

WE TURN ENGINEERING DATA INTO INNOVATIVE DOCUMENTATION

Authoring Technical Documentation

Introduction to RapidAuthor for Teamcenter



157-196 Nm

Why RapidAuthor?



- A single solution for animated 3D, AR and PDF
- Use existing design data and documents
- Automate authoring process
- Publish to open standards for all platforms
- Publish superior future proof 3D documentation
- Full integration with Teamcenter



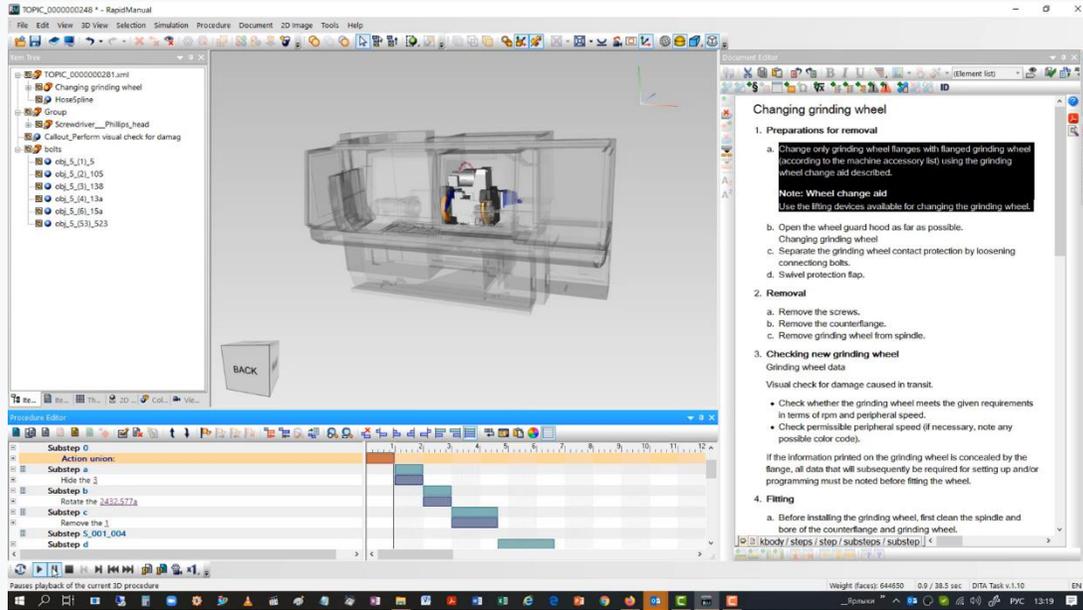
What we do

- Manuals & Work Instructions
- Parts catalogs
- Training courses

Reuse & Enrich

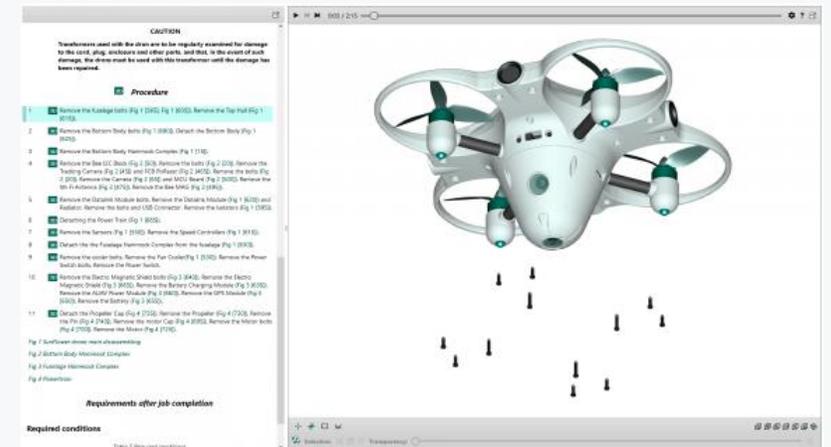
Based on CAD, the RapidAuthor tools suite semi-automatically turns engineering and manufacturing data into innovative

- Maintenance and Repair Manuals
- Parts Catalogs
- Trainings
- Other kinds of Technical Documentation

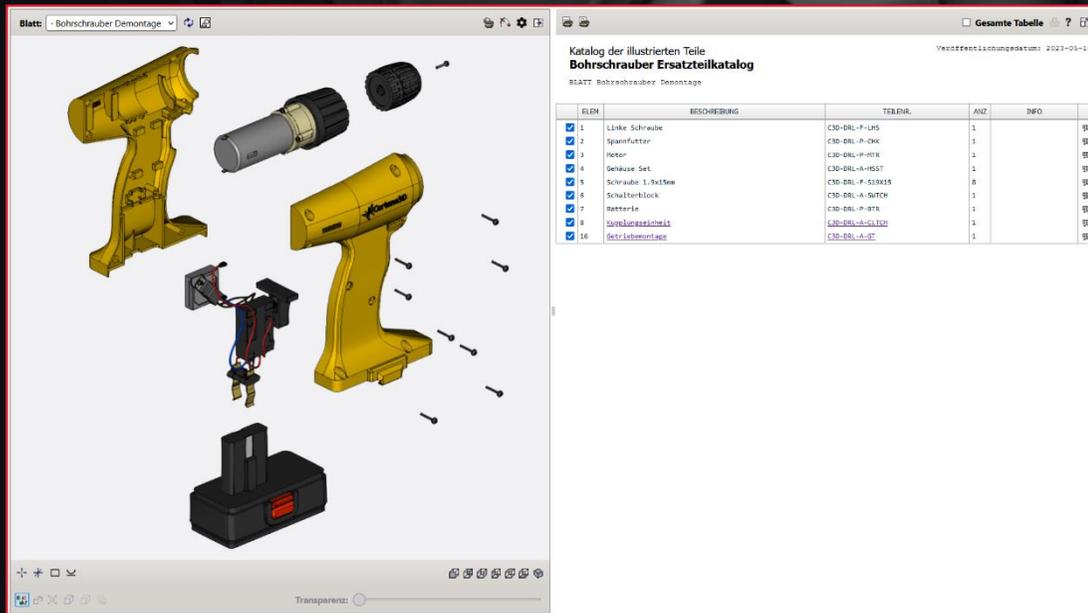


Save time in the creation as well as the usage of technical documentation:

Text and 2D/3D illustrations are generated, and documentation produced with RapidAuthor improves on traditional PDF documentation by providing interactivity.



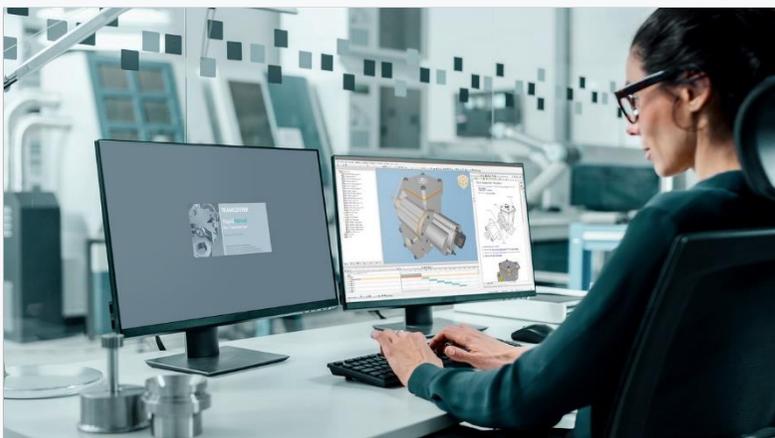
EXAMPLES OF INTERACTIVE PUBLICATIONS



- [Drill Parts Catalog](#)
- [Wheelchair Assembly Procedure](#)
- [Elevator assembly Work Instruction](#)
- [Motorcycle Composite Publication](#)
- [Rear Drive Unit Work Instruction](#)
- [Compressor Reservoir Removal](#)
- [Lean Technic](#)

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Flexible and Updatable



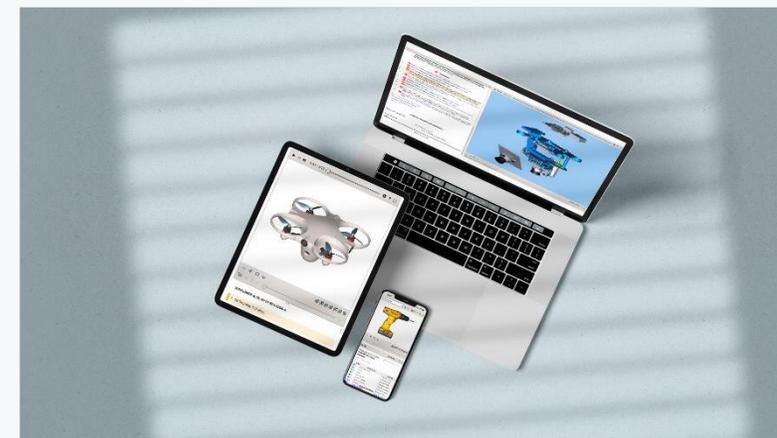
Source Data

More than 30 CAD formats, BOM/BOP meta-data and other existing xml texts, vector and raster illustrations are used by RapidAuthor as a source data



