Aviation Investigation Final Report

Location:	Lancaster, California	**Accident Number:**	WPR16LA028
Date & Time:	November 12, 2015, 19:30 Local	**Registration:**	N78CR
Aircraft:	Beech A36	**Aircraft Damage:**	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The private pilot and flight instructor were conducting a three-leg cross-country flight in dark night, visual meteorological conditions on an instrument flight rules flight plan to an airport located in the vicinity of mountainous terrain. The pilot requested the RNAV approach, and the controller cleared the pilot direct to an intermediate fix for the approach. Three minutes later, the controller instructed the pilot to descend and maintain 7,000 ft. The airplane continued on its original heading for several minutes before turning toward the intermediate fix; the controller subsequently issued a 15^{o} right turn to intercept the final approach course; however, the airplane turned left about 10^{o}. The airplane continued on this heading for about 3.5 miles, when the controller cleared the airplane direct to the next fix along the approach (which should have resulted in the airplane turning left), with an altitude restriction at or above 7,000 ft until reaching the fix. The pilot incorrectly read back the fix, and the airplane turned right, likely toward the intermediate fix to which he had been previously cleared. The controller did not correct the pilot's readback of this clearance.

Several minutes later, at 7,250 ft, the pilot reported the intermediate fix inbound. The controller did not hear this transmission because he was on a landline with the tower controller at the time. Rather than turning onto the approach course, the airplane continued a southerly heading through the fix and the final approach course, and several minutes later, the pilot again asked the controller for an approach clearance. The controller cleared the airplane for the approach with no additional information. The airplane was not established on the published approach at that time, and as the airplane turned north/northwest to intercept the final approach course, it was well below the published minimum altitude for that segment of the approach. The controller subsequently asked the pilot if he had the terrain in sight, and the pilot first responded that he had the airport in sight. When asked again if he had the terrain in sight, the pilot responded that he did. The controller then instructed the pilot to contact the airport tower controller. At that time the airplane was at an altitude of 5,325 ft; the minimum altitude for that segment of the approach was 6,400 ft.

The airplane continued to descend along the final approach course; the last recorded radar position of the airplane was at an altitude of 4,150 ft and nearly coincident with the accident site. Both pilots reported to first responders that they thought they were flying too high, but instead they were too low, and that they flew into terrain. Both pilots also reported that there were no mechanical malfunctions of the airplane.

The circumstances of the accident are consistent with the flight instructor's failure to comply with the minimum published altitudes for the approach, which would have ensured terrain clearance. Although the controller likely recognized the airplane's low altitude, and as a result asked if they had the terrain in sight, it is likely that, had he issued a safety alert and instructed the pilots to climb, the collision with terrain may have been averted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's failure to comply with published instrument approach procedures during an instrument approach in dark night, visual meteorological conditions, which resulted in impact with terrain. Contributing to the accident was the controller's failure to issue a safety alert upon noting the airplane's low altitude.

Findings

Personnel issues	Lack of action - Pilot
Aircraft	Altitude - Not attained/maintained
Environmental issues	Dark - Effect on personnel
Personnel issues	Task monitoring/vigilance - Instructor/check pilot
Personnel issues	Task monitoring/vigilance - ATC personnel
Personnel issues	Incorrect action selection - ATC personnel

Factual Information

History of Flight

Approach-IFR initial approach	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On November 12, 2015, at 1930 Pacific standard time, a Beech A36 airplane, N78CR, impacted mountainous terrain while on a practice instrument approach to General William J. Fox Airfield (WJF), Lancaster, California. The private pilot and certified flight instructor (CFI) were seriously injured and the airplane was substantially damaged. The airplane was registered to TA Services LLC, and operated under the provisions of Title 14 *Code of Federal Regulations* Part 91. Night visual meteorological conditions prevailed and an instrument flight plan was filed. The flight originated from Bakersfield, California at 1900.

The pilot stated that he was receiving instrument flight instruction from a certified flight instructor, and they were conducting a three-leg cross country flight. The flight originated from Camarillo, California, on the first leg at 1805 and landed in Bakersfield at 1845, and departed on the second leg at 1900 en route to WJF. The pilot reported that the flight was cleared for the RNAV RWY 6 approach. They crossed HONUL, a waypoint fix 3.5 miles west of the final approach fix, about 1,900 feet below the minimum crossing altitude, and impacted trees in the mountainous area 10 miles southwest of the airport. .

