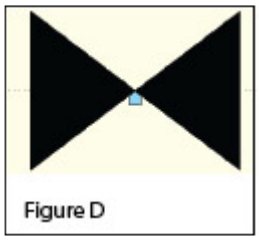
Two minutes (or less) in the Block Editor will eliminate steps 2-4 (**at right.**)

1. Insert the standard Water Valve block into your current drawing.
2. Left-click to select the block.
3. Right-click and open the Block Editor from the shortcut menu.
4. On the “Parameters” tab of the Block Authoring Palette, select the tool to create an Alignment Parameter. [**Figure B**]
5. The Command: line prompts you to, “Specify base point of

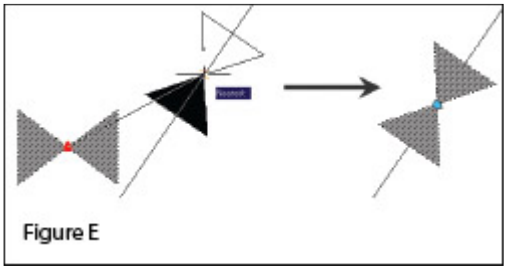

Figure C

alignment or [Name]:". Use your INTersection OSNAP to specify the insertion point for the block.

6. Next, you are prompted to "Specify alignment direction or alignment type [Type] <Type>:". [**Figure C**] Turn Ortho On and pick a point directly to the right of the insertion point.


Figure D

7. When finished, the block with its new Alignment icon will look like this in the Block Editor: [**Figure D**]
8. Pick the Close Block Editor button at the top of the screen and then pick "Yes" when prompted to save the block definition.


Figure E

Using the Dynamic Block

Once you are back in the main drawing screen, the original instance of the block will have been updated.

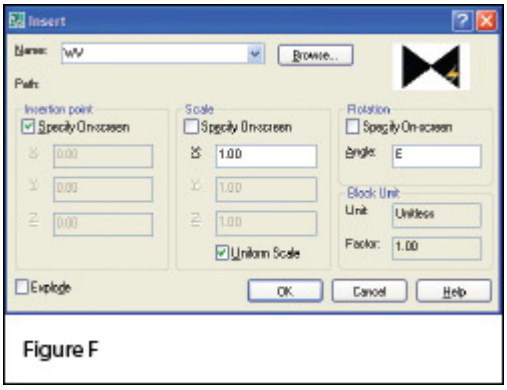
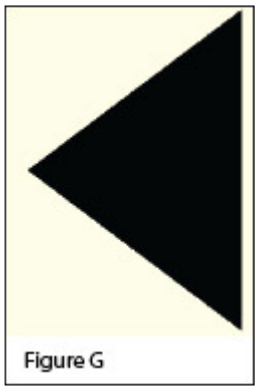
1. Left-click the block to see the new Alignment icon.
2. Left-click on the blue Alignment icon. This allows you to “pick up” the block and move it. [**Figure E**]
3. 

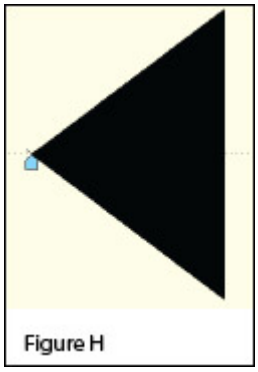
Figure F
Drag the block on top of a line in your drawing that represents a waterline. You will notice that, once your crosshairs are positioned over the line, the block automatically aligns itself to the line, and, in addition, the NEArest OSNAP is enabled allowing you to position and snap the block directly onto the line.
4. Use the Insert command to draw additional copies of the block into the drawing. Notice that the thumbnail image of blocks with Dynamic parameters displays a lightning bolt icon so as to differentiate Dynamic Blocks from standard blocks. [**Figure F**]

Waterline Reducer


Figure G

[**Figure G**]

Another often-used water-utility symbol that can benefit from the addition of Dynamic properties is the waterline Reducer. This symbol is used to indicate a change in the size of a waterline. In addition to an Alignment Parameter, this symbol needs a Flip Parameter that allows us to easily mirror it to change its direction. Unlike an Alignment Parameter, adding a Flip Parameter to a block also requires that you add a second Dynamic Block component called an Action. Giving a block "flip-ability" requires a few more steps, but is still rather easy.