Tech Docs development

RapidAuthor is a full featured suite of tools for generation of Manuals, Parts Catalogs, Work Instructions, 2D illustrations, e-Learning courses

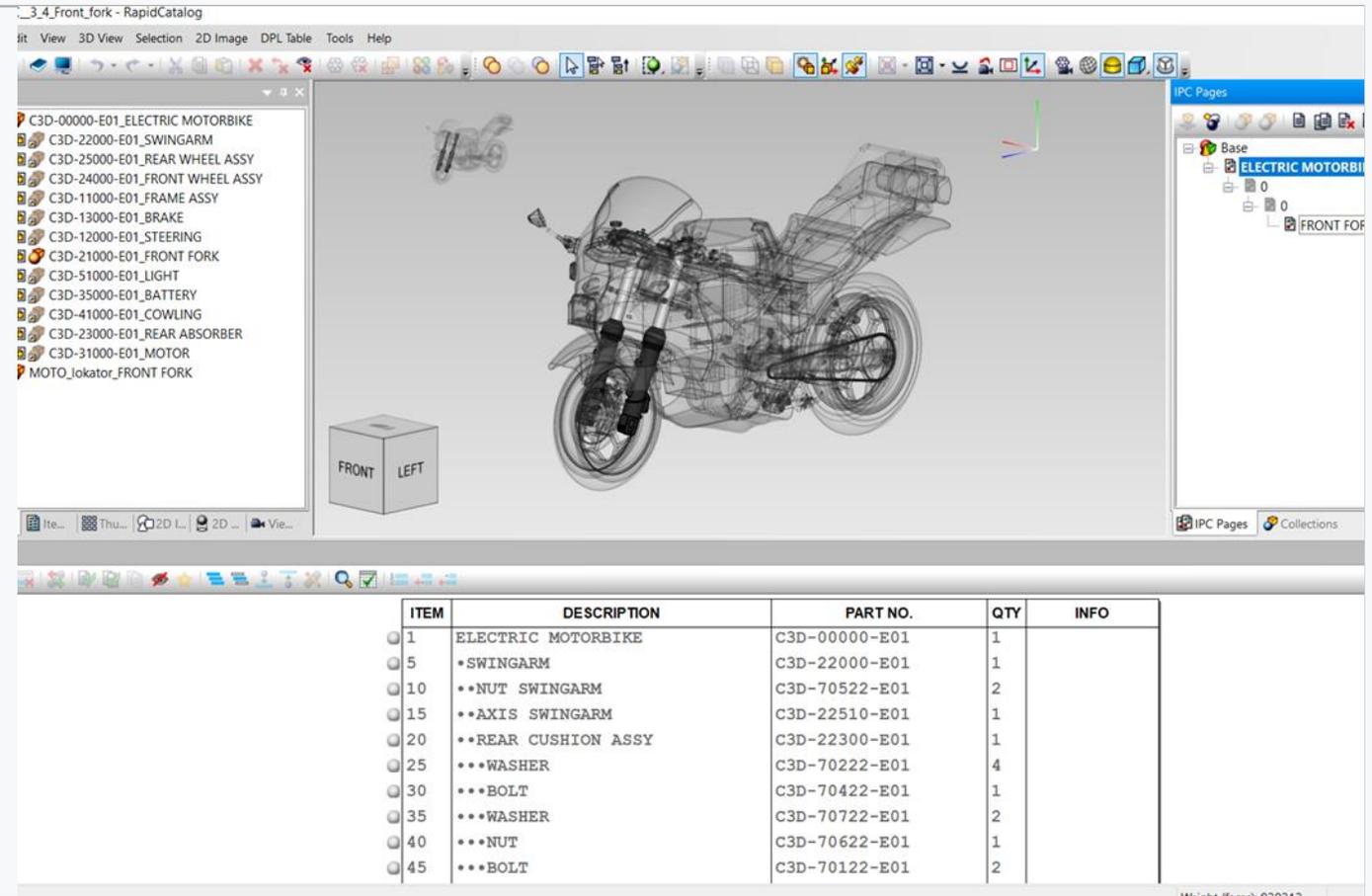


Publication

The once created content can be formatted according to any standards, published in 3D HTML5 for any platform, AR/VR/MR or can be provided in traditional PDF format

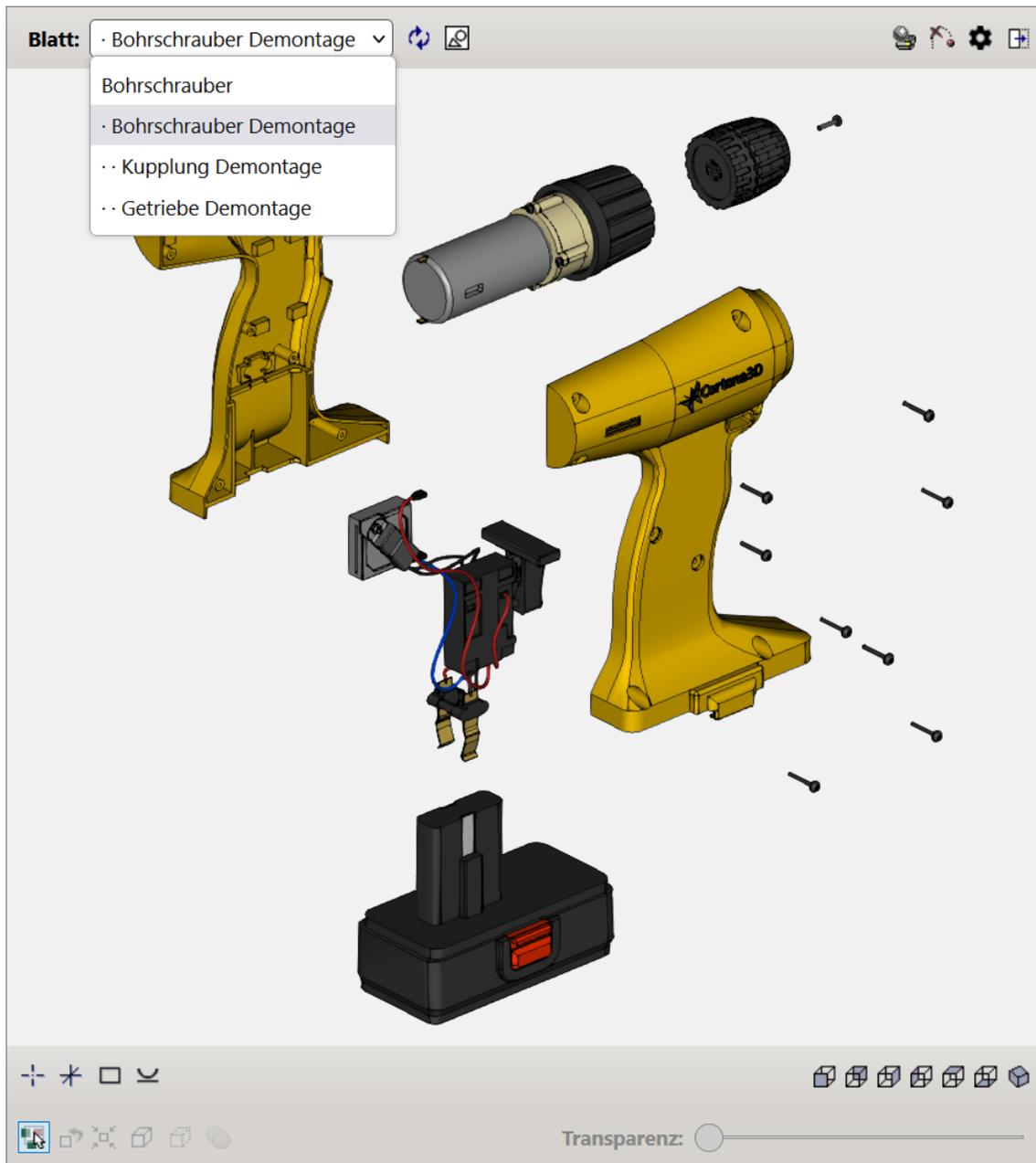
Parts Catalogs

- 3D Explode and Cross-sectioning
- Full 2D graphics creation, editing and update
- Generate hotspotted 2D from 3D graphics
- Automatic generation of Detailed Parts List
- Map metadata from CAD/BOM source
- Customization and integration of publications



