

National Transportation Safety Board  
Washington, DC 20594

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Brief of Accident

Adopted 04/10/2014

ERA13FA088  
File No. 32475    12/16/2012    Parkton ,NC    Aircraft Reg No. N5714W    Time (Local): 15:32 EST

Make/Model: Piper/PA-28-160  
Engine Make/Model: Lycoming / O-320-D2A  
Aircraft Damage: Substantial  
Number of Engines: 1  
Operating Certificate(s): None  
Type of Flight Operation: Personal  
Reg. Flight Conducted Under: Part 91: General Aviation

	Fatal	Serious	Minor/None
Crew	1	0	0
Pass	0	0	0

Last Depart. Point: Summerville, SC  
Destination: Fayetteville, NC  
Airport Proximity: Off Airport/Airstrip

Condition of Light: Day  
Weather Info Src: Weather Observation Facility  
Basic Weather: Instrument Conditions  
Lowest Ceiling: 1300 Ft. AGL, Overcast  
Visibility: 3.00 SM  
Wind Dir/Speed: 210 / 003 kts  
Temperature (°C): 14  
Precip/Obscuration: Moderate - Mist; No Precipitation

Pilot-in-Command    Age: 63

Flight Time (Hours)

Certificate(s)/Rating(s)  
Private; Single-engine Land

Total All Aircraft: 1006  
Last 90 Days: Unk/Nr  
Total Make/Model: Unk/Nr  
Total Instrument Time: Unk/Nr

Instrument Ratings  
Airplane

\*\*\* Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. \*\*\*

The instrument-rated pilot departed with nearly full fuel tanks, obtained his instrument flight rules (IFR) clearance, and proceeded toward the destination airport, which, at the time of the accident, was IFR with a 500-foot ceiling. The pilot was vectored onto final approach for an instrument landing system approach. Radar data showed that the airplane performed s-type turns; the pilot then reported to the local controller that he had "...lost some gyros but I think we are getting it." When the airplane was about 1 mile from the approach end of the runway at 1,300 feet, the local controller cancelled the approach clearance because the airplane was too high and advised the pilot to fly runway heading and climb to 2,000 feet. Radar data indicated that the pilot turned toward an easterly heading without clearance from the controller. The pilot was then instructed to maintain an easterly heading followed by a southwesterly heading (220 degrees) consistent with a downwind leg to fly parallel to runway 4. The pilot turned well past the southwesterly heading to a northwesterly heading, and was asked by the controller if he was having any problem with the airplane such that he was unable to fly assigned headings. The pilot advised the radar controller that he "...currently [had] no gyro I think the best thing for me to climb a little bit and go to my alternate of ah Columbus or some point south." There was an adequate supply of fuel onboard to fly to his alternate airport, which at that time was under visual meteorological conditions with 10 miles visibility and a ceiling at 5,500 feet. As a result of the loss of gyros, the pilot was flying the airplane with a partial panel.

## Brief of Accident (Continued)

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The pilot was cleared to climb direct to his alternate airport; however, extensive heading and altitude deviations were noted during this portion of the flight, which was operating in IMC. The radar controller asked the pilot if he was ok to which he replied, "uh no im not okay right now." This verbiage and the fact that extensive altitude and heading deviations occurred were clear indications that an emergency situation existed; however, the controller did not recognize this and did not request the necessary information needed to offer assistance, as outlined in FAA Order 7110.65, 10-2-1. The controller later reported that he believed the gyro comment would have affected only the pilot's ability to maintain heading, thus, he did not believe the loss of gyros while in instrument conditions constituted an emergency. The controller then asked the pilot if he wanted to land at the airport, and he answered, "uh the best thing to"; however, the communication was not finished. It is likely that the pilot was intending to tell the controller again that he wanted to go to his alternate airport. However, because the controller did not recognize the emergency, he continued to vector the pilot to land using an ILS approach. While thbeing vectored, when the airplane was operating in IMC, major heading and altitude changes were noted; however, when the airplane was operating at higher altitudes in VFR conditions, the pilot was able to maintain the airplane's assigned heading and altitude. The steady flight in VFR conditions should have been a cue to the controller that safe flight was possible in visual conditions; thus he should have encouraged the pilot to continue the flight to his alternate airport as the pilot had requested. Instead, the controller vectored the pilot to intercept the localizer, advised that the flight was about 4 miles from the final approach fix, and cleared the pilot to conduct an ILS approach. The pilot managed to fly onto final approach, but while in IMC conditions, rolled to the right and crashed inverted in a wooded area about 7.5 nautical miles from the approach end of the runway. Postaccident examination of the airframe and flights controls for roll, pitch, and yaw revealed no evidence of preimpact failure or malfunction. Examination of the power section of the engine revealed no evidence of preimpact failure or malfunction; one propeller blade exhibited "S"-bending consistent with the engine developing power at impact. No discrepancies were noted with the airport approach systems.

