

Autopilot for a small Unmanned Aircraft

This kind of small unmanned aircraft is called Remotely Piloted Vehicle (RPV). The experimental plane was intended for reconnaissance, a project of the Industrieanlagen-Betriebsgesellschaft (IABG).

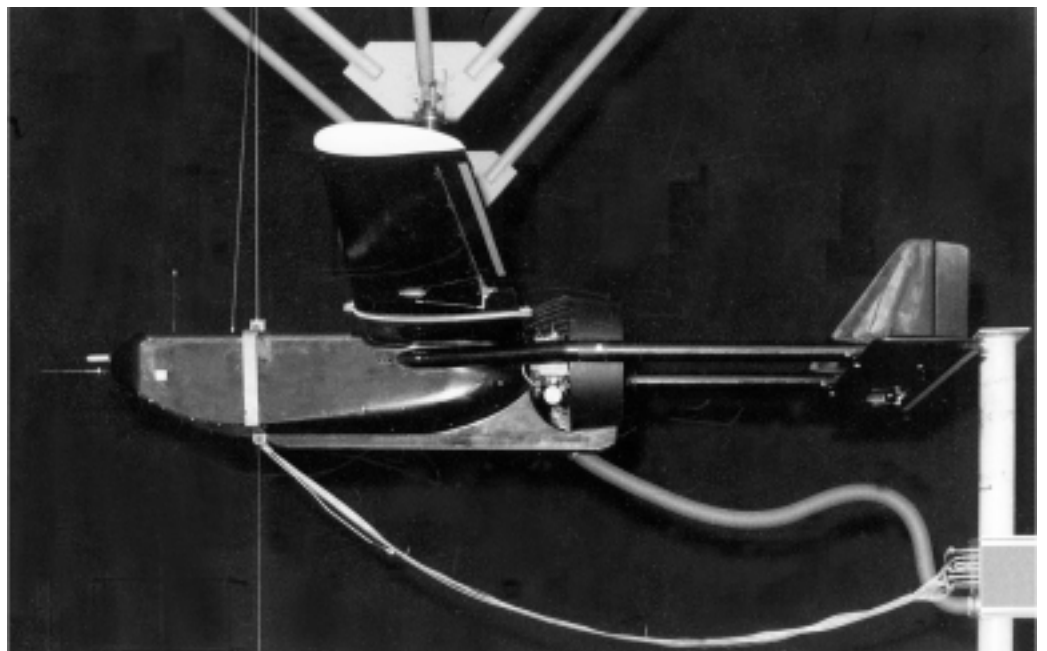
1977-1978 the former Ingenieurbüro Dr.G.Hoffmann had developed the autopilot. The whole system consisted of the radio controlled electronics, a three-axis gyro, a three-axis magnetometer, pressure transducers, an accelerometer and the servo mechanisms. The next page shows the complete avionics system. Because of the very low weight we had to develop a strap-down system with computer based horizon instead of a mechanical platform.

For the ground tests we made a high speed three-axis turntable, which worked in the loop. Gust models and a synthetical view through an onboard camera were helpful for testing the handling quality. Analog-Computers and one 8086 microprocessor with analog peripherals simulated the plane and the environment. The altitude was simulated by a pressure generator. And any onboard avionics was included.

We had the great pleasure to use the equipment of a Computing Center (Mechanikzentrum) of the Technische Universität Braunschweig. Special thanks to director Dr.Klaus Andresen, who provided also the spectra computation.

Test in the windtunnel. Many thanks to Prof.Dr.Peter Hamel, director of the Department for Flight Mechanics of the Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt, DFVLR, DLR in Braunschweig.

Photo by courtesy of DFVLR.

