Desdemona: Advanced Disorientation Trainer and (sustained-G) Flight Simulator

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Abstract

Desdemona is a sophisticated demonstration, simulation, training and research facility specified by TNO Human Factors and developed by AMST Systemtechnik. The Desdemona concept adds a sustainable G-load to the conventional Stewart platform motion, without the angular accelerations encountered in centrifuges during the G-onset. This is accomplished by having the aviator sitting in a fully gimballed cockpit with four cascaded degrees of freedom (360 degrees of yaw, pitch and roll rotation, and 2m heave), placed on a longitudinal track (8m) which is rotated around the vertical axis, adding two synergistic degrees of freedom. Rotation of the track allows centrifugation up to 3g. Realistic environment with state-of-the-art visuals and aircraft specific instruments is available in the cockpit. Proper combination of the 6 DOF makes Desdemona a dynamic flight simulator. For research purposes it may serve to differentiate on issues as low cost vs. high end simulation, and also help to define the essential countermeasures to simulator sickness.