Improving Troubleshooting Skills through Integrated Virtual Learning Environments

3D for Maintenance Training (and Operations)

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Industry challenges

- The industry faces several staffing problems: an aging workforce, difficulty in attracting new recruits, and the demand for constant upgrading of skills.
- Access to aircraft for training logistically challenging and risky
- Exposure to faults in traditional environments is limited
- Training interferes and affects operations (not mobile/web)

What is the need?

- More immersive and hands on training
- Offer the correct mix of skills, technical and system knowledge
- Minimize use of aircraft for training purposes (especially in EASA environment)
- Training more relevant to operations by making it more line oriented and focused on troubleshooting
- Web based and mobile training solutions

Train faster, better, cheaper, safer
3D virtual learning environments

- Developed a new 3-dimensional integrated virtual learning environment for aircraft maintenance training which can significantly enhance:
  - Systems Training
  - Inspection and Walk-around Training
  - Troubleshooting Training
Systems training

- 3D media support in lieu of 2D images that can provide better visualization and functioning
- Detailed component views
- Static and dynamic environments
- Live collaboration for Product Lifecycle Management (PLM)
  - Incorporates CATIA (Computer Aided Three-dimensional Interactive Application) models directly from aircraft manufacturers,
  - Automatic synchronization and updates

Click to view sample animations
Inspection and walk-around training

- Access to full aircraft
- Locate aircraft system components
- Identify serviceable and unserviceable components or conditions
- Run prescribed procedures
- Ideal for EASA/TC practical testing
- Reduce cost, logistics and risks compared with training on a real aircraft
Troubleshooting training

- Includes integrated virtual environment combining:
  - Cockpit panels and displays
  - 3D aircraft and components
  - Cockpit, BITE and LRU simulation
  - Electronic documentation
  - Wiring diagrams
  - Virtual test sets and aircraft equipment

Advanced troubleshooting and real-life scenarios…all in a virtual environment
Leverage into operations

- Accessibility of materials allows being leveraged into operations
- Allows for JIT training
- Allows for “continuous” training

Increases operational effectiveness
Delivery methods

- Fully integrated solutions
- Runs in free play, scenario or test mode
- Accessible through
  - Smart and virtual classroom
  - Web-based e-Learning
  - Mobile training aids

This flexibility enable technicians to train in a safe, realistic environment anytime, anyplace, and accelerate their time to proficiency.
Conclusion

The CAE 3D experience:

- Leverages CAE simulation, animation and active schematics
- Useable for different training purposes
- Live collaboration for Product Lifecycle Management (PLM)
- Links Fault Isolation Manual (FIM) and Aircraft Maintenance Manual (AMM) technical documentation to 3D models
- Migrates into operations

Immersive and comprehensive solutions tailored to meet our industry’s challenges and designed for the next generation of aviation professionals
Thank you!

CAE’s comprehensive suite of solutions tailored to your maintenance training requirements.
CAE
one step ahead