NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

April 22, 2016

AIR TRAFFIC CONTROL SPECIALIST'S REPORT

CEN15FA190

A. AIRCRAFT ACCIDENT

Location: Bloomington, Illinois
Date: April 7, 2015
Time: 0006 central daylight time (CDT)[1]
0506 coordinated universal time (UTC)
Airplane: N789UP, Cessna 414A

B. AIR TRAFFIC CONTROL INVESTIGATOR

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C. SUMMARY

On April 7, 2015, about 0006 central daylight time (all referenced times will reflect central daylight time), a Cessna model 414A twin-engine airplane, N789UP, was substantially damaged when it collided with terrain following a loss of control during an instrument approach to Central Illinois Regional Airport (BMI), Bloomington, Illinois. The airline transport pilot and six passengers were fatally injured. The airplane was owned by and registered to Make It Happen Aviation, LLC, and was operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 while on an instrument flight rules (IFR) flight plan. Night instrument meteorological conditions prevailed for the cross-country flight that departed Indianapolis International Airport (IND), Indianapolis, Indiana, at 2307 central daylight time.

D. DETAILS OF THE INVESTIGATION

The National Transportation Safety Board's (NTSB) air traffic control investigator was not on scene, and did not travel in support of this investigation. All ATC work was conducted from the investigator's office. The information provided in this report was compiled utilizing the following source data provided by the Federal Aviation Administration (FAA): Certified air traffic control audio re-recordings, radar data, the aircraft accident package, and copies of other administrative documents.

On April 27, 2015 a witness interview was conducted via telephone with the Peoria Air Traffic Control Tower (PIA ATCT) radar controller that provided services to N789UP on the evening of the accident. Though an air traffic control working group was not formed in support of this investigation, Mr. Nick Fuller from the FAA compliance services group also participated in the interview. A summary of the interview conducted with the radar controller was provided (attachment 1).

[1] All times are in central daylight time (CDT) unless otherwise noted

E. FACTUAL DATA

1.0 History of Flight

The following data was based on certified voice data provided by the FAA. Certified transcripts were not provided by the FAA in this accident, and therefore a partial transcript was constructed and provided by the NTSB ATC investigator (attachment 2).

2352:06 N789UP first contacted PIA level at 4,000 feet msl[2] and requested the ILS[3] approach to runway 20 at BMI. The radar controller informed the pilot he could expect vectors for the ILS approach to runway 20.

2354:14 The radar controller instructed the pilot of N789UP to fly heading 330 and the pilot acknowledged with a correct read back.

2356:31 The radar controller broadcasted that ATIS[4] information "India" was current.

[According to voice recordings and an interview conducted with the PIA radar controller that provided services to N789UP, no weather information was provided to N789UP, nor was it confirmed with the accident pilot that he was in receipt of the current ATIS information.]

2359:11 The pilot of N789UP requested a lower altitude. The radar controller instructed him to descend and maintain 2,500 feet, and the accident pilot acknowledged with a correct read back.

0000:01 The radar controller instructed the pilot of N789UP to turn left to a heading of 290 and the pilot acknowledged with a correct read back.

0000:39 The radar controller cleared N789UP for the ILS approach to runway 20 and informed the pilot of his position five miles from EGROW[5], instructed him to turn left to a heading of 230, and to maintain 2,500 feet until established on the localizer. The pilot acknowledged with a correct read back.

0001:47 The radar controller instructed the accident pilot to report the cancellation of his IFR flight plan on the approach control frequency in the air or on the ground, terminated radar services, and approved him to change to advisory frequency. The pilot acknowledged and switched to the advisory frequency.

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[2] All altitudes are in feet above mean sea level (msl) unless otherwise indicated, or in all cases of all cloud layers which are reported in feet above ground level (agl).
[3] ILS – Instrument Landing System – A precision instrument approach system that normally consists of a Localizer, Glideslope, Outer/Middle Markers, and approach lights utilized by a properly equipped pilot to conduct an ILS approach.
[4] ATIS – Automatic Terminal Information Service – A continuous broadcast of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or specified portion of the day
[5] EGROW – the name of the initial approach fix for the ILS RWY 20 approach at BMI. The fix is located 4.5 nautical miles from the approach end of runway 20.

[The next transmission was obtained from un-certified privately recorded audio of the BMI CTAF[6] and was obtained from www.liveATC.net. The time was estimated as closely as possible based on comparison to certified ATC voice recordings and radar data.]

0002:00 The pilot of N789UP announced on BMI CTAF that he was approaching EGROW on the ILS runway 20 and was a full stop.

