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PTC Product Focus

Create Technical Illustrations Faster with Arbortext IsoDraw

The Problem

An often-neglected aspect of product development is the area of technical illustrations. Think about the last time you assembled a bicycle, for example. Chances are, when you tried to follow the assembly instructions, you noticed one or more of the following:

- The parts shown in the illustrations did not represent the actual parts for the model or version of the product you were working on
- The illustrations lacked sufficient detail
- The illustrations were obviously derived from a CAD model and contained too much detail in terms of extra entities such as surface tangency lines
- The quality of the illustrations was poor
- Photographs were used, but were difficult to understand because they contained too much extraneous detail
- Photographs were used, but did not represent the model or version of the actual product you were working on.

As a result, even if the product itself was top-quality, your experience with the technical documentation probably gave you a somewhat lower impression of the product and maybe even caused you some frustration.

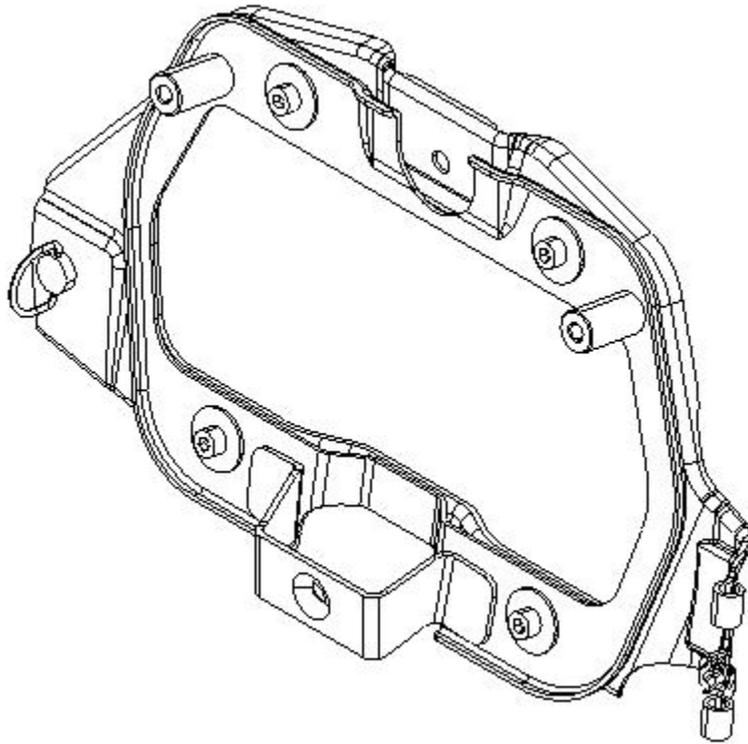


Figure 1: Example of an illustration created from a CAD assembly. In order to improve the quality and clarity by removing unwanted entities, adding line weight effects, and adding non-CAD details, significant work using another software tool would be required.

The Causes

What are the causes of this problem? Traditionally, every step of creating a technical illustration is a very manual and time-consuming process. Often, technical illustrations can be created only after a product has been fully designed, and perhaps only after it has been built. CAD models might be used to make the illustrations, but this often places a burden on the engineer or designer to prepare the proper views of the CAD models. Clean-up of the resulting line art (to remove unwanted lines and add effects) either involves a specialty software program such as Adobe Illustrator, or it is neglected altogether. Any parts or details that were not modeled in CAD must somehow be added, and unnecessary details must somehow be taken out. If the design changes, the documentation is either delayed or is released as is because the illustrations take too long to update. Also, when illustrations are few in number because they are too difficult to create, more text must be used to convey the message which in turn drives up translation costs for creating the documentation.

The Solution

How can your company avoid the problems listed above? PTC's Arbortext IsoDraw is the tool of choice for creating high-quality, accurate technical illustrations for your assembly instructions, parts catalogs, work instructions, and service manuals for both printed and electronic delivery.

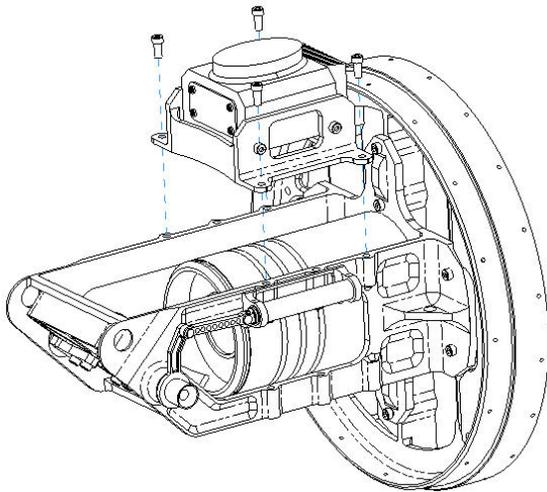


Figure 2: Illustration created in Pro/ENGINEER. Not bad, but it is cluttered by unnecessary line detail – and how to add extra information such as tools or callouts?

