



CH-53 Cockpit Procedure Trainer The first training device available for the CH-53GA Aircrew Training

Training Solutions CASE STUDY

Airbus Helicopters, the main contractor for the refitting of the CH-53 helicopter, commissioned Telespazio VEGA Deutschland to develop a Cockpit Procedure Trainer (CPT) for the GA and the modernised GS/GE versions. The CPT was delivered as both a mobile PC-based and a replicated cockpit solution, using touchscreen technology. The development of the CPT was performed in parallel with the development and testing of the first CH-53GA helicopter prototype and was thus the first training device available for training.

DELIVERY

The Cockpit Procedure Trainer was delivered in 2011 to Airbus Helicopters, where it was used initially for training the teaching staff and top personnel. At a later stage, it was put into operation within the regular training schedule at the German Armed Forces. This

training took place, first at the international School of Aviation in Bückeburg, and is currently carried out at the Helicopter Squadron 64 located in Laupheim and Holzdorf. Both locations benefit from two touchscreen cockpits with an instructor station each, an out-of-the-window-view and interactive diagrams. The Technical Training Centre of the German Air Force in Fassberg has installed additional training places, using the PC-based version of the CPT software.

Background

In the context of a modernisation programme, carried out by Airbus Helicopters, 40 German Army helicopters of type CH-53, were upgraded to the new version CH-53GA. That upgrade included the modernisation of the avionics and mission equipment system as well as the electronics and electrical system. The flight deck is now equipped with five big Multi-Function Displays and two Control & Display Units. In order that the pilots obtain their type-rating for all modified versions of the CH-53 as fast as possible, the German Army needed an efficient and flexible training means.

Cockpit Procedure Trainer CH-53

TRAINING SOLUTIONS

CASE STUDY

ONE TRAINING SYSTEM - TWO VARIANTS

The replicated cockpits with a combined instructor station include cyclic and collective sticks, pedals and an out-of-the-window view, which allows not only training on the auto-flight control system but can even be applied for manual flight procedure training. In order to adapt the CPT to more flexible training conditions, the mobile version of the CPT also runs on laptops and can be used at any site for the training of the CH-53 aircrew. Both versions of the CPT – the replicated cockpit and mobile CPT – are based upon the same simulation & control infrastructure and graphics software.

DIDACTIC RESOURCES

At the instructor station, the instructor can monitor the actions executed by his students (Student Monitoring Mode), but can also interact directly with all elements of the helicopter, e.g. in order to demonstrate a procedure or a critical situation (Instructor Demonstration Mode). The Computer Guided Mode is available on the mobile version of the CPT and supports students to learn procedures in self-guided training. The instructor creates the procedures by recording his own lessons and actions together with feedback and support information, which are available to the students if necessary.



PROPERTIES

The simulation of the CH-53GA is combined with a range of training means that makes the CPT an efficient training tool.

- **Malfunction Generator:** The trainer can draw up a schedule which activates a pre-defined helicopter system malfunction at any time during a training session
- **Tactical Scenario Generator:** This feature allows the creation of threat scenarios. Within the simulation, foreign objects interact with the various helicopter systems like the Electronic Warfare System or the Identification-Friend-Foe (IFF) System.
- **Interactive Diagrams:** Interactive diagrams of the helicopter systems are displayed on a separate smart-board. They are fully integrated into the simulation and show the system status at all times. Malfunctions can be activated directly at the devices shown in the diagrams and have an immediate impact on the simulation. The interactive nature of the diagrams enables in-depth understanding of the system.
- **Simultaneous Adjustment:** The configuration of the helicopter itself can even be modified during a simulation, e.g. by adding supplementary fuel tanks or sand filters.
- **Out-of-the-window view:** A cost-efficient display of the out-of-the-window view supports the training of take-off and landing scenarios as well as of scenarios with limited functionality of the autopilot.