Examination of the engine-driven vacuum pump, which operates the primary flight instruments consisting of the attitude indicator and directional gyro revealed fire damage to the shear shaft; however, no evidence of scoring of the interior surface of the housing was noted. Further, inspection of the gyroscopic flight instruments operated by the engine-driven vacuum pump revealed no evidence of rotational scoring; therefore, the engine-driven vacuum pump, which was about 3 years 4 months beyond the suggested replacement interval, was not operating at the moment of impact. This was consistent with the comment from the pilot that he had lost his gyro instruments. Although no determination could be made as to whether the pilot was instrument current, his inability to maintain control of the airplane while flying with a partial panel suggests he was not proficient in doing so; he failed this criteria in April 2002 during his first instrument rating checkride. In August 2004, in response to an NTSB recommendation, the FAA implemented national computer-based training to alert controllers of in-flight emergencies a pilot may encounter and the effect of the emergency. NTSB review of the current version of the CBI revealed it did not contain scenarios related to failures of the vacuum system or gyro flight instruments. Although the training provided to the controllers involved appeared to be inconsistent, it is unlikely that consistent training would have affected the outcome of the accident because specific mention of gyro malfunction was not a covered topic in the CBI training. Although the pilot had not declared an emergency, he had advised ATC personnel that he had lost his gyros, and that he was "not OK." Further, extensive altitude and heading excursions of the aircraft were noted, all of which were clear indicators that an in-flight emergency existed. Had any of the FAA controller personnel understood either by experience or training that the pilot's declarations or altitude and heading changes constituted an emergency, they could have declared an emergency for the pilot and obtained the necessary information required by section 10-2-1 of FAA Order 7110.65U, "Air Traffic Control." Had that occurred, it is likely the pilot would have been vectored to an airport with VFR conditions for an uneventful landing.

Updated at Apr 10 2014 9:35AM

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OCCURRENCES

Approach-IFR final approach - Sys/Comp malf/fail (non-power)  
Approach-IFR initial approach - Loss of control in flight  
Uncontrolled descent - Collision with terr/obj (non-CFIT)

FINDINGS

Aircraft-Aircraft oper/perf/capability-Performance/control parameters-Directional control-Not attained/maintained - C  
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C  
Aircraft-Aircraft systems-Vacuum system-(general)-Failure - F  
Aircraft-Aircraft systems-Navigation system-Directional gyro & indication-Failure - F  
Aircraft-Aircraft systems-Navigation system-Attitude gyro & indication-Failure - F  
Personnel issues-Action/decision-Info processing/decision-Understanding/comprehension-ATC personnel - F  
Personnel issues-Experience/knowledge-Training-Recurrent instruct/training-ATC personnel - F

Findings Legend: (C) = Cause, (F) = Factor

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The National Transportation Safety Board determines the probable cause(s) of this accident as follows:  
The failure of the instrument-rated pilot to maintain control of the airplane while in instrument meteorological conditions after reporting a gyro malfunction. Contributing to the accident was the loss of primary gyro flight instruments due to the failure of the vacuum pump, the inadequate assistance provided by FAA ATC personnel, and the inadequate recurrent training of FAA ATC personnel in recognizing and responding to in-flight emergency situations.