Case Study

AIRBUS IMPROVES IN-SERVICE MAINTENANCE WITH NGRAIN'S 3D PERFORMANCE SUPPORT SOLUTIONS

Integrating NGRAIN into equipment test simulators and in-service maintenance applications allows Airbus to reduce aircraft downtime and lower costs

BACKGROUND

Airbus is one of the world's leading aircraft manufacturers, known for its efficiency, safety, and innovation. Airbus has a vision of combining point of maintenance applications with a 3D visual interface to further improve efficiency.

CHALLENGE

Aircraft maintenance is a complex process due to the high volume of parts involved and the safety standards that repairs must follow. As such, quick access to accurate repair procedures and parts information is critically important to maintenance technicians. Using traditional text-based search techniques, maintainers can spend up to 40% of their time looking for the correct technical or procedural information. This translates into costly downtime, which is exacerbated at remote locations due to the time it takes for qualified maintainers to reach the aircraft.

> *"We are very excited about the 3D capabilities that NGRAIN will bring to the system. We are always looking for ways to reduce operations and maintenance costs. This demand drives us to pioneer innovative solutions with technology partners such as NGRAIN."*
>
> *- Jens Strahmann, Manager, High Lift Test, Flight Control and Hydraulics, Airbus.*

SOLUTION

In the test and design phase of new equipment components, Airbus combines test rig data with physical and software simulation data, and years of real world data, to predict future reliability such as mean time between failures (MTBF). This process will be enhanced with an NGRAIN-enabled portable maintenance aid. The maintenance aid lets engineers who are responsible for the repair and maintenance of test equipment access equipment information in real-time using interactive 3D equipment models as an intuitive visual index. By making it faster for engineers to access the right information, the NGRAIN-enabled solution will help improve accuracy and reduce repair turn-around time.

IMPLEMENTATION

Airbus will integrate the portable maintenance aid into their eSite (Early System Integration and Testing) platform and associated training and maintenance systems.

NGRAIN will initially be integrated with Airbus' High-Lift Test Rig simulator, used to test wing components and the behavior of various Airbus aircraft components. NGRAIN interactive 3D simulations will help engineers to quickly identify and interpret error messages generated throughout simulated test runs. Error messages and resolution data will be processed in special knowledge databases to support structural health monitoring. Engineers will access the knowledge through the portable maintenance aid for faster and more accurate troubleshooting, resulting in accelerated resolution test rig faults.

NGRAIN is partnering with German system integrator ExxpertSystems GmbH to deliver the project to Airbus.

View of Airbus High-Lift test facility in Bremen Germany. Courtesy of Beckhoff Industrial PC.

RESULTS

The initial phase of the project is scheduled to be implemented in the Fall of 2007. Projected benefits from this project include reduced downtime and faster, more accurate repairs of the test equipment.

Future implementation plans also include distributing the maintenance knowledge gained during the testing of equipment components to aircraft maintenance technicians. Component maintenance history and data will be stored on each component using RFID tags or memory buttons. Flight line technicians will then be able to instantly access the relevant maintenance history data and procedural information using a portable device.

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