[No further transmissions were recorded from the accident pilot. According to FAA voice recordings, the PIA radar controller made repeated attempts to contact N789UP until beginning the lost/missing aircraft notification process.]

2.0 Radar Data

Radar source data was provided by the FAA from the Peoria ASR-11 radar which was located approximately 43 miles northwest of BMI, and the Champaign ASR-11 radar which was located approximately 44 miles southeast of BMI. The Champaign radar was not adapted to PIA ATCT and therefore, the radar data provided from Champaign is not representative of what the controller at PIA would have seen on his radar display. Attachment 3, figure 1 is a radar plot of the data recorded from the Peoria radar, and attachment 3, figure 2 is a radar plot of the data recorded from the Champaign radar. Attachment 3, figure 3 is a radar plot of the final segment of the accident flight track with times and altitudes as recorded from the Champaign radar.

Peoria radar (which is the data that was available to the PIA radar controller) indicated that the accident pilot followed all course and altitude instructions that were provided by ATC up until the aircraft was established on the ILS final approach course and radar services were terminated by the radar controller. Within seconds after radar services were terminated, radar contact was lost with the accident aircraft (which was normal due to radar coverage at low altitude in the vicinity of BMI). The radar data up to the point radar contact was lost indicated the accident aircraft appeared to be correcting to the final approach course from slightly right of course. The last radar target recorded from the Peoria radar when radar contact was lost was at 0002:39 and indicated an altitude of 2,400 feet. At 0004:59 the Peoria radar data indicated a pop-up track (same transponder code and estimated location of the accident aircraft) that lasted for approximately 41 seconds. During the five targets that were recorded during that time, the data indicated the airplane climbed as high as 2,000 feet before descending again. The last radar target recorded from the Peoria radar occurred at 0005:18 and indicated an altitude of 1,600 feet.

The Champaign radar data contained additional flight track data from the accident aircraft after the first loss of Peoria radar coverage, as well as, after the last recorded Peoria radar target. At the time the Peoria radar lost coverage, the Champaign radar data indicated that the aircraft appeared to continue correcting to the final approach course from slightly right of course and continued to descend until 0003:46 reaching an altitude of 1,500 feet before radar coverage was lost. At 0004:34 the Champaign radar data indicated a pop-up track (same transponder code and estimated location of the accident aircraft). This track indicated the aircraft was traveling a southerly heading slightly to the left of the final approach course for approximately 30 seconds

[6] CTAF – Common Traffic Advisory Frequency – A VHF radio frequency used for air-to-air communication at US, Canadian, and Australian non-towered airports.

and climbing to an altitude of 2,000 feet before turning approximately 90 degrees left of the final approach course. While tracking directly eastbound, radar data indicated that the aircraft descended again from 2,000 feet to 1,500 feet, then climbed back to 2,000 feet and began to descend again below radar coverage for approximately 24 seconds. The track then popped up again slightly southeast of where the track had previously ended, still on an easterly heading, and indicated an altitude of 1,600 feet. The data indicated the aircraft then climbed again briefly as high as 1,900 feet before descending once again. The last radar target recorded from the Champaign radar occurred at 0006:25, indicated an altitude of 1,600 feet, and was approximately coincident with the accident site location.

3.0 Weather Information

Local weather was obtained from the BMI Automated Surface Observation System (ASOS[7]) which was unmonitored and not augmented by tower or weather personnel at the time of the accident. The following are the official observations made available to ATC and other flight service outlets during the time surrounding the accident.

[2337 CDT] SPECI KBMI 070437Z AUTO 11005KT 1SM R29/P6000FT -RA BR BKN002 OVC006 13/13 A2999 RMK AO2 P0000

BMI weather at 2337 CDT, wind from 110 degrees at 5 knots, 1 mile visibility, greater than 6000 feet runway visual range on runway 29, light rain, mist, broken ceiling at 200 feet agl, overcast skies at 600 feet agl, temperature 13 degrees Celsius (C), dew point temperature 13 degrees C, altimeter 29.99 inHg. Remarks, automated station with a precipitation discriminator, one-hourly precipitation of trace.

