

**SERIOUS INCIDENT**

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|--|--|-------------------|
| <b>Aircraft Type and Registration:</b> | Cessna 441 Conquest, G-USAR  |                   |
| <b>No &amp; Type of Engines:</b>       | 2 Garrett AiResearch TPE 331-10N-513S turboprop engines  |                   |
| <b>Year of Manufacture:</b>            | 1985   |                   |
| <b>Date &amp; Time (UTC):</b>          | 10 December 2010 at 1745 hrs   |                   |
| <b>Location:</b>                       | East Midlands Airport  |                   |
| <b>Type of Flight:</b>                 | Private  |                   |
| <b>Persons on Board:</b>               | Crew - 1   | Passengers - 1    |
| <b>Injuries:</b>                       | Crew - None  | Passengers - None |
| <b>Nature of Damage:</b>               | None   |                   |
| <b>Commander's Licence:</b>            | Commercial Pilot's Licence   |                   |
| <b>Commander's Age:</b>                | 59 years   |                   |
| <b>Commander's Flying Experience:</b>  | 14,000 hours (of which 220 were on type)<br>Last 90 days - 62 hours<br>Last 28 days - 38 hours |                   |
| <b>Information Source:</b>             | Aircraft Accident Report Form submitted by the pilot   |                   |

**Synopsis**

The pilot planned to fly an ILS approach with the autopilot engaged. The aircraft was given radar vectors to intercept the final approach course and the pilot reported to ATC that he was established on the localiser. The ATC controller then noticed that the aircraft was flying erratically, deviating from the expected track and altitude. He instructed the pilot to turn onto a specific heading and to climb to 2,500 ft. The pilot followed the controller's instructions and subsequently accepted a second radar vectored ILS approach, which was flown successfully.

**History of the flight**

The aircraft flew from Zurich, Switzerland, to East Midlands Airport where Runway 27 was in use. The weather conditions at East Midlands were recorded as: surface wind from 260°M at 25 kt, overcast cloud at 600 ft aal, light rain, visibility 7 km, temperature 2°C and barometric pressure 1028 mb. Moderate turbulence and light icing were also reported. It was dark.

The aircraft was given radar vectors to intercept the final approach course. The pilot reported that he was flying with the autopilot engaged and maintaining the assigned heading. He noticed that he had inadvertently descended below the assigned altitude of 2,000 ft, to 1,800 ft. He disengaged the autopilot, in order to

correct the height manually, but, while he was doing so, went through the localiser. He reported to ATC that he would re-establish on the approach. He then attempted to re-engage the autopilot and continue the approach but this was unsuccessful. The pilot again reverted to manual flight but became disorientated and the aircraft went through a series of erratic manoeuvres.

The aircraft was handed over from the radar controller to the aerodrome controller (ADC) at 7 DME. The ADC noticed on his Aerodrome Traffic Monitor (ATM) that the aircraft was deviating to the right of the localiser course. The pilot reported that he would re-establish on the localiser and the controller issued a clearance to continue the approach. The controller then observed that the aircraft was carrying out unusual manoeuvres and appeared to have entered an orbit at 6 DME. The controller asked the pilot whether he required radar vectors but the pilot decided to continue with the approach.

Several more exaggerated heading changes to the north and south of the final approach course were observed by the ADC, together with rapid altitude changes. The lowest indicated altitude seen by the controller was

1,100 ft (800 ft aal), at 5 DME. The aircraft was still not established on the localiser and the ADC instructed the pilot to fly a heading of 180°M and climb to an altitude of 2,500 ft. The pilot was able to comply with these instructions and was transferred back to the radar controller. A second, successful ILS approach was made.

### **Discussion**

The pilot reported afterwards that, in hindsight, he should have gone around as soon as he identified a problem with the autopilot. He noted that, in transitioning several times from automatic to manual flight, he had become confused by the attitude presentation and disorientated. This aircraft was fitted with an attitude indicator with a 'sky pointer' presentation with which he was unfamiliar. He considered that if he had allowed himself sufficient time to settle into manual flight the problem would not have occurred.

In the event, the intervention by the ADC was timely and, despite having suffered a loss of control, the disorientated pilot was able to recover and follow the ATC heading and climb instructions.