The screenshot displays the RapidCatalog software interface. The top window shows a 3D wireframe model of a motorcycle with a parts list on the left and a tree view on the right. Below the 3D view is a table with the following data:

ITEM	DESCRIPTION	PART NO.	QTY	INFO
1	ELECTRIC MOTORBIKE	C3D-00000-E01	1	
5	•SWINGARM	C3D-22000-E01	1	
10	••NUT SWINGARM	C3D-70522-E01	2	
15	•••AXIS SWINGARM	C3D-22510-E01	1	
20	•••REAR CUSHION ASSY	C3D-22300-E01	1	
25	••••WASHER	C3D-70222-E01	4	
30	•••••BOLT	C3D-70422-E01	1	
35	•••••WASHER	C3D-70722-E01	2	
40	•••••NUT	C3D-70622-E01	1	
45	•••••BOLT	C3D-70122-E01	2	

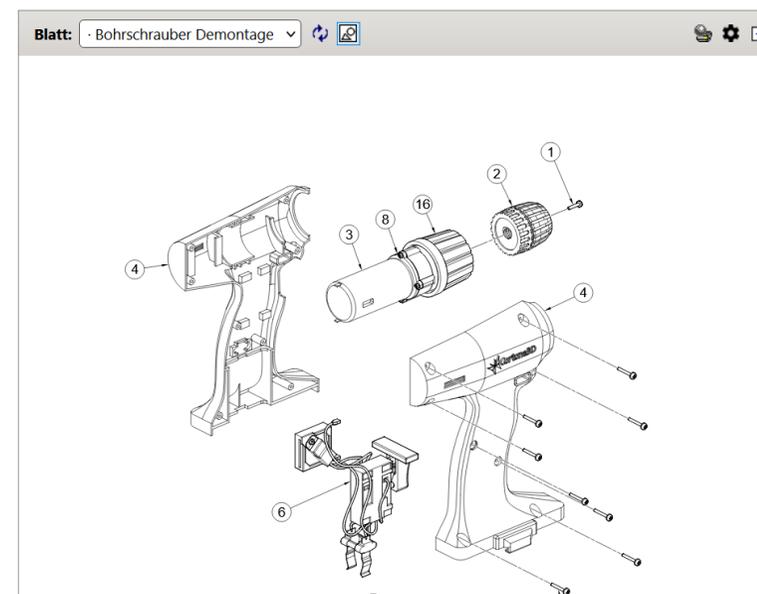


Katalog der illustrierten Teile Bohrerschrauber Ersatzteilkatalog

Veröffentlichungsdatum: 2023-03-06

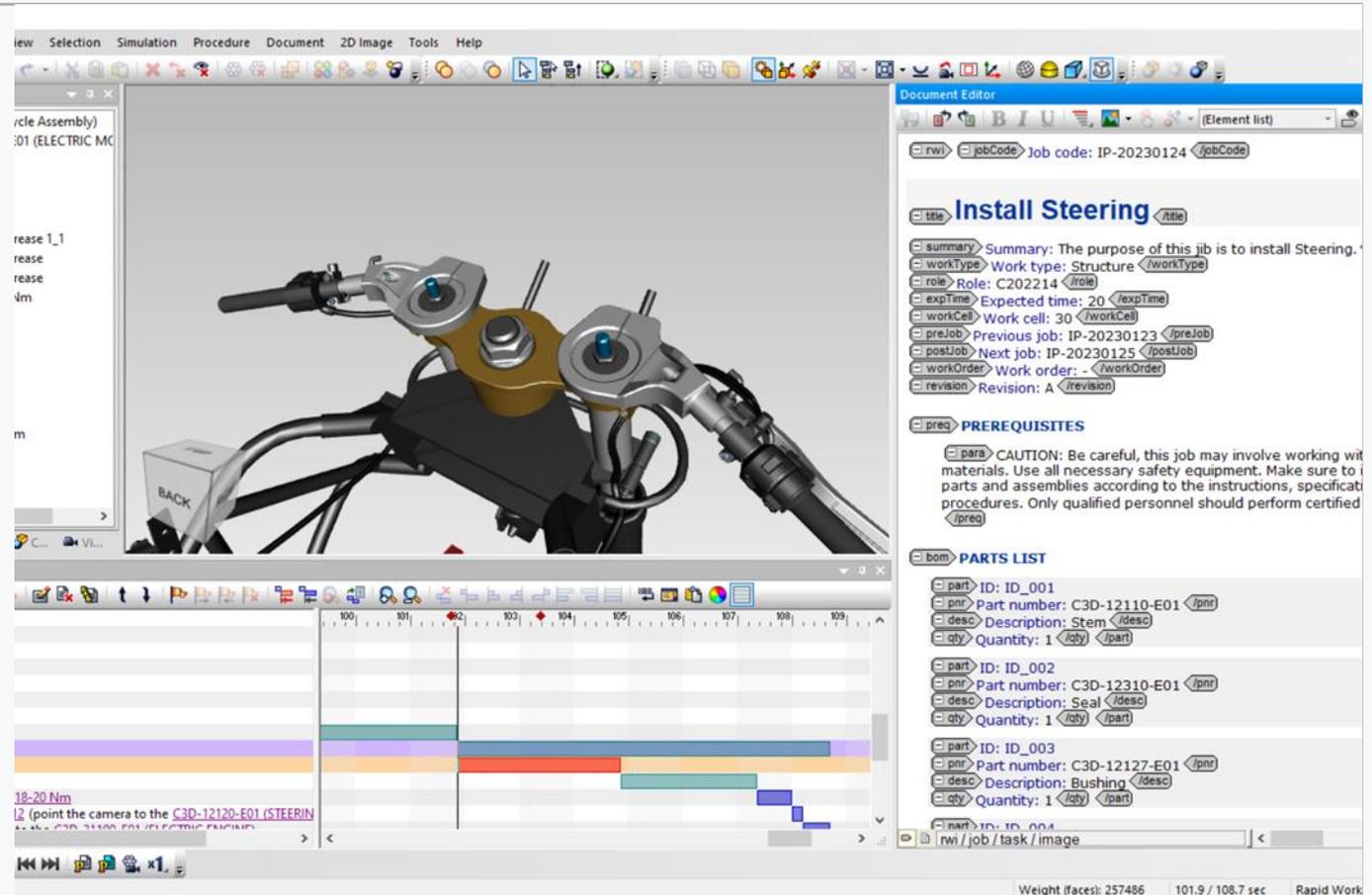
BLATT Bohrerschrauber Demontage

	ELEM	BESCHREIBUNG	TEILENR.	ANZ	INFO
<input checked="" type="checkbox"/>	1	Linke Schraube	C3D-DRL-F-LHS	1	
<input checked="" type="checkbox"/>	2	Spannfutter	C3D-DRL-P-CHK	1	
<input checked="" type="checkbox"/>	3	Motor	C3D-DRL-P-MTR	1	
<input checked="" type="checkbox"/>	4	Gehäuse Set	C3D-DRL-A-HSST	1	
<input checked="" type="checkbox"/>	5	Schraube 1.9x15mm	C3D-DRL-F-S19X15	8	
<input checked="" type="checkbox"/>	6	Schalterblock	C3D-DRL-A-SWTC	1	
<input checked="" type="checkbox"/>	7	Batterie	C3D-DRL-P-BTR	1	
<input checked="" type="checkbox"/>	8	Kupplungseinheit	C3D-DRL-A-CLTCH	1	
<input checked="" type="checkbox"/>	16	Getriebemontage	C3D-DRL-A-GT	1	



Service Manuals & Work Instructions

- Automatic generation of work instructions for service & maintenance
- STE-based 3D animations
- Reverse procedures
- Easily add audio
- Embedded XML editor
- Embedded 2D illustrations editor
- All XML/DTD schemas supported



The screenshot displays the Cortona3D software interface. The main window shows a 3D model of a motorcycle steering assembly. The interface includes a menu bar (View, Selection, Simulation, Procedure, Document, 2D Image, Tools, Help) and a toolbar. A document editor window is open on the right, displaying the following information:

Document Editor
(Element list)

Job code: IP-20230124

Install Steering

Summary: The purpose of this job is to install Steering.

Attributes:

- Work type: Structure
- Role: C202214
- Expected time: 20
- Work cell: 30
- Previous job: IP-20230123
- Next job: IP-20230125
- Work order: -
- Revision: A

PREREQUISITES

CAUTION: Be careful, this job may involve working with materials. Use all necessary safety equipment. Make sure to install parts and assemblies according to the instructions, specifications and procedures. Only qualified personnel should perform certified procedures.