A Los Angeles County Fire Department helicopter located the aircraft accident location and a sheriff deputy arrived on-scene about 45 minutes after the accident. In a statement to the Los Angeles Country Sheriff at the accident scene, the pilot said that he thought he was flying too high and instead was flying too low, at which time he collided with terrain. He also stated there were no mechanical malfunctions, only pilot error.

Certified voice recordings provided by the Federal Aviation Administration (FAA), and OpsVue radar track data was reviewed and a synopsis was created. Altitudes are in feet above mean sea level (msl). There were no certified transcripts produced by the FAA on this event, which was not required, therefore a partial transcript was produced by the National Transportation Safety Board Air Traffic Control (ATC) investigator, and is located in the official docket of this investigation.

OpsVue track data indicated that the pilot first checked in with the Joshua Control Facility (JCF) about 34 miles northwest WJF, southeast bound on a heading direct to the airport at an altitude of 11,300 ft and a ground speed of about 151 knots. At 1938:15 the pilot requested the RNAV RWY 06 approach to a full stop at WJF and at 1939:31 the controller cleared the flight direct to JILMU (intermediate fix for the RNAV RWY 06 approach). At 1941:32 the controller instructed the pilot to descend and maintain 7,000 ft (the published minimum altitude crossing JILMU on the RNAV RWY 06 approach). The pilot continued flying southeast bound on the heading he checked in on for about 6 miles before turning

southbound in the direction of JILMU. The pilot continued flying on about a 190° heading until 1944:38 when the controller instructed the pilot to turn right 15° for a better turn to final. Radar track data indicated that the airplane actually turned to the left about 10° to around a 180° heading, rather than right 15° as instructed.

The flight tracking continued on the 180° for about 3.5 miles when at 1946:52 the controller cleared the pilot direct to HONUL with an altitude restriction of at or above 7,000 ft until reaching HONUL. The pilot read back what sounded like "JOEL" and moments after the clearance the radar track data indicated the airplane turning right toward JILMU again.

At 1949:24, the pilot reported JILMU inbound and at that time was at an altitude of 7,250 ft and a ground speed of about 96 knots. The controller was on a landline with Fox Field tower affecting arrival coordination at the time of the radio report. Radar track data indicated that the airpane continued on a southerly heading through JILMU and the final approach course and the pilot re-called the controller for approach clearance at 1950:20. At 1950:27 the controller cleared the pilot for the approach, with no supplemental information. Upon being cleared however, radar track data indicated that the airplane turned right back to the north/northwest and then turned onto the final approach course approximately 1.5 miles out from HONUL, and well below the published minimum altitude for that segment of the approach. During the same time, a position relief briefing was taking place at Joshua Control, and it was mentioned that the pilot was struggling with his approach. At 1953:05 the controller asked the pilot if he had the terrain in sight, at which time the airplane was about 900-1,000 ft below the published approach altitude, and the pilot first responded with the airport in sight when he was asked again if he had terrain in sight, and the pilot responded that he did. At 1953:18 the controller instructed the pilot to contact Fox Field tower, at that time the airplane was at an altitude of 5,325 ft and a ground speed of about 88 knots.

At 1953:54, the pilot checked in with Fox Field tower about 3/4 miles outside of HONUL on the RNAV RWY 6 for a full stop. The airplane was at an altitude of 4,775 ft and descending at a ground speed of about 72 knots. The tower controller instructed the pilot to report 3 miles out, and at 1954:17 the pilot acknowledged appropriately. This was the last recorded transmission from the pilot. At 1954:33 the airplane crossed HONUL at about 4,225 ft and at a ground speed of about 69 knots. At 1954:35 and 1954:37, two "clicks" were heard on the voice recordings, and at 1954:38 the last recorded track data of the airplane indicated an altitude of 4,150 ft and a ground speed of about 71 knots and was approximately coincident with the accident location.

METEOROLOGICAL INFORMATION

At 1956 the Fox Field the Automated Surface Observation System (ASOS) recorded the weather conditions as wind from 300o at 3 knots, 10 statute miles visibility, sky was clear, temperature was 4°C, dew point was -11°C, and altimeter setting was 30.14 inHg.

