



## Aircraft Systems Trainer MRH90 A powerful training simulator for the technicians of the Australian multi-role helicopter MRH90.

### Training Solutions CASE STUDY

The Australian Army Aviation has defined an Aircraft Systems Trainer (AST) for the type-rating of the MRH90 helicopter maintenance technicians. The AST solution provides competency-based technician training and reduces the training burden on the real MRH90 aircraft. The AST integrates the simulation of helicopter systems, a realistic graphical representation of the helicopter and its components, a replicated cockpit and training management functions for controlling learning progress and measuring learning success.

#### DELIVERY

The MRH90 AST has been developed by Telespazio Germany in Germany under a contract with Airbus Australia Pacific. The Commonwealth of Australia as end-customer has been using the AST at its Army Aviation Training Centre in Oakey, Queensland, since its delivery in the third quarter of 2016.

#### CONCEPT

The educational and training objectives for the AST are the proficiency in the application of maintenance procedures as well as the utilization of maintenance equipment of the MRH90. For this purpose, the training system is used together with the Interactive Electronic Technical Publication (IETP). The AST simulates almost all helicopter subsystems, as far as necessary to achieve the training objectives, and supports approximately 250 complex maintenance tasks. These cover replace and repair procedures, inspection procedures, functional test procedures as well as fault isolation procedures.

# Aircraft Systems Trainer MRH90

## TRAINING SOLUTIONS

### CASE STUDY

#### DIDACTIC RESOURCES

Pre-recorded procedures together with the computer-guided mode of the AST enable management of training progress and measurement of training success. In the computer-guided mode the AST supports the student, calls his attention to mistakes, monitors and evaluates the correct execution of a training session. Furthermore, the network-oriented architecture enables remote training support from other computers within the network for both self- and instructor-guided learning in "Demonstration", "Student Monitoring" and "Team-Training" modes.

#### TRAINING FUNCTIONS

- **Interactive User Interface:** 3D graphics for external view, cockpit, cabin, bays and rotor, more than 10.000 interactive areas and five interactive schematics.
- **Traceability:** The training station enables recording, saving and play-back of accomplished operations, observation of students' lesson handling as well as activation of malfunctions in the virtual helicopter.
- **Computer-Guided Mode:** This mode supports procedure tracking and evaluation. Students can obtain instructions, help or even procedure demonstration from the computer.
- **Training Management System:** The MRH90 AST comes with a customized Training Management System that assigns tasks to learning groups or individual students and measures learning success.



Replicated Cockpit

#### REPLICATED COCKPIT

The Replicated Cockpit (RC) is a functional replica of the real MRH90 helicopter cockpit. It has been developed under a sub-contract by Reiser Simulation & Training GmbH and is integrated with the AST simulation software. The primary objective of the RC is to provide MRH90 cockpit component location. It is used to train failure diagnosis and post-installation checks for component maintenance.

#### PROPERTIES

The AST can be launched on laptops or PCs with up to four monitors in stand-alone mode or within a classroom network.

The AST covers training procedures in the order of 2000 data modules of the technical publication with 65000 maintenance steps in total. About 120 malfunction cases, which can be combined into more complex malfunction scenarios, serve as a comprehensive basis for the variety of maintenance tasks. For virtual repair hundreds of different replaceable parts can be exchanged on the virtual aircraft. In addition, more than 400 different supplies and consumables can be applied for assembly, repair and inspection. More than 500 virtual tools and diagnosis devices (Aircraft Ground Equipment - AGE) allow training of diagnosis and repair procedures in the most realistic manner. The functionality of AGE is fully integrated with the simulation of the helicopter.



#### ADVANTAGES

- **Efficiency:** Using the AST saves time and costs and improves flexibility, effectiveness and efficiency of training.
- **Cost Reduction:** Integrating the AST into the overall training curriculum replaces to a large extent training on the real helicopter.
- **Flexibility:** Self-paced training enables a more flexible training plan, without neglecting support from a trainer.
- **Reduced manpower:** Due to integration of comprehensive tools for control and support of the training and learning progress, complex themes can be imparted with reduced personal effort of instructors, even in distance learning.