PARTS LIST

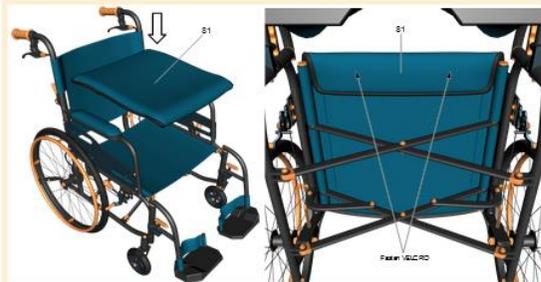
ID	Part number	Description	Quantity
ID_001	C3D-12110-E01	Stem	1
ID_002	C3D-12310-E01	Seal	1
ID_003	C3D-12127-E01	Bushing	1

Weight (faces): 257486 | 101.9 / 108.7 sec | Rapid Work



3D SEAT CUSHIONS INSTALLATION

Put the cushion [81] on the seat [80] and secure it with Velcro. Install the cushion [82] on the backrest [77] and secure it with Velcro.



5. 3D THE WHEELCHAIR REVIEW



Job code: XXXX-XX

Title: INSTALLATION OF MACHINE ROOMLESS ELEVATOR (MRL ELEVATOR)

Summary: Assembly and installation of elevator equipment

Work type: Assembly, installation

Expected time: 3 business days

Previous job: XXXX-XX

Revision: 001

Role: Installer

Work cell: XXX

Next job: XXXX-XX

Work order:

Prerequisites BOM Task **Job**

Install [counterweight](#). See the counterweight assembly manual for a more detailed description of counterweight assembly and installation process.

5 Installation of tension device

Install [tension device](#) (Refer to Fig 5.1) on the second car guide rail through tension device bracket using clamps and bolting from the side of speed limiter.

[Figure 5.1](#)

Tension device is installed according to the installation drawing (Refer to Fig 5.2). A fragment of the installation drawing with dimensions is provided as a sample.

[Figure 5.2](#)

6 Installation of hydraulic buffers and counterweight chain guides

6.1

Use anchor fasteners to install [stand for counterweight hydraulic buffer](#) (Refer to Fig 6.1 [2]).

[Figure 6.1](#)

Stands for car and counterweight hydraulic buffers are installed in the center of the car and counterweight according to the installation drawing (Refer to Fig 1.2). A fragment of the installation drawing with dimensions is provided as a sample.

6.2

Place and fix [hydraulic shock absorber](#) (Refer to Fig 6.1 [1]) on the stand.

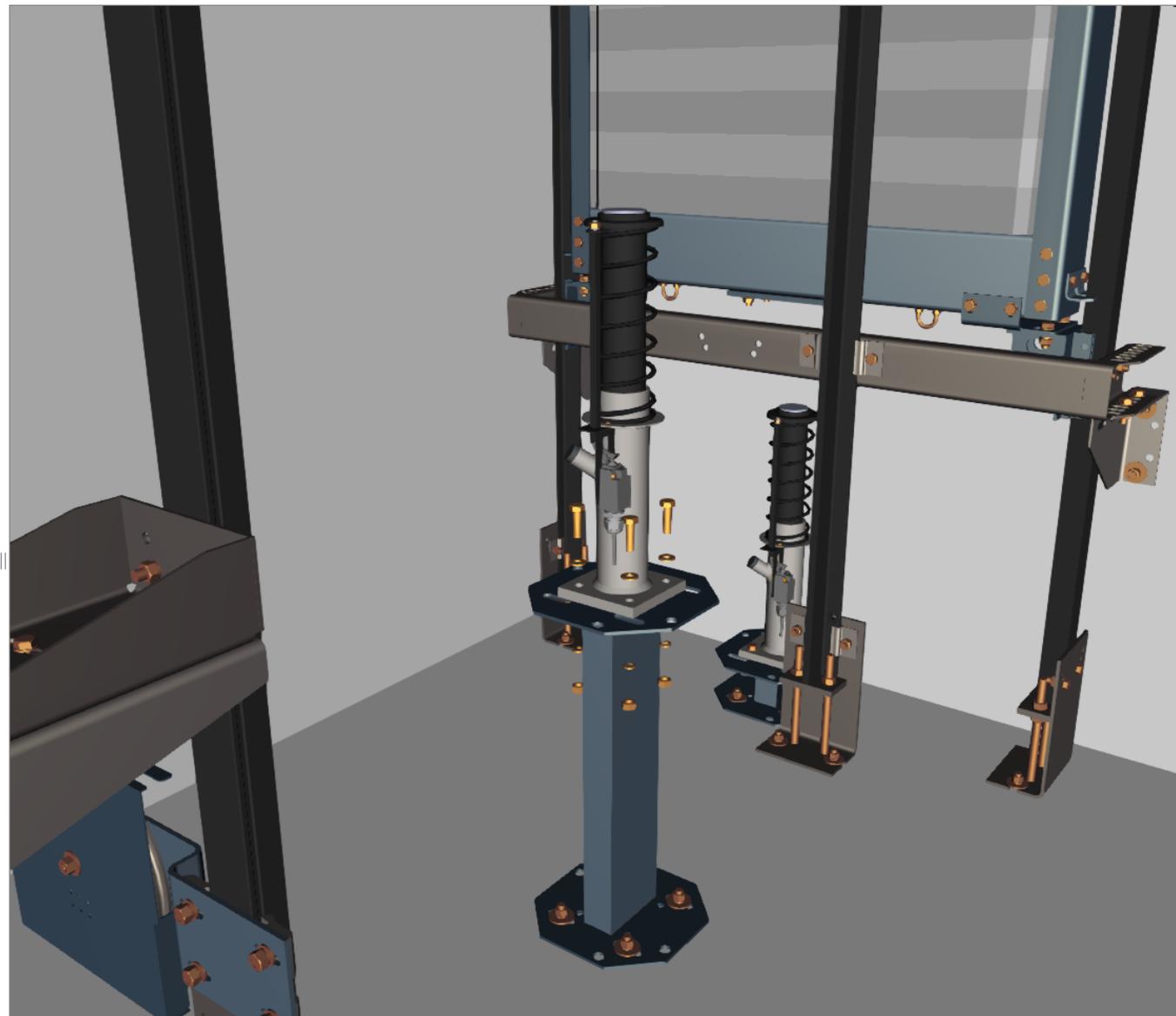
6.3

Use anchor fasteners to install [stand for car hydraulic buffer](#) (Refer to Fig 6.1 [4]).

Stands for car and counterweight hydraulic buffers are installed in the center of the car and counterweight according to the installation drawing (Refer to Fig 1.2). A fragment of the installation drawing with dimensions is provided as a sample.

6.4

Place and fix [hydraulic shock absorber](#) (Refer to Fig 6.1 [1]) on the stand.



Sign Off 4:24 / 5:26

e-Learning course

- STE based 3D animation
- Reuse existing procedures & animations
- Training scenarios
- Identify Parts
- Multiple choice questions
- Procedure branching
- SCORM package
- Demo, Study and Exam modes

The screenshot displays the RapidLearning software interface. The main window shows a 3D model of a landing gear torque link assembly with a 'BACK' button. The left sidebar lists parts: 'link (7)', 'link (2)', 'link (19)', and 'standoff bracket (9)'. The bottom panel shows the 'MAIN LANDING GEAR TORQUE LINKS REMOVAL' procedure with detailed instructions and document references.

Document Editor

Identification and status section

C3D-A-32-10-02-0

Main Landing Gear Torque Links Removal procedures

Date:
 Location:
 Responsible partner company: K...
 Originator: K...
 BREX data module: C3D-A-32-00-00-00A-022A-

References

C3D-A-32-10-02-000-120A-D Maintenance - Pre Maintenance
 C3D-A-24-45-02-000-120A-D Electrical - Pre Maintenance
 C3D-A-32-00-00-0000-012A-D Landing gear - General warnings and cautions and related safety data
 C3D-A-32-40-03-0000-520A-D Main Landing Gear Remove procedures

Scenario Editor

Weight (faces): 9580 0.0 / 85.2 se S1

EXAM MODE

Torque Links Removal

Document Instructions **Parts** Parameters

- | | | |
|--------------------------|----------------|------|
| <input type="checkbox"/> | BACP10AD02C09P | Meta |
| <input type="checkbox"/> | BACP20BC01D07P | Meta |
| <input type="checkbox"/> | BACP20BC01D07P | Meta |
| <input type="checkbox"/> | bolt (10) | Meta |
| <input type="checkbox"/> | bolts (20) | Meta |
| <input type="checkbox"/> | bolts (20) | Meta |
| <input type="checkbox"/> | bolts (8) | Meta |

Remove the wheel assy

Choose the correct answer in the Choice list(s).

Click **Submit** to confirm when you are ready to continue.

