WAMORE, INC.

Taking airdrop assembly instructions to a new level with SolidWorks Composer

With SolidWorks Composer technical communication software, Wamore has automated the development of assembly instructions for its products, which ensure the intact delivery of airdropped payloads of up to 42,000 pounds.

Delivering payloads of up to 42,000 pounds from cargo aircraft to the ground via parachute can be a risky proposition. Ensuring that airdropped payloads arrive intact and on-target requires the expertise of a manufacturer like Wamore, Inc. The Arizona company's products support the US military in active combat theaters and range from Air Guidance Units (AGUs) and inertia reels to parachute release systems and soft landing airbags.

While Wamore has benefited from using SolidWorks® design, simulation, and product data management (PDM) solutions for several years, providing assembly instructions for its autonomous, robotic-controlled airdrop systems presented challenges, according to CAD Specialist Mark Gerhart. "We used to struggle with creating assembly instructions," Gerhart recalls. "Basically, we had to take photographs of a unit during assembly, and then include the photos in documents with written descriptions of how to assemble the product for use on the shop floor."

Although this approach to producing assembly instructions worked for Wamore, it was inefficient, problematic, and far from ideal. "There were several issues that needed to be addressed," Gerhart explains. "First, any design change to our products required a complete redo of the instructions and necessitated additional photography. We also had to wait until production reached a certain stage to shoot photos, which created delays. Lastly, the photos were not always clear or detailed enough, or our production staff didn't understand the written descriptions, prompting a slew of questions for our designers and engineers."

To solve these problems, the company began looking for solutions that linked the creation of assembly instructions to the actual solid model. "This was on my radar for quite a while," Gerhart stresses. "When I heard about SolidWorks Composer software, I said to myself, 'We just have to have it in order to more efficiently document the assembly of our products.'"

Challenge:
Create easier-to-understand airdrop system assembly instructions more efficiently and without having to wait for the appropriate production phase to capture photographic images.

Solution:
Implement SolidWorks Composer technical communication software to automate the development of assembly instructions as part of the design process.

Results:
- Shortened assembly instructions development time by 85 percent
- Improved informational quality of assembly instructions
- Updated assembly instructions automatically with design changes
- Reduced assembly questions on shop floor substantially

Click here to view animated product assembly created in SolidWorks Composer.

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Wamore acquired SolidWorks Composer technical communication software to improve its assembly documentation function. "We may design products in the virtual world, but we never leave the real world in terms of refining our designs," Gerhart notes. "With SolidWorks Composer software, I can rest assured that when I modify my SolidWorks model, that update automatically applies to all of the associated documentation as well."

Up-to-date instructions in a fraction of the time

The latest model of Wamore's 2000-pound AGU was the first project for which the company used SolidWorks Composer software to produce assembly instructions. "What conservatively used to be a two-week process was done in a day and a half," Gerhart says. "It was much easier to create work instructions for the shop floor, and I had much more flexibility in terms of not having to wait on a particular production phase. With SolidWorks Composer, I can do what I want to do when I want to do it."

Because Wamore also uses SolidWorks Enterprise PDM software, handling design changes and assembly updates was quick and painless. "The thing that I love about SolidWorks Composer is that I can incorporate a lot of input and easily update the documentation," Gerhart points out. "I go into SolidWorks Enterprise PDM, update the files and links, and I'm done."

Better quality means fewer questions

Wamore not only saved time by using SolidWorks Composer to create assembly instructions for its 2000-pound AGU, but also dramatically improved the quality of the documentation, resulting in substantially fewer questions from the shop floor.

"With SolidWorks Composer, the written description is almost redundant because the image is so information-rich," Gerhart says. "Our production staff can get information on part numbers, thread lockers, torque values, and tools from the SolidWorks Composer image itself, without having to read the description. This minimizes situations in which production personnel have to come in and have me open up the model because they can't understand the instructions."

Showing customers how to use equipment in the field

Wamore also uses SolidWorks Composer software to communicate more effectively with customers. By making product animations, videos, and technical documentation accessible via the web and handheld digital devices, Wamore is helping its customers access up-to-date information from remote battlefield locations and improve their operational readiness.

"We've used SolidWorks Composer to create video clips on how to use our Talon parachute release system, which we've demonstrated to customers during web meetings," Gerhart says. "We see great potential for using the software to improve the effectiveness of our customer communications and for making SolidWorks Composer-authored content available via smartphones and tablets anywhere in the world. We're only beginning to tap the power of SolidWorks Composer."
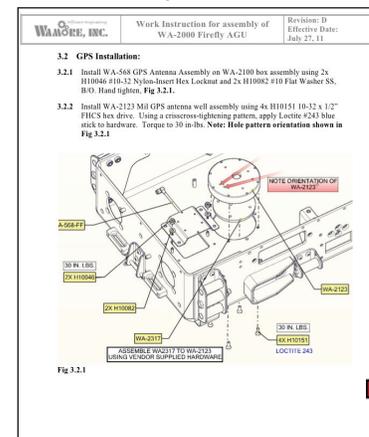
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Mark Gerhart
CAD Specialist

Assembly instructions before SolidWorks Composer

Assembly instructions after SolidWorks Composer

SolidWorks Composer software has enabled Wamore to replace assembly instructions that relied on unwieldy photographic images (top) with easy-to-understand, step-by-step instructions (bottom) that are developed in 85 percent less time.

Wamore, Inc.
22601 N 17th Ave, Suite 170
Phoenix, AZ 85027 USA
Phone: +1 623 582 8448
www.wamore.com
VAR: Digital Dimensions, Inc.,
Phoenix, AZ, USA

Dassault Systèmes
SolidWorks Corporation
175 Wyman Street
Waltham, MA 02451 USA
Phone: 1 800 693 9000
Outside the US: +1 781 810 5011
Email: generalinfo@solidworks.com
www.solidworks.com

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