



Facts and figures

KAMAZ Group of Companies is in the top twenty world's leading manufacturers of heavy duty trucks. More than 2 million vehicles have been made since 1976 when the first truck rolled off the production line. The company commands more than 50% of Russian heavy duty truck market share. In the KAMAZ divisions and subsidiaries work about 40000 employees.

The challenge

Paper maintenance documentation production and update process is highly time-consuming and labor-intensive.

New tools are required to greatly enhance documentation quality, speed time to market and reduce update time.

Solution: Cortona3D software

RapidAuthor S
Teamcenter Connector
Rapid Developer

Results

The time required to create maintenance documentation for new models decreases by 40%.

The update time for maintenance and repair documentation decreases by 90%.

Maintenance and repair documentation is in compliance with engineering data.

KAMAZ Group of Companies has implemented Cortona3D solutions for creating 3D interactive maintenance documentation

- Reduction of time for creating and updating documentation
- Revolutionary new way of representing product parts information
- Data consistency

KAMAZ Group of Companies is the largest automotive corporation in Russia. The integrated manufacturing complex covers the full technological cycle of truck production – from design, manufacturing, assembly of vehicles and auto parts to sales and service maintenance.

Modern automotive companies get a growing part of their profit from service, and the customers' demands for after-sales support are increasing. KAMAZ puts a great emphasis on updating its dealer network, developing after-sales services and improving maintenance documentation.

KAMAZ scientific and technical center researched many software products for creating maintenance documentation. The center selected Cortona3D solution as it can be fully embedded in the development process of all kinds of product documentation. This becomes possible due to Cortona3D integration with Teamcenter® PLM software, which was earlier implemented at KAMAZ. Combining data from design, technology and maintenance documentation allows for creating relevant documentation that corresponds to vehicle design and actual structure.



Implementation of Cortona3D Solutions

Parts catalogs development

Implementation of Cortona3D software started with parts catalogs as they are considered the most important type of maintenance documentation. Parts catalog for KAMAZ-5308 was developed within a pilot project and full-scale implementation of Cortona3D software was launched afterwards. Within a month, a group of experts from technical documentation design department was trained to work with the new software.

The following RapidAuthor modules are used to create parts catalogs:

RapidCatalog is a tool for production of 2D/3D parts catalogs. It provides an integrated environment to edit graphics and DPL tables.

Cortona2D Editor Pro is a professional CGM editor. It enables users to edit product images automatically generated in RapidAuthor and 2D images created with the help of external software products.

RapidDeveloper is a complementary product to Cortona3D RapidAuthor. It enables creating technical documentation taking into account particular CAD and PDM data structure and company requirements for documentation layout and content. RapidDeveloper provides the possibility to customize data import process along with the functionality and layout of the output documentation.

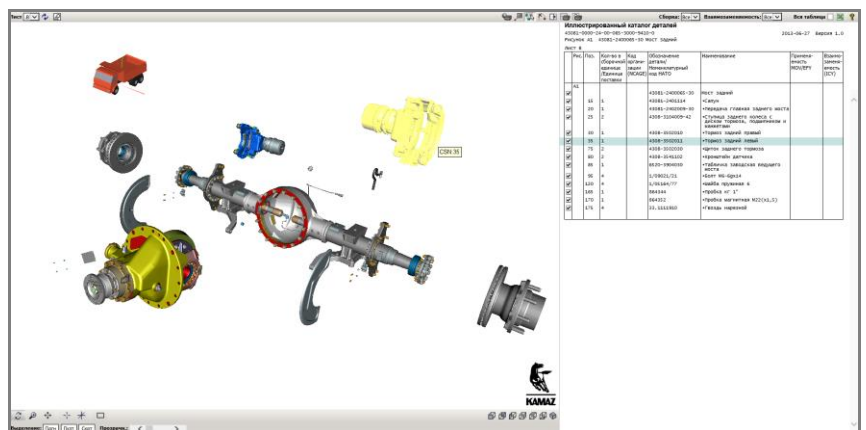
Documentation creation process

Digital layout technology, 3D modelling and Teamcenter update process were introduced at KAMAZ earlier, when NX™ software and Teamcenter PLM solutions were implemented. An integrated design and manufacturing process was established then, and Cortona3D solutions have contributed to this process. RapidAuthor imports existing design data and matches the bill of materials with CAD data. 3D exploded views are created with the help of intuitive Explode Wizard. 2D images and callouts are generated automatically. Final document can be stored as an interactive 3D/2D web document or as a printable 2D PDF file.

In the past, considerable time was spent creating layout for final documents and to updating paper documentation. The update process is much faster now with 3D modelling and Cortona3D solutions implemented at KAMAZ.