Perform the procedure

- MAIN LANDING GEAR SHOCK STRUT REMOVAL
- MAIN LANDING WHEEL ASSY REMOVAL
- DRAG BRACE ASSY REMOVAL
- MAIN LANDING GEAR BRAKE ROD REMOVAL

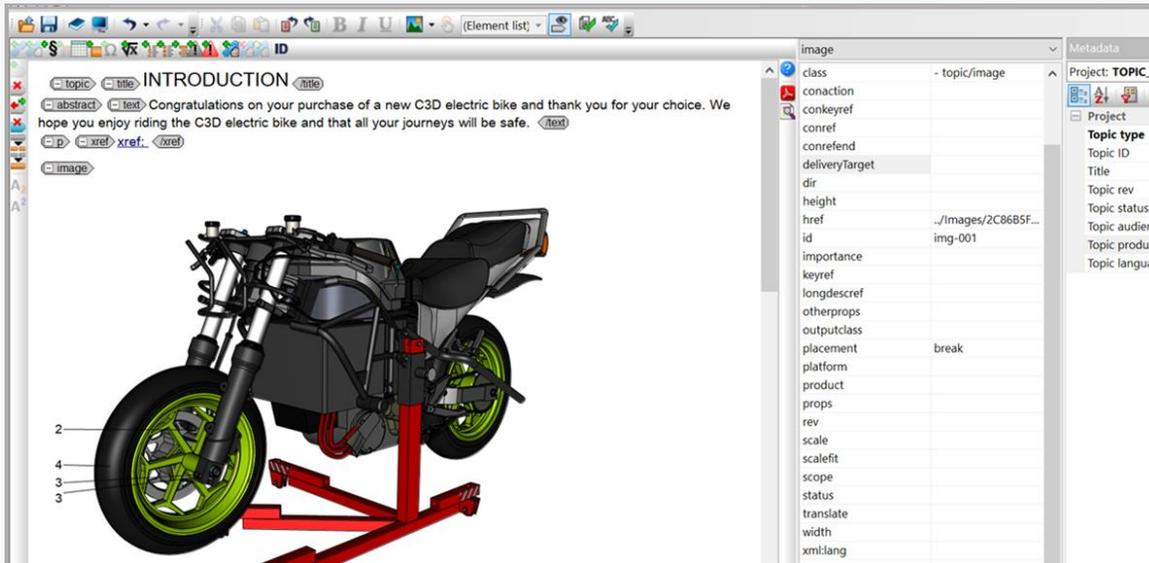
Submit

Test result: 

Switch off mode

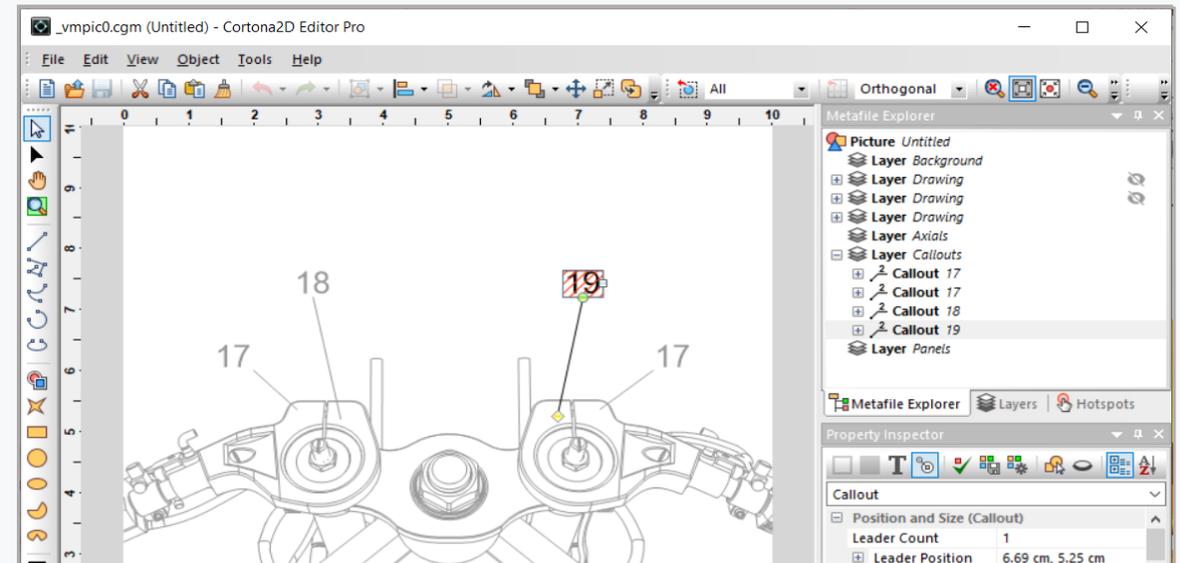


XML Text & 2D illustration



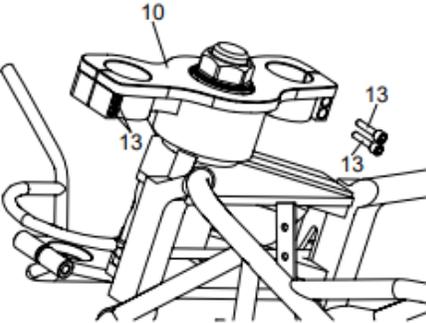
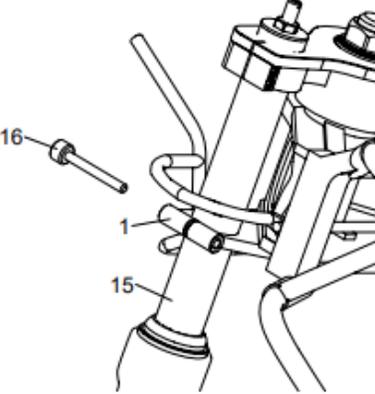
Advanced text editor

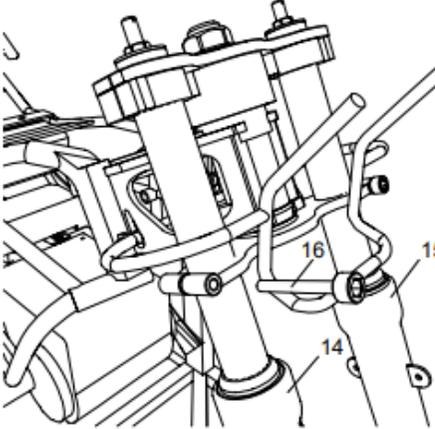
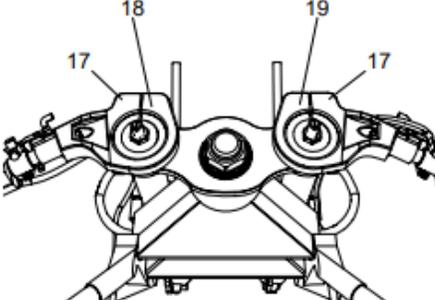
Powerful set of functions for the creation of traditional 2D documentation. Integrated with RapidManual and RapidLearning.



Powerful editor for 2D illustrations

Wide range of functionality for editing of 2D vector and raster graphics. Integrated with RapidManual and RapidLearning. Supports automated Update process.

Nº	Task	Illustration
5	Install the four Bolts (13) in the Top Bridge (10) without tightening.	 <p data-bbox="955 782 1031 803">Figure 5</p>
6	Install the Left Front Fork Assy (15) into the Top Bridge and screw in the Flange Bolt (16) into the Stem (1) .	 <p data-bbox="955 1296 1031 1318">Figure 6</p>

Nº	Task	Illustration
7	Install the Right Front Fork Assy (14) into the Top Bridge and screw in the Flange Bolt (16) in the Stem .	 <p data-bbox="2076 782 2153 803">Figure 7</p>
8	Tighten the Flange Bolt (16) on the right side of the Stem to 28 Nm and the Bolts on the right side of the Top Bridge to the recommended torque of 22 Nm.	
9	Tighten the Bolts on the left side of the Top Bridge to the recommended torque of 22 Nm and the Flange Bolt (16) on the left side of the Stem to 28 Nm.	
10	Install the Left Handlebars (18) and Right Handlebars (19) and screw in the Bolts (17) by hand.	



Publish to iOS and display your content in Augmented Reality.



We collaborate with partners to cover more involved mixed reality use-cases.

Edit AR Parameters

Enable AR

Anchor origin
 X: 0.00324079 Y: 0.722918 Z: -1.85416
 Coordinate step: 0.01

Anchor marker
 Enabled
 Diameter: 1
 Scene scale: 1

OK Cancel

- Callout_22 Nm
- Callout_28 Nm
- Callout_22 Nm
- Callout_22 Nm
- Callout_22 Nm
- Callout_18-20 Nm

Document 2D Image Tools Help

RIGHT

Document Editor

(Element list)

CAUTION
falling.