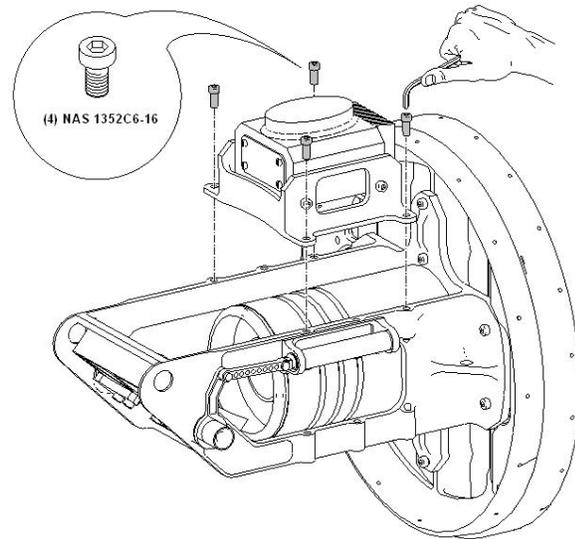


Figure 3: Illustration created in IsoDraw with associative link to Pro/ENGINEER assembly. Note the clarity and addition of non-CAD details.

Capabilities

- Drawing from scratch on an isometric grid
- Reuse and repurposing of 2D data
- Photo tracing
- Raster editing
- Hotspot creation / intelligent graphics
- Data exchange for 2D vector and raster images
- Industry-leading authoring tool for CGM files; CGM4 output
- S1000D compliance
- Provides illustrators with easy access to 3D CAD data; associative link is maintained to CAD data
- Extensive 3D manipulation functions for CAD models: explode, spin, cutaway, etc.
- Automatic hidden line removal for 3D CAD data and optimization to high-quality 2D technical illustration
- 2D and 3D animation capability
- Integration with Arbortext Editor for a complete technical publications solution

Benefits

- Faster time-to-market
- Eliminate process redundancies
- Eliminate the burden on engineering
- One tool for all illustration tasks
- Reduce or eliminate dependence on Engineering for CAD preparation
- Minimize or eliminate reworking illustrations for design changes
- Improve customer satisfaction
- Higher quality illustrations
- Eliminate illustration outsourcing costs
- Lower localization costs, improve readability of documents

To find out more about PTC's [Arbortext IsoDraw](#) visit our website.

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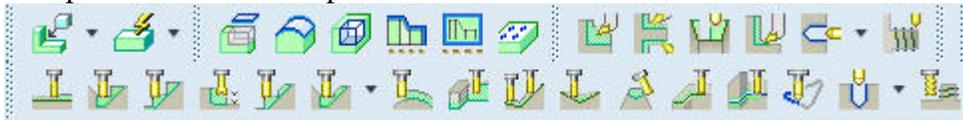
Tips of the Month