[2356 CDT] METAR KBMI 070456Z AUTO 06004KT 3/4SM R29/6000VP6000FT -RA BR OVC002 13/13 A2999 RMK AO2 T01270127 LTG DSNT E P0000 SLP153

BMI weather at 2356 CDT, wind from 060 degrees at 4 knots, ¾ miles visibility, runway visual range varying from 6,000 feet to greater than 6,000 feet on runway 29, light rain, mist, overcast ceiling at 200 feet agl, temperature 13 degrees C, dew point temperature 13 degrees C, altimeter 29.99 inHg. Remarks, automated station with a precipitation discriminator, temperature 12.7 degrees C, dew point temperature 12.7 degrees C, lightning distant east, one-hourly precipitation of a trace, sea-level pressure 1015.3 hPa.

[0006 CDT] APPROXIMATE TIME OF ACCIDENT

[0011 CDT] SPECI KBMI 070511Z AUTO 07006KT 1/2SM R29/4000V5000FT -RA FG OVC002 13/13 A2998 RMK AO2 P0000

BMI weather at 0011 CDT, wind from 070 degrees at 6 knots, a half mile visibility, runway visual range varying between 4,000 feet and 5,000 feet on runway 29, light rain, mist, overcast

[7] ASOS – Automated Surface Observing System - Automated sensor suites that are designed to serve meteorological and aviation observing needs. There are currently more than 900 ASOS sites in the United States. These systems generally report at hourly intervals, but also report special observations if weather conditions change rapidly and cross aviation operation thresholds.

ceiling at 200 feet agl, temperature 13 degrees C, dew point temperature 13 degrees C, altimeter 29.98 inHg. Remarks, automated station with a precipitation discriminator, one-hourly precipitation of a trace.

4.0 Equipment Information

According to emailed documentation provided by the FAA Midstates Operational Control Center (MOCC), the ILS at BMI was operational and aligned to runway 20, and recorded no errors at or around the time of the accident (attachment 5, figures 1 and 2). Attachment 5, figure 1 was a screen shot of one page from an electronic log used to track the ILS status for each runway at BMI. The highlighted rows in figure 1 indicated that runway 20 had been selected prior to 4/6/2015 at 0913 UTC and remained selected until 4/7/2015 at 1059 UTC. Figure 2, was a copy of the electronic log of all parameters polled on the runway 20 ILS from 4/6/2015 at 0913 UTC until 4/7/2015 at 1059 UTC at which time runway 20 was de-selected. Figure 2 was a running list and showed any alert or alarm with regards to the integrity of the ILS to runway 20. If there was an alert or alarm it would be annotated in column 7 under "Status." The highlighted rows in figure 2 show the alerts/alarms that took place when the system was taken off line for the post-accident operational check on 4/7/2015 between 0713 and 0717 UTC. No other alerts or alarms were logged on the ILS for runway 20 between 4/6/2015 at 0913 UTC and 4/7/2015 at 1059 UTC.

PIA did not have BMI ILS system status monitoring capability, and the ILS was published as "unmonitored" when BMI tower was closed. The ILS at BMI is an "interlocked" system, which means that only one runway localizer could be radiating at a time, and at the time of the accident approach, the ILS to runway 20 was radiating. This interlocked operation was confirmed by the National Airway Systems Engineering Office (AJW-1431).

A post-accident equipment inspection and check were also performed on the ILS by technical operations personnel as required, in which the ILS was found to be fully operational and documented in an FAA record of conversation (attachment 6, figure 1), as well as, an FAA Memorandum (attachment 6, figure 2).

5.0 Reference Information

FAA JO 7110.65V (Air Traffic Control) stated in part:

> 4−7−10. APPROACH INFORMATION
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> a. Both en route and terminal approach control sectors must provide current approach information to aircraft destined to airports for which they provide approach control services. This information must be provided on initial contact or as soon as possible thereafter. Approach information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code. For pilots destined to an airport without ATIS, items 3−5 below may be omitted after the pilot advises receipt of the automated weather; otherwise, issue approach information by including the following:

1. Approach clearance or type approach to be expected if two or more approaches are published and the clearance limit does not indicate which will be used.
2. Runway if different from that to which the instrument approach is made.
3. Surface wind.
4. Ceiling and visibility if the reported ceiling at the airport of intended landing is below 1,000 feet or below the highest circling minimum, whichever is greater, or the visibility is less than 3 miles.
5. Altimeter setting for the airport of intended landing.

F. LIST OF ATTACHMENTS

Attachment 1: Interview Summary – PIA Radar Controller
Attachment 2: Partial Transcripts – PIA Only
Attachment 3: Radar Plots – (3) Figures
Attachment 4: FALCON Screen Shots – (7) Figures
Attachment 5: Equipment Logs – (2) Figures
Attachment 6: FAA Form 1360-33 and FAA Memorandum

Submitted by:

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