Apply grease to the [Stem](#) (1). Install the [Seal](#) (2), [Bushings](#) (3), and the [Lower Seal](#) (4) on the [Stem](#) (1). Install the [Bearing](#) (5) on the [Stem](#) (1) and grease it. Install the [Stem](#) (1) in the frame.

Figure 1

Procedure Editor

PROJECT 001335
 JOB 001335
 TASK 0

- Move the [C3D-00000-E01 \(ELECTRIC MOTORBIKE\)](#)
- Move the [C3D-12110-E01 \(STEM\)](#)
- Move the [C3D-12129-E01 \(SEAL\)](#)
- Move the [C3D-12127-E01 \(BASHER\)](#)
- Move the [C3D-12128-E01 \(LOWER SEAL\)](#)
- Move the [C3D-12124-E01 \(BEARING\)](#)

TASK 1

- CAUTION: **STEP 01** (point the camera to the [C3D-31100-E01 \(ELECTRIC ENGINE\)](#))
- Install the [C3D-12110-E01 \(STEM\)](#)
- Show the [Callout Apply grease 1_1](#)

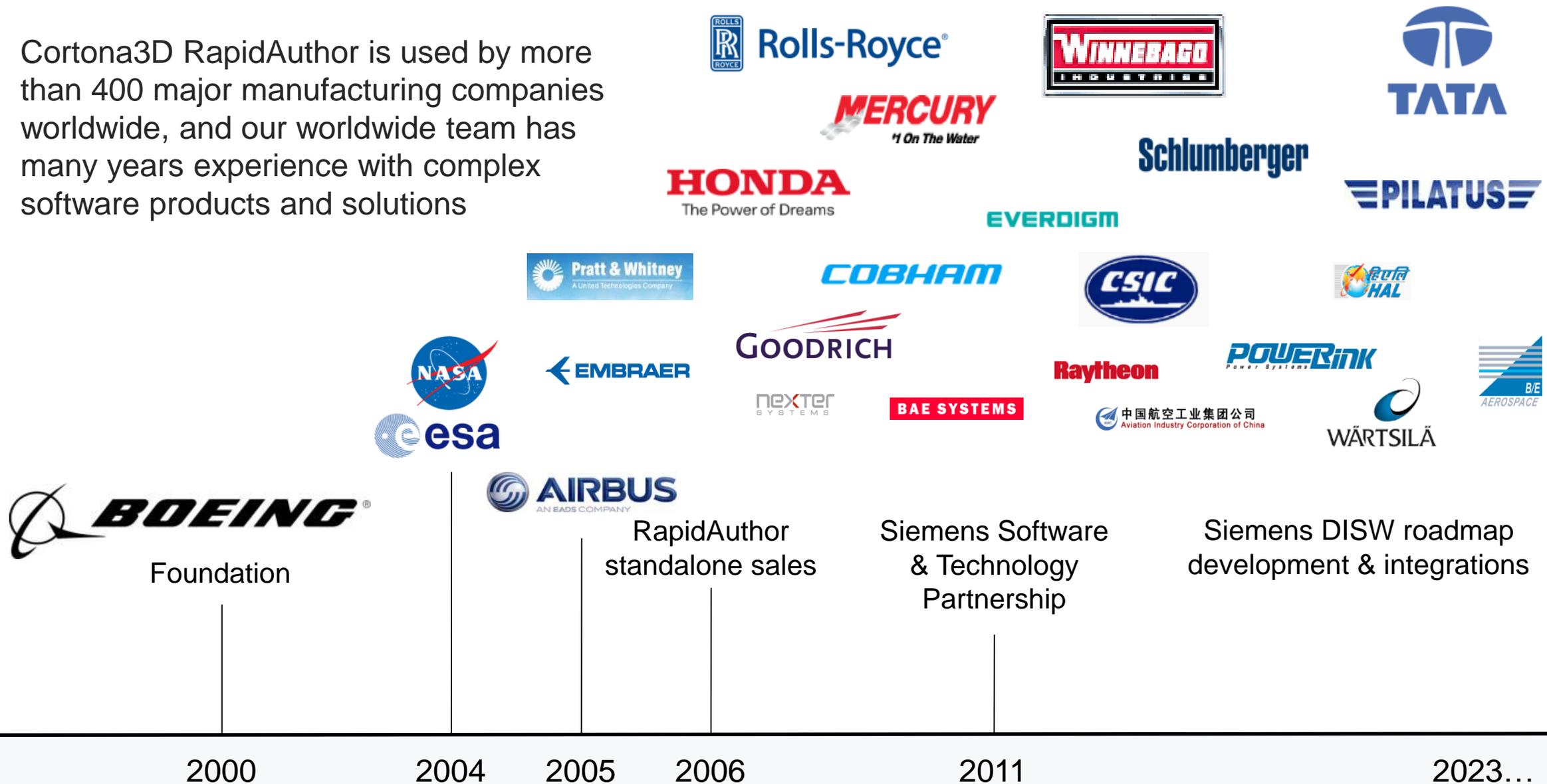
TASK 2

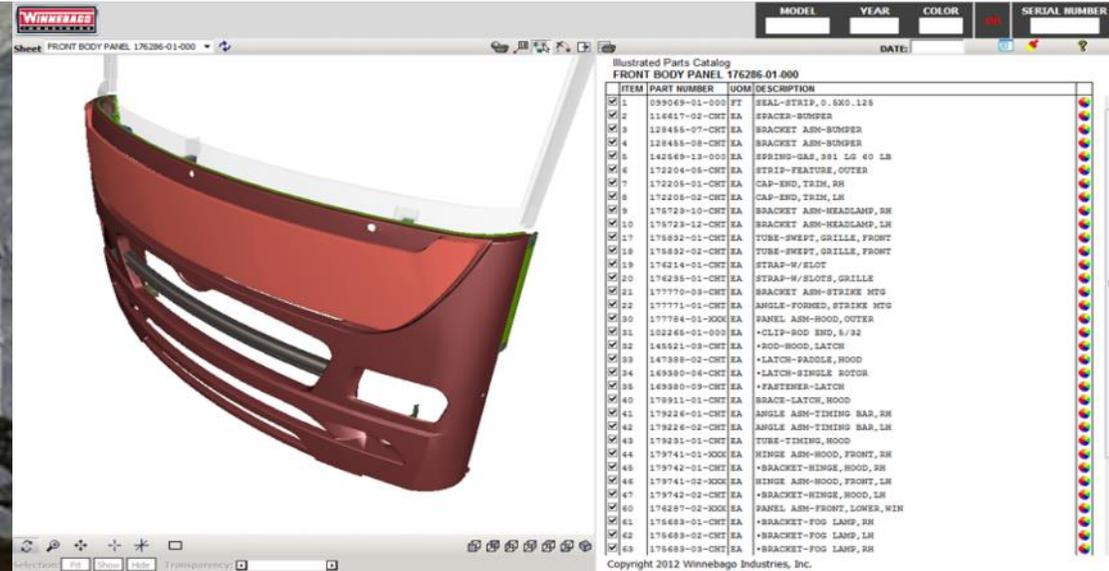
Grease the [Bearing](#) (6) and install it on the [Stem](#) (1). Install the [Upper Seal](#) (7). Install the [Dust Seal](#) (8) and [Fix Washer](#) (9).

8 9

rwi/job/task/para/xref

Cortona3D RapidAuthor is used by more than 400 major manufacturing companies worldwide, and our worldwide team has many years experience with complex software products and solutions

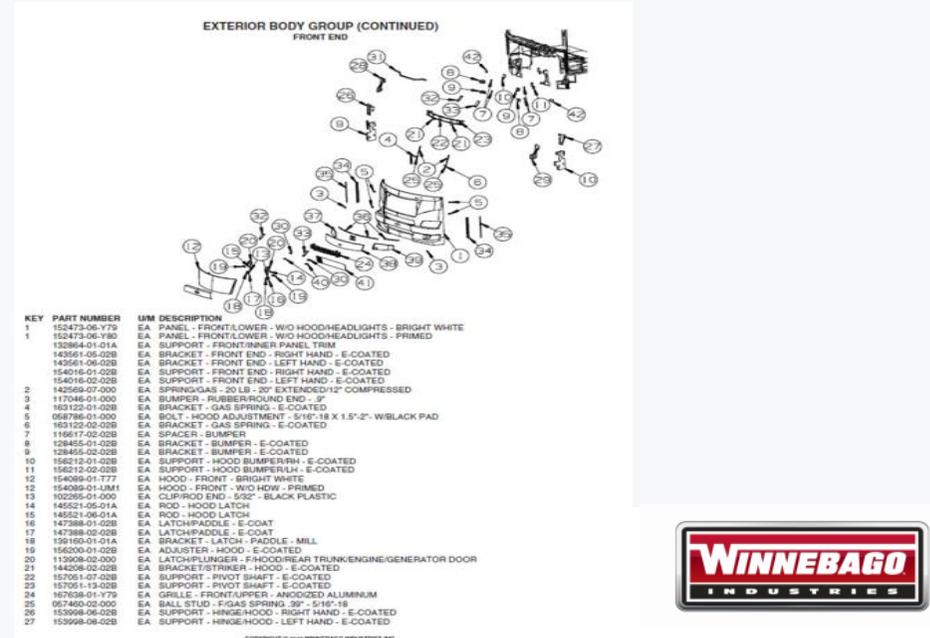




Cortona3D's RapidAuthor suite creates interactive part catalogs for Winnebago Industries. This approach allows:

- to process and complete the parts catalog 33% faster
- reduce manpower requirements by 40%

The most substantial costs savings have been derived by the re-use of the existing 3D geometry which has shortened the production process considerably.