1. Repeat steps 1-7 as described for the Water Valve to insert the "Reducer" block into the drawing and add an Alignment Parameter to it. 
Figure H The Reducer with its Alignment icon is shown at left: [**Figure H**]
2. Turn Ortho On.
3. Pick the Flip Parameter icon on the Block Authoring Palette. [**Figure I**]
4. The Command: line prompts you to "Specify base point of

reflection line or [Name/Label/Description/Palette]:". Use your ENDPoint OSNAP to specify the insertion point for the block (use the same point as for the Alignment Parameter).

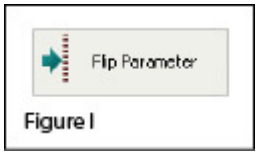
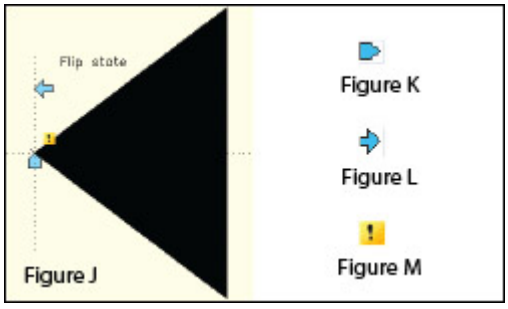
5. The Command: line next prompts you to "Specify endpoint of reflection line:". With Ortho On, pick a point directly above the "Base Point" specified in the previous step. These two points define the "reflection line" for mirroring.
6. You are then prompted to "Specify label location:". Pick a point somewhere just above the 

Figure I
Reducer symbol. The label reads, "Flip state".
7. Use the MOVE command, with Ortho On, to slide the Flip icon above the block.
8. The Reducer [**Figure J**] with its Alignment [**Figure K**] and Flip icons [**Figure L**] are shown at right. A Warning icon [**Figure M**] is also displayed indicating a missing 

Action component.
9. On the "Actions" tab of the Block Authoring Palette, select the tool to create a Flip Action. [**Figure N**]
10. The Command: line prompts you to "Select Parameter:". Select any part of the Flip Parameter including the label, the Flip icon, or the Warning icon.
11. Next, you are prompted to "Specify selection set for action. Select Objects:". Select the Flip icon and all entities that make up the block/symbol.
12. You are then prompted to "Specify action location:". Pick a point somewhere near the "Flip state" label. The label



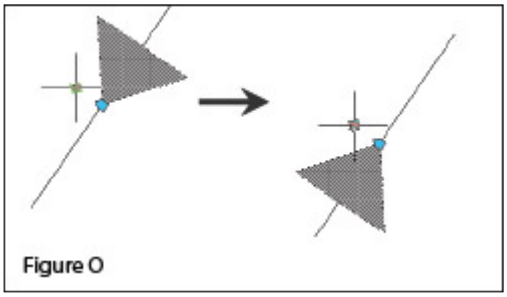
Figure N

has a lightning bolt icon and reads, “Flip”.

13. Pick the Close Block Editor button at the top of the screen and then pick “Yes” when prompted to save the block definition.

Using the Dynamic Block

As before, once you are back in the main drawing screen, the original instance of the block will have been updated.


Figure O

1. Left-click the block to seea the new Alignment and Flip icons.
2. Left-click on the blue Alignment icon to move it onto a line representing a waterline.
3. Left-click on the blue Flip icon to mirror the block along the line.
4. Use the Insert command to draw additional copies of the block into the drawing. [**Figure O**]

Note that the steps change the block definition in the current drawing only. The WBLOCK command must be used to save the block out as an external Drawing (.dwg) file.

This article originally appeared in the December 2010 issue of Professional Surveyor magazine.

Carlson Software – Year-End Specials

As they do every year, Carlson Software has announced their End-of-Year Software specials. If you'd like to purchase or have any questions, please call 919.417.8351 or email ContactUs@thatcadgirl.com.

Software Specials this year:

- » $1,495 for Carlson Survey + Carlson Civil (Retail $3,000)
- » $ 3,495 for Carlson Point Cloud 2011 (Retail $5,000)
- » $ 6,885 Carlson Takeoff 2011 with IntelliCAD or Takeoff T3 with embedded AutoCAD (Retail $9,000)
- » $ 750 Carlson Survey 2011 with IntelliCAD if you provide an active and valid SurvCE serial number.
- » $ 2,625 for Carlson Civil Suite (Retail $3,500)

That CAD Girl & Carlson End of Year Workshops – Wilmington, Raleigh and Statesville, North Carolina

It's that time again! This is our 4th annual series of workshops geared specifically for NC licensed surveying, engineering and construction professionals.