Grab Bag of Helpful Tips for Pro/NC, Pro/ENGINEER's Integrated CAM

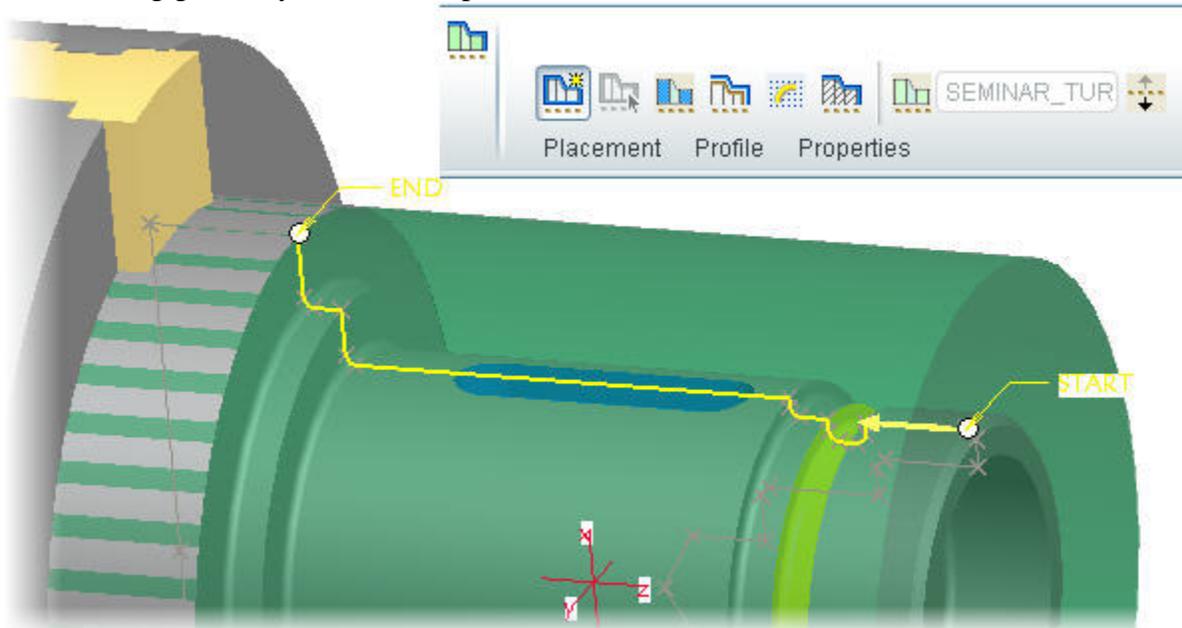
Pro/NC offers a full solution for the creation of all types of programs for CNC machines used in production environments, including 2.5 to 5-axis mills, 2 to 4-axis lathes, n-axis multitasking lathes with live tooling, wire EDM, punch presses, and lasers. The following random tips (in no particular order) can help you create programs even faster.

Tip #1: Update to Pro/ENGINEER Wildfire 5.0

Why move to Wildfire 5.0? In addition to new functionality and tool path routines, the Wildfire 5.0 Pro/NC interface was significantly modernized to provide a much more streamlined approach to NC model definition and tool path creation. For example, the top level of menus has been removed and replaced with modern pull-downs and icons.



Manufacturing geometry such as turn profiles is much easier and faster to create.



The Process Manager in Wildfire 5.0 directly supports more NC sequence types, including profile milling, area and profile turning, and groove turning. This means that these sequences can now be captured as templates and included in manufacturing annotations for even faster NC sequence creation using the Process Manager.

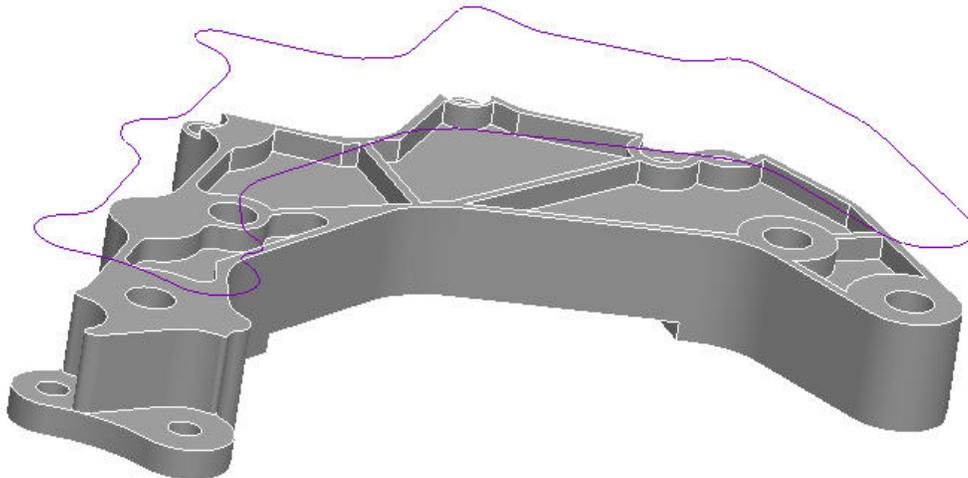
These and other enhancements and updates make the move to Wildfire 5.0 worth considering.

Tip #2: Use a manufacturing start part

The fastest way to begin a new job is to use a manufacturing start part. A manufacturing start part contains predefined settings. For example: cutting tools, workcells, site files, PPRINT settings, operations, and fixture setups – even process documentation in the form of an associative drawing. A previous newsletter http://www.ptc.com/carezone/archive/newsletters/040108_d.pdf contains a nice explanation of how to create start parts.