Cortona3D makes it possible to merge the list of materials with CAD information and JPEG images to compile a complete catalogue

“Atlas Copco was already implementing Teamcenter in a separate project. They found us because we are able to make the connection with Cortona3D,”



Cortona3D's RapidAuthor suite is using for production of the spare parts catalogs.

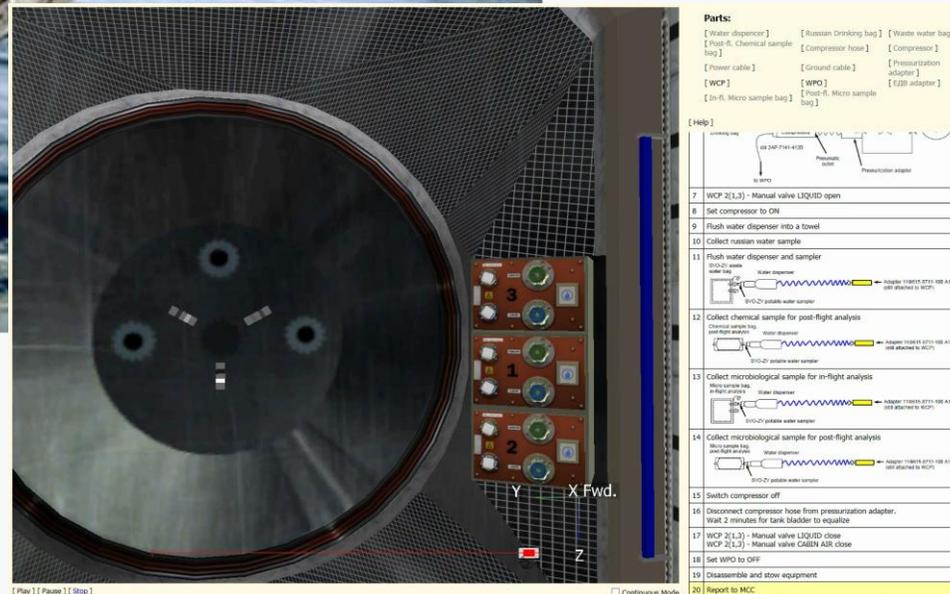
They have succeeded:

- in reducing the parts catalog production time by 80%.
- in saving 60% of their costs over a very aspect of their process



Cortona3D SW assists astronauts in their daily execution of procedures onboard the International Space Station

Cortona3D provides the system for training astronauts and on International Space Station and on the ground
Cortona3D products for iOS



Parts:

[Water dispenser]	[Russian Drinking bag]	[Waste water bag]
[Post-fl. Chemical sample bag]	[Compressor hose]	[Compressor]
[Power cable]	[Ground cable]	[Pressurization adapter]
[WCP]	[WPO]	[USB adapter]
[In-fl. Micro sample bag]	[Post-fl. Micro sample bag]	

[Help]

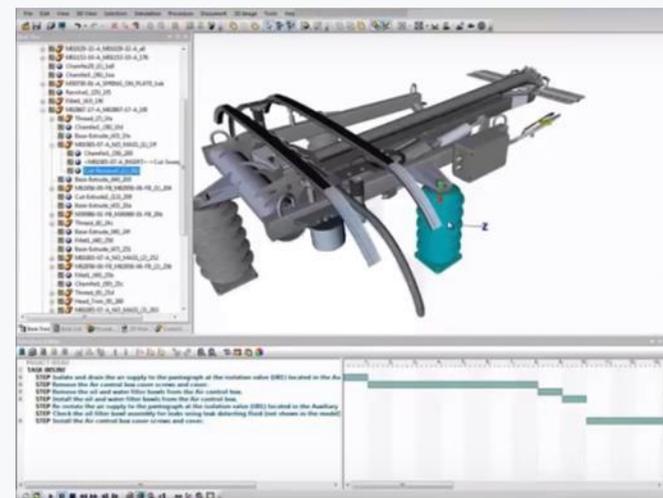
- WCP 2(L3) - Manual valve LIQUID open
- Set compressor to ON
- Flush water dispenser into a towel
- Collect russtian water sample
- Flush water dispenser and sampler
- Collect chemical sample for post-flight analysis
- Collect microbiological sample for in-flight analysis
- Collect microbiological sample for post-flight analysis
- Switch compressor off
- Disconnect compressor hose from pressurization adapter. Wait 2 minutes for tank bladder to equalize
- WCP 2(L3) - Manual valve LIQUID close
- WCP 2(L3) - Manual valve CABIN AIR close
- Set WPO to OFF
- Disassemble and stow equipment
- Report to MCC



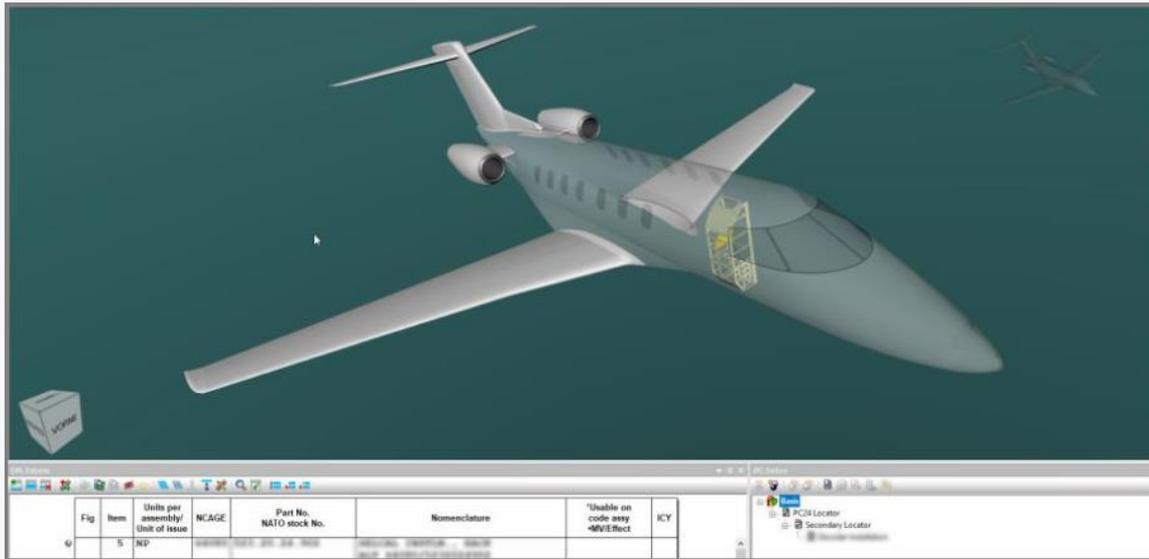


- 700 documents produced by a team of four in 14 months
- 50 percent less time to produce maintenance tasks
- Significantly lower cost
- Publications available six months before first train delivery
- 30 percent reduction in time spent on maintenance
- Effective change control
- Easy re-use of information

Teamcenter and Cortona3D optimize on-time train performance
Integrated service lifecycle management solution
Maintenance manuals based on core engineering data
Interactive, visual instructions