Like in years past, we will have a morning session where an overview of Carlson Software and CAD Tips & Tricks will be presented. Then, for the afternoon session, you will be able to attend two sessions (from a total of 6) on a variety of topics.

This year's **Morning Session** will cover:

- » IntelliCAD Overview, AutoCAD/IntelliCAD Tips & Tricks, Getting Started with CAD Standards
- » Preview of Carlson Software, Data Collection, GPS, Integration with Esri and IntelliCAD

The **first Afternoon Session** provides a choice of 3 topics:

- » **Carlson Fundamentals** – Deed Processing, Working with Points, Field to Finish, Surface Modeling & Site Grading, RoadNet, Hydrology preview, Finding and Using Freely Available GIS Data in North Carolina
- » **Seamless Civil Data Conversion – No Problem!** – This session will show how Carlson's seamless data conversion enables users to go back and forth from Land Desktop, Civil 3D and other software packages. If your concern is in continuing to take good care of your clients and keeping the lines of communication open, you'll see that this is actually no concern at all.
- » **Carlson Point Cloud 2011** – For those who have seen this product in the past, you'll be impressed with all the improvements in 2011. This session will present many of the new & improved routines in Carlson's Point Cloud 2011 including how to clean a cloud to remove cars and other physical features so as to make it smaller and easier to work with, how to get volumes for a stock pile, how to use Carlson Field to Finish for symbols and breaklines from the cloud and how to generate a surface and contours in your CAD file.

The **second Afternoon Session** provides a choice of 3 topics:

- » **Demonstration of Carlson's All-In-One Surveyor+ GPS & Data Collector** – See this office and (weather-permitting) field demonstration of Carlson's new Surveyor+ GPS System. This equipment provides a dual frequency RTK GNSS receiver and field controller and comes loaded with Carlson SurvCE. This system is versatile with Network RTK, Base/Rover RTK and static capabilities. It's also flexible and works with almost every brand of total station and robotic instrumentation. This demonstration will include Carlson's Field to Finish feature.
- » **Collecting Survey Data for Direct Import into Esri** – In this session you will learn how to export a GIS feature/attribute structure from a client's Esri GIS, use SurvCE or SurvPC to collect additional survey-grade data to that schema, and then write it back to ArcGIS in a single seamless workflow.
- » **Carlson 2011 Updates and Advanced Design and Grading** – In this session you will learn many of the new features in Carlson's 2011 product offerings for surface modeling, grading and Hydrology. One of the most exciting features is Carlson's ability to make edits to contours and apply the changes back to the underlying TIN surface file. Updates to Carlson's Civil & Hydrology packages (including design criteria for NCDOT, City of Greensboro and others) will be covered.

The cost for the 1-day workshop is $99. Early bird pricing is available through October 31, 2010 for $89 per person. Lunch will be provided and NC licensed professional surveyors and engineers will receive 8 PDH credits for attending.

Tuesday, Dec 14th in Wilmington NC – Find out more here or click here to register

Wednesday, Dec 15th in Raleigh NC – Find out more here or click here to register

Thursday, Dec 16th in Statesville NC – Find out more here or click here to register

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Civil Suite Pricing to Increase on 9/15/2010

UPDATE As soon as I heard about the Civil Suite price increase (originally set for 9/1/2010), I announced it here because I'd been asked about it so frequently. Now, it appears that the date has been extended to 9/15/2010 for the lower pricing. So, I've updated my advertising where possible. The cutoff date is apparently still in flux… all I can say is to keep checking. I plan to keep $1,995 on Civil Suite at least until Carlson raises their prices and hopefully beyond that.

As expected, Carlson Software has decided to end their "Recovery Special" and take the price of Civil Suite back to its original $3,500. Carlson's price of $2,500 will remain in place only through September 1, 2010 [Now 9/15/2010 – See Above].

As a reminder, prices listed above and on our Carlson Software Pricing page are Carlson's Retail Pricing and do not reflect **discounted pricing** available from That CAD Girl. Additionally, That CAD Girl includes **one-hour FREE online training** with each purchase of Carlson Software.