Tip #3: Use mill windows

Still using mill volumes? Mill windows are the fastest and most robust way to collect geometry for creating volume milling and face milling sequences. In fact, for roughing, re-roughing, corner finishing, and finishing sequences, mill windows are the only way to collect the geometry. Mill windows allow for faster geometry collection, easier referencing for use in other models (via templates) and more robust updates when the underlying part geometry changes. Mill windows are: faster to create, more flexible, faster to regenerate, used in more types of sequences, and can do almost anything that mill volumes can do.



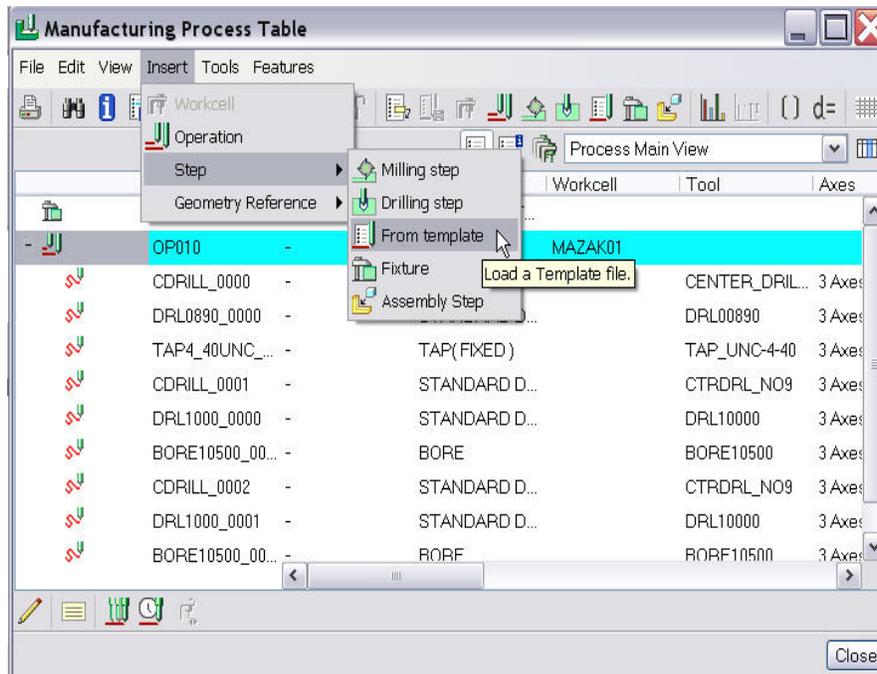
Tip #4: Reuse existing tool paths

There are more ways to reuse existing NC sequences than can be described here, so it will suffice to mention three.

First of all, if you want to quickly reuse one or more NC sequences in the same model, select the NC sequence(s) and pick Edit > Copy then Edit > Paste. You will be prompted for each of the required references (coordinate systems, surfaces, mill windows, etc.) and voila! the NC sequence is created and may be redefined if desired.

Second, manufacturing user-defined sequences (MUDF's) provide a great way to copy manufacturing features into other models. MUDF's can create any number of features, including datums, manufacturing geometry such as mill windows or turn profiles, and NC sequences. Common applications for MUDF's include holmaking (especially autodrilling), pocket roughing and finishing, and lathe programming.

A third way to capture and reuse NC sequences is by creating templates in the NC Process Manager. This is a very fast and powerful way to create programs very quickly, especially when used in conjunction with the `mfg_auto_ref_mfg_template config.pro` option.



All of these techniques can be explored further in the PTC Support Knowledge Base, the Pro/ENGINEER help documentation, and the Tech Tips webcasts (see Tip #6 below).

Tip #5: Use the correct post processor

Ideally, you should be able to create a program in Pro/NC, post process it, and send it straight to the CNC machine without ever needing to manually tweak the codes.

PTC offers around two hundred post processors for free download from our website, but while most of them are in use by someone, somewhere, that does not guarantee that they will provide you with the output that your machines (or your operators!) require. The posts may need some editing, or perhaps you will need a completely new post. To that end, every seat of Pro/NC comes with the ability to create and edit NC post processors (Applications > NC Post Processor).

However, many programmers do not have the skills to customize a post processor and did not get lucky with one of the free downloads. Too often they settle for code that is “close enough” – which typically means that every program must be manually edited to contain the correct syntax. The time spent doing this really adds up! If you belong to that not-so-elite group of G-code-by-keyboard editors, then you may want to consider purchasing a guaranteed post processor from PTC, one of our value-added resellers, or Austin NC (the makers of NC-GPOST, <http://austinnc.com/>). Contact your PTC rep, VAR, or Austin NC for details, and never touch the G-code again.