The U.S. Naval Observatory database for November 12, 2015, shows that for the Lancaster, CA, area the sun set was at 1650, moon rise at 0708, moon set at 1755, and moon illumination was 0%.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located towards the top of a shallow ridge, on the up-slope side. The terrain was populated with brush and a wide distribution of dead pine trees. The wreckage debris path contained broken tree branches, and ground gouges leading up to the airplane. The airplane's engine had been separated from the firewall and displaced under the airplane nose. The landing gear was extended. The cockpit and fuselage was intact. The leading edge of both wings had leading edge damage consistent with multiple tree impacts. The tail was intact, however, displaced to the right about 20-degrees. The propeller had separated from the engine, exhibited leading edge blade damage, and blade tip curling on all three blades.

ADDITIONAL INFORMATION

FAA Order JO 7110.65, Air Traffic Control, stated in part:

2-1-6. SAFETY ALERT

"Issue a safety alert to an aircraft if you are aware the aircraft is in a position/altitude that, in your judgment, places it in unsafe proximity to terrain, obstructions, or other aircraft. Once the pilot informs you action is being taken to resolve the situation, you may discontinue the issuance of further alerts. Do not assume that because someone else has responsibility for the aircraft that the unsafe situation has been observed and the safety alert issued; inform the appropriate controller.
a. Terrain/Obstruction Alert. Immediately issue/initiate an alert to an aircraft if you are aware the aircraft is at an altitude that, in your judgment, places it in unsafe proximity to terrain and/or obstructions. Issue the alert as follows:
PHRASEOLOGY-LOW ALTITUDE ALERT (call sign), CHECK YOUR ALTITUDE IMMEDIATELY.
and, if the aircraft is not yet on final approach,
THE (as appropriate) MEA/MVA/MOCA/MIA IN YOUR AREA IS (altitude)."

2-4-3. PILOT ACKNOWLEDGMENT/READ BACK

"Ensure pilots acknowledge all Air Traffic Clearances and ATC Instructions. When a pilot reads back an Air Traffic Clearance or ATC Instruction:
a. Ensure that items read back are correct.
NOTE-
1. ATC Clearance/Instruction Read Back guidance for pilots in the AIM states:

a. Although pilots should read back the "numbers," unless otherwise required by procedure or controller request, pilots may acknowledge clearances, control instructions, or other information by using "Wilco," "Roger," "Affirmative," or other words or
remarks with their aircraft identification.

b. Altitudes contained in charted procedures, such as departure procedures, instrument approaches, etc., need not be read back unless they are specifically stated by the controller.

c. Initial read back of a taxi, departure or landing clearance should include the runway assignment, including left, right, center, etc. if applicable.

2. Until a pilot acknowledges a controller's clearance or instruction, a controller cannot know if a pilot will comply with the clearance or remain as previously cleared."

Pilot Information

Certificate:	Private	**Age:**	69,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	February 14, 2014
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 24, 2015
Flight Time:	340 hours (Total, all aircraft), 65 hours (Total, this make and model), 340 hours (Pilot In Command, all aircraft), 17 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	74,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	February 3, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 8, 2015
Flight Time:	6900 hours (Total, all aircraft), 27 hours (Total, this make and model), 6590 hours (Pilot In Command, all aircraft), 100 hours (Last 90 days, all aircraft), 34 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N78CR
Model/Series:	A36 UNDESIGNAT	**Aircraft Category:**	Airplane
Year of Manufacture:	1975	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	E-739
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	March 16, 2015 Annual	**Certified Max Gross Wt.:**	3651 lbs
Time Since Last Inspection:	27 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	6998 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	IO-520-BB
Registered Owner:	On file	**Rated Power:**	285 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KWJF,2351 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	19:56 Local	**Direction from Accident Site:**	72°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.13 inches Hg	**Temperature/Dew Point:**	4°C / -11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bakersfield, CA (KBFL)	**Type of Flight Plan Filed:**	IFR
Destination:	Lancaster, CA (KWJF)	**Type of Clearance:**	IFR
Departure Time:	19:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Fox Airfield KWJF	**Runway Surface Type:**	Asphalt
Airport Elevation:	2351 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	6	**IFR Approach:**	RNAV
Runway Length/Width:	7201 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	34.669445,-118.473609(est)

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Ray O Martin; FAA; Van Nuys, CA
Original Publish Date:	March 18, 2019
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92323