Carlson 2011 Launch Parties! – Atlanta, Columbia & Richmond

With the expected release of Carlson 2011 products in September, come join us for a day-long workshop presenting the newest features of Carlson Survey, Civil, Hydrology, GIS and Point Clouds. We will also spend time in the afternoon demonstrating Carlson's new Surveyor+ RTK GPS System with SurvCE data collection.

The price for the session is only $25 – this includes lunch and your entry for several door prizes.

Tuesday, Oct 5th in Atlanta GA – Find out more here or click here to register

Wednesday, Oct 6th in Columbia SC – Find out more here or click here to register

Thursday, Oct 7th in Richmond VA – Find out more here or click here to register

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That CAD Girl – June 2010 Newsletter

Our June 2010 Newsletter can be downloaded HERE

2 Day, Hands On Training Classes: $249-$349

All classes listed below will be held at the Hampton Inn on Hampton Woods Lane in Raleigh, NC. Lunch will be provided and NC licensed Land Surveyors and Engineers will receive PDH credit hours for attending. A certificate will be provided to everyone completing the training and may be used for PDH credit in other states.

Registration for all classes is limited to 10 people – please call us at 919.417.8351 to register.

Intro to Carlson with a CAD Refresher, $249 July 12-13, 2010

This class will focus on the basics of Carlson Software along with a review of some IntelliCAD and AutoCAD features that will assist you when working with Carlson Software. Please click here for pre-requisites and more details or download a PDF with agenda and directions here.

Surface Modeling with Carlson Software, $249 July 26-27 or Aug 23-24, 2010

This class will start with an introductory lesson on existing ground surface modeling and will then move to proposed surface modeling techniques including modeling for site and subdivision design, ponds, retaining walls and multi-level building pads. Please click here for pre-requisites and more details or download a PDF with agenda and directions for July 26-27 or Aug 23-24 here.

My Field to Finish, $349 Aug 16-17, 2010

This class will provide an overview of Carlson's Field to Finish feature and will provide each attendee with time to create a standard field to finish code file (.fld file) to be used in his or her office. We will also cover the creation of block libraries and custom linetypes that can be assigned to field codes. In order to ensure that each attendee is prepared for and brings the content needed for the class, a one hour pre-training session will be held online approximately 2-3 weeks before the class. Please click here for pre-requisites and more details or download a PDF with agenda and directions here.

My Company Standards, $349 Sept 20-21, 2010

This class provides training and guidance to help you create a comprehensive CAD standard for your company. We will cover standard layers, linetypes, pen weights, text styles, blocks and title blocks. A more detailed list and description of needed content will be provided after registration. In order to ensure that each attendee is prepared for and brings the content needed for the class, a one hour pre-training session will be held online approximately 2-3 weeks before the class. Please click here for pre-requisites and more details or download a PDF with agenda and directions here.

What is Carlson up to?

This is a good article about Bruce Carlson and where Carlson Software is planning to go in the future…

Independence All the Way

Originally posted on **Carlson Connection** by Jennifer Dibona

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Carlson Point Cloud

It’s time to take another look at Carlson Point Cloud.

Carlson’s Point Cloud program has been re-vamped with many powerful and exciting new features giving those folks struggling to process data generated from laser scanners the ability to process up to 1 billion points.

Carlson Point Cloud is even more valuable to land surveying, civil engineering and mining professionals because of its seamless integration with Carlson Survey, Carlson Civil and Carlson Mining.

With the new and improved Point Cloud program, your scan can be oriented to a local coordinate system and clouds can be “cleaned” to filter and thin out duplicate points. You also have the ability to snap to edges and code points for use with the Field to Finish feature of Carlson Survey. This allows you to define more accurate breaklines and create better surface models for generating contours, profiles & cross sections in Carlson Civil.

Read more about Point Cloud by clicking here. There are also several new 5 minute videos demonstrating the functionality of this program available here.

See key features of Carlson Point Cloud 2010

Originally posted on **Carlson Connection** by Jennifer Dibona

Carlson Software Manuals

Looking for Carlson Software manuals? Prior to the 2010 release, Carlson included printed manuals with your purchase and, in addition, the manuals have always been available to print for yourself from the Help files.

With the 2010 release, Carlson “opened” a storefront on the self-publishing site called Lulu.com. You can order 2009 and 2010 Carlson Software manuals here http://stores.lulu.com/carlsonsw.

Originally posted on **Carlson Connection** by Jennifer Dibona