Tip #6: Attend the Tech Tips Webcasts

Are you aware that PTC offers a large selection of free, live, online “Tech Tips” sessions on a regular basis? You may not be aware that a sizeable percentage of these are manufacturing-related. These sessions go into depth on many useful topics to help you get the most out of your Pro/NC investment. Visit <http://www.ptc.com/products/tutorials/index.htm> and take a look at the calendar. Can’t make a live webcast? There are a number of recordings also available through that same web page.

Happy machining!

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Announcements

PTC Tips & Techniques Newsletter Archives

Did you miss an issue? Can't find that awesome technique you read about? Fear not, you can click on the link below and go through our Customer PTC E-Newsletter archives.

[Customer Care Zone](#)

PTC Tips & Techniques Webcasts: Work Smarter. Not Harder.

Click below to see regularly scheduled Tips & Techniques technical Webcasts that are designed to provide you with the most popular time-saving tricks that Pro/ENGINEER users of all skill levels will find useful. Get more out of your maintenance dollars!

[Tips & Techniques: Work Smarter Not Harder!](#)

Special Hardware offers for PTC Customers

- <http://www.hp.com/go/ptc>
- <http://www.hp.com/go/ptcworkstation>

PTC Sponsored Events

- <http://www.ptc.com/company/news/events/index.htm>

Explore what is new with the Pro/ENGINEER Wildfire family!

<http://www.ptc.com/go/showcase>

Connect with PTC using the latest Social Networking resources:

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[You Tube](#)

Also visit <http://social-product-development.blogspot.com/>

E-PROFILES IS HERE!!

We have been eagerly anticipating the debut of the new electronic version of Profiles Magazine and now it is here! This new web site will supplement the print edition of the magazine and will provide new useful features not feasible with paper media. e-Profiles will provide you with 24x7, worldwide access to key information previously available exclusively in the print version. "Tips & Tricks," a popular feature pioneered by Pro/USER, has also moved to the web and will be expanded as the site matures.

Please take a few minutes to check out this new web site. We don't think you will be disappointed.

<http://profilesmagazine.com/>



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Upcoming Events & Training Class Schedules

Upcoming, 2009 Your local Pro/Engineer User Groups
<http://www.ptcuser.org/rugs/>

June 6 – 9, 2010 Orlando, FL USA
PTC/USER World Event
<http://www.ptcuser.org/>

Events

Our seminars and conferences seek to provide you with relevant information regarding product development trends in your industry as well as innovative software learning experiences. Think of them as a constructive day off where you can share experiences and swap ideas with your peers.

If you can't manage to get away, we'll bring it to you. Check back often for regularly scheduled live webcast events.

[You're Invited to Attend...](#)

Please visit the [PTC Education Services](#) website for the latest training information including course descriptions, schedules, locations, and pricing.

- Attend a course at any PTC Center and receive a **free** copy of Pro/ENGINEER Wildfire Student Edition!

<http://www.ptc.com/services/edserv/index.htm>

Live Instructor-Lead Virtual PTC Training Courses

Virtual Classrooms provide interactive learning with a trained PTC instructor in convenient and manageable sessions that last approximately 4 hours over a series of days. It's easy to join a class right from your desk using a phone or voice-over IP technology.

Sessions are performed just like a traditional ILT (including interactive exercises where you and the instructor can work on lab exercises together) and feature some of our most popular ILT courses. These sessions cover the exact same material as the traditional ILT in-center courses. Also look for some of our most frequently requested mini-topics delivered in the same format that are only an hour - two hours in duration.

If you have any questions about these sessions or would like to see getting other courses, not on this list, on the schedule please feel free to contact me for more details. They are a great way to bring training to you without you having to worry about location or being out from work for long stretches.

You can register for these sessions just as you would for any normal ILT class either by:

1. calling order admin at <http://www.ptc.com/services/edserv/training/registra.htm> or
2. you can go to PTC University directly at <http://www.ptc.com/learning> and submit a registration request directly. All you have to do is search the catalog by typing in “virtual” in the search field and you will see a listing.

PTC

Note: This PTC E-Newsletter will continue to be used for the following:

- 1) Inform you on events related to PTC products (user groups, conferences, training schedules, etc.)
- 2) Educate you on solutions that are available at PTC
- 3) Tips & Techniques using PTC Products

Note: These messages are compiled in the local PTC office and will be distributed via e-mail.

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