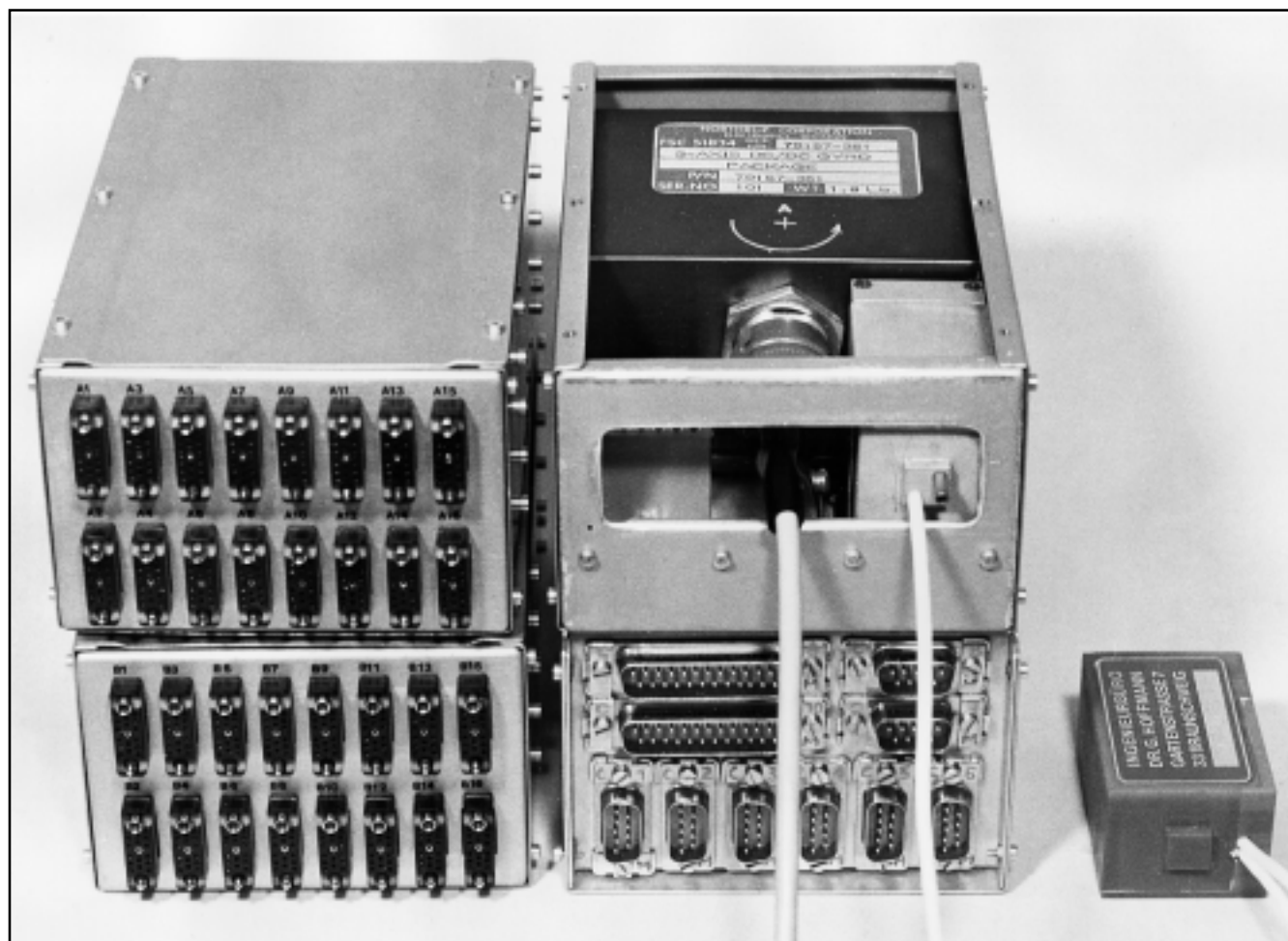
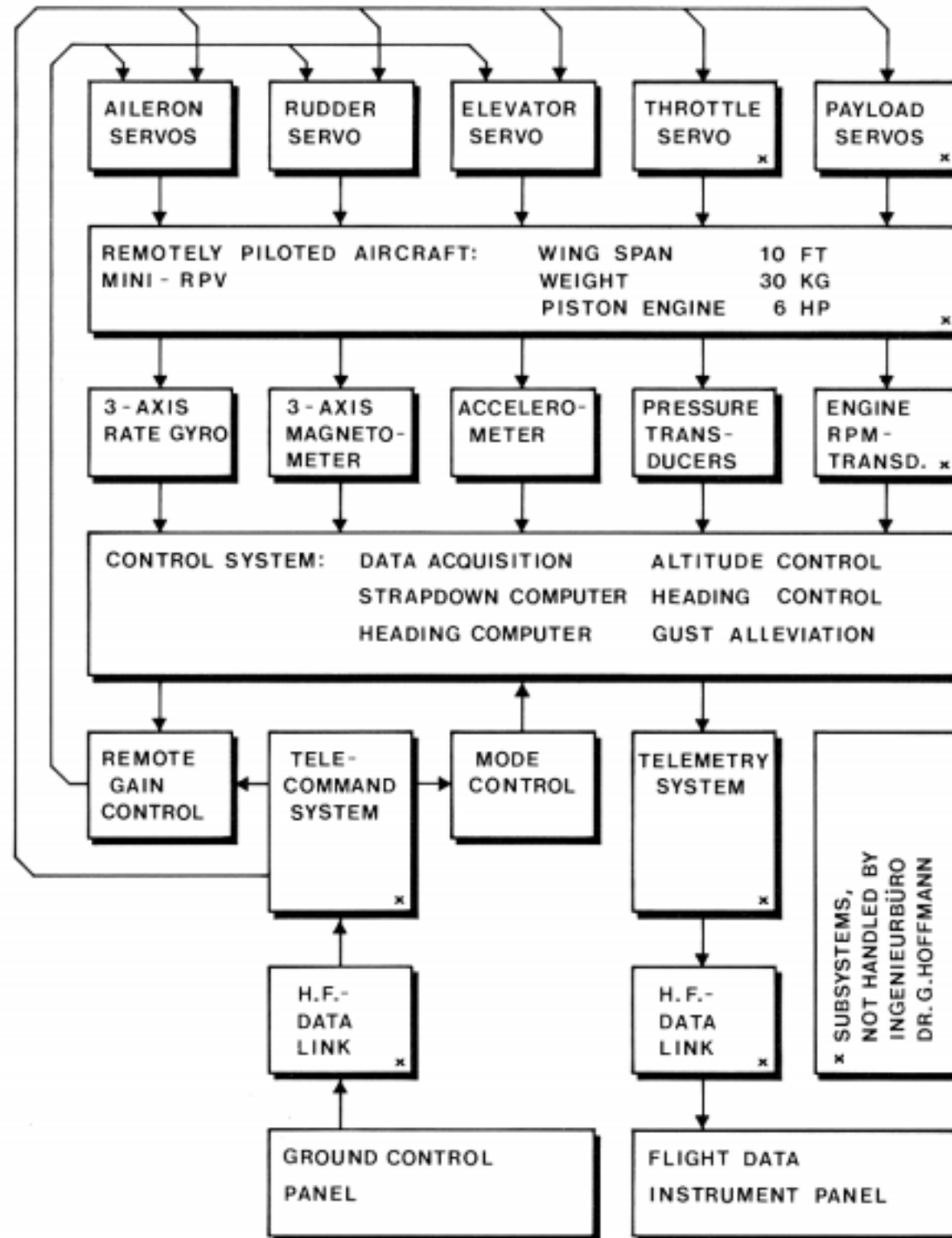


The plane is launched by a catapult and lands by parachute. The first flight was successful.

Photo by courtesy of IABG, outpost for field trials in Lichtenau.



Remotely Piloted Aircraft: Guidance and Control System



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