

4. RESULTS FROM SIMULATION TRIALS

Several closed-loop simulation trials with a BO105 helicopter have been conducted under real-time conditions at a cycle-time of 40ms. The simulation environment was a model of the Braunschweig airport region [2]. The upper part of the snap-shots is the output of the weak tele camera (25mm), the lower part stems from the stronger tele-lens camera (50mm); the two-axis platform was engaged during the approach. Within the images the outlines of the currently active landmarks are drawn. They represent the internal estimate of the IPS about the relative position of the helicopter. The short lines mostly perpendicular to the outlines are the search paths of the edge detectors.

4.1 Horizontal flight loop

The flight plan of the go-around trip in the region of the Braunschweig airport with all its way-points and landmarks is shown in figure 4.1. The helicopter lifted-off at the point called 'Heli H East' and passed the first way-point 'Threshold 27' at a height of 30m and a speed of 20m/s. On the way to the next way-point 'Threshold 09' the snap-shots shown in figure 4.2 to 4.4 have been taken. These

figures show the different LODs of the runway-model. The next way-point called 'Crossing 1' is about 3km west of the runway. During this flight period at a speed of 30m/s in a height of 60m the IPS was set inactive and the MPS accumulated an

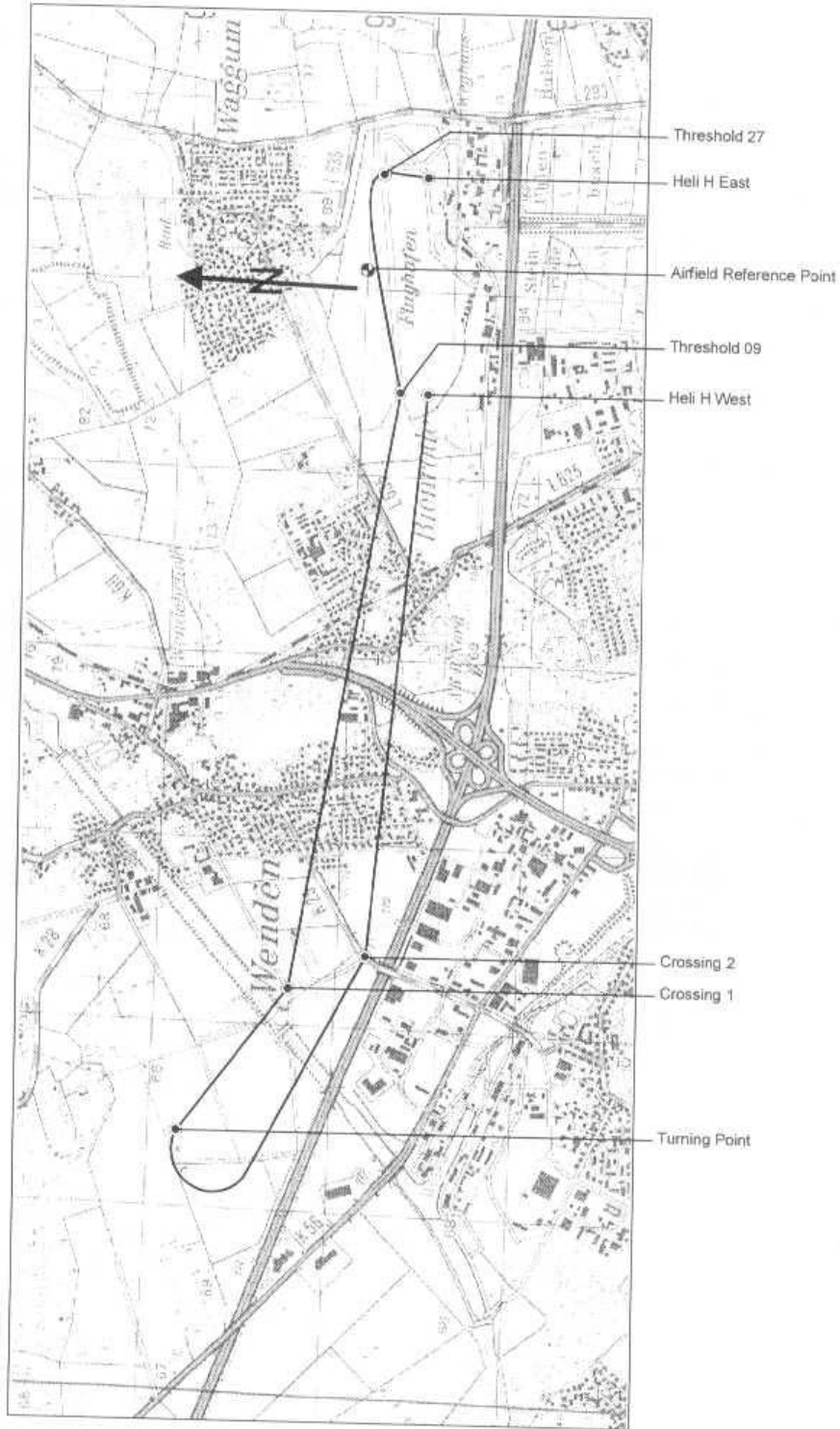


Figure 4.1: Flight plan of the circular flight test in Braunschweig.