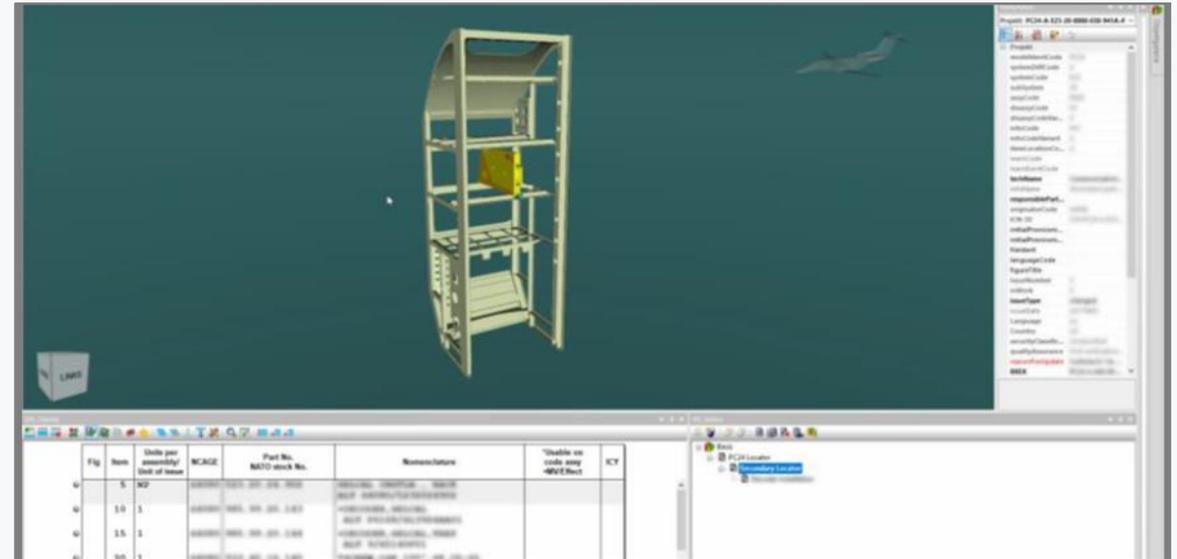


3D IPD & Structural Repair Manual



Development and Production time

Development time of 3D IPD and SRM was cut by an estimated 40% due to the simultaneous capability of compiling and illustrating and enhanced functionality. Software customization has brought its results too: it has reduced production time and increased efficiency by approximately 30%



3D IPD & SRM

Pilatus Aircraft Ltd uses RapidAuthor for Teamcenter for the production of interactive Illustrated Parts Data and the item identification part of Structural Repair Manuals for its latest model, the PC-24 Super Versatile Jet



Cortona3D solutions

Integration 3D AMM in existing Portable Maintenance Aid service.

- Participation in development of Boeing Maintenance Performance Toolbox (MPT), single online-service consisting necessary documentation for information support of repair and maintenance.
- Content preparation for MPT.

Aircraft Engine

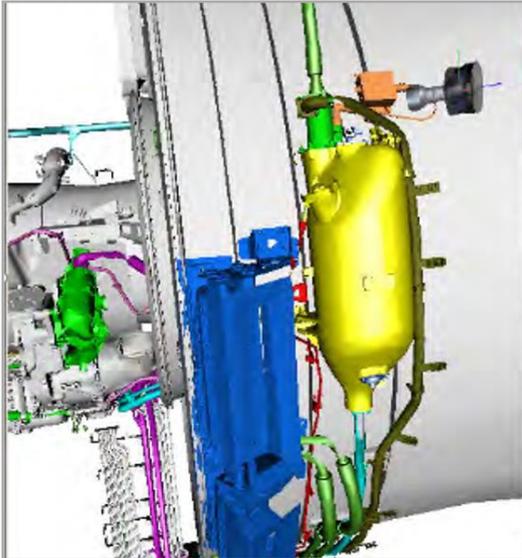
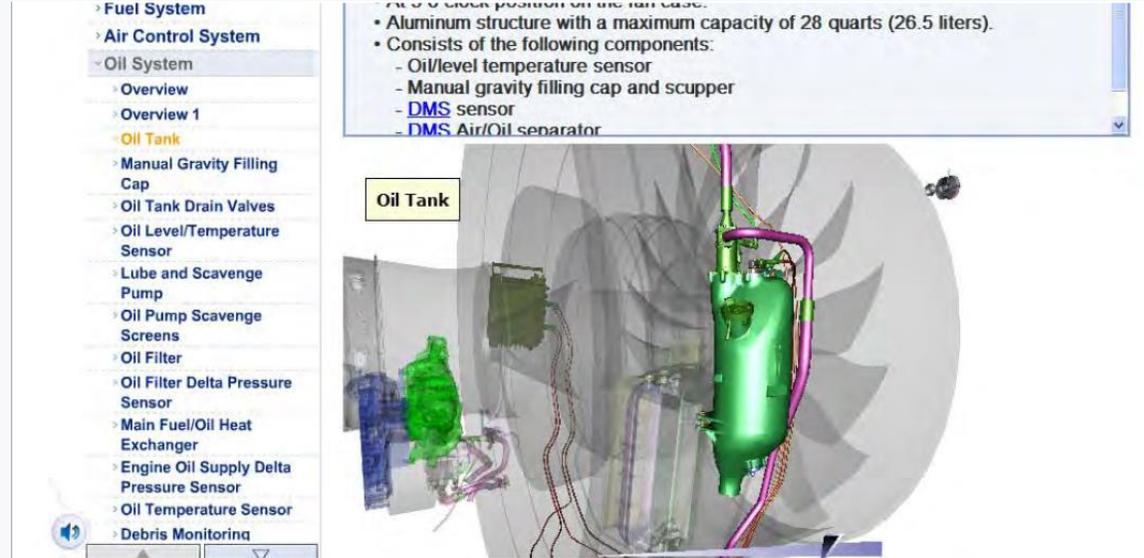


FIG-ITEM	PART NUMBER	NO-MENCLATURE	USAGE CODE	UNITS PER ASSY
01 10	NO-NUMBER(2)	.OIL TANK SEE 79-11-10-01 FOR DET	NP	RF
20	NO-NUMBER(3)	.FUEL/OIL HEAT EXCHANGER SEE 79-21-00-01 FOR DET	NP	RF
30	NO-NUMBER(4)	.AIR/OIL HEAT EXCHANGERS SEE 79-21-00-05 FOR DET	NP	RF
40	NO-NUMBER(5)	.LUBRICATION UNIT SEE 79-21-10-01 FOR DET	NP	RF
50	NO-NUMBER(6)	.OIL DEBRIS MONITORING SEPARATOR SEE 79-21-20-01 FOR DET	NP	RF
60	NO-NUMBER(7)	.OIL TANK SUPPLY TUBE SEE 79-22-10-01 FOR DET	NP	RF
70	NO-NUMBER(8)	.AIR/OIL COOLER TUBES SEE 79-22-10-05 FOR DET	NP	RF
80	NO-NUMBER(9)	.OIL SUPPLY TUBES-SCAVENGE PUMP, GEARBOX TO FUEL HEATER SEE 79-22-10-10 FOR DET	NP	RF
90	NO-NUMBER(10)	.OIL SUPPLY TUBES-AGB AND TGB SEE 79-22-10-15 FOR DET	NP	RF
100	NO-NUMBER(11)	.OIL SUPPLY TO NO. 4 AND 5 BEARINGS SEE 79-22-10-20 FOR DET	NP	RF
110	NO-NUMBER(12)	.VPSG OIL TUBES-AIR/OIL COOLERS TO LMR BIFURCATION SEE 79-22-10-25 FOR DET	NP	RF

3D IPD

“What we once redrew and re-described, we now import and link.”
Training and review is faster, more memorable and intuitive as maintenance staff can rotate, explode, zoom in on equipment parts.



Fuel System

Air Control System

Oil System

- Overview
- Overview 1
- Oil Tank**
- Manual Gravity Filling Cap
- Oil Tank Drain Valves
- Oil Level/Temperature Sensor
- Lube and Scavenge Pump
- Oil Pump Scavenge Screens
- Oil Filter
- Oil Filter Delta Pressure Sensor
- Main Fuel/Oil Heat Exchanger
- Engine Oil Supply Delta Pressure Sensor
- Oil Temperature Sensor
- Debris Monitoring

Oil Tank

- Aluminum structure with a maximum capacity of 28 quarts (26.5 liters).
- Consists of the following components:
 - Oil/level temperature sensor
 - Manual gravity filling cap and scupper
 - DMS sensor
 - DMS Air/Oil separator

3D Computer Based training courses

87% cost savings Authoring time drops from 8 hours per page to 1 hour. Changes can be instantly disseminated worldwide in a variety of formats. Users manipulate images on-screen for greater clarity and ease of learning.

THANK YOU!

Parallel Graphics Ltd t/a Cortona3D

Block B, Unit 2,
Broomfield Business Park,
Malahide, Dublin, Ireland.

grafov@cortona3d.com

A detailed 3D rendered image of an engine, likely a diesel engine, shown in a dark, semi-transparent grey color. A yellow torque wrench is positioned across the engine, highlighting a specific bolt. The text "157-196 Nm" is displayed in white next to the wrench, indicating the required torque for that bolt.

157-196 Nm