Flexible approach to creating documentation for different generations models

RapidAuthor is also used to create maintenance documentation for previous generations vehicle models that were designed in 2D. Existing 2D graphics is modified with the help of Cortona2D Editor Pro, one of the RapidAuthor components. The full range of RapidAuthor features is used to create documentation for newer vehicle models designed in 3D.



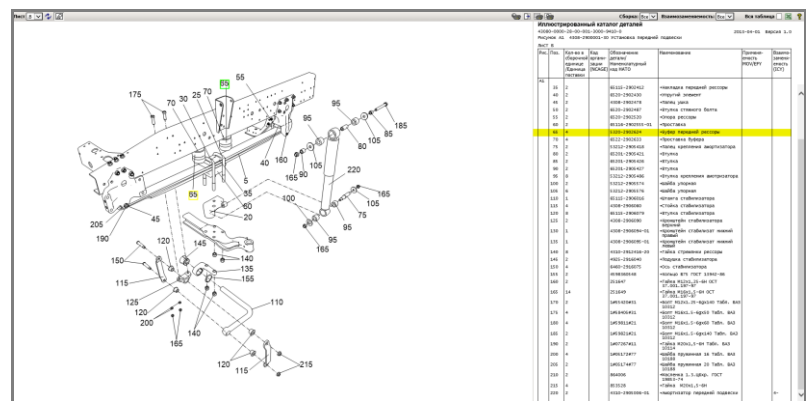
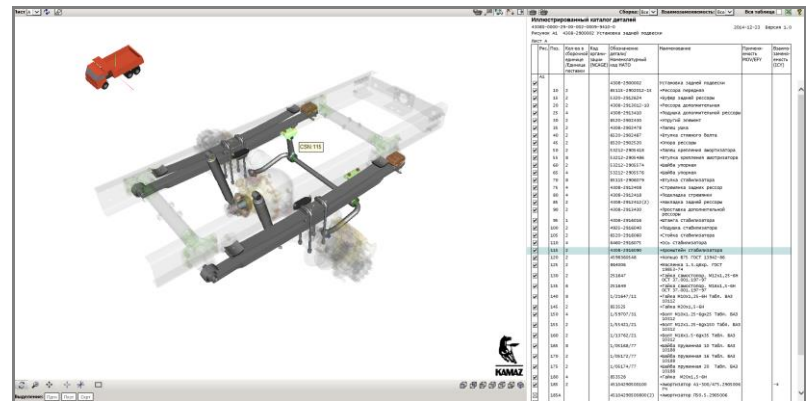
Results and Prospects

Since 2015, all parts catalogs for KAMAZ products have been created with RapidAuthor. 3D catalogs are available at the KAMAZ digital maintenance documentation portal for dealers. There are a lot of positive reviews of the new documentation. Previously, service center employee had to master very specific skills to work with traditional parts catalogs, as most of 2D illustrations were adapted engineering drawings. 3D catalogs are more intuitive and enable easy comparison of 3D model parts with actual parts to be replaced.

The time required to create technical documentation for new models designed in modern CAD and PLM systems has decreased by 40%. Update time has decreased by 90%. Outdated information is unlikely to occur in the maintenance documents due to the link with existing CAD/BOM data.

Cortona3D technology for creating interactive 3D procedures for maintenance operations and descriptive data modules is being tested now. It is also planned to enable dealers to use 3D catalogs and procedures on mobile devices, user requirements are being gathered and analyzed at the moment.

‘We have a qualitative change in the new way we provide information about maintenance and repairing of KAMAZ products, their structures and spare parts. Positive reviews show we are going in the right direction’, says Irek Gumerov, Deputy General Director and Development Director at KAMAZ.



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Cortona3D Software

RapidAuthor suite developed by Cortona3D gives the flexibility to produce the full range of technical support documentation. RapidAuthor contains the following authoring components:

RapidCatalog – for illustrated parts catalogs,

RapidManual – for maintenance manuals,

RapidLearning – for training materials,

RapidWorkInstruction – for work instructions.

RapidAuthor enables users to create documentation that requires the installation of additional browser plug-ins (Cortona3D Viewer and Cortona2D Viewer) and plugin-free documentation as well. Documentation can be viewed on computers with Windows, Mac OS X and mobile devices.

Cortona3D solutions allow for creating documentation in compliance with international standards such as S1000D, ATA, DITA, and SCORM.

About Cortona3D

Cortona3D provides innovative 3D visual software for creating interactive digital technical documentation that enables users to get three times faster production, 60% cost savings and improved quality of documentation. Customers include Boeing, Airbus, ESA, Irkut Corporation, Sukhoi Aviation Holding Company, Tractor Plants Concern, Perm Engine Company, Mil Moscow Helicopter Plant. Cortona3D is a Siemens PLM technology partner.

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